

LEARNING ANALYSIS OF PADLET-BASED INTERACTIVE MULTIMEDIA PROJECT BASED LEARNING WRITING RESEARCH PROPOSALS IN HIGHER EDUCATION

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Abstract

Based on the initial observation, one of the low and lack of insight into the students' knowledge of the proposal author's description is due to several things, including First, the incompatibility of the existing material with the RPS. Second, the material contained in the teaching materials is incomplete and not in accordance with the main material listed in the RPS. Third, the lack of innovation of educators in developing teaching materials. The research method used is part of development research or R&D. This research uses two techniques, namely qualitative descriptive analysis techniques and quantitative descriptive analysis. Qualitative data in the form of descriptions of lecturer and student response questionnaires for learning tool profiles to write research proposals in higher education. Quantitative data in the form of assessment scores from instruments filled in by lecturers and students regarding the profile of learning tools for writing research proposals in higher education. The instruments used in this study are the results of observations and questionnaires. Overall, the results of the questionnaire responses of lecturers and profiles of learning tools writing research proposals in higher education 84.17 with qualifications strongly agree to develop learning tools and the results of the responses of the student response questionnaire of learning tool profiles writing research proposals in universities 82.42 also with qualifications strongly agree.

Keywords: Project Based Learning; Interactive Multimedia; Padlet; Writing a Research Proposal

Introduction

In essence, learning is a shared responsibility between lecturers and students, in this case the need for innovative, varied learning to motivate and grow student interest. This is in accordance with the opinion of experts who say “learning is an effort to learn” (Hamzah, 2008). That way, learning is how the efforts of a person who teaches either receive or absorb information conveyed by a person and can involve themselves in learning activities that must be carried out so that the learning results are better.

Along with the rapid development of science and technology, it has resulted in changes in various areas of life that require more quality human resources. Indah Septiani et al. (2020) said education only contains textual materials, exercises, and tests to achieve the cognitive targets of each subject. The interactive multimedia developed during this time is mostly used to improve students' cognitive skills. In Indonesia, interactive multimedia is mostly made for mathematics,

physics, biology, language, chemistry, and engineering subjects. There has not been much interactive multimedia created to strengthen students' character, especially in learning to write research proposals. Shahzad, Nadeem, and U-Nisa (2021) explained that students have different learning needs and strategies for each person. Some learners require longer interaction times and require more information or activities compared to their peers. This may be related to the student's cognitive abilities. With the results of his research, it was found that in controlled environmental situations, students learn effectively by using interactive multimedia. Learners' learning capacity develops when they are given the freedom to use a variety of learning strategies. This learning strategy is based on the individual abilities and cognition of the learner.

In learning, one of the courses that students must study is the Language Teaching Research Method course, one of the demands in the Language Teaching Research Methods course for students' expertise in writing research proposals. Through the proposal, students participate in the development of science and technology for the advancement of the Indonesian nation. In accordance with the opinion of experts, Wardani et al. (2020) stated that the capacity of learners to get used to writing critical thinking is very important. It deals with brainstorming research topic problems, reflection, and exploration of research topic problems.

Students must also be able to write research backgrounds, research problems, reviews of related literature, and research methods based on the guidelines of the research proposal. Writing skills related to organizational competence, elaborating content, paying attention to mechanics, language use, and vocabulary are the main capital and supporting success in carrying out research proposals. In research proposals, students must have many ideas and be creative in finding the main problems in the world of education; therefore, students are invited to be sensitive to the issues around them and find creative and innovative solutions. Education has a strategic role in making this happen by producing creative and innovative human resources that are carried out in stages and sustainably, so that they are able to compete and are expected to have a competitive advantage in the national context in the era of global competition (Widiansyah, 2018; Rusmini, 2017; Turmidzi, 2019).

