Enhancing Accounting Students' Competencies through Digital Accounting Information System Design

Fahmi Sahlan[1]
Nuzul Ibnu Hajar[2]
Sriayu Pracita[3]
[1,2]Accounting Study Program, School of Economics Enam Enam
[3]Faculty of Social and Economic Sciences, Sembilanbelas November University
**Correspondences*: fahmisahlan1994@gmail.com

ABSTRACT

This study aims to develop a learning model that integrates the ADDIE approach with project-based learning to enhance students' analytical skills and deepen their understanding of accounting concepts. The model focuses on the design of accounting information systems using Excel Visual Basic for Applications (VBA), providing a practical, technology-driven framework for accounting education. The research adopts a Research & Development (R&D) methodology grounded in the ADDIE development model. This model encompasses five key stages: conducting a needs analysis, designing the learning framework, developing materials and learning scenarios alongside Excel VBA applications, implementing the model, and evaluating its effectiveness in achieving learning outcomes. The findings reveal that the project-based learning model for accounting information system design using Microsoft Excel VBA is both valid and effective. It significantly enhances students' understanding and skills in the Accounting Study Program at STIE Enam Enam Kendari. Validation results confirm the high quality of the developed learning model and its potential for effective implementation in accounting education, offering valuable insights for improving teaching and learning processes in similar academic settings.

Keywords: Development of Learning Model; ADDIE Model; Design of Accounting Information System; Digital Accounting; Excel VBA Accounting

Pengembangan Model Pembelajaran Melalui Desain Sistem Informasi Akuntansi Dalam Meningkatkan Keterampilan Dan Pemahaman Mahasiswa Akuntansi

ABSTRAK

Penelitian ini bertujuan untuk mengeksplorasi dan mengembangkan model pembelajaran yang menggabungkan pendekatan ADDIE dengan pembelajaran berbasis proyek desain sistem informasi akuntansi menggunakan Excel Visual *Basic for Application* untuk meningkatkan keterampilan analitis dan menguatkan pemahaman bagi para mahasiswa di bidang akuntansi. Penelitian ini menggunakan metode *Research & Development* dengan model pengembangan ADDIE yang melibatkan tahapan analisis kebutuhan pembelajaran; perancangan model pembelajaran; pengembangan materi, skenario pembelajaran dan aplikasi Excel VBA; implementasi model pembelajaran; dan evaluasi efektivitas pembelajaran. Hasil dalam peneilitian ini menunjukan bahwa pengembangan model pembelajaran berbasis proyek desain sistem informasi akuntansi melalui Microsoft Excel VBA telah terbukti valid dan efektif dalam meningkatkan pemahaman dan keterampilan mahasiswa Prodi Akuntansi STIE Enam Enam Kendari. Berdasarkan validasi bahwa model pembelajaran yang dikembangkan memiliki kualitas dan dapat diimplementasikan secara efektif dalam proses belajar mengajar.

Kata Kunci: *Pengembangan Model Pembelajaran; Model ADDIE; Desain SIA; Akuntansi Digital; Akuntansi Excel VBA.*

Artikel dapat diakses : https://ojs.unud.ac.id/index.php/Akuntansi/index

e-ISSN 2302-8556

Vol. 34 No. 12
Denpasar, 31 Desember 2024
Hal. 2991-3005

DOI:
10.24843/EJA.2024.v34.i12.p16

PENGUTIPAN:
Sahlan, F., Hajar, N. I., & Pracita, S. (2024). Enhancing Accounting Students' Competencies through Digital Accounting Information System Design. *E-Jurnal Akuntansi*, 34(12), 2991-3005

RIWAYAT ARTIKEL:
Artikel Masuk:
18 November 2024
Artikel Diterima:
27 Desember 2024

INTRODUCTION

In an increasingly connected digital era, information and communication technology has become a primary driver of transformation across various sectors, including accounting. This development creates both new challenges and significant opportunities for practitioners and accounting education (Bailey & Ragland, 2022). With the adoption of digital accounting information systems, accounting students must be equipped with relevant knowledge and skills to compete in an increasingly competitive job market (Khan, 2022). According to the self-determination theory, humans possess three basic psychological needs: competence, autonomy, and relatedness. This theory emphasizes the importance of granting students the freedom to explore and take initiative, which, in turn, fosters creativity and innovation (Howard et al., 2021). Thus, it can be concluded that critical thinking and problem-solving, communication and collaboration, as well as creativity and innovation, are essential skills to develop in this century (Malan & Van Dyk, 2021).

