Finger

OPEN ACCESS

Jurnal Ilmiah Teknologi Pendidikan
https://ejournal.1001tutorial.com/index.php/finger

Analysis of Needs for the Development of Nearpod-Based Interactive Learning Media to Improve Student Learning Outcomes in Class XI at SMAN Bengkulu City on Parabolic Motion Material

Guti Ameda Pazah[1], Eko Risdianto[2], Andik Purwanto[3]

Universitas Bengkulu
Bengkulu, Indonesia
✉ guti.amedapazah@gmail.com*

Article Information:
Received October 19, 2023
Revised February 9, 2024
Accepted February 10, 2024

Keywords:
Analysis; Learning; Media; Nearpod

Abstract

This study set out to examine the demands of educators and learners with reference to the creation of Nearpod application-based learning resources for high school students studying parabolic motion. The information used in this study came from a review of the literature, interviews with physics instructors, and class XI students at SMAN 01, SMAN 03, and SMAN 09 in Bengkulu City. This study employs a qualitative descriptive research methodology. The methods utilized to collect the data are interviews, observations, and literature reviews. Observation and interview sheets made up the research instrument. Qualitative data analysis is used in data analysis procedures. Interactive learning materials are required in classrooms, as indicated by the findings of observations and interviews. This is a result of the fact that professors continue to employ a conventional learning approach and that pupils struggle to understand the information. The usage of interactive learning media in the learning process is necessary as a medium that promotes the learning process, according to the study's findings and discussion.

A. Introduction

Education is a process that can be used to develop each person's potential because it is done to face future challenges. Education can be used as a means to create quality human resources and can be said to be a determinant of civilization (Hestiani Sabrina & Irma Russanti, 2022). Currently Indonesia is facing the industrial revolution era 5.0. In dealing with this situation educators must be adaptive to the changes that occur. In the current conditions, of course, there are differences from the learning system at the previous stage, the learning system at the previous stage of the learning process was more conventional and the teacher was still the center of the learning process (Feri & Zulherman, 2021).

In contrast, students now need to take a more active role in the learning process and are, of course, the center of it in today's classrooms. Teachers are no longer the center of the learning process. With the renewal of more inventive and creative learning, the use of information technology as a learning tool has also started to grow (Meisye Anastacya Pinoa & Hendry, 2021). How to effectively help students activate pertinent prior knowledge is a crucial question for instructors. It is necessary to use a variety of strategies to get pupils to use their existing knowledge (Brod et al., 2018). Teachers must adjust their lesson plans, activities, and imagined conversations to match the behaviors that take place in the classroom with the knowledge that students are ready to acquire (Dahn et al., 2021).

How to Cite : Ameda Pazah, G., Risdianto, E., & Purwanto, A. (2024). Analysis of Needs for the Development of Nearpod-Based Interactive Learning Media to Improve Student Learning Outcomes in Class XI at SMAN Bengkulu City on Parabolic Motion Material . FINGER : Jurnal Ilmiah Teknologi Pendidikan, 3(1), 117–122. https://doi.org/10.58723/finger.v3i1.198
ISSN : 2830-6813
Published By : Asosiasi Profesi Multimedia Indonesia

Due to the Covid-19 pandemic, which has affected many parts of the world, it has become more challenging for students to complete this task. Rather than receiving face-to-face instruction from teachers as they would in a regular classroom, students are expected to take a more active role in managing their own learning. Virtual experiments, which are computer simulations that are interactive, or video experiments, which are genuine experiments captured on video, are made possible by digital technologies. These technologies can also be coupled to provide complementary functions (Flegr et al., 2023).

Physics instructors must use mobile technologies to improve the educational experiences of their students (Nasir & Fakhruddin, 2023). Technology and information are currently developing at a very fast pace. Science and technology are developing at an ever-increasing rate in tandem with this progress, particularly with regard to computer technology. Numerous goods and advantages have resulted from these advancements. Within the field of education is one of them. Computer technology is a common learning tool in the field of education. Numerous computer technology items are available for use, such as digital comics, Adobe Flash, Microsoft PowerPoint, and many more that may be utilized both online and offline (Agustine et al., 2014).

In addition, technological developments have led to the expansion of the boundaries of teaching and learning and the development of course delivery models (eg, e-learning, video recording methods, computer-assisted teaching and multisensory-based teaching) (Jdaitawi et al., 2022). It is crucial to employ a teaching strategy that compels students to actively reevaluate their preexisting concepts and create new ones in order to effectively engage them in changing their alternative conceptions (Siantuba et al., 2023).

