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# DEVELOPMENT OF A WEB-BASED NEARPOD APPLICATION IN INCREASING ELEMENTARY SCHOOL STUDENTS' INTEREST IN LEARNING

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**Abstract:** Implementing TPACK-based learning in Indonesia is still far from perfect. This is because the habit of implementing the TPACK-based learning process has not yet been formed. The success of the TPACK-based learning process is still greatly influenced by the ability of teachers and students to access technology as a learning support medium. Implementing TPACK-based learning requires media to convey learning information and communication between teachers and students. The research objective of this study is to develop a Web-based Nearpod application to increase student intelligence and interest in elementary school. The development of the web-based Nearpod application has a plan that goes through several stages carried out by researchers based on the ADDIE development model. The first stage was carrying out the analysis. The analysis was carried out at SDIT Putra Pakuan. The researcher prepares the learning media design in the second stage by determining the material to develop and make a storyboard. The third stage is for the researcher to develop a design created using the Nearpod application. The development product is interactive learning media based on the Nearpod theme, how rich my country is, and the sub-theme utilization of natural resources in Indonesia, which contains learning material accompanied by text, images, learning videos, learning simulations, practice questions, educational games, and quizzes. The fourth stage is implementation. The product that has been developed is tested by class IV students to find out the responses of teachers and students after the learning media is installed and applied in class. The fifth stage is evaluation. At this stage, the researcher analyzes the responses of teachers and students after using the development product. The development research results concluded that the development product was successful, as seen from the percentage results, which showed a value of 81%-100% with an interpretation of "Very Good." The results of expert validation and teacher and student responses prove the feasibility of Nearpod-based interactive learning media. The results of experts' validation of learning media were declared very feasible. The validation results from media experts obtained a percentage of 97.33%, which means it is very suitable and can be used without revision. Language experts obtained a percentage of 94.66%, which means it is very suitable for use without revision, and learning material experts obtained a percentage of 98.66%, which means it is very suitable for use without revision. Students' interest in learning consists of understanding the concept of learning material, feeling like they like the learning situation, and feeling like they like learning activities. This can be seen from the students' activeness in class during the learning process.

**Keywords:** Web Based, Nearpod, Interest in Learning, Elementary School

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## INTRODUCTION

Ideal learning is interactive, stimulating, fun, challenging, and motivating for students. Teachers who guide the implementation of learning must design effective strategies, methods, tools, and materials to achieve ideal learning. Teachers act as facilitators in creating a learning environment that encourages active student participation and provides space for students to develop their creativity and independence through their talents, interests, and physical and mental development.

The implementation of TPACK-based learning in Indonesia is still far from perfect. This is because the habit of implementing the TPACK-based learning process has not yet been formed. The success of the TPACK-based learning process is still greatly influenced by the ability of teachers and students to utilize technology as a means of supporting learning. Implementing TPACK-based learning requires the use of media as a means of conveying learning information and communication between teachers and students. This is necessary. The rapid development of ICT now offers various choices of TPACK-based learning media applications, such as Google Classroom, Edmodo, Nearpod, and Zoom, all of which make it easier for teachers to deliver learning. Several applications are currently being developed, including interactive multimedia, which is used as a medium where text, sound, graphics, animation, video, and images can be combined in one software. At the same time, other research shows that interactive multimedia is a medium where learning can take place via computers and devices so that teachers and students can interact directly (Purnamasari & Herman, 2016).

Researchers' observations in class 4 at SDIT Putra Pakuan showed that the learning carried out did not involve students in teaching and learning activities, and it was understood that students quickly forgot the material provided by the teacher. The material is not in depth, and students have little opportunity to hone their creativity and independent understanding of the learning material. Data from interviews with sixth grade teachers of SDIT Putra Pakuan students shows that this problem is caused by the limited variety of learning materials used and provided by the school. According to Sanmugam et al. (2014), creating effective and enjoyable online learning can be challenging for teachers. For elementary school-age children, learning that is limited to the tasks given often has a boring and monotonous effect.

