ACCOUNTING STAFF MODULE DEVELOPMENT USING PROJECT-BASED LEARNING MODEL TO IMPROVE COMPETENCE ACCORDING INDUSTRY NEEDS

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Abstract
This study aims to develop a learning module that is used to improve technical and interpersonal competencies specifically for accounting vocational school outputs, namely as accounting staff. This study was conducted because a gap was found between the competency needs of the industry and the current curriculum structure. Based on a survey conducted by BPS, the highest open unemployment rate is occupied by vocational high school graduates. Where in this case study, SMK Satya Bhakti 2 Jakarta in the concentration of accounting expertise in the last three years only 1 out of 82 graduates worked as accounting staff. This shows that a better learning ecosystem is needed, one of which is by providing modules that encourage graduates to have competence as accounting staff. The development of this module is structured using the ADDIE model (Analyze, Design, Development, Implementation & Evaluation). The study begins with an analysis of user needs in the business world & industry, followed by the preparation of the design and development which are then implemented or tested to book reviewers to ensure that this learning module is suitable for use. The learning approach used is project-based learning, used to improve students' thinking skills to be more active to finish the project and get real experience. This is supported by various previous studies that the development of learning modules can increase student independence, problem-solving skills, critical thinking and be more motivated to be involved in the learning process.

Keyword: module development, accounting staff, competency, project-based learning

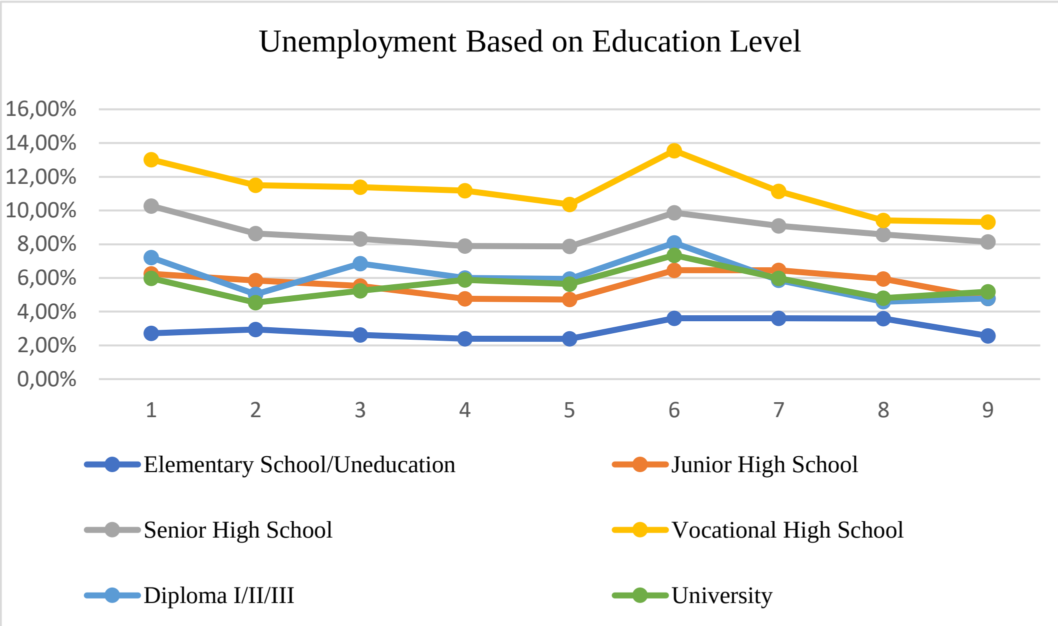
1. Introduction

Vocational education is one of the efforts made by the government in order to prepare a workforce that is ready to enter the job market. One form of vocational education is vocational high schools (SMK). In this case, the Indonesian government through the Minister of Education and Culture regulates the purpose of organizing SMK to produce a workforce that has skills according to industry demands (Permendikbud No. 34 Tahun 2018). However, in its implementation there are still many problems so that based on data from the IMF (International Monetary Fund), Indonesia is the country with the highest unemployment rate in ASEAN with a percentage of 5.2%, followed by the Philippines with a percentage of 5.1% and Malaysia with a percentage of 3.5% so that special attention is needed to develop competencies according to their fields of work (Puspapertiwi & Pratiwi, 2024).