In Indonesia, one example of more advanced technological developments is in the latest curriculum. Law No. 20 of 2003 Chapter 1 Article 1 states "curriculum is a set of plans and arrangements regarding objectives, content, and learning materials as well as methods used as guidelines for organizing learning activities to achieve certain educational goals". The curriculum was developed with the intention of making the learning process easier. The objectives, competences, material, assessment criteria, and learning standards are the curriculum's fundamental components. The MBKM Curriculum includes these components. The MBKM curriculum follows the steps and patterns that have been used thus far in the establishment of study program curricula by referencing Law Number 12 of 2012 and the OBE (Outcome based Education) methodology. Regulations, social dynamics, and the advancement of science and technology are all taken into consideration while developing curricula and implementing MBKM policies (Vhalery et al., 2022).

Sudden and unexpected changes in society can have a significant impact on essential functions and services. After covid-19, many people are quarantined, working and studying from home (Bergdahl & Nouri, 2021). Following the pandemic, many industrialized and developing nations were obliged to alter their educational strategies because traditional teaching methods do not attract pupils and do not currently contribute significantly to students' learning. The primary objective of these modifications has been to create an information society—a forward-thinking, creative society that employs technology to advance the country—by enhancing the effectiveness and quality of education through its utilization (Zapata-Paulini et al., 2023).

After the outbreak of Covid-19 that attacked the world some time ago, the world order of education began to change. All learning is carried out online, and makes it inevitable for teachers and students to master existing technology so that the existing learning process can continue. This causes the condition of education to decrease progressively (Setiaji & Dinata, 2020).

There is a change in order that occurs in society as stated, like it or not the world must rise to increase its competence in learning innovation. The teacher's ability to design learning that is able to adapt to advances in communication and information technology is required. Teachers must take part in various training activities, workshops, technical guidance and take further studies that can improve their competence. In addition to increasing teacher competence, the ability to design learning, including choosing the right media, also influences the success of learning. Selection of the right media can bridge the achievement of learning objectives. One type of media in the current era is E-Media (Susanto, 2021).

In the present world, technology is all around us. However, in order to fully utilize its educational potential and create a customized learning environment for each student, it calls for the strategic application of a sophisticated set of tools (Mamun et al., 2020). The range of E-media that can be created and employed is extremely broad. Some people utilize Google Meet or Zoom Meeting as tools for synchronous online learning. Electronic instructional resources in the form of hosting and domains for asynchronous online learning, or applications running on the Android platform. What is utilized to construct applications varies

a lot based on demands, such as media development, where multiple programs that complement one another might be chosen in an integrated way. Regarding this study, it details how learning has evolved using the Nearpod E-media app (Susanto, 2021). Through the communication of intricate process structures, coaching of students through comments and reminders, and elicitation of articulations to promote reflection, software can serve as an effective scaffold for science inquiry activities (Metcalf et al., 2018).

From the several references that have been obtained, there are many electronic teaching material platforms that can be used to support more interactive learning. Examples are e-learning, educational games, applications, and others. In this study, the nearpod application will be used as a more interactive learning support development (Kapici et al., 2019).

One of the media that can assist learning activities in delivering learning messages by providing fun learning activities for students is using the Nearpod platform (Ismah & Zuliarni, 2022). The website for Nearpod is https://nearpod.com/. is a cloud-based program that students can use through a computer or PC and has a rather simple user interface (Burton, 2019). using the help of interactive movies, gaming activities, polls, quizzes, and collaboration boards, teachers may promote active learning using Nearpod, an affordable and user-friendly interactive learning tool (Sarginson & McPherson, 2021). Nearpod app can be used in face-to-face learning or through virtual classroom synchronization (Musa & Al Momani, 2022).

This research is supported by several relevant previous studies, namely: (1) The Nearpod application learning media is feasible to use and can be proven to improve the learning outcomes of fifth grade students of SDN 2 Blimbing Kidul, Kaliwungu, Kudus (Pramesti et al., 2023). The implementation of the research conducted by Feri and Zulherman can be used as an analysis of media development needs that can be continued at the development stage, especially to develop Nearpod-based science learning media (Feri & Zulherman, 2021). According to a quote from Vianes Muliza Putri's journal article titled "Thematic electronic development integrated LKS with the RADEC learning model using the Nearpod application," creating E-LKPD for learning doesn't have to be done with the Nearpod application; it can be done online instead (Muliza Putri & Amini, 2023).