Research findings by Ringstaff, Sandholitz, and Dwyer (Susanti, 2019) show that technology-enhanced teaching aids can create student motivation. In addition, Sina et al. (2019) research stated that interactive media improves mathematical communication skills as students become more active in learning. In the current digital era, learning must be in line with technological advances that have been developed. Technological advances make learning easier, especially using computers and the

internet as learning media and resources. One method teachers can apply to facilitate the learning process in class is Nearpod-based learning props.

Nearpod is a learning media that can create interactive learning between teachers and students through innovative and educational features. Nearpod presents learning resources like slides, videos, evaluations, simulations, etc., digitally, allowing students to learn independently anywhere.

The advantage of using Nearpod-based interactive learning media is that the learning resources are varied and interactive, attracting students with various types of content that teachers can insert, such as material content and activity content. Nearpod can be used to engage students in learning. The learning experience is enriched with various ways to engage students, allowing them to participate actively in learning and making it more meaningful.

This is to the research results of Susanto (2021), who found that research into developing E-Nearpod media through the discovery model in learning is very feasible and effective in increasing students' intelligence. Critical thinking skills and the results of Mayang Putri Minalti & Yeni Erita's research (2021) stated that using the Nearpod application in integrated thematic learning was declared valid in the good-very good and practical categories.

The urgency of this research is to use Nearpod learning media as a solution for developing learning media so that students are interested in learning. Without innovation in learning media, learning will become less enjoyable and cause students to feel bored.

Based on this explanation, researchers are interested in conducting development research to look at the development and effectiveness of the web-based Nearpod application in increasing elementary school student's interest in learning.

## METHODS

The development of Nearpod media-based learning media was carried out through several stages based on the ADDIE development model. Each researcher explained these stages as follows:

1. At the analysis stage,

The main activity is to analyze the need for the use and feasibility of media development research-based assessment for elementary schools. These activities include (a) curriculum analysis to examine KD in formulating indicators and (b) analysis of student needs.

2. Design Stage

The media conceptual framework stage consists of creating a product framework, collecting

references, designing learning materials, and designing evaluation instruments.

3. Development Stage

This stage involves the realization of product development and design activities and the determination of supporting media. This stage is creating a Nearpod-based validation instrument in elementary schools. At this stage, validation is also carried out with material experts and media or learning design experts. This is done to determine the suitability of the media that has been created.

4. Implementation Stage

At this stage, the researcher applies the media that has been prepared to be tested in learning with students to find out whether the media that has been designed can help the learning process. After that, students provide an assessment of the media through a questionnaire as a data collection tool.

5. Evaluation Stage

This evaluation stage is the final stage of media development research. This stage is carried out to see whether the aims and objectives have been achieved or not by drawing conclusions based on the results of the questionnaire and student learning outcomes. In this way, researchers can find out the success of the product that has been designed.

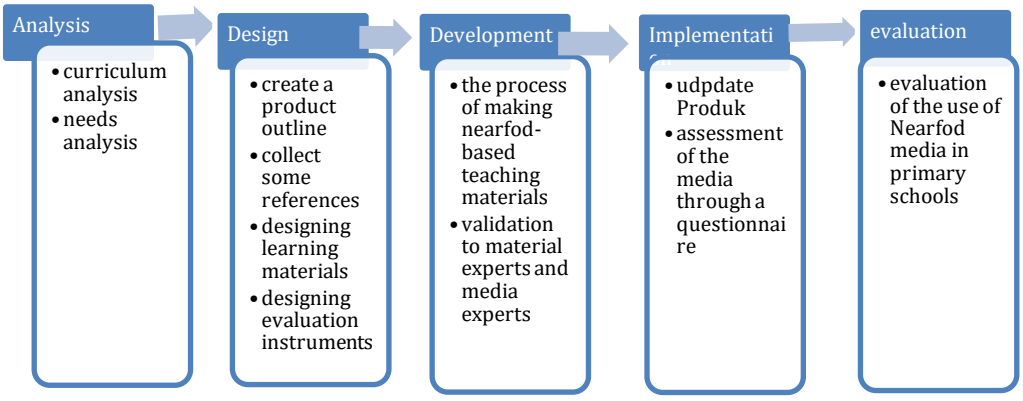


**Figure 1.** Nearpod Application Development Flowchart using the ADDIE Method

## RESULTS AND DISCUSSIONS

Nearpod, developed by research, is a multiplatform web-based learning application and instructional software that can involve students in more interactive learning. Nearpod provides features that support more interactive learning activities, such as collaboration boards, quizzes, and drawings, which can provide new and fun learning experiences. For students, it also supports the application of synchronous and asynchronous methods and can help teachers monitor student

