

Designing Project-Based Learning Teaching Materials for the Office Seminar Course in the Office Administration Education Program at Universitas Negeri Medan

Nelly Armayanti¹, Dodi Pramana², M. Irwansyah³

{nellyarmayanti@unimed.ac.id¹, dodipramana@unimed.ac.id²; irwansyahkeefi78@gmail.com³}

Prodi PADP, Fakultas Ekonomi, Universitas Negeri Medan^{1,2,3}

Abstract. The rapid transformation of modern education has driven the integration of technology and innovative methods into the learning process, shifting the paradigm from mere knowledge transfer to the empowerment of individuals capable of critical thinking and solving complex problems. One transformative approach that aligns with this need is Project-Based Learning (PjBL), a project-based learning method that emphasizes exploring real-world challenges. The Office Administration Education Study Program (PADP) at Universitas Negeri Medan adopts the PjBL model within its curriculum to enhance students' practical and cognitive abilities, particularly through the core course Office Seminar. This course aims to improve scientific communication skills, critical analysis, and active participation-key competencies in both educational and office settings. However, the success of PjBL implementation largely depends on the availability of relevant and up-to-date teaching materials. This study aims to develop teaching materials titled Office Seminar Based on Project-Based Learning, which not only integrate conventional theories but also provide opportunities for students to engage in discussions, presentations, and project development related to the course topics. By actively involving students, these teaching materials are expected to improve learning outcomes, deepen their understanding of academic concepts, and strengthen practical skills such as collaboration, creativity, and problem-solving. The findings of this study are expected to contribute to improving the quality of PADP graduates, equipping them to compete in a dynamic and complex job market.

Keywords: Teaching Material, Learning Outcomes, Office Seminar.

1 Introduction

Educational resources are fundamentally important in the education that students get in a university. Teaching resources are mainly the means of giving students important details and ideas. They are a learning and teaching aid that gives the course content structure and makes

sure students learn what they should. In short, teaching resources help teachers plan lessons and let students learn on their own. According to Arends, good teaching resources give information and help students think critically, analyze things, and solve problems methodically.[1]

Using Project-Based Learning (PBL) in teaching resources is important for improving how well students learn, making learning more interesting, and helping students develop practical skills. It has often been shown that PBL teaching resources improve student achievement because the PBL model lets students take part in learning, which makes them more driven and in charge of their own learning. [2] Project-Based Learning, according to Larmer, Mergendoller, and Boss, is widely recognized as an instructional approach that supports the development of 21st-century skills such as collaboration, critical thinking, and problem-solving.[3] Also, when projects relate to what students like or to real-world problems, learning becomes more meaningful and relevant. For instance, Krajcik and Blumenfeld conducted a study that showed that science students who used PBL-based teaching resources improved their scientific skills significantly, including their ability to design experiments and study information.[4] PBL-based teaching resources also need to focus on including new technologies in learning. In today's digital world, technology can help with learning projects by doing things like researching online, creating multimedia presentations, or using special software for seminars. Research by Barak and Dori has found that using technology in PBL makes learning better and improves students' digital skills, which are very important in the 21st century.[5]

However, as said before, the Office Administration Education Study Program (PADP) still does not have teaching resources for the Office Seminar course that are made using the Project-Based Learning (PBL) model. These resources should properly guide students in the PADP program, improve learning results, make learning more interesting, and strengthen students' practical abilities. Market research indicates that the current teaching resources for the Office Seminar course, or seminar courses generally, are not written specifically for office administration education. The majority of seminar teaching resources use a general method that is often hard for students studying office administration to use. Another reason for this is the lack of suitable local books and articles. The majority of available books are from other countries and do not address the local situation, including culture, job market needs, or education rules.