The emergence of problems in education is a symptom that shows the gap between educational outcomes and the demands of life. This problem arises in various forms, ranging from problems in the teaching and learning process in the classroom related to the field of study, the curriculum, levels of education, to problems related to educational policies and concepts (Nurhuda, 2022; Megawanti, 2015; Romdloni, Saiban, & Hazin, 2021). Writing research proposals is found in the Language Teaching Research Methods course. This course aims to equip students with knowledge, understanding, and application of various research methods in the context of preparing the final project. In the lecture, various types of research are discussed, including the steps of scientific research ranging from determining topics, identifying problems, reviewing literature, determining the focus of the problem, determining variables, research design and methods, data collection techniques, analysis, and drawing conclusions. Learning activities include lectures with various approaches and methods that involve many students, such as discussions, observation activities in the field to learn to identify problems, and practice in making pre-proposals. This

course is given with a balanced composition between theory and practice. Evaluation is carried out through written tests, structured assignments, and student participation in class.

Based on the initial observation, the low and lack of insight into students' knowledge about writing research proposals is due to several factors. First, the incompatibility of existing material with the RPS. Second, the material contained in the teaching materials is incomplete and not in accordance with the main material listed in the RPS. Third, the lack of innovation of educators in developing teaching materials. Fourth, the Teaching Research Methods book is still structured like other theory books. Fifth, existing books are still in print and online form containing theoretical explanations. Sixth, existing books generally do not yet use models or approaches. Seventh, there are not many books available in digital form. Therefore, it is very necessary to develop a learning tool for writing research proposals using a Padlet-Based Interactive Multimedia PjBL (Project-Based Learning) approach. In accordance with expert opinions, Nyirahabimana et al. (2023) stated that multimedia makes students like and enjoy learning through visualization compared to lecture methods. The use of learning media will help improve interaction between lecturers and students to be more effective and efficient. For this reason, lecturers are required to motivate students through learning media that can be used both inside and outside the classroom, one of which is learning media using Padlet.

Other factors that cause low student ability are internal and external factors. Internal factors include students' motivation and interest in reading and understanding textbooks, while external factors include community and family environments that do not support reading habits; low purchasing power related to economic conditions; low awareness of the importance of books; school libraries that have not optimally functioned as information sources; and the negative impact of electronic media, social media, and online games, which cause people to spend more time on Facebook, Twitter, WhatsApp, or online games rather than reading articles or e-books (Noble, 2018). Chuang and Jamiat (2023) mentioned that well-designed applications can improve children's literacy skills; however, more in-depth studies are still needed to provide clear guidelines for designers in developing reading applications.

In accordance with the concept of independent learning in 21st-century education, students are expected not only to memorize information and formulas but also to use knowledge to develop creative and innovative thinking skills. This aligns with the concept of independent learning initiated by the Minister of Education and Culture of the Republic of Indonesia (Kusnohadi, 2020). Therefore, students must be able to determine research problems in the field of teaching. Another factor contributing to students' limited insight in developing research proposals is that many lecture tools used by lecturers are not properly prepared and are not aligned with learning demands. Learning tools that match students' needs are required as guidance during the learning process. Students are expected to be active, while lecturers act as facilitators. One way lecturers can facilitate learning is by providing innovative lecture tools to support students in achieving learning objectives. The learning tools to be developed include RPS, SAP, lecturer manuals, student manuals, and textbooks using a Padlet-based interactive multimedia PjBL approach. Nurtanto, Sofyan, and Pardjono (2021) stated that e-learning-based interactive

multimedia is effective in meeting current learning criteria. The learning tools are developed in both print and digital formats through the Padlet application. Roemintoyo et al. (2022) stated that ICT-based learning media innovations are highly relevant in supporting the learning process. Therefore, this research aims to develop interactive multimedia products suitable for learning activities. Padlet is a free online application that can be illustrated as an online whiteboard (Nofrion, 2017). The use of Padlet as interactive multimedia can be applied both inside and outside the classroom. Kus Eddy Sartono, Ambarsari, and Herwin (2022) reported that interactive multimedia is suitable for learning activities and can serve as an alternative learning medium. Kongpha and Chatwattana (2023) also stated that virtual interactive learning models encourage enjoyable learning experiences for digital-era learners.

The PjBL (Project-Based Learning) approach was chosen because it is relevant to the goal of directing students to design research proposals. This approach facilitates students in developing proposal-writing skills gradually and systematically according to PjBL stages. Through PjBL-based learning tools, students are expected to actively investigate real-world problems, work collaboratively or independently, and clearly detail the process of completing research proposal projects. Thus, research on developing learning tools is expected to contribute to educational research in Indonesia, particularly in development research aimed at improving students' ability to design research proposals.