learning. Real-time learning activities are remotely controlled (Burton, 2019; Sanmugam et al., 2014).

Based on the observations and interviews, it was found that there were obstacles in classroom learning, namely that the learning carried out did not involve students in learning activities, so students quickly forgot the material given by the teacher. In learning, the material provided is not in-depth and does not provide opportunities for students to hone their creativity and independence in understanding the learning material. The learning resources used are only limited to thematic books and one-way learning videos, so there is a need to develop interactive learning media, one of which is by developing media. Nearpod-based interactive learning.

According to Feri and Zulherman (2021:166), Nearpod is a web-based learning application that facilitates interactivity during learning. By using Nearpod-based interactive learning media, teachers can support students' active learning activities in class by utilizing various features provided by Nearpod. Therefore, Nearpod is a solution that can improve students' abilities. Interaction in actively participating in class and supporting more varied learning resources that can be accessed via smartphones, tablets, and laptops. Research and development of Nearpod-based interactive learning media use the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation.

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Based on research conducted by Raudhatul Aslami (2021:135), the Nearpod application can be used as a learning media because it can create interactive learning through innovative and educational features. Furthermore, Tri Adi Susanto (2021:3510) found that E-media Nearpod can be used as an alternative media by teachers in learning. Apart from that, from the results of testing the effectiveness of using the product, it was found that E-media Nearpod is very effective in learning because it can improve students' abilities and critical thinking skills.

The first stage was to analyze the need for use and feasibility of developing Nearpod-based assessment media for elementary schools. This activity is carried out by analyzing the curriculum to examine KD in formulating indicators and analyzing students' needs. At this stage, it was found that teachers and students needed interactive learning media to achieve learning goals.

The second stage is design. This stage consists of determining core competencies, basic competencies, and indicators and creating a storyboard. The storyboard contains an initial design of the product's display, which aims to be a reference in developing the product. In making the storyboard, the researcher chose the right features to use in the material on the theme of how rich my country is, which is the sub-theme of its use in Indonesia. Selected features are slides, videos, Nearpod 3D, PhET simulation, slideshow, PDF viewer, open questions, matching pairs, collaboration boards, and quizzes.

| Repair Notes | Before Revision | After Revision |
|---|---|---|
| *The font size on the cover is too small. Add the Pakuan University and Merdeka University logos to the cover.* |  |  |
| Adding Basic Competencies and Competency Achievement Indicators | There are no basic competencies and indicators of competency achievement. |  |
| Add instructions for students to use the media | There are no instructions for students to use the media |  |
| Add a word of invitation before the confession. |  |  |

**Figure 2.** Nearpod design

The third stage is development. At this stage, the researcher develops, namely translating the design into physical form, which produces Nearpod-based interactive learning media. Nearpod-based interactive learning media contains learning materials, learning videos, learning simulations, and learning evaluations on Indonesia's sub-theme of natural resource utilization. After Nearpod-based interactive learning media is created, the media is handed over to media, language, and material

experts for review and input to produce Nearpod-based interactive learning media suitable for use in the learning process. Input from experts is used to make improvements until the media is declared appropriate and not revised. Then, an assessment is carried out.

