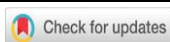# Project-Based Hybrid Learning; Effectiveness, Quality of Writing A Thesis Proposal, Independence, and Learning Satisfaction

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Sections Info	ABSTRACT
	During the COVID-19 pandemic, it is suspected that educational institutions are facing a decline in the quality of learning because learning cannot take place face-to-face, and teaching materials and learning models applied are still conventional. The purpose of this study is to determine the effectiveness of the application of project-based hybrid learning in improving the quality of writing thesis proposals for students of the Medan State University (Unimed) Business Education Study Program and see the impact of accompaniment to learning independence and student learning satisfaction. This research method applies quasi-experimental with posttest control group design for experimental and control classes. The research population of all students currently attending the Research Methodology lecture in 2021 is 51, consisting of two classes (A & B). The sample was determined by random sampling, with class A as the experimental class of 26 people and class B as the control class of 25 people. Experimental classes are taught with project-based hybrid learning through Google meet and LMS, and control classes are taught with conventional learning through asynchronous LMS. All participants were tasked with compiling a thesis proposal after finishing the treatment. The difference in the average results of the assessment of the thesis proposals of the two classes was carried out with the Mann-Whitney test because the data were not normally distributed. The results of this study show that the application of project-based hybrid learning is effective in improving the quality of writing thesis proposals, independence, and learning satisfaction.

INTRODUCTION

Improving the quality of education in Indonesia is always carried out through improving education following the changes and developments in life that are currently happening. The current 21st century, marked by technological and information advances, has explored the world of education; therefore, lecturers are obliged to carry out more innovative learning (López-Pérez et al., 2011). One of the innovative learnings today is hybrid learning through technology in learning (Kintu et al., 2017). Hybrid learning is combined with the project model, which is called a project-based hybrid. This project-based hybrid learning is effective in developing scientific skills and is more enjoyable, encourages motivation, and acquires theoretical concepts through project assignments, where students are directly involved in the process learned and experimenting with real problems (Martin et al., 2021).

One of the courses that students must follow is the educational research methodology course which is part of the curriculum of the compulsory educational field of study group study course in the Business Education Study Program, Faculty of Economics Unimed with a credit load of 3 credits. This course is fundamental considering that this course is an educational course whose competence must be

mastered by students to fulfill the obligation to do research in thesis writing as one of the requirements for completing lectures.

By far, research methodology lectures in the Business Education Study Program are still conventional (direct instructional). Lecturers directly deliver lecture materials using the lecture method. The consequences of this condition impact the unsatisfactory competence of students in writing proposals and conducting research for thesis writing. The other impact is the late completion of lectures. Ideally, students can complete seven semesters of lectures. However, the reality is that no Universitas Negeri Medan's business education study program students can complete lectures for seven semesters. Based on self-evaluation of the Business Education Study Program, the average student completes their studies for eight semesters and three months.

This phenomenon can be seen through discussions with group of lecturers in the field of lecturers and the experience of researchers in guiding, testing proposal seminars, and mastering Research Methodology courses. One of the weaknesses is the lack of student ability to compile standard research proposals according to research standard criteria. Another phenomenon can be seen from the results of the student proposal seminar where 100% of students with the results of the proposal seminar with criteria can be continued with improvements. Other weaknesses often found are determining the research title (research variables), compiling backgrounds, formulating problems and hypotheses, writing theoretical studies, and determining research methodology. In addition, research titles are repeated and even identical between students from year to year. Research methods are also still struggling with ex-post facto methods, and no one has done development research (Research and development). This is in line with the research of Tegeh & Kirna (2013), which explains that there has not been much student research found in developing products related to education. Asmawan's research (2017) also explained that the internal factor that is a problem in completing the thesis is the understanding of students in writing a thesis.

Based on in-depth interviews with ten students who are researchers as thesis supervisors and examiners, information was obtained that one of the causes of this condition is that the teaching materials and learning models applied in lectures by far have not been standardized and less attractive because they are still conventional and have not utilized information technology optimally. Students also said they need IT-based module teaching materials in the form of hybrid learning. In addition, the learning model applied has not been project-based, especially during the 2019 Covid pandemic, which ideally, students must continue to practice through projects to write research proposals as embryos for thesis writing.

The need for project-based hybrid learning is applied because the competencies in this course are in the form of skills in designing proposals, conducting research, compiling research reports, and writing scientific articles. The writing of scientific articles is an obligation because this output is material to meet the demands of the Ministry of Cultural Education regulations regarding the obligation to write scientific articles. To master this competency to the maximum, students must study independently and work on quality proposal and research projects, conduct research, make reports and write scientific articles. In addition, students explained that the learning model applied by far is still struggling with the direct learning model that is teacher-centered.

