

Development of Discovery Learning based Linktree Learning Media to Improve Geography Learning Outcomes in High School

Nera Afriyose^{1*}, Sudjarwo², Sugeng Widodo³
Master of Social Education Study Program, Graduate School, Lampung
University

Corresponding Author : Nera Afriyose neraafriyose12@gmail.com

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ABSTRACT

This research is motivated by the importance of using media in improving student learning outcomes. The purpose of this study was to test the effectiveness of the development of discovery learning-based linktree learning media to improve geography learning outcomes in high school. The type of research used in this research is Research and Development. This research uses ADDIE model development research including Analysis, Design, Development, Implementation, and Evaluation. The results of this study indicate: 1) The development of this learning media through the stages of ADDIE development, 2) The results of the feasibility test of experts with high categorization validity (very feasible) for material, media, language and learning design, 3) The results of the wide trial feasibility test show that there is an influence the use of discovery learning model linktree learning media has an effect on improving geography learning outcomes, and 4) the effectiveness test results show the use of discovery learning-based lintree learning media is effective for improving geography learning outcomes.

INTRODUCTION

The role of Geography subjects in education is to be able to develop students' understanding of spatial organization, society, places, and the environment on the face of the earth (Sumaatmadja, 1998). Basically the subject of geography has a broad scope of content and is quite challenging to understand so it is advisable to use a learning media aimed at helping students to further stimulate their understanding of the content, can see pictures and can help apply it in real practice and in learning activities which consequently result in more successful and effective learning and teaching (Chumsukon, 2021).

One of the main reasons Geography is considered a boring subject is because teachers still use conventional methods in teaching classrooms (Artvinli, 2010; Singh et al. 2016). In addition, the findings also show that students are not interested in studying geography because it is difficult to understand (Bikar et al. 2020; Singh et al. 2018). One effort to overcome this is to increase the involvement of students in learning through the use of learning media, so that students are ready to face the challenges of the industrial revolution 4.0, which aims to prepare the younger generation to face the world of technology-based work (Artvinli, 2010; Singh et al. . 2016).

The rapid growth of twenty-first century technology worldwide has introduced a unique approach to supporting teaching and learning in schools (Lytridis et al. 2019). The demands of the 21st Century are filled with information that must be collected, organized and studied properly (García González, 2017), so students must be proficient in using technology and digital literacy (Listiqowati et al. 2021).

The use of instructional media serves to assist teachers in the teaching and learning process because these devices make lessons and students learn more and thus, learn more effectively (Chumsukon, 2021; Olufunke & Olusola, 2010). Prana (2017) mentions in his research results that media developed and applied by teachers can improve students' critical thinking skills by obtaining higher learning outcomes obtained after using learning media than before using media.

Basically, teachers and teaching practices affect the success of the teaching and learning process for most students (Krohmer & Budke, 2018). So far, the interaction between educators and students is still seen in one direction, which is dominated by the learning process using the lecture method. This situation has a negative impact on students' understanding. This shows that there is a substantial influence, both from students who have diversity and the influence of educators in choosing learning media that are not appropriate (Akhmad et al. 2018). These problems will later make students lazy to study so that it has an impact on their learning outcomes.

Novita & Novianty (2020) said that learning outcomes would be good if learning materials were delivered using the help of learning media. Kurniawati et al. (2021) promote learning using the linktree application which is a step to minimize students who are lazy to learn, because the use of linktree can be used at home. Some researchers mention linktree media is one of the online media that can be used in learning (Amaliah et al., 2021; Nurafni & Ninawati, 2021).

This Linktree learning media makes it easy for teachers to enter learning links or documents in one place or a set of applications that will be distributed to students (Y.D. Satrio, 2020). Linktree is a media that presents tools in the form of a simple display to be able to access several menus (Amaliah et al., 2021; Nurafni & Ninawati, 2021). Linktree can also be used to combine lesson plans, materials, quizzes, and other learning tools in the form of links (Amaliah et al. 2021).