**Table 1.** Media Expert Validation Results

| Indicator | Question Number | Score Maximum | Score Evaluation | Percentage |
|---|---|---|---|---|
| Design Media | 1, 2, 3 | 15 | 15 | 100% |
| Text clarity | 4, 5, 5 | 15 | 14 | 93.33% |
| Audio-visual quality | 7, 8, 9 | 15 | 15 | 100% |
| Accuracy | 10, 11, 12 | 15 | 15 | 100% |
| Operation | 13, 14, 15 | 15 | 14 | 93.33% |
| Total | | 75 | 73 | 97.33% |

**Table 2.** Linguist Expert Validation Results

| Indicator | Question Number | Score Maximum | Score Evaluation | Percentage |
|---|---|---|---|---|
| Ability to motivate students | 1, 9, 15 | 15 | 14 | 93.33% |
| Obedience with language rules | 2, 3, 4, 5, 10, 11, 12 | 35 | 32 | 91.42% |
| Sentence effectiveness | 6 | 5 | 5 | 100% |
| Suitability for learner development | 7, 8, 13, 14 | 20 | 20 | 100% |
| Total | | 75 | 71 | 94.66% |

**Table 3.** Material Expert Validation Results

| Indicator | Question Number | Score Maximum | Score Evaluation | Percentage |
|---|---|---|---|---|
| Conformity of material with Basic Competencies | 1, 2, 3 | 15 | 15 | 100% |
| Material accuracy | 4, 5, 6, 10 | 20 | 20 | 100% |
| Up to date material | 7 | 5 | 5 | 100% |
| Material suitability | 8, 9, 11, 12 | 20 | 20 | 100% |
| Learner-centered learning | 13, 14, 15 | 15 | 14 | 93.33% |
| Total | | 75 | 74 | 98.66% |

Mrs. Resyi A. Gani carried out the results of media expert validation. Several inputs from media validators include text clarity, accuracy, and media design indicators. After improvements were made, the product developed was in the "Very Feasible" category with a percentage of 97.33%.

Mrs. Stella Thalitha carried out the results of the linguist validation. Based on input from language validators, several improvements need to be made, namely on indicators of suitability for language rules, effectiveness of sentences, and suitability for students. After improvements were made, the product developed was in the "Very Feasible" category with a percentage of 94.66%. Mrs. Anggi Alisca carried out the results of the material expert validation. The validation results state that the product developed is in the "Very Feasible" category with a percentage of 98.66% and no improvement so that the media can be applied to classroom learning.

**Table 4.** Validation Assessment Results

| Validator | Percentage | Qualification | Following up |
|---|---|---|---|
| Media expert | 97.33% | Very worthy | Trials |
| Language expert | 94.66% | Very worthy | Trials |
| Material expert | 98.66% | Very worthy | Trials |

**Table 5.** Feasibility Interpretation Criteria

| No. | Criteria | Qualification |
|---|---|---|
| 1 | 81% - 100% | Very suitable (can be used without revision) |
| 2 | 61% - 80% | Decent (usable with slight revision) |
| 3 | 41% - 60% | Inadequate (recommended not to be used because it needs revision) |
| 4 | 21% - 40% | Inappropriate (not to be used) |
| 5 | <20% | Very inappropriate (should not be used) |

(Source: Fitri & Haryanti, 2020: 265)

The fourth stage is implementation. The product has been developed and declared suitable for testing on 32 grade IV students at SDIT Putra Pakuan. The researcher asked for help from 2 class IV teachers to use Nearpod-based interactive learning media to learn how rich my country is, the sub-theme of using natural resources in Indonesia. After the Nearpod learning media is used in learning, the teacher and students fill out a response questionnaire after using the media developed. The teachers' responses showed very good results, obtaining an average percentage score of 95%, and student responses showed an average percentage score of 89%.

The fifth stage is evaluation. Teacher and student responses after using Nearpod-based interactive learning media are analyzed at this stage. Based on the analysis of teacher and student responses, the Nearpod-based interactive learning media product with the theme of how rich my country is the sub-theme utilization of natural resources in Indonesia is said to have been successfully designed. This can be seen from the percentage, which scores between 81%-100% with the criteria "Very Good."