This phenomenon cannot continue to be allowed because it is feared that students as prospective teachers do not have competence in completing a quality thesis and are not

competent in making scientific papers as part of the duties of professional teachers when they become teachers so that the profile of alums of the Business Education Study Program to become professional teachers at senior high school cannot be realized. Efforts that can be made to overcome the above problems are to develop teaching materials for hybrid learning-based Research Methodology courses with a project-based learning model. This is in line with Shea et al. (2015) research which explains that hybrid learning if designed effectively, will attract student involvement in learning. Rahardjanto's (2019) research also explains that the application of project-based hybrids has a significant influence on the achievement of learning outcomes and creative thinking skills. The results of this study show that project-based hybrids are alternative learning following the demands of the twenty-first century. In contrast to Kusumaningrum's (2016) research which explained that there is no difference between learning using devices and project-based learning models and conventional device learning in improving skills. This gap research encourages researchers to conduct this research. This hybrid learning is a combination of face-to-face and online learning strategies that students will use independently to repeat their learning anytime and anywhere students are and practice working on projects related to research. So that with the application of project-based hybrid teaching materials, it is hoped that it can improve the quality of student thesis research proposals. therefore, this study aims to investigate the effectiveness of hybrid problem based learning in increasing the quality of undergraduate students' thesis proposal.

RESEARCH METHOD
This research is quasi-experimental in the Unimed Business Education program with a post-test control group design (Creswell, 2012; Creswell & Creswell, 2017; Nahartyo, 2012; Sekaran & Bougie, 2016). The sample consisted of two groups, one experimental group and one control group selected by random sampling, with 51 students participating in the research methodology lecture. The sample group consisted of group A the experimental group, and B, the control group. The experimental group was treated by applying a hybrid project-based learning with google meet media and LMS Unimed online learning system (SIPDA Unimed); while the control group was treated with conventional learning through asynchronous LMS.

Table 1. Description of thesis proposal project.

Week	Project					
	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6
Objective	Finding problems from a given case	Compiling the background of the problem	Problem identification, problem formulation, research objectives and benefits	Designing theoretical studies, thinking frameworks and hypotheses	Designing Research Methods	Making a complete proposal according to the given project
1	Problem discovery & research title					
2		Students compile research				

Week	Project					
	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6
3		background according to the problems and titles that have been found	Results of problem identification, problem formulation, research objectives and benefits			
4				Development of theory & framework of thinking, relevant research and hypothesis		
5					Design of research methods according to the title of the research	
6						Product The proposal is complete

To see the effectiveness of the application of hybrid project-based learning, a project is given to compile a thesis research proposal that students will use as a final project as one of the requirements for completing their studies. Project tasks are designed based on the components in the description research proposal, which consists of 6 project tasks. Project task descriptions can be viewed as per Table 1. Furthermore, in this study, a survey was conducted on the impact of accompaniment to the application of project-based hybrids on independence and learning satisfaction with indicators as shown in Tables 2 and Table 3.

Table 2. Learning independence indicators.

Indicators
1. Get used to and know how to use cognitive strategies (repetition, elaboration, and organization) that help students to follow, transform, organize, elaborate, and obtain information.
2. Knowing how to plan, control, and direct mental processes to achieve personal goals (metacognition).
3. Demonstrates a set of motivational beliefs and adaptive emotions, such as high self-confidence academically, having learning objectives, developing positive emotions towards the task (happy, satisfied, and enthusiastic), having the ability to control and modify it, as well as adjusting to the demands of the task and specific learning situations.

Indicators
4. Able to plan, control time, and have effort towards completing tasks, know how to create a pleasant learning environment, such as finding a suitable place to study or seeking help from lecturers and friends if you encounter difficulties.
5. Shows excellent effort to participate in controlling and organizing tasks – academic tasks, climate, and class structure.
6. Able to carry out a disciplinary strategy to avoid internal and external disturbances and maintain concentration, effort, and motivation while completing tasks.

Table 3. Learning satisfaction indicators.

