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## Pengembangan E-Book Berbasis *Project-Based Learning*: Studi Kasus Pada Kelas Bilingual Akuntansi di Indonesia

*THE DEVELOPMENT OF PROJECT-BASED LEARNING E-BOOK: A CASE STUDY FROM ACCOUNTING BILINGUAL CLASSES IN INDONESIA*

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### ABSTRAK

Penelitian ini bertujuan untuk mengembangkan e-book berbasis *Project Based Learning* pada mata kuliah Pengantar Akuntansi untuk Kelas Bilingual. Jenis penelitian yang digunakan adalah *research and development* (RnD). Model penelitian yang diterapkan pada penelitian ini adalah model ADDIE yang dimodifikasi, yaitu: analyze, design, develop, evaluate, dan implement). Pengumpulan data pada penelitian ini mencakup pengumpulan materi dari sumber-sumber kredibel, lalu di susun sesuai dengan urutan materi yang ada pada Rencana Pembelajaran Semester, serta menggunakan desain yang menarik. Validasi desain dilakukan oleh ahli media dan ahli materi. Hasil validasi menunjukkan nilai yang baik dimana e-book ini layak digunakan. Revisi desain hanya sebatas revisi minor dan revisi tersebut didasarkan pada form validasi ahli media dan ahli materi, seperti konsistensi penggunaan istilah, penambahan pembahasan, dan penambahan contoh laporan. Uji coba kelompok kecil juga telah dilakukan dan e-modul akuntansi pengantar mendapatkan nilai layak untuk digunakan.

**Kata kunci:** Project Based Learning, Akuntansi pengantar, Kelas Bilingual

### ABSTRACT

*This article aims to develop an e-book based on Project Based Learning needs in the Basic Accounting course for Bilingual Classes. The type of research used is research and development. The research model used in this study is the modified ADDIE method, which consists of 5 stages: analyzing, designing, developing, evaluating, and implementing. The data collection in this research includes collecting material from credible sources, then arranging it according to the order of the material in the Semester Learning Plan, and using an attractive design. Design validation is carried out by media experts and material experts. The validation results show a good value where this e-book is suitable for use. Design revisions are only limited to minor revisions and these revisions are based on validation forms from media experts and material experts, such as consistent use of terms, additional discussions, and additional report examples. Small group trials have also been carried out and found that the basic accounting electronic book value is suitable for use.*

**Keywords:** Project-Based Learning, Basic Accounting, Bilingual Class

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## INTRODUCTION

Education is an investment in life. It is important for educators to pay attention to the development of human values in the learning process (Amissah, 2019; Bowen, 2017; Yoshikawa et al., n.d.). Today traditional learning in accounting education such as memorization activities, reading, writing, and listening are necessary, but they are not sufficient for the young generation to combat in the global community. Learning using traditional methods tends to be less able to increase motivation, and soft skills and less able to provide students with learning experiences in a real context (Bell, 2010; Shin et al., 2021). Educational success nowadays is not only measured by the transfer of knowledge but also by the development of soft skills such as content knowledge, communication, self-management, positive attitude, promote social interaction and motivation (İlhan, 2014).

In order to improve the competency of graduates, both soft skills and hard skills so that they are more prepared and relevant to the needs of the times, the Indonesian Ministry of Education has promoted the Independent Learning, Independent Campus (MBKM) program since the end of 2020. One of MBKM's main programs in higher education is the application of project-based learning. The seriousness of the Ministry of Education and Culture in implementing project-based learning is also clearly visible in determining this method as one of the main indicators for assessing higher education performance (Direktorat Jenderal Pendidikan Tinggi, 2021).

The project-based learning method began to be introduced in the early 20th century and

had the primary purpose of motivating students to learn independently known as self-learning (Terrón-López et al., 2017). Literature studies show that project-based learning can encourage students to become interactive learners and boost students' learning motivation also willingness to explore knowledge (Botha, 2010).

A recent study also found that project-based learning was more effective when combined with the use of computer technology (Barron et al., 1998; Chang & Lee, 2010). Information and Communication technologies (ICT) play a key role in supporting learning success in the 21st century. Today's learning media demands to be able to deliver learning materials not only in text form but also attractive and easily accessible from anywhere (J. S. Brown, 2000; Zhang & Nunamaker, 2003).