**Table 6.** Teacher Responses

| No. | Indicator Evaluation | Score Maximum | Assessment Score | |
|---|---|---|---|---|
| | | | Class A Teacher | Class B teacher |
| 1 | Operation media | 5 | 5 | 5 |
| 2 | Media benefits | 35 | 33 | 34 |
| 3 | Media Accuracy | 10 | 9 | 9 |
| | Total | 50 | 47 | 48 |

Based on the teacher response questionnaire, the product was in the very good category, with an average percentage of 95%. The teacher answered that the Nearpod-based interactive learning media developed was easy to operate and useful for students because it could attract attention and create a feeling of joy. The questions presented triggered students' questions. Creativity in building knowledge independently and using Nearpod media are very appropriate as learning media.

The following is a recapitulation of student response data after using Nearpod-based interactive learning media:

**Table 7.** Student Responses

| No. | Indicator Evaluation | Score Maximum | Average score | |
|---|---|---|---|---|
| | | | Class A | Class B |
| 1 | View | 5 | 4.56 | 4.56 |
| 2 | Benefit | 20 | 17.94 | 16.31 |
| 3 | Interaction | 10 | 9.13 | 8.38 |
| 4 | Enthusiastic | 15 | 14 | 13.38 |
| | Total | 50 | 44.41 | |

Based on the questionnaire distributed to students, the category was very good, with an average percentage of 89%. Students are excited and enthusiastic when using Nearpod-based interactive learning media; they prove that Nearpod media is fun and useful in helping them understand the learning material. Thus, it can be said that Nearpod media can improve students' learning abilities and interests.

The development of Nearpod-based interactive learning media has several advantages and disadvantages. The advantages include:

1. This development product can support student learning. Learning activities are more active in the classroom with various types of features and a variety of content.
2. The learning media developed can become new digital media for teachers and students at SDIT Putra Pakuan.

3. Can visualize material that cannot be found in class more realistically through 3D images and simulations.
4. The explanation is not only through text but also through images, gifs, videos, and audio.
5. The questions include multiple-choice quizzes, essay questions, collaboration boards, and educational games.
6. Every image inserted in the media is related to the material being studied.
7. The images presented are interesting because they use animation.

This is by Mattar's opinion in Feri and Zulherman (2021:166) that Nearpod has the advantage of making learning more active through the various types of features available, as well as the opinion of Prasetya, Aries Eka, et al. al (2021:31) which states that Nearpod can produce extraordinary learning media. Meanwhile, the disadvantages are:

1. Requires a stable internet network and internet quota.
2. Product development is only limited to one lesson.
3. The product manufacturing process takes a long time.
4. There is no hyperlink button to go directly to the selected slide.
5. The images used do not result from the researcher's design.
6. 3D images cannot be explained and must be explained on a separate slide.

This is due to the shortcomings explained by Ami (2021:147). Nearpod requires an internet quota and needs to be supported by a strong signal as well as the opinion of Sanmugam et al. (2019:8914) that Nearpod does not have several features found in other applications such as hyperlinks.

Nearpod-based interactive learning media with the theme How rich my country is, the sub-theme utilization of natural resources in Indonesia can be accessed at the link https://app.nearpod.com/?pin=mkd3p is in the "Very Good" categories based on media, language, and material expert validators. Using the product in classroom learning received a good response from the homeroom teacher and students. This is proven by the score obtained on the teacher response questionnaire of 95% and student responses of 89% in the "Very Good" category.

This study's research and development results show that Nearpod-based interactive learning media can improve students' learning abilities. Interest in studying in elementary school, media, language, and material experts carried out this research validation. Media expert validation results

show a percentage of 97.33% in the "Very Eligible" category. Category, the results of validation by language experts, with 94.66%, are in the "Very Eligible" category, and the material expert validation results, with a percentage of 98.66%, are in the "Very Eligible" category. This is by research by Mayang Putri Minalti and Yeni Erita (2021), who conducted research on the use of the Nearpod application in thematic learning and obtained results of material validity of 90%, language validity of 71% and design validity of 77.6% with the valid category, as well as Tri's research. Adi Susanto (2021), who conducted research and development of E-Media Nearpod through the Discovery Model in Elementary Schools, obtained validation results by material experts with a score of 85%, and media experts obtained a score of 84% with a decent category.