In line with (Pertwi, 2020) mentioning that linktree is an application in the form of a website that provides one link, where with one link you can access several links that the designer has with a simple and easy-to-use appearance. Andika & Yudiana (2022) mention that the linktree application has the advantage of being very easy to operate. The use of linktree media makes it easier to access material or videos anywhere, making it easier for students to learn. Linktree media can be used in online and offline learning (Andika & Yudiana, 2022).

The use of the Linktree site can also be carried out to convey information into various types of content, because linktree can be collaborated with other different sites through an internet connection, for example to text, sound, and video teaching materials (Kinanti, 2022). So that linktree media-assisted learning activities have a positive impact on learning because the media used improves student learning outcomes (Andika & Yudiana, 2022).

This is also reinforced by the results of research by Kurniawati et al. (2021) who said that the use of Linktree was effective on learning outcomes as evidenced by a positive and significant relationship between the use of Linktree applications on student learning outcomes. Ramadhan et al (2018) added that the use of e-learning-based learning media in geography subjects is a positive step in order to improve student learning outcomes and has the advantage of increasing student interaction with teachers which is different from conventional learning, because conventional learning , the opportunities that exist or provide lecturers/teachers/instructors for discussion or questions are very limited.

Based on the problems that have been presented, the research gap in this study aims to develop discovery learning-based learning media to improve student learning outcomes in schools. The researcher limits the research location at SMA Negeri 5 Bandar Lampung as a location for verification of discovery learning-based linktree learning media development activities to improve geography learning outcomes in high school. The results of this verification will later be promoted in several high schools in Bandar Lampung.

METHODOLOGY

The type of research used in this research is Research and Development. This research uses ADDIE model development research including Analysis, Design, Development, Implementation, and Evaluation. The design of this study used a quasi-experimental design, non-equivalent control group design. This research was conducted at SMA Negeri 5 Bandar Lampung, especially students in class XE-1, XE-2, XE-3, XE-4, XE-5, XE-6, XE-7, XE-8, XE-9, XE. -10 and XE-11. The time of the study was carried out in the odd semester of the 2022-2023 academic year.

RESULTS AND DISCUSSION

The results of this study have several points including (1) the process of developing Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes; (2) Feasibility Test of Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes; and (3) The Effectiveness of Using Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes. Specifically described below.

The Process of Developing Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes

The Lintree learning media development process uses the ADDIE model point of view. The ADDIE model is a model consisting of several stages including (1) the analysis stage; (2) the design stage; (3) the development stage; (4) the implementation phase ; and (5) the evaluation stage.

Stages of Analysis , the data obtained from the analysis of teacher needs for the linktree learning media, it is known that during face-to-face learning there are also many obstacles that affect the lack of interest, low creativity, low thinking power, lack of motivation and less variety of learning methods that cause lack of the enthusiasm of students in learning and the impact on student learning outcomes is low. Furthermore, the analysis of the needs of students for learning media is also known that 35 students there are 32 students 91% want a learning media, then 33 students 94% assess in learning geography the media is very important as a support. Of the 33 students, 91% answered that teachers still use traditional media in teaching. Analysis of the need for using the latest learning media is influenced by the existing learning media that have often been used in the learning process, especially in the subject of Geography.

Judging from the analysis of the curriculum used for learning outcomes on the basic concepts of geography, it is known that learning outcomes in developing this media are at the end of the phase for process skills, students are skilled in reading and writing about the Basic Concepts of Geography. Students are able to convey, communicate ideas among themselves, and are able to work in groups or independently with their own product tools in the form of maps or other learning tools. Meanwhile, understanding the concept at the end of the phase, students are able to identify, understand, think critically, and analyze spatially about the Basic Concepts of Geography, describe ideas, and publish them in class or other media.

In the Design Stage, the design data obtained from discovery learning-based linktree learning media include linktree instruction tools, attendance, self-assessment, CP-TP-ATP-Module, discovery learning, stimulation, problem statements, data collection, data processing, verification, generalization and formative tests. Stages of Development (Development), carried out for four experts covering materials, media, language and learning design.