Learning is significantly affected when teaching resources are poorly prepared or irrelevant. Well-structured teaching resources systematically present theories, examples, and real-world uses that enhance learning. If these resources are not available, students might have to find information from various disorganized sources. This can cause uncertainty because the materials may not be consistent or directly applicable to their academic requirements. Sudjana argues that well-designed teaching materials assist students in achieving learning goals by making pertinent information more understandable.[6] Moreover, having insufficient or poor teaching materials can negatively impact the quality of presentations and discussions in seminars. Seminars need students to share ideas, thoroughly examine topics, and present findings in a professional way. Students lacking sufficient teaching materials will find it hard to deeply understand the topics covered, possibly leading to superficial arguments and analyses. Ultimately, seminar quality may decrease in both content and presentation. As a result, students may struggle to communicate effectively, a crucial ability in office administration.

To support the Office Administration Education Study Program's (PADP) ongoing efforts, creating current, relevant teaching materials is essential to reflect the constantly changing fields

of education and office administration. Specifically, project-based learning (PBL) materials are needed, which integrate the PADP curriculum with real-world advancements. A PBL approach enriches student learning by going beyond typical theories and allowing active participation in discussions, presentations, and projects related to the topics they study. These initiatives are intended to improve practical skills, expand understanding, and teach collaborative and creative problem-solving in education and office administration. These materials should improve both immediate learning results and greatly enhance the overall quality of PADP graduates long-term. Consequently, this initiative supports PADP's goal of producing graduates with comprehensive knowledge, valuable skills, and strong competitiveness in the job market. Based on the aforementioned context, the research will focus on: Creating Project-Based Learning Teaching Materials for the Office Seminar Course within the Office Administration Education Program at Universitas Negeri Medan.

2 Methodology

This investigation was carried out utilizing the ADDIE framework, recognized as a frequently employed approach in instructional design for creating items like instructional resources or manuals. The name ADDIE represents a collection of five phases that are woven together in the design journey. These phases include Assessment, Planning, Creation, Execution, and Appraisal.[7] The ADDIE framework was chosen because it is well-regarded within the educational sector due to its helpfulness in offering an organized method. The research conducted by M. Candra Syahputra indicated that this framework is particularly valuable when making instructional resources. [8] In the meantime, Zainuddin and Perera illustrated that employing the ADDIE framework in technology-enhanced learning environments has the capacity to raise students' desire to learn.[9]

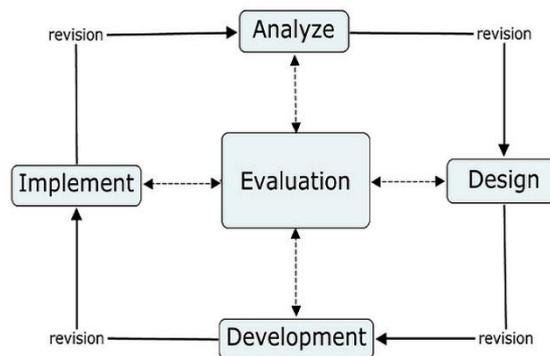


Figure 1. ADDIE Model Stages (Source: https://en.wikipedia.org/wiki/ADDIE_model)

The stages of the ADDIE model applied in this study consist of Analysis, Design, Development, Implementation, and Evaluation. These stages are illustrated in **Figure 1** above.

1. Analysis

The Analysis Phase constitutes the initial and most crucial step in the ADDIE model, focusing on identifying instructional design needs—particularly teaching materials in this context—and developing a deep understanding of the target audience. A comprehensive analysis is essential to ensure that the instructional design developed aligns with the needs and characteristics of the learners. The purpose of this analysis is to ensure that all relevant aspects have been carefully considered before the instructional materials begin to be designed.

2. Design

During the design phase, the following types of tasks are carried out:

- a. **Determining Learning Objectives:** Learning objectives should be precise, quantifiable, attainable, pertinent, and have a specific timeframe.
- b. **Designing Material Framework:** This framework encompasses the fundamental subjects that will be addressed, along with the arrangement in which they will be presented. Within this procedure, it is essential to concentrate on the progression of learning, guaranteeing that the instructional content is conveyed in a coherent and organized fashion.
- c. **Choosing Writing Strategy:** A writing strategy is essential to effectively accomplish the predetermined learning objectives. This strategy could manifest as straightforward instructional resources, project-centered learning materials, or those derived from seminars, case studies, or interactive group dialogues.
- d. **Selection of evaluation Instruments:** Assessment tools are developed with the intention of gauging the degree to which students have effectively achieved the learning objectives. The evaluation can assume various forms, including written assessments, tasks, projects, or observations.