Students are able to participate in interactive learning with this web-based application called Nearpod. Schools are able to facilitate active learning in these circumstances by providing resources, tests, instructional videos, and assessments (Kapici et al., 2019). It is simple for teachers and students to access this program. The integrated theme E-LKPD in primary schools, supported by the RADEC-based Nearpod application, is the study's outcome and falls into the "very valid" category. Based on the practicality questionnaire, both the pupils' and the teacher's responses fell into the "very practical" category. The N-Gain score's percentage test is applied to effectiveness, taking into account the effective category. Thus, it can be said that the created ELKPD satisfies the requirements for enhancing student learning outcomes in a legitimate, useful, and effective manner (Putri & Amini, 2023).

In the previous research entitled Nearpod E-Media Development through the Discovery Model to improve Students' Critical Thinking Ability in Elementary Schools using the discovery model while in this study the model used was Problem Based Learning. Based on the results of a preliminary study conducted by the developer in the form of direct observation and interviews, it was seen that the student learning resources for learning were student worksheets. While textbooks are owned by only a few students. Students experience difficulties in learning physics due to the appearance of the book which is less attractive because it seems that it only contains formulas and explanations which are often difficult for students to understand because they are not accompanied by pictures or phenomena related to the material. Therefore, students experience difficulties in the subject matter of parabolic motion which requires explanations in the form of graphic images, vectors and real examples in everyday life.

Students are impacted by this phenomena, which results in learning outcomes that are subpar because of problems comprehending the given material. In order to improve student learning results from parabolic motion material, additional learning resources are required to help students grasp concepts or material from the subject.

The present study aims to analyze the needs for developing nearpod-based interactive learning media to improve the learning outcomes of Class X I High School students in Bengkulu City by using parabolic motion material. So, the research will be conducted under this title.

B. Research Methods

The research instruments used in this kind of qualitative descriptive research include observations, interviews, and literature reviews. The needs analysis step is applied in this study. Three Bengkulu City schools—SMAN 01, SMAN 03, and SMAN 09—were the sites of this study. Participants in this study included physics teachers and students in class XI SMA IPA. The methods of data collecting employed at this stage of the needs analysis were interviews, observational data, and literature reviews. The study was carried out in July and August of 2023.

A descriptive description of the research approach known as qualitative descriptive is that it makes use of qualitative data. This kind of qualitative descriptive data analysis is frequently employed for social analysis of events, phenomena, or circumstances. Through the use of written or spoken words from the people and actors observed, this descriptive research procedure generates descriptive data that is directed from the background of the individual as a whole (holistic), without isolating individuals and their organizations into variables but instead seeing them as a part of a whole. Literature reviews, needs assessments, interviews, and school observations were the methods of data gathering that were employed. Qualitative data analysis is employed in the data analysis technique. Journals, observation sheets, and interview sheets made up the research instruments.

The data analysis method employed in this study is qualitative analysis techniques. The qualitative descriptive data analysis approach is the outcome of combining descriptive and qualitative data analysis methodologies. Many sources provide the data used in qualitative data analysis. The techniques utilized to collect the data are also varied; they are applied repeatedly until the data is saturated. The fundamental principle of qualitative data analysis is inductive, meaning that it begins with a review of the information gathered and moves on to formulate a theory or specific pattern of relationships.

Among the study's shortcomings is the still-relatively-small number of responses, which obviously does not accurately represent the situation in reality. In addition, throughout the data gathering process, information obtained from respondents in interviews occasionally does not accurately reflect respondents' true opinions. Differences in comprehension and honesty considerations are the cause of this.

C. Results and Discussion

Field research activities that involve direct observation or surveys with interviews regarding needs analysis for the development of interactive learning media might yield information about needs analysis for these projects. According to the findings of interviews with six instructors and eighteen students from three different schools—SMAN 01, SMAN 03, and SMAN 09 Bengkulu City—teachers frequently utilize PPT and LKS as teaching aids.

The teacher uses the internet to get technology-based interactive learning materials. The instructor also emphasized that while many teachers have adopted a student-centered learning paradigm, the learning model was remained conventional. Printed materials make up the majority of the teaching resources used; non-printed resources are seldom ever used. Inadequate learning materials can frequently cause problems for students during the learning process. As a result, using technology-based interactive learning materials in the classroom is essential.