Methods

In this study, it is Research and Development (R&D). This research has an important role in developing a new product or improving an existing product for education (Borg & Gall, 1983). According to Sugiyono (2011), research and development methods are research methods used to produce certain products and test the effectiveness of these products. Thus, research and development methods are research methods used to produce or develop a product, and its effectiveness and feasibility are tested.

Based on ADDIE research and development, the development research model applied in this study is the ADDIE development model with five stages, namely Analysis, Design, Development, Implementation, and Evaluation. This study uses two techniques, namely qualitative descriptive analysis techniques and quantitative descriptive analysis. Qualitative data are in the form of descriptions of lecturer and student response questionnaires regarding learning tool profiles for writing research proposals in higher education. Quantitative data are in the form of assessment scores obtained from instruments filled in by lecturers and students regarding the profile of learning tools for writing research proposals in higher education. The scores were obtained through questionnaires.

Research and development in education is the process of researching students' needs and developing products to meet those needs. It is not intended to formulate or test theories but to develop effective and usable products (Gay, Mills, & Airasian, 2012).

Results and Discussion

Needs Analysis Stage

The analysis stage is a stage where the researcher analyzes problems related to learning to write research proposals in Indonesian higher education in general and among students in several higher education institutions in Indonesia. The activities carried out at this stage include conducting a needs analysis by collecting various articles containing research related to learning to write research proposals in general, as well as supporting theories. Needs analysis data collection was carried out in public and private higher education institutions throughout Indonesia.

For the questionnaire analysis of student and lecturer needs, several higher education institutions in Indonesia were involved, namely the University of Education Muhammadiyah Sorong, Abulyatama University Aceh, PGRI University of West Sumatra, Azkia University, and Ekasakti University. For field observation, two higher education institutions were involved, namely PGRI University of West Sumatra and Azkia University.

Situation Analysis Results

Data collection was carried out by distributing questionnaires to students and lecturers, teaching those who taught language teaching research methods courses. Observations were carried out in the classrooms of PGRI West Sumatra University and Azkia University to observe the methods used by lecturers in teaching. In this Higher Education School, lecturers have the freedom to regulate the material they will teach in class, especially in learning to write research proposals, but still refer to the RPS related to the material and the time that has been set. During the observation, several things were found, including (1) lecturers using lecture and question and answer methods; (2) the media used, namely whiteboards, textbooks, and LCDs, and (3) lecturers use group discussions for students whose percentages are according to the material to be made of the paper. The reason lecturers use the lecture method is that this lecture method is considered the best method to convey material to students with low academic ability. Lecturers do not use other methods because they are worried that the method will not be able to help students understand the material given. The use of the question and answer method aims to make students more active, to measure students' understanding of the material that has been studied, and to build interaction and communication between lecturers and students. As well as in concluding the material, lecturers find it easier.

The use of LCD aims to increase the interest and motivation of mahasiswa to learn. With LCD, lecturers can show material with examples of titles in writing proposals for research methods for language teaching and the material to be presented. When the lecturer comes, the arrival of the lecturer has been awaited by the students and they have prepared themselves to take part in the learning process because the lecturer will provide examples of research titles related to the research proposal. This happened during the implementation of observation. The lecturer aired the material, the atmosphere that was initially conducive became noisy and there were several students who were busy alone. From this incident, a lesson can be learned that students' interest and motivation in learning will be reduced and even lost if the media chosen is not in accordance with the character and abilities of students. Therefore, lecturers are required to know and understand the character and abilities of students before choosing the material to be given.

Based on the results of observations, it was also found that lecturers used group discussions for students whose percentages were according to the material to be made in their papers. In the language teaching research methods course, lecturers use group discussion strategies as an integral part of the learning process. This strategy is applied to support students in presenting the material they have learned, as well as to encourage more effective interaction and collaboration among students, but there are also some students who ignore and listen to their peers for a percentage in the class. The use of group discussions in the language teaching research method course by lecturers is actually one of the learning methods and an effective approach to improve material understanding, critical thinking skills, communication skills, and cooperation between students. By actively involving students in the learning process, lecturers can create a dynamic and collaborative learning environment, which will ultimately improve the quality of learning and students' understanding of the material being taught. In this case, the lecturer also needs to emphasize that there must be a representative response from each group so that the group discussion runs effectively.