In accounting study programs, technology-based learning has become crucial in preparing students for the workforce. A critical aspect of accounting education is the development of students' skills and understanding of accounting concepts, balanced with knowledge of information technology (Parra et al., 2021). However, research indicates that recent accounting graduates often face limitations in their ability to use digital accounting tools, analytical skills, and understanding of accounting concepts (Bailey & Ragland, 2022; Siregar & Aghni, 2021; Sitompul et al., 2021). These issues were also observed at a higher education institution in Kendari, namely the Sekolah Tinggi Ilmu Ekonomi (STIE) Enam Enam Kendari. Based on a survey conducted at STIE Enam Enam, the majority of accounting students expressed dissatisfaction with the current learning models. Industry partners, including businesses, industries, banks, and government institutions, also criticized the lack of knowledge and skills demonstrated by accounting interns in using Microsoft Excel, presenting data, preparing financial statements, and analyzing financial data. These criticisms were conveyed during Focus Group Discussions (FGDs) held with STIE Enam Enam partners.

Although conventional learning models have been widely used in accounting education, growing concerns persist about their effectiveness in enhancing students' skills and understanding (Sulindawati, 2020). Many stakeholders question whether these traditional learning models meet students' learning needs, especially in developing critical skills and a deep understanding of the material. This situation raises an important question: Are conventional learning models still relevant and effective, or is there a need for innovation and new approaches to optimize students' learning outcomes? It is essential to test and develop new learning models to address students' needs as they transition into the workforce.

This study aims to meet these needs by developing a learning model through the ADDIE approach combined with project-based learning in the design of accounting information systems using Excel VBA. The problem-solving strategy proposed in this study utilizes the ADDIE Model, a systematic approach to instructional development, making it particularly suitable for accounting education (Cahyadi, 2019). This systematic approach involves structuring the

learning process into several stages to organize them logically and sequentially (Suryanti et al., 2023). The ADDIE learning model comprises five phases: Analysis, Design, Development, Implementation, and Evaluation (Spatioti et al., 2022). In the digital era, this approach needs to be adapted to align with technology-based learning characteristics (Rizal et al., 2021). Microsoft Excel is one of the most commonly used software tools in accounting for database transactions, data analysis, financial statement preparation, budget planning, and other financial worksheet needs (Mujiani et al., 2022). One feature that enhances Excel's capabilities is Visual Basic for Applications (VBA). VBA is a programming language integrated into Excel that allows users to automate routine tasks, extend Excel's functionality, and develop custom applications (Manurung et al., 2023).

This study will develop a learning model through the ADDIE approach combined with project-based learning for designing accounting information systems using Excel VBA. During the implementation phase, each student will be guided in designing accounting information systems based on provided case studies using Excel VBA. The output of this phase will be student-created accounting information system applications. Through this process, students can expand their analytical skills and understanding by designing accounting information systems using Excel VBA, a highly practical tool in accounting practice (Fitriani et al., 2023). Moreover, by learning accounting concepts through practical applications with Excel VBA, students can experience more engaging and immersive learning (Rebman, 2023).

Previous studies by Bailey & Ragland (2022); Chusna & Haenilah (2022); Januszewski & Buchalska-Sugajska (2022); Malan & Van Dyk (2021); Martinez-Blasco et al. (2023); Parra et al. (2021); Sholihin et al. (2020); Siregar & Aghni (2021); Sitompul et al. (2021) have demonstrated that using Excel in accounting education can enhance students' understanding of accounting concepts and help them develop analytical skills essential for accounting practice. However, research explicitly exploring the development of learning models integrating the ADDIE approach with project-based learning for designing accounting information systems using Excel VBA remains limited. Studies by Abidin et al. (2020); Nugraha et al. (2023); Nurmi et al. (2020); and Almelhi (2021) have discussed the effectiveness of project-based learning in enhancing students' skills but have not comprehensively integrated the ADDIE approach. Therefore, this study highlights its novelty by focusing on four key aspects: 1) the integration of a structured learning approach; 2) the development of a learning model combining ADDIE and project-based learning for designing accounting information systems using Microsoft Excel VBA; 3) the utilization of Microsoft Excel VBA in the learning model; and 4) the development of a learning model highly relevant to workforce demands.