Indicators
1. The project assignment given is meaningful for the preparation of a thesis proposal as a final project.
2. In the development of this teaching activity there is no overlap with the content of other activities or unnecessary repetition.
3. Projects provided in a well-coordinated program
4. The volume of content and projects provided is proportional to the kridit load of the course.
5. Learning activities carried out as planned in the college contract
6. Evaluation carried out in accordance with the specified evaluation standards
7. Competency improvement after learning

Source: Martin et al. (2021)

These indicators of learning independence and learning satisfaction were developed to measure the level of independence and satisfaction after learning. Furthermore, the description of the thesis proposal project given to students as stated in Table 1. From Table 1, it can be seen that six projects have been given to students. Finally, these six projects boil down to the output of the formation of student thesis research proposals. Data on the quality of students' ability to write Thesis research proposals are collected from the assessment of project proposals written by students, which are the project's output. The instrument for assessing research proposals that students have written is assessed based on the assessment instruments of the thesis proposal seminar that applies in the Business Education Study Program, as seen in Table 4.

Table 4. Aspects of thesis proposal assessment.

Assessed aspects	
Research Title	Research Benefits
Background	Theory framework
Identify the problem	Framework of thought
Limitation of problems	Research Hypothesis
Problem Formulation	Research Methods
Research Objectives	Bibliography Excerpts

Data analysis techniques to test the effectiveness of hybrid project-based learning were carried out by comparing students' ability to write proposals, independence, and learning satisfaction between treatment classes and control classes after the learning process. Before the data is analyzed, the prerequisites for parametric statistics are first tested, namely normally distributed data. Based on data analysis using SPSS version 25, it was found that the data were not normally distributed, so in analyzing the average difference in the results of the ability to write proposals between experimental groups

with controls, it was analyzed with non-parametric Mann-Whitney statistics (Field, 2009; Siegel, 1956).

RESULTS AND DISCUSSION

This study applied Hybrid Project-based learning assisted by Google meet and *LMS SIPDA Unimed* in the experimental group and conventional learning (hands-on learning) assisted by *LMS SIPDA Unimed* in the control group. Research data in the form of project values for the thesis proposal preparation is a post-test that is analyzed using the Mann-Whitney test.

Then at the end of the lesson, a post-test was carried out by providing a project to make a thesis research proposal in two groups. In the control group, learning is carried out using a conventional model (direct learning), but researchers still provide direction to lecturers who teach and control the implementation of learning. This is done so that the learning in the control group does not deviate from the research objectives. For example, in the case, the material taught must be adjusted to the material in the experimental group, and the learning time must also be adjusted so that it is completed relatively simultaneously with the learning time in the experimental class so that the project task as a post-test can be carried out at the same time. Based on the results of research conducted on students in different Unimed Business Education study programs used as subjects of this study, the fact that students in learning activities using hybrid learning can be seen in Table 5.

Table 5. Thesis proposal writing result score.

Statistic	Hybrid Project based learning (Experiment group)	Direct Instrucsional (Control group)
Mean	93.59	81.32
Minimum	90	75
Maximum	96	85

Table 5 shows that Hybrid project-based learning in the experimental group is included in the high category, and the control group is included in the medium category. The experimental class is in the high category with an average of 93.59, and the control group is in the medium category with an average of 81.32. Thus, it can be said that there are differences in the ability to write Proposals between groups of students who are taught hybrid project-based learning with direct learning, as shown in the Figure 1.
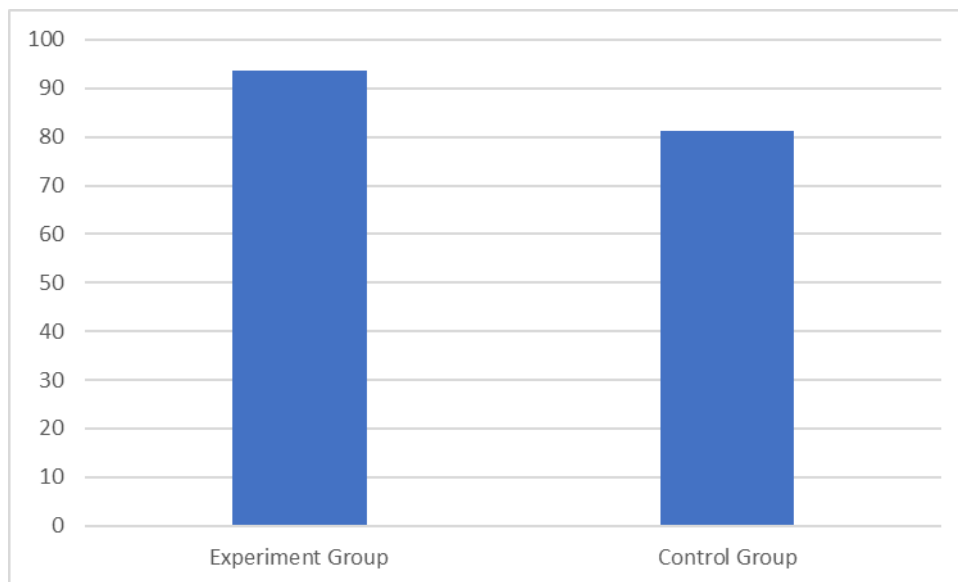
Figure 1. Comparison of project proposal writing assessment results