Results of Questionnaire Analysis of Lecturers and Students

The response of lecturers and students to the process of implementing learning to write research proposals in the language teaching research methods course in the classroom is very necessary to find out whether the tools to be developed meet the needs of lecturers and students in the classroom and to find out what methods are commonly used by lecturers, especially in learning to write research proposals in the classroom research methods course. To obtain information related to learning activities to write research proposals in the classroom research methods course, data collection was carried out using questionnaires. The questionnaire given to lecturers and students had previously been validated by one validator which can be seen in the attachment. The data was validated by an expert lecturer at Yogyakarta State University, Mr. Dr. Agus Widyantoro, M.Pd. After being validated with the validator, the needs analysis questionnaire with the assessment of the category questionnaire was very feasible and ready to be used in the research. Based on the results of the assessment, the questionnaire can be used with revision.

The comments given by the validator on the questionnaire are that in general the questionnaire is good and can be used in collecting research data. The suggestion from the validator is that there are several errors in word writing that need to be corrected. Based on the comments from the validator, revisions were made to the writing errors in the questionnaire. The revised questionnaire was used to collect data from lecturers and students. The questionnaire given to lecturers was related to 4 components of the assessment which were reduced to 48 statement items with five answer choices, namely 1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree. Overall, the results of the questionnaire responses of lecturers and profiles of learning tools wrote research proposals in Higher Education 84.17 with qualifications strongly agreed to develop learning tools. Here's how to determine the score range that will be used to analyze the results of lecturer and student questionnaires.

Lecturer Questionnaire Results

The questionnaire given to lecturers contains 5 statements with 4 assessment components, namely Target Situation Analysis (TSA), Current Situation Analysis (PSA), Learning Situation Analysis (LSA), and Mean Analysis (MA). For more details, the indicators of each point can be explained as follows: Target Situation Analysis (TSA) with a number of statements 1-20 with 20 statements, Current Situation Analysis (PSA) 21-31 with 11 statements, Learning Situation Analysis (LSA) 32-43 with 12 statements, and Mean Analysis (MA) 44-48 with 5 statements.

Target Situation Analysis (TSA)

The statement related to the evaluation process used to understand in depth the situation, needs, and dynamics of the target in learning consists of 20 statement items. For the overall data conclusion, it can be seen in the following table. The following are the results of the assessment conducted by the lecturer.

Table 1 Results of the Questionnaire Assessment Related to the Target Situation Analysis (TSA)

No.	Aspect	Indicator	Average Score	Percentage (%)	Category
1	Analysis (TSA)	Target Situation	9,641	85.32	SS
	Average		9,641	85.32	SS

Based on the table above, the Target Situation Analysis (TSA) component can be concluded that lecturers strongly agree that in learning there is a need for innovative learning tools. Lecturers want textbooks that include material made with online platforms that are well structured and comprehensively summarized such as RPS, textbooks that are developed and updated.

Current Situation Analysis (PSA)

The questionnaire statement related to the Current Situation Analysis (PSA) is used to describe the evaluation process that aims to understand the current state and conditions of an organization, project, or situation in learning language teaching research methods. The following are the results of the questionnaire related to the Current Situation Analysis (PSA) used in teaching and writing research proposals.

Table 2 Results of the Questionnaire Assessment Related to the Current Situation Analysis (PSA)

No.	Aspect	Average Score	Percentage (%)	Category
1	Current Situation Analysis (PSA)	5,337	85.87	SS
	Average	5,337	85.87	SS

Based on the table above, the second assessment component is related to the Current Situation Analysis (PSA) in teaching to write research proposals which includes one of the most difficult skills for students in learning the research methods of language teaching is the process of seeing problems in the field and developing ideas in writing research proposals. The lecturer gave a score of 5337 or 85.87% with the category strongly agreeing with this. From the results of the questionnaire, information was obtained that in teaching the language teaching research method,

the research method of language teaching is that students see problems related to language teaching research proposals.