Based on unemployment statistics in Indonesia, it is known that secondary vocational education or SMK has been the highest contributor to unemployment for nine consecutive years. unemployment from the vocational high school education level from 2015 to 2023 respectively, namely 13.02%, 11.49%, 11.38%, 11.18%, 10.36%, 13.55%, 11.13%, 9.42% and

9.31%. The level of education with the highest unemployment in second place is General High School with a percentage of 10.27%, 8.63%, 8.32%, 7.90%, 7.87, 9.86%, 9.09%, 8.57% and 8.15%. While the highest unemployment based on education level each year varies from junior high school, diploma or university while in third place (Badan Pusat Statistik Indonesia, 2024). The data can be seen in more detail in the following graph:

Figure 1. Unemployment in Indonesia Based on Education Level



Source:Badan Pusat Statistik Indonesia (2024), processed by Researchers

According to Septyani et al. (2022) competencies that support vocational education currently still do not meet DUDI requirements because the learning process is not given enough attention, there are real practices that are not in accordance with classroom learning. This is supported by a statement from the General Chairperson of the Indonesian Chamber of Commerce and Industry (KADIN) Arsjad Rasjid, vocational high school graduates are considered not ready to enter the job market in Indonesia even though they should be able to prepare graduates who can work directly because there are still problems in the process of developing human resources (Risalah & Alamsyah, 2023).

Previous research has revealed that the performance of accounting graduates does not yet have sufficient technical, professional and ethical competencies to enter the accounting job market(Kwarteng & Servoh, 2022). The competencies currently needed include the preparation of sustainable financial reports, professional knowledge, economics, taxes, law, business regulations and technology (Sripan & Wisaeng, 2022; Siirilä et.al (2022). Meanwhile, in the learning prepared by the government through the Decree of the Keputusan Kepala Badan Standar, Kurikulum, Dan Asesmen Pendidikan No. 032/H/KR/2024, the learning outcomes organized by the accounting curriculum include; business processes in the field of accounting and institutional finance, technological developments in industry and the world of work as well as current issues in the field of accounting and institutional finance, job/profession profiles and business opportunities in the field of accounting and institutional finance, business economics and general administration, work safety, professional ethics in the field of accounting and institutional finance, basic accounting principles and concepts and basic banking, use of spreadsheet applications, accounting for service companies, trade and manufacturing, accounting government institutions/agencies, financial accounting, accounting computers, and taxation.

Based on these conditions, it is known that there is a difference between what is needed by industry and what is organized in schools, especially in the learning process in the classroom. There needs to be a transformation of learning by changing the learning process from teacher-centered to student-centered, at least each student has an active contribution in the learning process so that the student's thinking patterns are not stagnant and are more consistent in critical thinking (Jamaluddin et al., 2023). So that a learning environment is needed that supports the process of strengthening contextual student skills so that it is easier to improve student competence (Chen et al., 2017). In terms of building a better learning environment, learning aids are needed in the form of learning resources, one of which is a learning module. According to Ngadiran et al., (2022) the right step to help prospective employees or graduates from vocational schools is to provide modules through an interactive learning approach between teachers and students.

The failure to achieve learning competencies was found due to the problem of teaching materials which were considered less able to facilitate the needs of students (Ayuningrum & Fitrayati, 2023). So it is necessary to provide teaching materials that can strengthen students' understanding in order to meet and add learning resources which if the teaching materials are right will become a trigger for successful learning (Helisa et al., 2020). So that the provision of appropriate teaching materials is one of the right steps in order to reduce the gap between the lack of student competency and the needs of the business world and the industrial world which have increasingly high standards.