Furthermore, to analyze the difference in the ability to write a thesis proposal between the experimental group and the control, a prerequisite test for the use of parametric statistics was first carried out, namely the normality test. The results of the data normality test can be seen in Table 6.

Table 6. Normality test.

	Kolmogorov-Smirnova				Shapiro Wilk	
	Statistic	df	Sig.	Statistic	df	Sig
Grade	0,167	51	0,001	0,873	51	0,000

a.Lilliefors Significance Correction

Table 6 shows the significance value (p) in the Kolmogorov-Smirnov test is 0.000 (p < 0.05), so based on the Kolmogorov-Smirnov normality test, the data are not normally distributed. The significance value (p) on the Shapiro-Wilk test is 0.000 (p < 0.05), so based on the Shapiro-Wilk normality test, the data is not normally distributed. Furthermore, the difference in the ability to write a student thesis proposal can be seen from the SPSS ver 25 in the Table 7.

Table 7. Mann-whitney u test output.

|	Value
Mann-Whitney U	0,000
Wilcoxon W	325,000
Z	-6,191
Asymp. Sig. (2-tailed)	0,000

a. Grouping Variable: Class

Table 7 shows the two-tailed test with a p-value of the test of 0.000, which is less than 0.05. This analysis showed a significant difference in the score of writing a thesis proposal for the treatment class with the control class. Thus, it can be concluded that the application of project-based hybrid learning is effectively applied in learning Educational Research Methodology in writing thesis proposals for students of the

Unimed Business Education Study Program. Meanwhile, the accompaniment impact in the form of learning independence after learning can be seen in Figure 2.
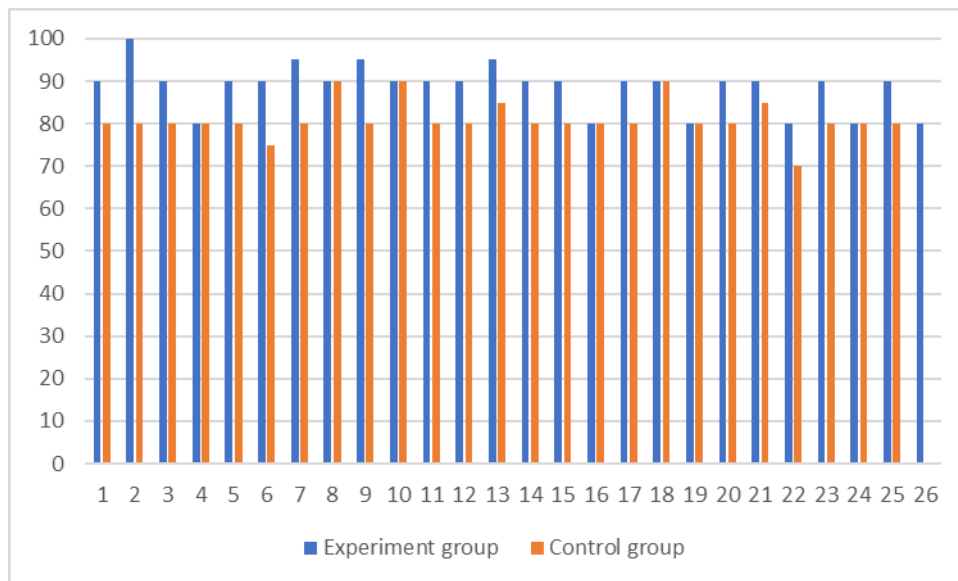
Figure 2. Comparison of student learning independence.