This research is supported by several studies namely: (1) The Nearpod application learning media is feasible to use and can be proven to improve the learning outcomes of fifth grade students of SDN 2 Blimbing Kidul, Kaliwungu, Kudus (Pramesti et al., 2023). The implementation of the research conducted by Feri and Zulherman can be used as an analysis of media development needs that can be continued at the development stage, especially to develop Nearpod-based science learning media (Feri & Zulherman, 2021). According to a quote from Vianes Muliza Putri's journal article titled "Thematic electronic development integrated LKS with the RADEC learning model using the Nearpod application," creating E-LKPD for learning doesn't have to be done with the Nearpod application; it can be done online instead (Muliza Putri & Amini, 2023).

Drawing from firsthand experience in the research process, the investigator has identified numerous limiting variables that need to be considered in order for future researchers to focus on refining their work. Among these restrictions are:

The number of respondents is still small, so it does not reflect the real situation, and in the data collection process, sometimes the information provided by respondents through interviews does not show the true opinions of respondents.

D. Conclusion

The usage of interactive learning media in the learning process is necessary as a medium that promotes the learning process, according to the study's findings and discussion. Using the Nearpod platform is one of the media that can help learning activities deliver learning messages by giving students enjoyable learning activities.

E. Acknowledgment

I would like to thank the Head of the Physics Education Study Program, the main Supervisor namely Mr. Eko Risdianto, M.Cs and Mr. Andik Purwanto, M.Sc as Associate Advisors who have helped direct and guide in the process of completing this Needs Analysis. Then thanks also to the physics teacher and all class XI students of SMAN 01, SMAN 03, and SMAN 09 Bengkulu City who have agreed to participate in completing the needs analysis survey and interviews for Nearpod media development.

References

Agustine, D., Wiyono, K., & Muslim, M. (2014). Pengembangan e-learning berbantuan virtual laboratory untuk mata kuliah praktikum fisika dasar ii di program studi pendidikan fisika fkip unsri. *Jurnal Inovasi Dan Pembelajaran Fisika*, *1*(1), 33–43. https://doi.org/10.36706/jipf.v1i1.1218

Bergdahl, N., & Nouri, J. (2021). Covid-19 and Crisis-Prompted Distance Education in Sweden. *Technology, Knowledge and Learning*, *26*(3), 443–459. https://doi.org/10.1007/s10758-020-09470-6

Brod, G., Hasselhorn, M., & Bunge, S. A. (2018). When generating a prediction boosts learning: The element of surprise. *Learning and Instruction*, *55*, 22–31. https://doi.org/10.1016/j.learninstruc.2018.01.013

Burton, R. (2019). A review of Nearpod – an interactive tool for student engagement. *Journal of Applied Learning and Teaching*, *2*(2), 95–97. https://doi.org/10.37074/jalt.2019.2.2.13

Dahn, M., Lee, C., Enyedy, N., & Danish, J. (2021). Instructional improv to analyze inquiry-based science teaching: Zed's dead and the missing flower. *Smart Learning Environments*, *8*(1). https://doi.org/10.1186/s40561-021-00156-9

Feri, A., & Zulherman, Z. (2021). Analisis Kebutuhan Pengembangan Media Pembelajaran IPA Berbasis Nearpod. *Jurnal Imiah Pendidikan Dan Pembelajaran*, *5*(3), 418. https://doi.org/10.23887/jipp.v5i3.33127

Flegr, S., Kuhn, J., & Scheiter, K. (2023). How to foster STEM learning during Covid-19 remote schooling: Combining virtual and video experiments. *Learning and Instruction*, *86*(March), 101778. https://doi.org/10.1016/j.learninstruc.2023.101778

Hestiani Sabrina, I., & Irma Russanti, D. (2022). Pengembangan Media Pembelajaran Shibori Berbasis Video Tutorial Melalui Youtube. *E-Journal*, *Vol 11*(Nomor 01), 14–19. https://doi.org/10.26740/jotb.v11n01.p14-19

Ismah, R., & Zuliarni. (2022). Pengembangan Desain Pesan Berbasis Platform Nearpod Pada Mata Pelajaran Ipa Untuk Siswa Kelas Vii Smp. *AKSELERASI: Jurnal Ilmiah Nasional*, *4*(2), 33–39. https://doi.org/10.54783/jin.v4i2.560

Jdaitawi, M., Kan‟an, A., Rabab‟h, B., Alsharoa, A., Johari, M., Alashkar, W., Elkilany, A., & Abas, A. (2022). The Importance of Augmented Reality Technology in Science Education: A Scoping Review. *International Journal of Information and Education Technology*, *12*(9), 956–963. https://doi.org/10.18178/ijiet.2022.12.9.1706