Based on the background of the problems that have been expressed, the author is interested in compiling a learning module that aims to improve the competency of vocational high school graduates who are ready to work as accounting staff in companies. Research and development were carried out through a thesis entitled "Development of an Accounting Staff Module with a Project Based Learning Model that is Appropriate to Improve Competence according to Industry Needs".

This study aims to compile a series of in-depth learning modules for accounting staff based on project-based learning that are able to meet the graduate competencies needed by the industry to answer the research question, namely, what efforts can be made to meet the needs of the industry so that graduates from Accounting Vocational Schools can be absorbed as accounting staff?

2. Literature Review

2.1 Previous Relevant Research

Previous research revealed that the development of learning modules carried out by Jamaluddin et al. (2023) he "ExSheetLink's" learning module can improve student competence. This module provides facilities for students to learn the preparation of financial reports at the small and medium business level independently. Saptono et al. (2023) also revealed something similar, that the learning model can make it easier for students to learn material concepts through this module supported by multimedia integration so that it can provide an appropriate picture to improve conceptual understanding and critical thinking.

Similar research was also presented by Ayuningrum & Fitrayati (2023) who revealed that printed modules with attractive designs can increase students' interest in learning. Susilo & Harsono (2021) revealed that electronic-based learning models can improve student learning outcomes. This module is designed by paying attention to the elements of TPACK (Technological, Pedagogical, and Content Knowledge). Research conducted by Rajagukguk et al. (2023) students who use the module have a better understanding than those who do not.

Other research conducted by Hidayah et al. (2020) revealed that the development of critical thinking patterns of students can be built through creative learning and supported by learning modules. Learning modules with problem-based learning models are able to contribute to the critical thinking process through stimulations that encourage students to solve problems. Ishak et al. (2022) expressed the same thing, the need for holistic learning resources and adapting to the conditions of students in Islamic boarding schools encouraged researchers to create appropriate learning modules. This module has been successfully developed with validation score results from media experts and users on students at the Selangor Tahfidz Institution Association with a product that is suitable for use. Research conducted byIhsan (2023) the learning module developed was considered very good and suitable as a media and learning resource for trading company accounting, this is supported by very good and positive student responses and more interested in the learning process.

Research conducted by Yulianti & Herpratiwi (2024) evealed the same thing, namely that the existence of a learning module can increase student learning outcomes from 58.1 to 86.4. Mustafa et al. (2024) revealed that through the development of the M-BAM module in Islamic financial learning, it became more effective and was able to facilitate students to understand the learning context. Warneri & Ramadhan (2023) evealed that the bank reconciliation learning module had met the criteria for a good module, namely valid, practical and effective so that it was able to improve student learning outcomes.

2.2 Organizational Problem

SMK Satya Bhakti 2 Jakarta is a vocational high school that provides education in the concentration of expertise in Accounting and Office Management. Located on Jl. Slamet Riyadi III Kb. Manggis, Matraman, East Jakarta City which is geographically located within the Bengkel Pusat Zeni Angkatan Darat environment. The community around the school is a community that lives around Manggarai and Matraman, dominated by the lower middle class so that the activities that develop in the community in general are MSMEs and casual laborers. Most of the students who attend our school are from the surrounding community with the same profile. The social environment of the community with the condition of the school's strategic location, makes SMK Satya Bhakti 2 Jakarta required to be more competitive in order to meet the needs of the industrial world and the world of work according to the challenges of the times, especially in the concentration of accounting expertise. The Accounting Concentration is part of the Accounting and Financial Expertise Program of the Institution which has been opened since the beginning of SMK Satya Bhakti 2. Opened in order to fulfill accounting competencies for the Junior Accounting Technician profession in the form of processing, recording, grouping, and presenting transaction data related to finance.