Based on these considerations, this study aims to explore and develop a learning model that combines the ADDIE approach with project-based learning for designing accounting information systems using Excel VBA. This study significantly contributes to improving accounting education and preparing students for success in a technology-driven workforce. Thus, this research offers innovative, relevant, and workforce-oriented solutions while enriching the literature on accounting education.

RESEARCH METHODS

This study adopts a Research and Development (R&D) approach aimed at developing and producing an effective learning model to enhance accounting students' skills and knowledge (Sugiyono, 2019). The study employs the ADDIE instructional model, which comprises five phases: Analyze, Design, Development, Implementation, and Evaluation. Each phase is systematically applied to ensure the developed learning model's effectiveness and relevance.

The study population includes all accounting students at Sekolah Tinggi Ilmu Ekonomi Enam Enam Kendari, totaling 598 students. The sample consists of 15 fifth-semester accounting students enrolled in Accounting Computer Applications and Accounting Information Systems courses. The sampling method used is purposive sampling, based on relevant criteria: fifth-semester students with foundational knowledge of accounting information systems and the potential to understand design concepts using Excel VBA. This technique allows the researcher to focus on students with the necessary baseline competencies to meet the research objectives. The primary data used in this study were collected through observations, questionnaires, in-depth interview transcripts, and Focus Group Discussions (FGDs) with subject matter experts, instructional media experts, accounting lecturers, and accounting students.

The data analysis technique employs descriptive analysis to evaluate the feasibility of the project-based learning model and to describe the data obtained from validation results and feedback. The data are analyzed at each ADDIE phase to produce a relevant learning model. The results from the data analysis are used as references for improving the learning model development. To determine the learning model's feasibility, the study applies a validation assessment criterion with the following scoring scale: 3.1 – 4.0 = Very Valid; score 2.1 – 3.0 = Valid; score 1.1 – 2.0 = Less Valid and score 0.0 - 1,0 = not Valid. Validation is conducted using a Likert scale by a panel of experts, including accounting lecturers and practitioners. The minimum feasibility criterion for the learning model is a validation score categorized as Valid. The Likert scale is employed to measure attitudes, perceptions, or opinions from individuals or groups about the developed product design (Sugiyono, 2029).

Student performance evaluation is based on final exam results. These evaluations aim to assess the effectiveness of the learning model and measure how well students have developed skills and understood course material. The final evaluation ranges from 0 to 100 points. Students are deemed to meet the passing criteria if their score exceeds 80, while those scoring below 80 are considered not to have met the passing criteria. The learning process is considered successful if approximately 80% of the total students meet the passing threshold.

The ADDIE model, which is a systematic approach, ensures the effectiveness and relevance of the developed learning model (Dick et al., 2015). The steps in this research are as follows: 1) Analysis: Identifying the necessity for product development, in this case, a learning model. This phase includes analyzing learners' capabilities (pre-tests) and course materials.; 2) Design: Planning the development of the learning model, which includes preparing instructional materials and designing learning scenarios.; 3) Development: Creating and validating the product. This phase involves developing an

automated accounting system based on Excel VBA for use in project-based learning scenarios. It includes product creation, product validation, revisions, and final validation. Validation and revision processes involve subject matter experts, instructional media experts, and accounting lecturers.; 4) Implementation: Implementing the developed learning model in an experimental class. This phase aims to guide students through the learning process, ensuring that it enhances their skills and knowledge; and 5) Evaluation: Measuring learning outcomes. This phase involves two types of evaluation: formative and summative. Formative evaluation provides feedback for improving the learning model, while summative evaluation assesses the learning model's effectiveness in improving analytical skills and strengthening the understanding of accounting concepts.