Kapici, H. O., Akcay, H., & de Jong, T. (2019). Using Hands-On and Virtual Laboratories Alone or Together—Which Works Better for Acquiring Knowledge and Skills? *Journal of Science Education and Technology*, *28*(3), 231–250. https://doi.org/10.1007/s10956-018-9762-0

Mamun, M. A. Al, Lawrie, G., & Wright, T. (2020). Instructional design of scaffolded online learning modules for self-directed and inquiry-based learning environments. *Computers & Education*, *144*, 103695. https://doi.org/10.1016/j.compedu.2019.103695

Meisye Anastacya Pinoa, & Hendry. (2021). Pengembangan Dan Penerapan Konten H5P Pada E-Learning Berbasis LMS Menggunakan Moodle (Studi Kasus : PT Global Infotech Solution). *Jurnal Teknik Informatika Dan Sistem Informasi*, *8*(2), 647–663. https://doi.org/10.35957/jatisi.v8i2.931

Metcalf, S. J., Reilly, J. M., Kamarainen, A. M., King, J., Grotzer, T. A., & Dede, C. (2018). Supports for deeper learning of inquiry-based ecosystem science in virtual environments - Comparing virtual and physical concept mapping. *Computers in Human Behavior*, *87*, 459–469. https://doi.org/10.1016/j.chb.2018.03.018

Muliza Putri, V., & Amini, R. (2023). Integrated Thematic E-LKPD with RADEC-Based Neapod in Grade V Elementary School. *International Journal of Elementary Education*, *7*(2), 204–211. https://doi.org/10.23887/ijee.v7i2.61224

Musa, M. A. A., & Al Momani, J. A. (2022). University Students' Attitudes towards using the Nearpod Application in Distance Learning. *Journal of Education and E-Learning Research*, *9*(2), 110–118. https://doi.org/10.20448/jeelr.v9i2.4030

Nasir, M., & Fakhruddin, Z. (2023). Design and Analysis of Multimedia Mobile Learning Based on Augmented Reality to Improve Achievement in Physics Learning. *International Journal of Information and Education Technology*, *13*(6), 993–1000. https://doi.org/10.18178/ijiet.2023.13.6.1897

Pramesti, A. D., Masfuah, S., & Ardianti, S. D. (2023). Media Interaktif Nearpod Guna Meningkatkan Hasil Belajar Siswa Sekolah Dasar. *Jurnal Educatio FKIP UNMA*, *9*(1), 379–385. https://doi.org/10.31949/educatio.v9i1.4578

Putri, V. M., & Amini, R. (2023). Development of Integrated Thematic Electronic Worksheets With RADEC Learning Model Using Nearpod. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *7*(2), 2213–2224. https://doi.org/10.31004/obsesi.v7i2.4217

Sarginson, D., & McPherson, S. (2021). Nearpod: An innovative teaching strategy to engage students in pathophysiology/pharmacology. *Journal of Nursing Education*, *60*(7), 422–423. https://doi.org/10.3928/01484834-20210616-13

Setiaji, B., & Dinata, P. A. C. (2020). Analisis kesiapan mahasiswa jurusan pendidikan fisika menggunakan e-learning dalam situasi pandemi Covid-19. *Jurnal Inovasi Pendidikan IPA*, *6*(1), 59–70. https://doi.org/10.21831/jipi.v6i1.31562

Siantuba, J., Nkhata, L., & de Jong, T. (2023). The impact of an online inquiry-based learning environment addressing misconceptions on students' performance. *Smart Learning Environments*, *10*(1). https://doi.org/10.1186/s40561-023-00236-y

Susanto, T. A. (2021). Pengembangan E-Media Nearpod melalui Model Discovery untuk Meningkatkan Kemampuan Berpikir Kritis Siswa di Sekolah Dasar. *Jurnal Basicedu*, *5*(5), 3498–3512. https://doi.org/10.31004/basicedu.v5i5.1399

Vhalery, R., Setyastanto, A. M., & Leksono, A. W. (2022). Kurikulum Merdeka Belajar Kampus Merdeka: Sebuah Kajian Literatur. *Research and Development Journal of Education*, *8*(1), 185. https://doi.org/10.30998/rdje.v8i1.11718

Zapata-Paulini, J., Beltozar-Clemente, S., Sierra-Liñan, F., & Cabanillas-Carbonell, M. (2023). Development and evaluation of a didactic tool with augmented reality for Quechua language learning in preschoolers. *Indonesian Journal of Electrical Engineering and Computer Science*, *30*(3), 1548–1557. https://doi.org/10.11591/ijeecs.v30.i3.pp1548-1557