However, the application results of project-based learning can vary for each country and program of study. The success of implementing the project is also affected by the readiness of the lecturer in designing the project and playing the role of facilitator. Apart from that, supporting learning media is also needed in implementing learning projects.

On the other hand, the challenge of the need for university graduates in Indonesia to be competitive internationally, many universities respond to this challenge by opening bilingual classes or international programs, including accounting study programs. However the literature that discusses the development of project-based learning media at colleges that implement bilingual classes is still minimal.

This study aims to explore the stages of making electronic learning media from electronic handbooks for bilingual classes, especially in accounting study programs. There are two main research questions in this study: 1) what is the

stage of the preparation of a project-based e-book in the bilingual class, 2) how is the satisfaction of the student in the two-lingual class regarding the introductory accounting e-book based on project-based learnings. The method used in this study is the Research and Development Model (RnD) by adopting the ADDIE model consisting of Analysis, Design, Development, Implementation, and Evaluation. In more detail, this article will discuss the theory and previous research in section 2. In section 3 it will be discussed about the methods of research applied. Section 4 reveals the results of the research and its interpretation. Finally, in section 5 it will be presented with summaries, limitations, and recommendations for further research.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Project-Based Learning**

Project-based learning refers to an inquiry-based instructional method that engages learners in knowledge construction by having them accomplish meaningful projects and develop real-world experiences (Brundiers & Wiek, 2013). According to Martinez (2022), Project Based Learning has the following characteristics: (1.) Students make decisions and create a framework; (2.) There is a problem whose solution is not determined beforehand; (3.) Students design processes to achieve results; (4.) Students are responsible for obtaining and managing the information collected; (5.) Students carry out ongoing evaluations; (6.) Students regularly review what they have done; (7.) The final result is a product and its quality is evaluated; (8.) A learning atmosphere that is tolerant of mistakes and changes.

According to Botha (2010), there are five essential components of project-based learning. Project-based learning places students in realistic, contextualized problem-solving environments so that students work in teams to solve problems, preferably outside the classroom and over an extended period of time.

Brown & Campione (1994) state that there are two main components in Project Based Learning. First, there is a challenging problem that encourages students to organize and carry out an activity, which overall leads students to a meaningful project that must be completed alone as a team. Second, the final work in the form of a product or completion of a sustainable task that is meaningful for the development of their knowledge and skills.

All of these characteristics will be implemented during introductory accounting learning with a supporting e-book where the resulting product is the company's financial report. The financial report will be prepared in stages and in the process students must make decisions, create a framework, manage information, carry out evaluations, and carry out regular controls in doing so.

Several studies have predominantly focused on project-based learning in many levels of education. Alsamani & Daif-Allah (2015) tested the impact of an integrative pedagogical approach in language development classes for information technology and computer science students in Saudi Arabia and found that project-based instruction enhanced new study habits for learners by promoting self-directed, independent, cooperative learning as well as out-of-classroom learning. However, Brassler & Dettmers (2017) compared the impact of applying problem-based learning and project-based learning to improve interdisciplinary

competence and found that problem-based learning enhances students' interdisciplinary competence more than project-based learning, especially in (a) interdisciplinary skills, (b) reflective behavior, and (c) recognizing disciplinary perspectives.

### Preliminary Study

Wu et al (2018) analyzed the use of mobile e-books based on project-based learning in nursing health classes and found that the diverse functions, multimedia features, and convenience of e-book systems not only increased interest and motivation to learn but also increased learning effectiveness.