Stages of Implementation, the data obtained that the average increase occurred reached (39.2856%). This illustrates that the N-Gain score is at 0.3 g 0.7 which can be categorized as moderate. Meanwhile, the response of students in this limited trial class is known to be a percentage score (86.62) so it can be concluded "Very Interesting" towards the Lintree-based Discovery Learning media for use in

the classroom. Supported by the teacher's response stating that geography learning activities using the Lintree-based Discovery Learning media provide a positive response for teachers and can improve learning outcomes

Stages of Evaluation, carried out in three stages in the form of a limited trial covering one experimental class, a broad trial covering 1 control class and 1 experimental class and an effectiveness test consisting of 4 control classes and 4 experimental classes. This scheme was created to test each stage from limited trials, broad trials and effectiveness tests for different samples to determine the validity of using Discovery Learning-based Lintree media to improve student learning outcomes.

Feasibility Test of Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes

The feasibility test of the Lintree learning media based on Discovery Learning was assessed by several experts such as experts in the material field, media field, language field and learning media design field. Specifically described below.

Feasibility Test Results of Materials Expert

Expert feasibility test activities for this material field are carried out to determine the feasibility of learning media from several aspects including content feasibility, presentation feasibility, contextual feasibility and learning using the Discovery Learning model. This expert feasibility assessment instrument uses the Likert scale method which consists of four levels, then the maximum score is determined in each aspect of the assessment and the final stage is the categorization of the expert feasibility study as a conclusion in the field of material feasibility.

Based on the results of the feasibility test, each aspect is declared "Very Eligible" which is categorized as "Very High". The feasibility test of this material contains several comments from experts in the form of it can be used in accordance with questionnaires and indicators. In this test, one assessment was carried out and it was decided that the Lintree learning media product based on Discovery Learning was feasible to be tested further in the field.

Result of Feasibility Test of Media Expert

The feasibility test activity for experts in the media field aims to determine the feasibility of several aspects including learning instructions/guidelines, quality of media content, media appearance, media efficiency. The instrument used is a questionnaire with a Likert scale assessment method in four levels available on the assessment sheet. Furthermore, the determination of the acquisition score and the maximum score to determine the percentage of the assessment and the overall feasibility categorization can be determined for several aspects of the assessment in this media field

Based on the results of the assessment in the field of media, experts received several inputs including (1) Provide a user guide on the Lintree section so that specifically students can use it easily; (2) The lintree background is adjusted to the basic competencies and learning outcomes. Some of these inputs can be decided

that the product developed is feasible to be tested with quotation marks given the improvement in advance according to expert advice.

Feasibility Test Results of Language Experts

In the language field feasibility test, it aims to determine the feasibility of several aspects such as the use of EYD, the use of sentences in each paragraph, linguistic aspects including readability, clarity of information and the suitability of good and correct Indonesian language rules. This test is carried out using a questionnaire distribution method with alternative answers with a Likert scale. Furthermore, the acquisition of scores and maximum scores for each assessment indicator is determined and a percentage calculation is carried out to be able to categorize each aspect of the assessment.

Based on the results of the feasibility test in the field of language, one stage of testing was carried out with a score (90.48) with a "Very High" level of validation with some input from experts in the form of using language in Lintree media which was quite good, there was only a slight use of punctuation that was lacking. appropriate. Meanwhile, the decision deserves to be tested in the field.

Feasibility Test Results of Learning Design Experts

This expert test in the field of learning design aims to determine the feasibility of the aspects of the design appearance, content content and design accuracy in learning media. The assessment method is carried out based on four levels of alternative answers on the assessment sheet, so that the assessed score and maximum score of each assessment indicator will be obtained. Furthermore, the percentage of each aspect of the assessment and categorization of the feasibility study of experts in the field of learning design will be carried out.