RESULTS AND DISCUSSION

This research follows a systematic process using the ADDIE model to develop and implement a project-based learning model for designing accounting information systems through Excel VBA. Below are the analysis results for each research phase.

Phase 1 The analysis phase is the initial step in applying the ADDIE model, aimed at identifying the need for developing the learning model. To assess the necessity of this development, the study employed observations, interviews, and pre-tests. The findings from this analysis served as the basis for developing the learning model. The analysis was conducted through two processes analysis of student abilities and material analysis.

Analysis of student abilities this focused on examining students' characteristics, including understanding, skills, and independence in learning. To measure students' abilities, a pre-test was conducted with 15 students who met the eligibility criteria.

Table 1. Pre-Test Score Distribution

No.	Score Range	Number of Students	Percentage	Category
1.	> 80	3	20%	Good
2.	60 - 79	8	53%	Fair
3.	< 59	4	27%	Poor
	Total	15	100%	
			Average Pre-Test Score 66.66	Fair

Source: Research Data, 2024

From the results above, the average pre-test score of the students was 66.66 out of 100. This indicates a moderate understanding of the basic concepts. Based on the score distribution, 20% of the 15 students scored above 80 (categorized as good), 53% scored between 60-79 (categorized as fair), and 27% scored below 59 (categorized as poor). This suggests that most students still need strengthening in their skills and understanding of accounting concepts.

The analysis of the material aims to evaluate the relevance and alignment of the content to be taught with the learning objectives and outcomes. Based on the analysis conducted, the following results related to the relevance and suitability of the content to be taught are as follows:

Table 2. Results of Material Analysis

Aspect	Content	Relevance	Suitability	Learning Outcomes
Enhancing Understanding	Accounting theory and concepts	Enhances students' understanding of accounting principles and standards.	Provides the foundation needed to understand accounting practices in the industry.	Knowing, understanding, using, analyzing, evaluating, and explaining accounting principles and standards based on case studies.
	Business transaction cycle and database	Enhances students' understanding of managing business transaction cycles and databases for producing accurate and efficient financial reports.	Provides the foundation for managing and controlling transaction data systematically and integrally.	Knowing, understanding, using, analyzing, evaluating, and formulating integrated transaction data management in each cycle based on case studies.
Enhancing Skills	Accounting information system design based on Microsoft Excel VBA	Improves students' hard skills in designing accounting information systems based on Microsoft Excel VBA for various business types.	Provides the practical foundation necessary to use Microsoft Excel VBA to meet accounting information system needs.	Knowing, understanding, using, analyzing, evaluating, and designing an accounting information system based on Microsoft Excel VBA to meet financial information needs based on case studies.
	Communication and critical thinking in financial report analysis	Improves students' soft skills in communication and critical thinking in delivering analysis results and appropriate recommendations based on existing data.	Provides the practical foundation necessary to present and explain financial conditions along with recommendations to stakeholders.	Knowing, understanding, using, analyzing, evaluating, and explaining how to present financial analysis results and recommendations to stakeholders based on case studies.

Source: Research Data, 2024

Based on the material analysis in the table above, it can be concluded that each content taught has strong relevance and suitability based on the learning goals and outcomes. The formulated Course Learning Outcomes (CLOs) will assist in measuring student achievement. The enhancement of both understanding and skills prepares students to enter a competitive and dynamic job market (Bailey & Ragland, 2022). Students are expected not only to have theoretical knowledge but also to possess practical skills that are useful in real-life situations. This readiness will enhance their competitiveness and market value. Overall, the analysis phase aligns with the theory of self-determination, where students need to be equipped with relevant knowledge and opportunities to explore (Malan & Van Dyk, 2021).