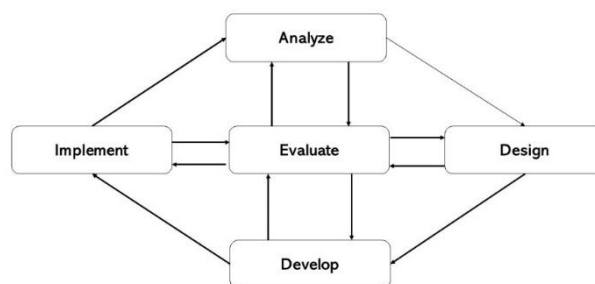
Hardjo et al (2020) conducted research aimed at producing project-based learning modules that could increase students' scientific literacy in energy matters. The research method used in this research is the development method or Research and Development (R&D) with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) design. The results of the research show that 1) the creation of the module went through several stages, namely needs analysis, design and development, implementation, and evaluation. 2) the validation results on the components of content suitability, presentation suitability, and language suitability on average were very good.

The development of an e-book based on project-based learning (PjBL) was also carried out by Nisrina et al (2021). This research uses 2-dimensional and 3-dimensional Animation subjects and adopts the ADDIE model which consists of Analysis, Design, Development, Implementation, and Evaluation. Validation by material and media experts in this research shows that the e-module is classified as very good. The results of the hypothesis test also show that e-modules as a learning media that

have been developed can increase the value of students' learning outcomes.

### RESEARCH METHODS

Research and Development (RnD) is research that aims to create or develop a work and then validate it. The research model used in this study is the modified ADDIE method. The ADDIE method is a method of media development that has structured stages to solve problems (Sugiyono, 2019). Here's this ADDIE method:



**Figure 1.** Stages of the ADDIE Model

Figure 1 shows the stages of the ADDIE model. This research uses modified ADDIE methods, i.e. analyze, design, develop, implement, and evaluate. which are used in this research and implemented in sequence. The final outcome at each stage becomes the basis of whether to proceed to the next stage or not. The first phase is a phase of analysis. At this stage, the researchers are trying to analyze the potential and problems of learning project-based learning in the introduction course of Accounting 1 in the bilingual class. The result of this stage is a record of any competence that is required in the preparation of an introductory accounting module in the international class. The second phase is the design phase. The e-module design begins with the creation of the front cover, then the design of the content of the e-module, as well as the development of assignments on the e-module with Project Learnings. (develop). The

development phase is carried out by conducting comprehensive material preparation and validation tests based on questionnaires from media experts, and material experts as well as small group trials.

Table 1 shows the grids used by the material expert to measure the validity of the module, consisting of the indicators of the learning aspects, the substantive aspects of the material, the language aspects, and the ease of use aspects (Habib et al., 2019; Nisrina et al., 2021).

Material assessment must be carried out by people who have the same field as the module being prepared. In this research, the material assessment was carried out by lecturers teaching basic accounting. The aspect that must be assessed first is the learning aspect, where the verifier must assess whether the module is relevant to the learning objectives: media clarity; the match between media, material, and evaluation; clarity of the tutorial presented; feedback to students; ability to motivate students; ability to allow students to learn independently; and learning patterns that must be fun but can provide challenges.

The second aspect is the substance aspect, which is related to the material content of the module (table 1). The verifier assesses whether the material has been presented correctly, whether the material is presented interestingly, whether the level of difficulty is appropriate to needs, whether the material is deep enough and its scope is appropriate to the learning objectives, whether the contextuality and actuality of the material are appropriate, and whether the language of instruction used is easy to understand or not. The third and fourth aspects are language aspects and ease of use. In terms of language, the module must be

presented in clear language, easy to understand in various aspects of both material and exercises, and communicative. Meanwhile, ease of use is related to the clarity of technical learning instructions and the systematic learning flow.

**Table 1.** Indicators for Material Assessment

No.	Assessment Aspects	Indicator	No. Item
1.	Learning Aspects	Relevance of learning objectives	1
		Media clarity with purpose	2
		Match between media, material, and evaluation	3
		Clarity of the tutorial presented	4
		Providing student feedback (Feed back)	5
		Learning activities are able to motivate students	6
		Provide students with opportunities for independent learning	7
		The learning pattern is fun, but challenging	8
2.	Substance Aspect	Correctness of presentation of material	9