Based on the expert's assessment in the field of learning design, a "Very High" validation level was obtained with several inputs by experts in the form of in the media, there were still inconsistent title/subtitle layouts, inconsistent font size. It is necessary to add project-based exercises/tasks that can foster student motivation in finding information/learning resources independently. Furthermore, the decision given by the expert on this Discovery Learning-based Lintree media is worth trying.

The Effectiveness of Using Lintree Learning Media Based on Discovery Learning to Improve Geography Learning Outcomes

The Effectiveness of the Development of Discovery Learning-Based Lintree Learning Media to Improve Geography Learning Outcomes in Senior High Schools obtained data on the effectiveness of using discovery learning-based Lintree learning media to improve geography learning outcomes for four large groups. The four groups compactly gave the same information by mentioning the effectiveness of the use of linktree-based learning media based on discovery learning successfully to improve student learning outcomes.

The effectiveness test data for group A concluded that based on the N-Gain value the experimental class was said to be effective and based on the Sig value. (2-tailed) is 0.000 when compared to the significance level of 0.000 <0.05. So it can

be concluded that there is an effect of using Linktree learning media with the Discovery Learning model to improve geography learning outcomes in group A.

The effectiveness test data for group B concluded that based on the N-Gain value the experimental class was said to be effective and based on the Sig value. (2-tailed) is 0.000 when compared to the significance level of $0.000 < 0.05$. So it can be concluded that there is an effect of using Linktree learning media with the Discovery Learning model to improve geography learning outcomes in group B.

The effectiveness test data for group C concluded that based on the N-Gain value, the experimental class was said to be quite effective and based on the Sig value. (2-tailed) is 0.002 when compared to the significance level of $0.002 < 0.05$. So it can be concluded that there is an effect of using Linktree learning media with the Discovery Learning model to improve geography learning outcomes in group C.

The effectiveness test data of group D concluded that based on the N-Gain value the experimental class was said to be effective and based on the Sig value. (2-tailed) is 0.000 when compared to the significance level of $0.000 < 0.05$. So it can be concluded that there is an effect of using Linktree learning media with the Discovery Learning model to improve geography learning outcomes in group D.

Based on the N-Gain test and the Independent T-Test, it proves that the effect of using instructional media has a positive significance value to be able to improve students' geography learning outcomes. This also supports several research results by Pratiwi et al (2021) which states that the average student learning outcomes before using the discovery learning model is 40.67. Then increased after the application of discovery learning learning model in the first cycle of 63,267 included in the medium category, and in the second cycle of 75.33 also included in the medium category with a percentage increase of 13.79%.

Rostika, et al (2020) continued that the use of discovery learning learning models assisted by blogs and MMI media with the content of the material developed referring to the competency standards of students in class X Geography had a positive impact in improving student learning outcomes. In line with the results of research by Meo & Masruri (2018), it is stated that the discovery learning model is better than the problem based learning model, this is known from the learning outcomes of students in class.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results and discussion above, the author can draw several conclusions, namely:

1. The development of this learning media goes through the stages of ADDIE development (Analysis, Design, Development, Implementation, and Evaluation);
2. The results of the expert feasibility test with high categorization of validity (very feasible) for materials, media, language and learning design;
3. The results of the wide trial feasibility test show that there is an effect of using linktree learning media with the discovery learning model to improve geography learning outcomes;

4. The results of the effectiveness test show that the use of discovery learning-based linktree learning media is effective for improving geography learning outcomes.

Based on the conclusions that have been presented by the author, the recommendations given by the author are:

1. For Teachers
The results of research and development products can be used for other geography learning materials, in terms of the practicality of discovery learning-based linktree learning media that can be used at school or at home.
2. For Students
The results of the development of discovery learning-based linktree learning media have practical value that can be used in schools and homes for learning facilities, so they are expected to be a place for learning wherever and whenever students are.
3. For School
The results of research and development can be implemented for other subjects. Given the linktree learning media is very practical and easy to use for teachers and students.

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