**Table 8.** Material Expert Validation Results

| No. | Indicator Evaluation | Score Maximum | Average score | |
|---|---|---|---|---|
| | | | Class A | Class B |
| 1 | View | 5 | 4.56 | 4.56 |
| 2 | Benefit | 20 | 17.94 | 16.31 |
| 3 | Interaction | 10 | 9.13 | 8.38 |
| 4 | Enthusiastic | 15 | 14 | 13.38 |
| | Total | 50 | 44.41 | |

Learning using neopods increases students' learning abilities. Interest in learning can be seen from the responses of students who filled out the questionnaire distributed after the lesson. The questionnaire results show:

**Table 9.** Student Interest Questionnaire

| No. | Aspect | Respondent's Answer | | | |
|---|---|---|---|---|---|
| | | Not good | Quite good | Good | Very good |
| 1 | Understand the concept of learning material | 1 | 2 | 4 | 25 |
| 2 | Feeling like a learning situation | | 3 | 2 | 27 |
| 3 | Feelings of love for learning activities | | 4 | 3 | 25 |
| 4 | Student activity in class during the learning process | | 3 | 5 | 24 |

If the diagram is made as follows:

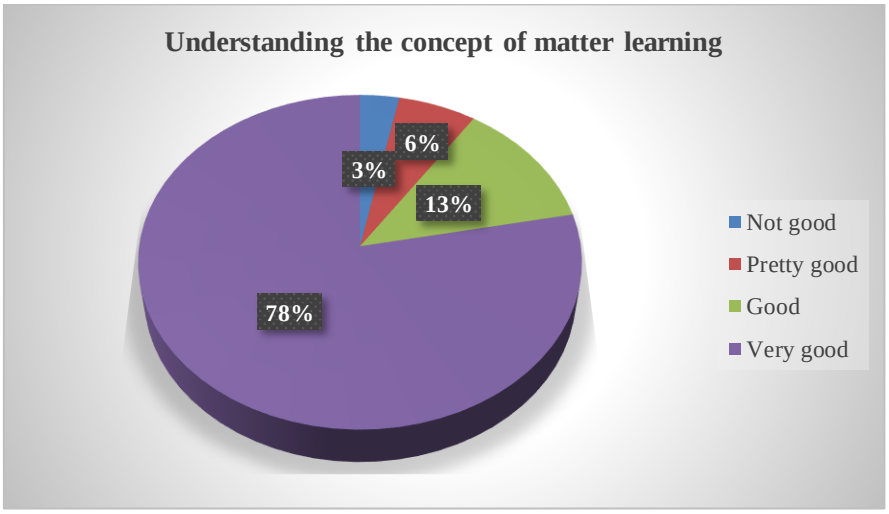


**Chart 1.** Understand the concept of learning material.

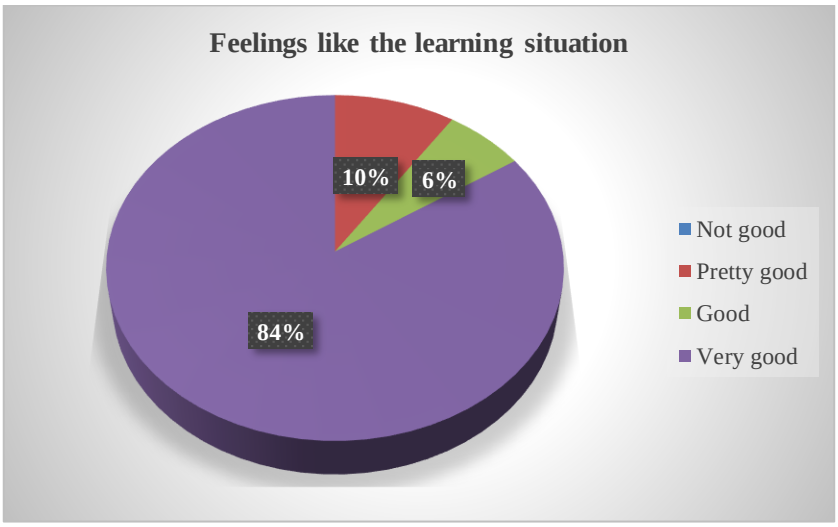


**Chart 2.** Feeling like a learning situation

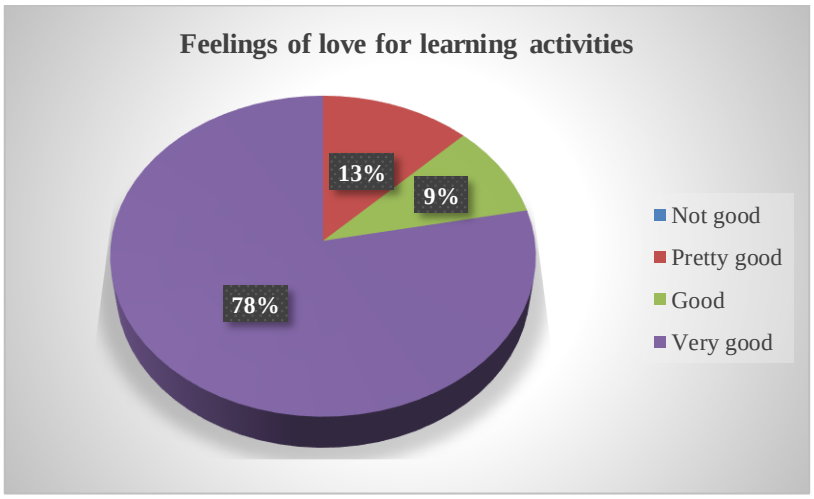


**Chart 3.** Feeling like a learning situation

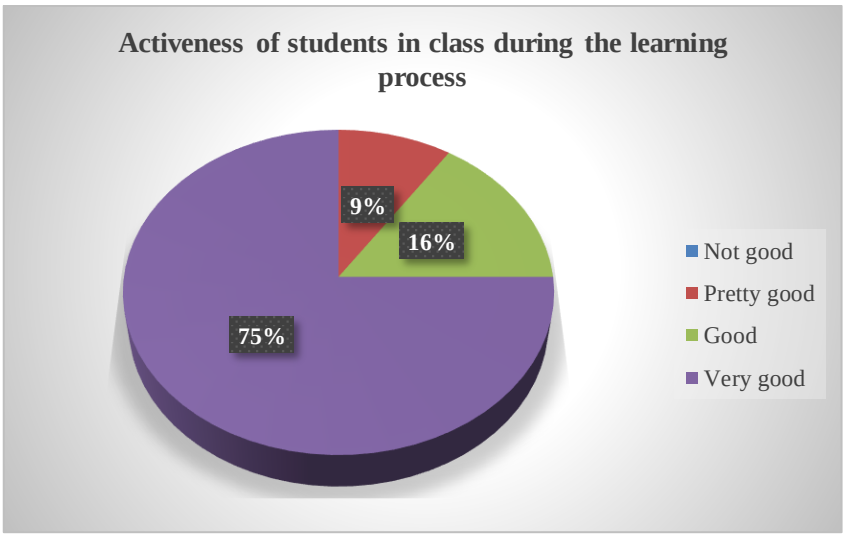


**Chart 4.** Student activity in class during the learning process

## Discussion

Interest in learning plays an important role and affects the subject, which includes interest and attitudes towards learning material. With an interest in learning, students will feel enthusiastic without coercion and interested in lessons and learning activities, creating a person's attitude to study and pursue these lessons and learning. (Agustin & Rindaningsih, 2022). Interest is a relatively stable trait in a person. This interest has a very big influence on learning because, with interest, a person will do something they are interested in (Putra et al., 2021). Interest in learning is one aspect of a person's psychology, manifested in several symptoms, such as enthusiasm, desire, and a feeling of wanting to carry out the process of changing behavior through various activities, which include seeking knowledge and experience, among others Words (Bela, 2021). Interest is a relatively permanent trait in a person. This interest greatly influences learning because, with interest, a person will do something that interests him. On the other hand, it is impossible for someone to do something without interest. Student involvement in learning is closely related to the student's nature, talent, and intelligence.