No.	Assessment Aspects	Indicator	No. Item
		The attractiveness of presenting the material	10
		Appropriate level of difficulty of the material	11
		Depth and scope of material	12
		Contextuality and actuality of material	13
		The accuracy of the language used is easy for students to understand	14
3.	Language Aspects	The use of language is easy to understand	15
		Clarity of language in descriptions and discussions	16
		Communicative	17
4.	Convenience Aspect	Clarity of technical learning instructions	18
		Ease of understanding the learning flow (Systematic)	19

(Source: Habib et al., 2019; Nisrina et al., 2021)

Table 2 shows the grids that the media expert uses to validate the e-module in terms of the media (Habib et al., 2019; Nisrina et al., 2021). Media expert validation is more about the form and presentation of the module. Starting from the text/writing aspect, ease of use, and how instructions can be understood by users, as well as the visual appearance provided.

**Table 2.** Grid for Media Experts

No.	Assessment Aspects	Indicator	No. Item
1.	Text/Writing Aspects	Text quality	1
		legibility	2,3
2.	Convenience aspect	Ease of operation	4,5
		Ease of understanding instructions	6,7
3.	Visual Quality Aspects	Display quality	8,12,13
		Accuracy of content placement	9, 10, 11

(Source: Habib et al., 2019; Nisrina et al., 2021)

Validation tests are carried out by media and material experts using the Likert Scale to measure the level of data validation. The lowest score on the Likert scale used is 1, while the highest score is 5. Then a calculation of the e-module's eligibility presentation is done with the following formula:

$$\text{Percentage} = \frac{\text{acquisition score}}{\text{Maximum score}} \times 100\%$$

Based on the results of the percentage calculation, the level of validity of the e-module is then calculated by considering the average score. Table 3 below is a range of percentage criteria used to determine the level of validity of e-books.

**Table 3.** Validity Level of E-book

Average Score	Qualification	Explanation
90%-100%	Very Good	no need for revision
75%-89%	Good	no need for revision
65%-74%	Enough	needs for revision
55%-64%	Not Enough	needs for revision
0-54%	Very Not Enough	needs for revision

The fourth phase is the implementation phase. At this stage, researchers are trying to apply project-based learning to the bilingual introductory accounting class at Mataram University. Next to the fifth stage is evaluation. The evaluation carried out in this study was by spreading the student satisfaction questionnaire against the e-module.

Table 4 instruments used to evaluate the e-book by students. Indicators for e-book evaluation by students consist of motivation to learn, convenience, appearance, usefulness, and bilingual. Learning motivation consists of two indicators, namely whether the module can increase students' interest in learning and whether the module can increase students' attention to basic accounting courses. Convenience is related to assessing whether the module is easy to use independently and whether students can understand the material in the module. In terms of appearance, module must be displayed in good quality and attract students' attention, so that they are more enjoyable to use as learning media. Apart from that, the module must be assessed in terms of its usefulness, however the module aims to provide

a positive impact and improve students' abilities by providing appropriate material and exercises. Lastly, because this module was created with the main target of a bilingual class, students must also provide an evaluation in terms of language, whether the language used in the module is easy to understand starting from the material, assignments and cases presented.

**Table 4.** Indicators for E-book Evaluation by Students

No.	Assessment Aspects	Indicator	No. Item
1.	Motivation to learn	Student learning interest	1,2,5
		Student attention	3,4
2.	convenience	Ease of Operation	6,7
		Ease of students understanding the material	8,9,10
3.	Appearance	Display quality	11,12
		Provides student attraction	13,14,15
4.	Usefulness	Providing a positive impact on students	16,18
		Adding skills to students	17,19,20
5.	Bilingual	Understanding foreign languages	21,23
		English case work skills	22,24,25

(Source: Karunia, 2014)

## RESULTS AND DISCUSSION

This research is aimed at producing an e-book of accounting introduction in bilingual classes by considering the implementation of project-based learning. Introduction to accounting e-books in bilingual classes can enable students to access content and materials

without limitation of time, either through mobile phones or computers by accessing SPADA University. The main purpose of the e-book is to make it easier for students to gain access to the curriculum material so as to encourage students to do self-learning.