3. Development

The development phase within the ADDIE model represents the stage where the outlined plan is converted into tangible learning resources. Specifically within the realm of Project-Based Learning (PBL)-oriented materials, this stage necessitates the creation of learning components that prioritize the project as the central element of the learning process. This undertaking requires meticulous attention to the content, presentation style, incorporation of technology, and assessment of materials to guarantee synchronization with both the learning objectives and the fundamental principles of PBL.

4. Implementation

The stage of putting the plan into action involves utilizing the teaching resources that have been created within actual learning settings. This phase is undertaken to guarantee that the teaching resources being employed can realistically assist students in successfully completing their projects. This demands meticulous preparation, technological arrangements, and execution that involves energetic interaction between the guide and the learners. During this phase, the guide needs to provide direction to the learners to make certain that the aims of learning are successfully met. Furthermore, the guide needs to make certain that learners effectively tackle problems they come across as they learn. Also, the guide needs to make certain that learners' skills improve once they have finished learning.

5. Evaluation

The last step within the ADDIE model is evaluation. Throughout the entire procedure, from analysis and design to development and implementation, this stage is essential in determining how well things went. Within the framework of this study, the evaluation encompasses two significant elements: assessing how well students learned and assessing the instructional resources that were created. To ensure that learning goals are met and that instructional resources can support the learning process, these two types of evaluations work together.

2.1. Data Analysis

Quantitative data is used in this study. In this research, the data analysis methods employed include three categories: Validity, Practicality, and Effectiveness.

1. Validity

In this study, a validity test was conducted on the teaching resources using a validation sheet specifically created to assess a variety of pertinent features. A Likert Scale served as the measuring instrument during this procedure. This scale is a widely used psychometric tool in surveys to gauge an individual's feelings, perceptions, or viewpoints regarding a specific subject or occurrence. Likert Scale statements typically comprise both favorable and unfavorable assertions, which are subsequently evaluated according to the respondents' degree of agreement with such statements. A range of values is generally used by this scale; in this study, a score of 1 denoted "very bad/very unsuitable," while a score of 5 denoted "very good/very suitable." The indicators used to measure the validity of the developed teaching materials are presented in **Table 1**.

Table 1. Teaching Material Validity Indicators

Scale Score	Description
5	very good/ very suitable
4	good/ suitable
3	less good/less suitable
2	not good/not suitable
1	very bad/ very unsuitable

After the validity instrument is given to the validator, the next step is to assess the suitability of the teaching materials prepared. The validity calculation formula can be done using the following formula:

$$\text{Average total Score} = \frac{\text{Total Score}}{\text{Number of Respondent}}$$

Then, the validity percentage results can be calculated as follows:

$$\text{Validity} = \frac{\text{Average Total Score}}{\text{Maximal Value}} \times 100\%$$

The interpretation of the validity score is categorized according to the criteria shown in **Table 2** below.

Table 2. Product Validity Criterias

No	Score in %	Validity Category
1	0 – 21 %	Un valid
2	21 – 40 %	Less Valid
3	41 – 60 %	Fairly Valid
4	61 – 80 %	Valid
5	81 – 100 %	Very Valid

2. Practicality

The practicality test in this study was also processed using a Likert Scale, with indicators as stated in the Table 3:

Table 3. Criteria for Scoring Practical Answers

Scale	Description
5	Strongly Agree
4	Agree
3	Less Agree
2	Disagree
1	Strongly Disagree

Analysis of the level of product practicality in the questionnaire can be calculated using the following formula:

$$Practicality = \frac{Total\ Score\ Obtained}{Maximal\ Score} \times 100\%$$

After knowing the practical value, to describe the practicality results can be seen from the following criteria in **Table 4**:

Table 4. Practicality Rating Criteria

No	Score in %	Practicaly Category
1	0 - 21 %	Unpractical
2	21 – 40 %	Less Practical
3	41 – 60 %	Quite Practical
4	61 – 80 %	Practical
5	81 – 100 %	Very Practical

3. Effectiveness

This assessment of efficacy was performed using a limited group of learners from the Program of Office Administration Education. The participants were chosen according to particular guidelines, specifically students who had finished the Office Seminar course. The justification for choosing this specific group of students rested on the idea that those with a basic understanding of the subject matter could give a more precise view of how well the newly created educational resources worked. Students' learning results were compared both before

and after they had used the new learning resources, using a before-and-after trial structure. Information on learning results was obtained through standardized assessments created to evaluate both how well students grasped concepts and how well they could put what they had learned into practice. Prior to utilizing the new learning resources, pupils were required to complete a pre-test with the intention of determining their initial skill levels. Following that, they were allotted time to review the materials that had been made available. To conclude, in the final phase, the students took a post-test to measure the gains in learning results after making use of the instructional resources.

The paired sample *t-test* method was used to analyze the collected data. This approach was used because it is appropriate for assessing mean differences between two interconnected sets of data, namely the pre-test and post-test results derived from the same individuals. Within the framework of this study, the researcher put out the following hypotheses:

* The null hypothesis (H_0) posits the absence of any noteworthy difference in learning results between the time before and after the instructional materials were used.

* The alternative hypothesis (H_1) posits the existence of a noteworthy difference in learning results between the period before and after the treatment.

With the help of this paired sample t-test, the research team is able to ascertain whether the usage of instructional resources has a statistically beneficial influence on the learning outcomes of the students. The null hypothesis (H_0) will be accepted if the test findings indicate a p-value > 0.05 , whereas the null hypothesis (H_0) will be rejected if the p-value < 0.05 .

3 Results and Discussion

3.1 Research Result

The whole research process is composed of 5 phases: Analysis, Design, Development, Implementation, and Evaluation. The research findings are detailed in the following sections:

1. Analysis

The analysis in this research aims to assess the curriculum used at Medan State University, specifically within the Office Administration Education Study Program. The main goal of this analysis is to determine the curriculum's needs and guarantee that the teaching resources are suitably matched. The Indonesian government has established the Indonesian National Qualification Framework (KKNI), as stated in Presidential Regulation No. 8 of 2012, for higher education. Consequently, universities, as bodies in charge of producing capable individuals, must ensure their graduates meet the learning results stated in the KKNI framework.

2. Design

The Design Stage involves developing a competency map for the Course Learning Outcomes (CPMK), making the educational resources, and creating the Public Relations course syllabus (RPS). These learning results are meant to match the professional skills predicted of graduates from the Office Administration Education Study Program, who are prepared to work as office administration assistant educators, office administration professionals, and business owners. In this stage, the material for the digital Office Seminar book is created. The course learning results are precisely planned and finished before the RPS is completed.

Based on the Course Learning Outcomes of the Office Seminar, this Project-Based Learning (PBL) Office Seminar teaching book is designed to be written in 9 chapters, consisting of:

1. The Nature and Concept of Seminars
2. Seminar Project Preparation
3. Writing a Seminar Proposal
4. Scientific Writing Techniques
5. Seminar Publication
6. Seminar Support Technologies
7. Seminar Presentation and Moderation
8. Seminar Challenges
9. Seminar Evaluation

3. Development

Each chapter in this book is equipped with reflections and learning projects, designed based on the Project-Based Learning (PBL) approach. These projects serve as a means to apply theoretical knowledge to real-world experiences, emphasizing students' active participation and engagement in completing contextual and practical projects. The assignments are designed with implementation flexibility in mind, allowing them to be carried out either inside or outside the classroom, depending on the complexity of the material and the availability of supporting resources. This approach aims to maintain the effectiveness of the learning process, considering the limited face-to-face time and physical facilities available in the academic environment.