In the accounting expertise concentration, it is expected to be able to prepare graduates who master: applying simple financial recording concepts; applying financial administration to service, trading and manufacturing companies, preparing company financial reports, assessing fixed assets, debt, inventory and company capital, preparing simple budgets, carrying out entrepreneurial activities, managing petty cash and bank cash, calculating standard taxes and preparing Tax Returns (SPT), operating spreadsheet programs, and operating accounting computer programs, namely Accurate. The outputs of the accounting expertise concentration include; Accounting Staff, Petty Cash Treasurer, Cashier, Bank Teller, Tax Staff, Internal Audit Assistant, Warehouse Admin, Tax Consultant Assistant, and Customer Service.

However, the problem currently being faced is the lack of Accounting graduates who work in accordance with their fields, specifically as accounting staff there is only one graduate out of 82 graduates in the last three years. This problem encourages management to conduct focus group discussions to solve the root of the problem. The analysis of the problems using the USG analysis method (Ariyanti & Sultoni, 2020) has been summarized as follows:

Table 1. Problem Priority Analysis

Masalah	*Urgency*	*Seriousness*	*Growth*	Total	Prioritas
Public view that Accounting is difficult to learn	3	4	3	10	4
Learning that is less contextual	5	4	4	13	2
Textbooks that support preparation for the industrial needs are not yet available	5	4	5	14	1
No Teaching Factory yet	4	4	3	11	3
Lack of industrial cooperation, especially in the field of accounting	4	4	5	13	2
Minimal learning motivation	4	4	3	11	3

Source: Processed by the author, 2024

Based on the analysis of the problem priorities above, it can be concluded that the unavailability of textbooks that support preparation for the world of work is an important, serious problem and will lead to faster growth, namely the provision of learning textbooks that are in accordance with industry needs..

2.3 Model Solution Offered

Learning modules are one component of learning that functions as a learning aid (Yaumi, 2018). The implementation of learning can continue without direct educators, because of the module. This facility contains materials, learning methods, limitations and evaluation tools that are systematically designed to support the achievement of the expected competencies. Purwanto et al., (2023) stated that a module is a learning program device that is arranged in a certain form that supports the learning process.

Project-Based Learning (PjBL) is one form of implementing active learning. This method can be defined as a teaching approach that connects technology with real problems in everyday life that are relevant to students, including projects carried out in the school environment. The PjBL model has great potential to create a more interesting and meaningful learning experience for students. In this approach, students are encouraged to be more active in the learning process, while the teacher acts as a facilitator who evaluates the final product of the students' work. In this model, the teacher provides relevant problems to be solved by students, who are then asked to develop a framework and systematic process to produce solutions(Kokotsaki et al., 2016). Module development uses the ADDIE development model (Analyze, Design, Development, Implementation & Evaluation). The ADDIE development model is a model developed with a systematic program or steps in an effort to solve problems related to learning resources according to the needs of teaching and learning activities (Tegeh et al., 2014)

The ADDIE development model can be described briefly as follows:

Figure 2. ADDIE Model Development

	Analyze	Design	Develop	Implement	Evaluate
Concept	Identify the probable causes for a performance gap	Verify the desired performances and appropriate testing methods	Generate and validate the learning resources	Prepare the learning environment and engage the students	Assess the quality of the instructional products and processes, both before and after implementation
Common Procedures	1. Validate the performance gap 2. Determine instructional goals 3. Confirm the intended audience 4. Identify required resources 5. Determine potential delivery systems(including cost estimate) 6. Compose a project management plan	7. Conduct a task inventory 8. Compose performance objectives 9. Generate testing strategies 10. Calculate return on investment	11. Generate content 12. Select or develop supporting media 13. Develop guidance for the student 14. Develop guidance for the teacher 15. Conduct formative revisions 16. Conduct a Pilot Test	17. Prepare the teacher 18. Prepare the student	19. Determine evaluation criteria 20. Select evaluation tools 21. Conduct evaluations
	Analysis Summary	*Design Brief*	*Learning Resources*	*Implementation Strategy*	*Evaluation Plan*

Source: Branch (2009)

3. Material and Method

The research method that will be used is research and development with the ADDIE model (Analyze, Develop, Design, Implement, and Evaluate). In the analyze phase, qualitative data collection is carried out in the form of semi-structured interview results related to the needs of industrial world competencies. After the data is analyzed and compiled according to the needs, development is carried out through testing the validity of the module through validation instruments by learning media experts, material experts and industry elements.