Results of observations of students in bilingual classes on Introduction Accounting courses show that students have a good literacy level. Some of the students have not read the material that will be taught by the lecturer before the class begins. The level of interest of the student in the material presented by the instructor verbally is also low, especially on the material of the adaptation journal. The results of the observations supported by interviews with the lecturer of the Introductory Accounting course concluded that students needed e-books as an electronic learning medium that is accessible anytime and anywhere.

The next step that the researchers undertake is to design an initial product or draft of an introductory e-accounting module with reference to the Semester Learning Plan and Curriculum of the Accounting Studies Program of Mataram University. The e-book design is structured using the Canva application, including cover creation, content listing, learning objectives, learning materials, examples of topic crafting, discussion questions, self-structured assignments, project assignments, images, and layouts. The development phase begins with the preparation of an e-book consisting of 75 pages and 5 chapters. After the design phase of the e-book, continued with the validation phase consists of material validation and media validation. The material is validated by three introductory accounting lecturers, both internally and externally from the University. The aspects evaluated by the material expert include

the learning aspects, the substantive aspects of the material, the language aspects, and the ease of use aspects. The material validation results are presented in Table 5.

**Table 5.** Material Expert Validation Results

No	Aspect	Expert Lecturer 1	Expert Lecturer 2	Expert Lecturer 3
1	Learning Aspects	92,5%	100%	85%
2	Aspects of Material Substance	93%	100%	80%
3	Language Aspects	80%	100%	87%
4	Ease of Use Aspect	90%	100%	80%
	<b>Average score</b>	<b>88.87%</b>	<b>100%</b>	<b>83%</b>
	<b>Description</b>	<b>Worthy</b>	<b>Worthy</b>	<b>Worthy</b>

Based on Table 5, the average qualification score from to four aspects of the material expert 1 lecturer is 88.87%, whereas of the expert lecturer 2 is 100% and of the materials lecturer 3 is 83%. The third is in the range of good and very good categories so that the e-book material is already qualified and does not require revision. Nevertheless, the researchers remained accommodating the validator input by making minor revisions to the material, such as adding accounting cycle explanations in chapter four, adding a material explanation before the example of a double-entry bookkeeping system, and adding an adjusting entry inscription. The next stage of validation is from the point of view of the media expert, given that this e-module will later be used as a learning medium. The media is composed of two lecturers of accounting education outside Mataram University. The assessed aspects include text display, ease of use, and visual quality aspects.



Table 6 shows media validation results from a media expert lecturer.

**Table 6.** Media Expert Validation Results

No	Aspect	Expert Lecturer 1	Expert Lecturer 1
1	Text Display Aspects	100%	93,33%
2	Convenience Aspect	90%	80%
3	Visual Quality Aspects	96,67%	83,33%
	<b>Average score</b>	<b>95,56%</b>	<b>85,55%</b>
	<b>Description</b>	<b>Worthy</b>	<b>Worthy</b>

Based on Table 6, the average score of the media lecturer 1 is 95.56 whereas the average rating of the second lecturer is 85.55. Both scores are in the range of the module classification good and excellent, so it can be concluded from the media that particular aspects of appearance, ease, and visual quality do not require major revision. However, the researchers still do minor revisions, such as correcting the title writing error in chapter VI.

**Table 7.** User Perceptions of Accounting Introduction E-Book in Small Group Trials

Res pon dents	Moti vatio nal As pects	Conve nience Aspect	Dis play Aspe cts	Useful ness Aspect	Bilingual Aspect
1	88%	80%	80%	72%	56%
2	88%	80%	80%	80%	80%
3	68%	76%	80%	80%	80%
4	84%	80%	80%	76%	80%
5	92%	80%	76%	76%	84%
6	96%	80%	76%	92%	80%
7	76%	84%	80%	88%	76%
8	80%	80%	80%	88%	80%
9	68%	60%	72%	72%	60%
10	72%	68%	76%	72%	64%
11	80%	72%	72%	80%	92%