Stage 2, which is the design phase, aims to plan an effective learning model based on the results of the material analysis conducted in the previous phase. This phase includes the preparation of learning materials and the design of learning scenarios. The result of this phase is the creation of learning materials that consist of theory and concepts, as well as practical guidance. In designing the learning scenario, it includes project simulations and presentations based on real case studies. The design outcomes in this second phase have formulated key elements to support the achievement of learning goals that were set in the analysis phase. Based on the structured preparation of learning materials and the design of interactive learning scenarios, it is hoped that students will achieve the desired level of understanding and skills in line with job market needs. This design will facilitate an effective and relevant learning process in line with student needs and industry demands. According to Parra et al. (2021), interactive learning scenarios aim to enhance communication and collaboration skills among students. This approach supports the need to develop soft skills desired in the workforce (Muda & Erlina, 2020).

Stage 3 is the development phase, which aims to create and validate the product designed in the previous phase. The outcome of the product development is the automation application of the accounting system based on Excel VBA, which will be used in the project-based learning scenario. The development results can be seen in the images below.

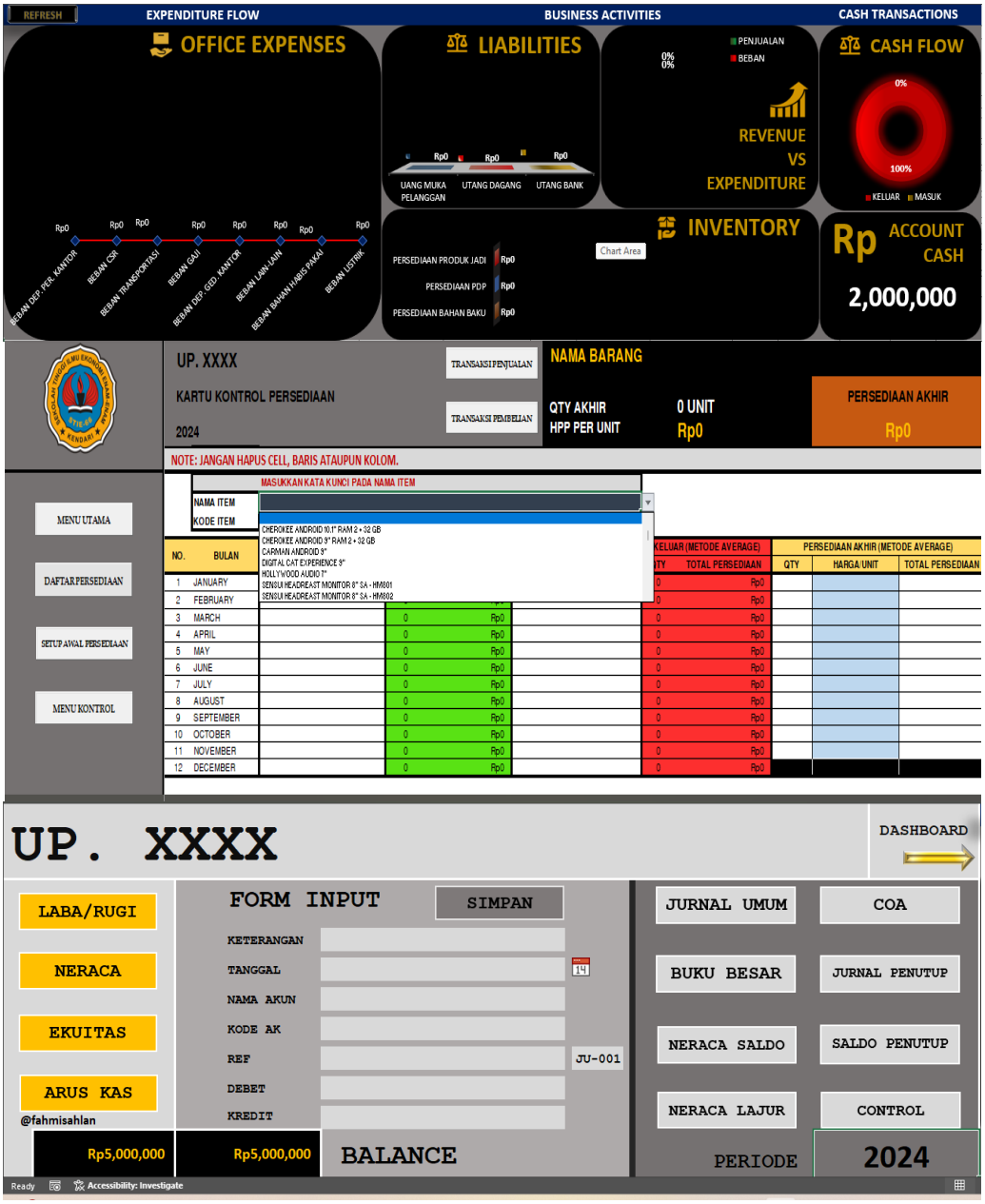
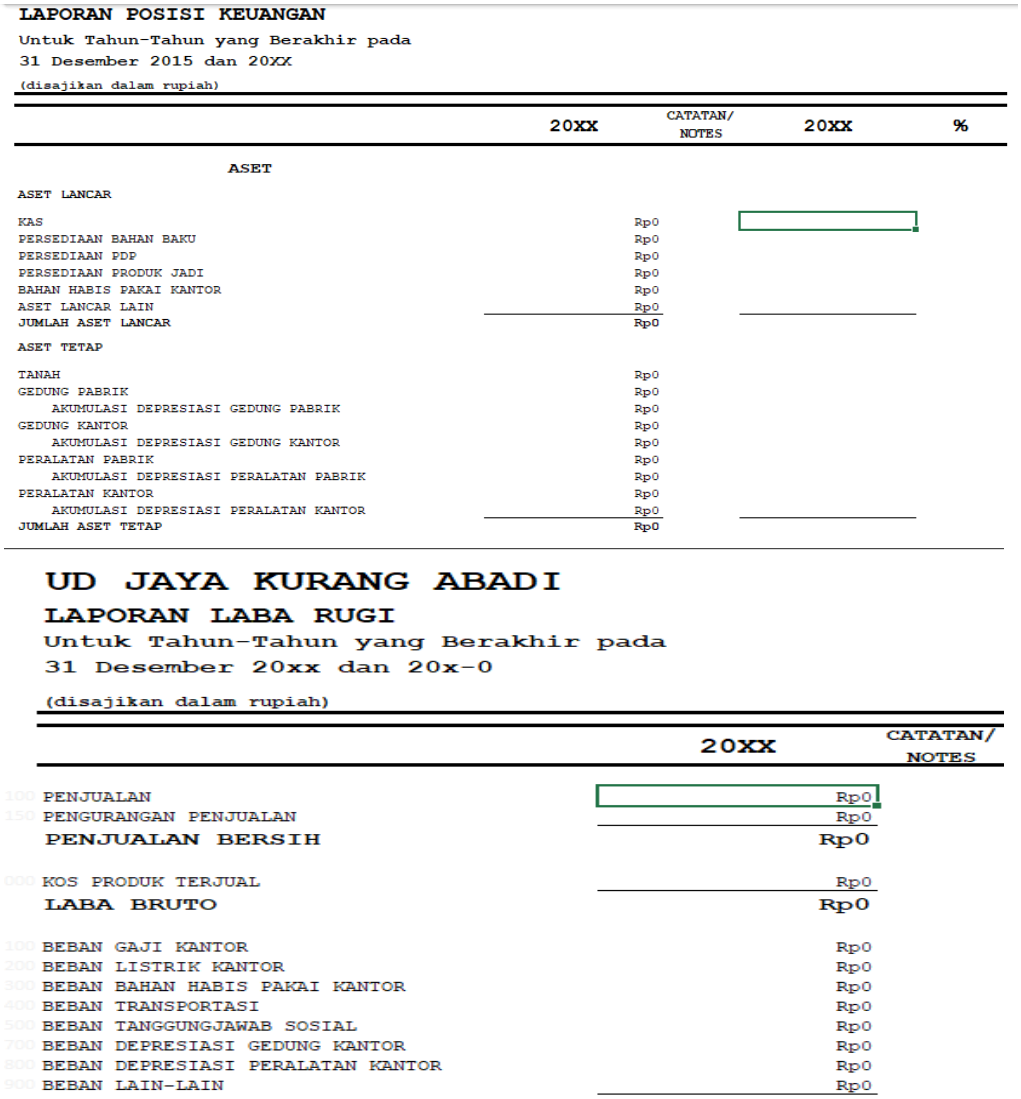