Furthermore, the learning projects in this book have been integrated with assignments based on the Indonesian Qualification Framework (KKNI), encompassing elements such as Mini Research, Team Projects, and Idea Engineering. This integration not only strengthens the relevance of learning to national competency outcomes but also promotes efficiency in task implementation. In certain contexts, these learning projects can be aligned with Team Project activities, so that students do not have to complete two separate types of assignments. Similarly, the Mini Research activities designed as part of the projects allow students to achieve multiple learning targets simultaneously. This approach is crucial for reducing excessive workload, as in practice, students often feel overwhelmed by numerous KKNI-based assignments if they are not designed in an integrated and structured manner.

4. Implementation

Following the book's completion, a Validation Test was initially performed to determine the book's practicality before its application or use with the study participants. The Validation Test involved the participation of three experts. Each expert received a set of 50 questions, which were organized into three distinct sections. The book's content practicality was evaluated using twenty questions, while the presentation practicality, including layout and design, was assessed using 15 questions, and the last 15 questions were designed to gauge the practicality of the language used.

The assessment outcomes from the three experts are detailed in **Table 5** below:

Table 5. Validation values from the three validators

Validator	Aspect			Average	Description
	Content	Presentation	Language		
1	89,00	90,66	94,66	91,44	Very Worthy
2	87,00	92,00	94,66	91,22	Very Worthy
3	90,00	93,33	89,33	90,88	Very Worthy
Average	88,66	91,99	92,88	91,18	Very Worthy

Thus, it can be concluded that the digital-based Office Seminar book is suitable for application. The validity of each aspect is in the range of 91%-100% as well as the validity of the book as a whole.

5. Evaluation

At this evaluation stage, the practicality of the developed teaching materials was tested, particularly regarding ease of use, usefulness, and the effectiveness of the book's implementation in a learning context. The trial subjects consisted of 40 sixth-semester students from the Office Administration Education Study Program, who served as respondents for data collection. The instrument used was a questionnaire distributed to the students to gather their feedback and assessment of the quality of the teaching materials. The questionnaire contained 12 items covering three main aspects: content feasibility (5 items), presentation aspects (4 items), and language aspects (3 items). This evaluation aimed to obtain empirical data on the level of acceptability of the teaching materials from the perspective of direct users, namely the students.

The data obtained from the respondents is displayed in **Table 6** below:

Table 6. Practicality Value

No	Aspect	Percentage	Description
1	Content	93,40	Very Practical
2	Presentation	88,90	Very Practical
3	Language	91,33	Very Practical
	Total	91,21%	Very Practical

Based on the data presented in the table, it can be concluded that the *Office Seminar: Project-Based Learning* book demonstrates a very high level of practicality, with an overall percentage of 91.21%. This finding indicates that the developed teaching materials are highly practical and suitable for classroom implementation. This finding indicates that the developed teaching materials are highly practical and suitable for classroom implementation. Similar results were reported by Bell [10] and Krajcik & Blumenfeld [11], who found that Project-Based Learning materials significantly improve student engagement and learning effectiveness. This result is also consistent with previous studies showing that project-based learning can enhance students'

motivation, collaboration, and conceptual understanding (Thomas [12]; Blumenfeld et al. [13]). The high practicality score also indicates that the learning materials are easy to use and support student engagement during the learning process. Previous research has demonstrated that PBL-based instructional materials increase student motivation and active participation in learning activities (Hmelo-Silver [14]). Further examination shows that the content aspect achieved a practicality score of 93.40%, reflecting that the book's content is perceived as highly relevant and applicable by the users. Meanwhile, the presentation aspect received a practicality score of 88.90%, which also falls into the very practical category. The language aspect obtained a score of 91.33%, indicating that, overall, the language used in the book is communicative and easy to understand.