Learning Situation Analysis (LSA)

Questionnaire statements related to Learning Situation Analysis (LSA) are used to describe the evaluation process used to understand the conditions and dynamics in the learning environment. LSA aims to identify the needs, challenges, and factors that affect the teaching and learning process, with the aim of improving the effectiveness and quality of education. The following are the results of the questionnaire related to Learning Situation Analysis (LSA) used in teaching and writing research proposals.

Table 3 Results of the Questionnaire Assessment Related to the Learning Situation Analysis (LSA)

No.	Aspect	Average Score	Percentage (%)	Category
1	Learning Situation Analysis (LSA)	5,484	80.88	S
	Average	5,484	80.88	S

Based on the table above, the second assessment component is related to Learning Situation Analysis (LSA) in teaching to write research proposals which includes one of the statements that students are able to produce research proposals that are clear and students are able to produce research proposals that vary according to the problems found. The lecturer gave a score of 5484 or 80.88% with the category of agreeing to this. From the results of the questionnaire, information was obtained that in teaching the language teaching research method, the research method of language teaching is that students must be able to develop and design proposals that are new in their learning.

Mean Analysis

Questionnaire statements related to Mean Analysis are used to assess the process of understanding whether the observed changes are statistically significant and practical in learning. In addition, to see the picture of success in each student's learning in participating in learning. The following are the results of the questionnaire related to Mean Analysis) used in teaching and writing research proposals.

Table 4 Results of Assessment Questionnaire related to Mean Analysis

No.	Aspect	Average Score	Percentage (%)	Category
1	Mean Analysis	2,336	83.75	SS
	Average	2,336	83.75	SS

Based on the table above, the second assessment component is related to Mean Analysis in teaching to write a research proposal which includes one of the statements The number of lecturers who teach language teaching research methods is still less and lecturers who teach courses need to get training. The lecturer gave a score of 2336 or 83.75% with the category strongly agree with

this. From the results of the questionnaire, information was obtained that in teaching the language teaching research method course is that it is necessary to add lecturers to teach according to the field and get training related to the language teaching research method course in writing research proposals.

Student Questionnaire Results

The questionnaire given to lecturers contains 5 statements with 4 assessment components, namely Target Situation Analysis (TSA), Current Situation Analysis (PSA), Learning Situation Analysis (LSA), and Mean Analysis (MA). For more details, the indicators of each point can be explained as follows: Target Situation Analysis (TSA) with a number of statements 1-17 with 17 statements, Current Situation Analysis (PSA) 18-28 with 11 statements, Learning Situation Analysis (LSA) 29-35-43 with 7 statements, and Mean Analysis (MA) 36-39 with 4 statements. Overall, the results of the questionnaire responses to the student response of the profile of the learning tool writing a research proposal in Higher Education 82.42 with qualifications strongly agreed to develop a learning tool.

Target Situation Analysis (TSA)

The statement related to the evaluation process used to understand in depth the situation, needs, and dynamics of the target in learning consists of 17 statement items. For the overall data conclusion, it can be seen in the following table. The following are the results of the assessment conducted by the lecturer.

Table 5 Results of the Questionnaire Assessment Related to the Target Situation Analysis (TSA)

No.	Aspect	Indicator	Average Score	Percentage (%)	Category
1	Analysis (TSA)	Target Situation	12,275	86.45	SS
	Average Score		9,641	85.32	SS

Based on the table above, the Target Situation Analysis (TSA) component of students with the statement I want the material and steps of language teaching research methods in innovative textbooks, it can be concluded that students strongly agree in learning the need for innovative learning tools. Students also want and need an interesting textbook as my guide to understand the learning material.

Current Situation Analysis (PSA)

The questionnaire statement related to the Current Situation Analysis (PSA) is used to describe the evaluation process that aims to understand the current state and conditions of an organization, project, or situation in learning language teaching research methods. The following are the results of the questionnaire related to the Current Situation Analysis (PSA) used in teaching and writing research proposals.

Table 6 Results of the Questionnaire Assessment Related to the Current Situation Analysis (PSA)

No.	Aspect	Average Score	Percentage (%)	Category
1	Current Situation Analysis (PSA)	7,354	79.12	S

Average	7,354	79.12	S
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Based on the table above, the second component of assessment relates to the Current Situation Analysis (PSA) in teaching to write a research proposal which includes one of the statements in my opinion the most difficult skill in learning the research method of language teaching is writing a research proposal. It can be concluded that students still have difficulty in understanding the research proposal material in the language teaching research methods course. The lecturer gave a score of 7354 or 79.12% with the category of agreeing to this.