Res pon dents	Moti vatio nal As pects	Conve nience Aspect	Dis play Aspe cts	Useful ness Aspect	Bilingual Aspect
12	88%	80%	76%	88%	92%
13	76%	80%	80%	80%	80%
14	80%	80%	76%	80%	80%
15	76%	80%	80%	72%	72%
16	68%	72%	76%	64%	68%
17	100%	100%	80%	80%	80%
18	68%	72%	80%	76%	64%
19	72%	80%	80%	84%	88%
20	76%	80%	80%	80%	72%
21	80%	84%	80%	88%	84%
22	72%	80%	80%	80%	80%
23	92%	100%	96%	84%	80%
Ave rage	<b>80%</b>	<b>79%</b>	<b>79%</b>	<b>80%</b>	<b>77%</b>
	<b>Good</b>	<b>Good</b>	<b>Good</b>	<b>Good</b>	<b>Good</b>

The next step is to apply the e-book to the bilingual class of the Introductory Accounting course in the Accounting study program of Mataram University. The respondents consisted of 23 students. The test implementation begins by giving the quiz as a pre-test of five items related to the adjustment journal. The activities continued with the implementation of e-books as a learning medium online and online through e-learning at Mataram University (SPADA). At the next meeting, the students were given a questioner related to their assessment of the e-module used.

Table 7 shows students' satisfaction with the use of Introduction Accounting e-book in bilingual classes. Based on table 7, the average student perception of the motivational aspect of the e-book is 80%, whereas the aspect of convenience is 79%, and so is the appearance aspect. In terms of efficiency, students' perception of e-books reached 80% while in the bilingual aspect, it reached 77%. In the overall aspect, the

percentage level of satisfaction perception will be above 75% so that the e-book is well perceived by respondents.

In general, the development of e-book learning media based on project-based learning has received positive perceptions from the majority of students. This is in line with research by Lou et al. (2011) where project-based learning encourages students to feel enjoyment and engagement in the learning process. In terms of improving the bilingual aspect, some students also have positive perceptions of the use of e-modules. This is in line with research by Assaf (2018) where there is a higher level of student language ability when the instructor applies project-based learning compared to traditional teaching.

### **Discussion**

This research uses the ADDIE method in preparing and validating the introductory accounting e-book. In line with Nisrina et al (2021) and Habib et al (2019) the e-book preparation process in this research consists of five stages, namely analysis or observation, product design stage, development stage, evaluation or validation stage, and implementation stage.

This research found that, of the five aspects tested, the Introductory Accounting e-book which was prepared using project-based learning principles received positive results in all aspects. The motivational and usefulness aspects received the highest score from users, namely 80%. This is in line with Bell (2010) and Shin et al (2021) research which found that project-based learning was able to influence student motivation in studying.

The results of this research are also in line with the research conducted by Indriana & Kamaludin (2023), who compiled an electronic book of the reaction rate material. The e-book received a very good score in the media expert assessment and a good score in the material expert

assessment. This means that the e-book is suitable for use. Several minor revisions were needed to improve the e-book, including inaccessible essay questions and inappropriate writing of chemical compounds due to unavailable features.

### **CONCLUSION**

This research has successfully produced an Introduction to Accounting e-book with an English introductory. This is because the e-book is targeted at international class students. The material is structured in accordance with the Semester Learning Plan and is sourced from credible and understandable books and accounting guidelines, as well as using applications that produce interesting designs. Design validation is carried out by media experts and material experts who are lecturers in the field of Education and lecturers of accounting. The evaluation results indicate that the module is already suitable for use. A few revisions are still needed to improve the e-book, such as adding discussion and using images and examples of reports to make it more interesting. Tests have been carried out on a small class and an assessment has been obtained that the e-module is worthy of use.

As a work produced by lecturers who teach in international classes, this module is expected to become a reliable, simple, and easy-to-understand source for students. This is because the lecturer concerned understands the needs and capacities of students. This module also adds to the scientific writing produced by lecturers at the University of Mataram and increases the value of the university as a credible educational institution.

This research is limited to exploring the stages of preparing e-books based on project-based learning and user satisfaction with these e-books in bilingual accounting classes at the University of Mataram, where the students who are respondents

already have experience in using e-books and e-learning. It is hoped that further research can expand the range of respondents to find out the effectiveness of e-books based on project-based learning in a more comprehensive manner. The next researchers can also create e-books with other learning models, subjects, and at other levels of education.

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