The effectiveness test was conducted to determine the extent to which the implementation of the *Office Seminar: Project-Based Learning* teaching book influences the improvement of students' learning outcomes. This study employed a quasi-experimental design with a pre-test-post-test model conducted over three sessions. The materials used in the test included: (1) The Nature and Concept of Seminars, (2) Seminar Publication, and (3) Seminar Challenges. The research subjects consisted of 10 students from a class that had previously taken the Office Seminar course.

The research procedure began with administering a pre-test to all participants to measure their initial level of understanding before using the teaching materials. Subsequently, the learning process was carried out using the *Office Seminar: Project-Based Learning* teaching book as the primary resource. In this process, the lecturer not only delivered the material but also assigned project-based tasks to encourage active participation and reinforce students' conceptual understanding.

After the learning sessions were completed, a post-test was conducted to determine changes in learning outcomes following the use of the teaching book. The comparison between pre-test and post-test scores was used to assess the effectiveness of the learning intervention. For statistical data analysis, the Paired Sample T-Test technique was employed to examine the significance of differences in scores before and after the treatment. Thus, the results of this test provide a basis for determining whether the use of the *Office Seminar* book truly benefits the improvement of students' learning achievements.

Table 7. Paired Samples Test

		Paired Differences			95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Pre test	-	3.878	.708	-20.281	-17.385	-	29	.000
	Post Test	18.833					26.599		

Based on the data analysis presented in **Table 7**, the calculated t-value was 26.599 with a significance level of 0.00. Since this significance value is smaller than the predetermined significance level (0.05), the null hypothesis (H_0) is rejected. This indicates that there is a

significant difference between students' learning outcomes before and after using the teaching book. The improvement in post-test scores after the implementation of the teaching materials confirms that the PBL approach can significantly enhance students' understanding of course content. Similar findings were reported by Prince and Felder [15], who concluded that active learning strategies such as project-based learning lead to higher retention and better learning outcomes.

Therefore, it can be concluded that the use of the *Office Seminar: Project-Based Learning* book significantly improves students' learning outcomes. These findings demonstrate that the book is not only suitable as teaching material but also effective in supporting the achievement of learning objectives in the Office Seminar course. These findings support previous research by Mergendoller, Maxwell, & Bellisimo [16] which showing that well-designed teaching materials based on project-based learning can improve both cognitive achievement and practical competencies among university students.

4 Conclusion

This study aimed to develop Project-Based Learning (PBL) teaching materials for the Office Seminar course in the Office Administration Education Study Program at Universitas Negeri Medan using the ADDIE development model. The development process consisted of five stages: analysis, design, development, implementation, and evaluation. The results of the study demonstrate that the developed teaching materials meet the criteria of validity, practicality, and effectiveness. First, the validity test conducted by three expert validators showed that the teaching materials achieved an average score of 91.18%, which falls into the "very worthy" category. This indicates that the content, presentation, and language of the developed Office Seminar book are appropriate and suitable for instructional use. Second, the practicality test involving 40 students showed an overall practicality score of 91.21%, categorized as "very practical." These results indicate that the teaching materials are easy to use, clearly presented, and helpful in supporting the learning process. Students also perceived the materials as relevant to the course objectives and beneficial in facilitating active engagement during seminar activities. Third, the effectiveness test using a pre-test and post-test design demonstrated a significant improvement in students' learning outcomes after using the teaching materials. The paired sample t-test produced a significance value of 0.000 ($p < 0.05$), indicating a statistically significant difference between students' learning outcomes before and after the implementation of the PBL-based teaching materials. This finding confirms that the developed teaching materials effectively enhance students' understanding and learning achievement in the Office Seminar course. Overall, the findings indicate that the Project-Based Learning-based Office Seminar teaching materials are valid, practical, and effective for use in the learning process. The integration of project-based activities encourages active learning, improves students' conceptual understanding, and supports the development of important skills such as collaboration, critical thinking, and scientific communication. Therefore, these teaching materials can serve as an effective instructional resource for improving the quality of learning in the Office Seminar course and for supporting the development of competent graduates in the field of office administration education.

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