Learning Situation Analysis (LSA)

Questionnaire statements related to Learning Situation Analysis (LSA) are used to describe the evaluation process used to understand the conditions and dynamics in the learning environment. LSA aims to identify the needs, challenges, and factors that affect the teaching and learning process, with the aim of improving the effectiveness and quality of education. The following are the results of the questionnaire related to Learning Situation Analysis (LSA) used in teaching and writing research proposals.

Table 7 Results of the Questionnaire Assessment Related to the Learning Situation Analysis (LSA)

No.	Aspect	Indicator	Average Score	Percentage (%)	Category
1	Analysis (LSA)	Learning Situation	4,793	81.03	SS
	Average		4,973	81.03	SS

Based on the table above, the second assessment component is related to Learning Situation Analysis (LSA) in teaching to write research proposals which includes one of the statements I like the textbook of language teaching research methods both in print and online platforms. Students gave a score of 4973 or 81.03% with the category strongly agreeing for this. From the results of the questionnaire, information was obtained that in teaching the language teaching research method, the research method of language teaching is that students like digital-based textbooks.

Mean Analysis

Questionnaire statements related to Mean Analysis are used to assess the process of understanding whether the observed changes are statistically significant and practical in learning. In addition, to see the picture of success in each student's learning in participating in learning. For the following, the results of the questionnaire related to Mean Analysis) are used in teaching and writing research proposals.

Table 8 Results of the Questionnaire Assessment Related to Mean Analysis

No.	Aspect	Average Score	Percentage (%)	Category
1	Mean Analysis	2,738	81.01	SS
	Average	2,378	81.01	SS

Based on the table above, the second assessment component is related to Mean Analysis in teaching to write a research proposal which includes one of the statements that a public lecture is needed from practitioners in the field of language teaching research methods. Students gave a score of 2378 or 81.01% with the category strongly agree for this. From the results of the questionnaire, information was obtained that in teaching the language teaching research method course, it is necessary for practitioners in the field so that students are more skilled in finding the facts of the problem in designing research proposals and being able to design them.

Conclusion

The questionnaire was validated by an expert lecturer at Yogyakarta State University, Mr. Dr. Agus Widyantoro, M.Pd. Based on the validation results from the validator, the questionnaire is suitable for use. Overall, the results of the questionnaire responses of lecturers and profiles of learning tools writing research proposals in higher education 84.17 with qualifications strongly agree to develop learning tools and the results of the responses of the student response questionnaire of learning tool profiles writing research proposals in universities 82.42 also with qualifications strongly agree. For details per indicator, you can see the following explanation. The lecturer's response can be explained as follows. First, the Target Situation Analysis (TSA) component can be concluded that lecturers strongly agree that in learning there is a need for innovative learning tools with a percentage of 82.32. Second, the second assessment component is related to the Current Situation Analysis (PSA) with a percentage of 85.87 and the qualifications are very agreeable. Third, the second assessment component is related to Learning Situation Analysis (LSA) in teaching to write research proposals with a percentage of 80.88 and the qualifications agree. Fourth, the second assessment component is related to Mean Analysis in teaching to write research proposals with a percentage of 83.75 and qualifications are very agreeable.

The students' responses can be explained as follows. First, the Situation Analysis component Target (TSA) can be concluded that lecturers strongly agree that in learning there is a need for innovative learning tools with a percentage of 82.32. Second, the second assessment component is related to the Current Situation Analysis (PSA) with a percentage of 79.12 and agreeing qualifications. Third, the second assessment component is related to Learning Situation Analysis (LSA) in teaching to write research proposals with a percentage of 81.03 and the qualifications agree. Fourth, the second assessment component is related to Mean Analysis in teaching to write research proposals with a percentage of 81.01 and qualifications are very agreeable. So it can be concluded that the results of the responses of lecturers and students who profile learning tools to write research proposals in higher education strongly agree with the development of learning tools and the need for reform.

Conflict of Interest

The author declares that there is no conflict of interest.

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