Learning to adopt students' characteristics, talents, and intelligence is a learning that is of interest (Fakhrurrazi, 2018). Interest in learning is a score of 1) Perseverance in studying the characteristics of regional and favorite dances (listening to material, observing pictures, describing pictures, doing practice questions), 2) Curiosity in studying the characteristics of regional and favorite dances (asking about pictures), 3 ) Cooperation in studying the characteristics of regional and favorite dances (forming groups, discussing, summarizing the results of discussions, discussing practice questions), 4) Discipline in studying the characteristics of regional and favorite dances (reporting the results of discussions, summarizing the essence of the lesson). (Sari et al., 2019)

Even though Nearpod has several disadvantages, its advantages show that Nearpod can be used as an interactive learning medium through its interactive features and because it supports the BYOD learning system so that Nearpod can be used in distance learning which can be used anywhere and at any time in this mode. Synchronous and asynchronous learning and its report menu can help teachers monitor student performance in real-time learning activities during distance learning. According to Otavia in Prastitasari et al. (2022), the reality shows that students' interest in learning has declined occasionally during the COVID-19 pandemic. Interest can grow by itself but also (Khusniah et al., 2022). The Nearpod application, in this case, is a TPACK-based online learning application that teachers and students access via the web page https://www.Nearpod.com/ or applications on Android and iPhone gadgets. The Nearpod web-based application is a web-based application that uses a programming language and requires a web server and browser to run.

Nurhamidah (2021) Nearpod is a multiplatform web-based application available in web and mobile applications with cloud-based technology. It is learning software that can involve students in more interactive learning; synchronous and asynchronous learning modes are available and can help teachers monitor students& #39; real-time learning activities. This research uses the silver version of Nearpod, which is a version of Nearpod that can be used for free with the features used in this research, namely video, collab board, open-ended questions, draw it, and fill in the blank with asynchronous learning mode.

Nearpod is a website-based application that requires an internet network, so students don't need to install the Nearpod application on their cellphones, which may take up space. The advantage of Nearpod media is that it is also very flexible; it can be operated on cellphones and laptops and used independently by students or with other students directly (Nurhamidah, 2021).

Nearpod is a web-based learning media, so students only need to use the browser on the device to access the material or evaluation provided by the teacher. Apart from that, an attractive display is hoped to arouse student enthusiasm. Interest in studying the material provided by the teacher. Another advantage is the unique evaluation test. After the evaluation, students can see their grades and rankings among their classmates. An evaluation process like this is hoped to encourage students to learn competitive spirit to motivate them to do the teacher's work well (Burton, 2019).

Based on the results of observations during the research, the website-based Neopard application learning media can foster students' interest in learning so that learning objectives are achieved optimally. This aligns with the opinion (Nurfadhillah et al., 2021) that website-based learning media can increase students' interest in learning. This learning media can also improve student learning outcomes. This can be seen from student learning results before and after using website-based

learning media (pretest and posttest results). Apart from that, during the learning process, students become more active. Students can understand the material well, present the material discussed using their language, and relate source materials and forms of energy to everyday life. The results of these observations are in line with the opinion of (Azmi et al., 2020) that the use of website-based learning media can create an active, effective, interactive, and interesting learning climate so that it can arouse students' interest and motivation to learn.

## CONCLUSION

The development research results concluded that the development product was successful, as seen from the percentage results, which showed a value of 81%-100% with an interpretation of "Very Good." The results of expert validation and teacher and student responses prove the feasibility of Nearpod-based interactive learning media. The results of experts' validation of learning media were declared very feasible. The validation results from media experts obtained a percentage of 97.33%, which means it is very suitable and can be used without revision. Language experts obtained 94.66%, which means it is very suitable for use without revision. Experts obtained 98.66% of the learning material, which means it is very suitable for use without revision. Students' interest in learning consists of understanding the concept of learning material and feeling like they like the learning situation and learning activities. This can be seen from the students' activeness in class during the learning process.

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