Figure 2 shows that the learning independence of students taught with a project-based hybrid is higher when compared to those taught by conventional learning (direct learning). If we look at the comparison of the average learning independence score for class A is 88.7, and class B is 81. The comparison of the learning satisfaction of students who are taught with project-based hybrids with conventional can be seen in the picture 3.
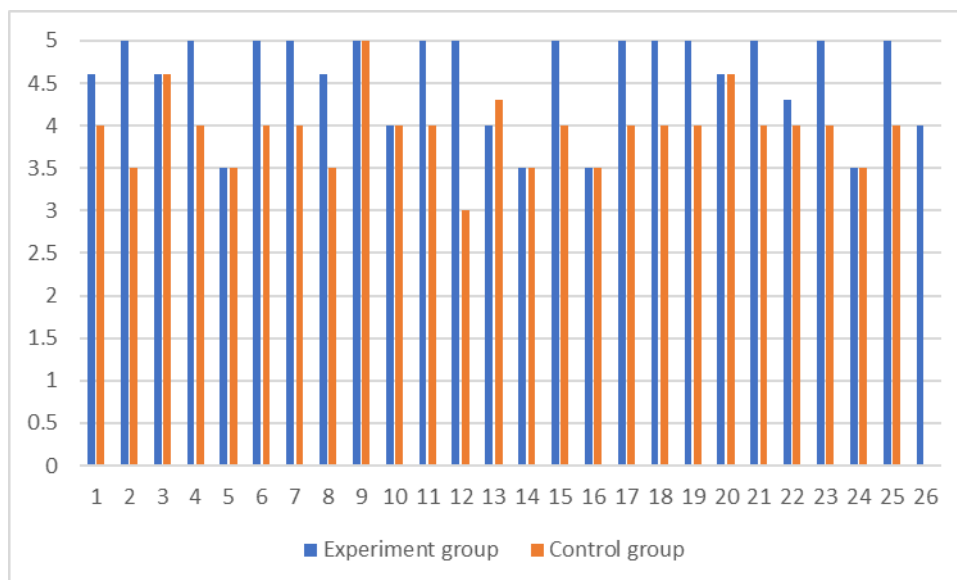
Figure 3. Comparison of student learning satisfaction.

When viewed from Figure 3, it can be explained that the learning satisfaction of students who are taught with project-based hybrids is higher when compared to conventional learning. The second average difference is, that the average learning satisfaction of class A is 4.65, and class B is 4.00. Research on learning models that incorporate more practical aspects and are closer to real-life tasks has become constant in higher education over the past few decades. This conventional model is counter-effective for conveying large amounts of information to large groups of college

students, and it has been criticized for failing to engage students and develop their high-level cognitive skills. Today it is considered a lagging method. The inclusion of the Hybrid Berbasi Project as a learning model has been associated with higher student motivation, much deeper learning gains, greater understanding, and improvements in learning, and learning effectiveness. Although students acquire a different type of knowledge from project-based hybrids, some lecturers remain skeptical of the use of techniques based on collaborative work or practical classes that can harm learning outcomes.

Some lecturers noted losses with project-based hybrids regarding the range of knowledge of the subject matter obtained by students. In this case, project-based hybrid learning is adopted with the introduction of project tasks in the learning program, Educational research methodology, and in particular, the preparation of research proposals. This change in the learning model has a positive effect on students' acquisition of knowledge and skills, as explained that there is a significant increase in the results of writing student thesis proposals. Project results, as a direct assessment of learning outcomes, allow compared the two learning models studied in this study (conventional-based and project-based hybrid). Some authors support the idea that learning is strongly linked to learning satisfaction. The results of this study support that finding. Incorporation of project tasks in learning Research methodology can improve the general perception that students' skills in writing research proposals are improving. All survey questions significantly improved compared to answers corresponding to conventional learning. In line with the research carried out for the different undergraduate biology programs at the Universitat Pompeu Fabra (Barcelona, Spain), lecture-based learning is compared to a hybrid problem-based learning curriculum. In this study, student satisfaction was more significant with the PBL method. However, lecturers need to pay attention about the availability of the device to guarantee the online learning can run smoothly (Afrianti & Aditia, 2020). The incorporation of project-based tasks allows the creation of real-life experiences, further stimulating the creation and development of real-life competencies. In this study, we show that students get another accompaniment impact, namely learning independence and learning satisfaction.

CONCLUSION

Based on the problem, the objectives and results of data analysis obtained in this research can be concluded, based on the experiment's results, it turned out that classes that apply project-based hybrid learners are more significantly effective in improving the quality of writing thesis proposals for Unimed Business Education Study Program students. The independence of learning classes of students taught with project-based hybrids is higher than those taught by conventional learning. Student satisfaction taught with project-based hybrids is higher than those taught with conventional learning.There are some limitations in this study so future research can expand the generality of this research. This research only use sample in one university (Universitas Negeri Medan). The wider sample is needed for future research. This research conducted in the pandemic situation. The replication study in the traditional face to face learning environment is needed.

ACKNOWLEDGEMENTS

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