3.1 Research Schedule

Table 2. Research Schedule

Activities	Month																		
	August				September				October				November				December		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
School assignment	√	√																	
Literatur Review (*Analyze*)			√	√	√	√	√	√											

Analysis of classroom learning conditions and industrial needs (*Analyze*)		√	√	√	√	√	√					
Processing analysis data and compiling module outlines (*Design*)	√	√	√	√	√	√	√	√				
Compiling Learning Modules (*Development*)					√	√	√	√	√			
Expert & User Validation (*Development*)								√	√			
Using Learning Modules (*Impementation*)										√		
Revising Learning Modules (*Evaluation*)											√	
Finalizing Learning Modules												√

Source: Processed by the author, 2024

3.2 Implementation Model Stages

The implementation model developed based on Branch (2009) theory is carried out as follows:

1. Analyze: At this stage, the analysis in question is a needs analysis conducted through interviews with users or graduates or industry or the world of work. Interviews were conducted with; 1) The direct superior of the accounting staff in the company, to find out the real conditions of the competencies needed in the world of work; 2) Vocational high school teachers concentrating on accounting expertise in Matraman Village, East Jakarta City, to find out the learning process at school; and 3) Alumni of Vocational high schools concentrating on accounting expertise, to find out what competencies they already have
2. Design (Project Design). At this stage, the module to be developed will have its material outline and the contents needed in the module. Plans for teaching materials and their sources, case studies that will be used as student projects in the application of project-based learning and steps for using the module.
3. Development. The development stage is carried out by compiling the module according to the module compilation guidelines. After the compilation is carried out, the feasibility testing process for the module that has been compiled will be carried out. This feasibility

testing is carried out with experts in the hope of getting input and being able to develop it. Next, the module will be revised and refined according to suggestions and input.

4. Implementation. Implementation is the stage of testing the project to the research subjects, namely students.
5. Evaluation. The final results of the product evaluation in the final revision process will strengthen the feasibility of the product so that it is ready to be used in classroom learning.

3.3 Outcome Measurement Techniques

Measurement of the results of the learning module is carried out to assess the suitability of the book for use in the learning process at school. The suitability of the module is measured through a validation instrument carried out in the development process in the development of this module. Data analysis techniques are carried out quantitatively based on the Likert scale as follows:

Table 3. Learning Module Feasibility Test Assessment Scale

No.	Criteria	Point
1.	Very Good	5
2.	Good	4
3.	Enough	3
4.	Poor	2
5.	Very Poor	1

Source: Sugiyono (2017)

The quality score of the learning module's suitability is obtained based on the following formula:

$$Score = \frac{Value\ Obtained\ by\ Expert}{Maximum\ Value}\ x\ 100\%$$

S After the percentage value is obtained, the feasibility of the learning module can be determined based on the interpretation of the feasibility test score as presented in table 4:

Table 4. Interpretation of Learning Module Eligibility Test Scores

Score Range	Interpretation
81% - 100%	Very Worthy
61% - 80%	Worthy
41% - 60%	Quite Worthy
21% - 40%	Not Worthy
0% - 20%	Not Really Worthy

Source: Sugiyono (2017)

Books that have gone through the review and evaluation process and revision, can be declared suitable for publication. Furthermore, the book will be registered for Intellectual Property Rights (HAKI) to acknowledge that the book is a work that is protected by law for its creation and publication. So if the book is suitable for publication, the results of the preparation of this learning module have met the research output.

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