Figure 1. Desain of the Accounting Information System Based on Excel VBA

Source: Research Data, 2024



LAPORAN POSISI KEUANGAN
Untuk Tahun-Tahun yang Berakhir pada
31 Desember 2015 dan 20XX
(disajikan dalam rupiah)

	20XX	CATATAN/ NOTES	20XX	%
ASET				
ASET LANCAR				
KAS		Rp0		
PERSEDIAAN BAHAN BAKU		Rp0		
PERSEDIAAN PDP		Rp0		
PERSEDIAAN PRODUK JADI		Rp0		
BAHAN HABIS PAKAI KANTOR		Rp0		
ASET LANCAR LAIN		Rp0		
JUMLAH ASET LANCAR		Rp0		
ASET TETAP				
TANAH		Rp0		
GEDUNG PABRIK		Rp0		
AKUMULASI DEPRESIASI GEDUNG PABRIK		Rp0		
GEDUNG KANTOR		Rp0		
AKUMULASI DEPRESIASI GEDUNG KANTOR		Rp0		
PERALATAN PABRIK		Rp0		
AKUMULASI DEPRESIASI PERALATAN PABRIK		Rp0		
PERALATAN KANTOR		Rp0		
AKUMULASI DEPRESIASI PERALATAN KANTOR		Rp0		
JUMLAH ASET TETAP		Rp0		

UD JAYA KURANG ABADI
LAPORAN LABA RUGI
Untuk Tahun-Tahun yang Berakhir pada
31 Desember 20xx dan 20x-0
(disajikan dalam rupiah)

	20XX	CATATAN/ NOTES
PENJUALAN	Rp0	
PENGURANGAN PENJUALAN	Rp0	
PENJUALAN BERSIH	Rp0	
KOS PRODUK TERJUAL	Rp0	
LABA BRUTO	Rp0	
BEBAN GAJI KANTOR	Rp0	
BEBAN LISTRIK KANTOR	Rp0	
BEBAN BAHAN HABIS PAKAI KANTOR	Rp0	
BEBAN TRANSPORTASI	Rp0	
BEBAN TANGGUNGJAWAB SOSIAL	Rp0	
BEBAN DEPRESIASI GEDUNG KANTOR	Rp0	
BEBAN DEPRESIASI PERALATAN KANTOR	Rp0	
BEBAN LAIN-LAIN	Rp0	

Figure 2. Design of Financial Reports Based on Excel VBA

Source: Research Data, 2024

Before being implemented in the experimental class as a learning model, the product generated in this stage needs to undergo product validation. The results of the product validation can be seen in the following table.

Table 3. Results of Learning Model Validation

Assessment Aspect	Subject Expert	Media Expert	Lecturer	Average Score	Category
Materi (Content)	3.33	2.90	3.10	3.11	Very Valid
Learning Scenario	3.13	3.10	3.17	3.13	Very Valid
Case Study	2.93	3.50	3.10	3.18	Very Valid
Understanding Improvement	3.17	3.17	3.33	3.22	Very Valid
Skills Improvement	3.33	3.33	3.17	3.28	Very Valid
Learning Effectiveness	3.00	3.00	3.43	3.14	Very Valid
Visuals	4.00	3.17	3.67	3.61	Very Valid
TOTAL SCORE	3.22	3.17	3.28	3.24	Very Valid

Source: Research Data, 2024

The validation results of the learning model presented in Table 3 provide in-depth insights into the quality and effectiveness of the components within the model. By involving subject experts, media experts, and lecturers as evaluators, this analysis aims to understand the strengths and areas for improvement in the learning design. The analysis results indicate that the validated learning model possesses excellent quality, with consistent validity scores across various aspects. With positive assessments from subject experts, media experts, and lecturers, this model is expected to have a positive impact on accounting education and adequately prepare students to face challenges in the workforce. Several suggestions and recommendations from the evaluation team are presented in the table below.

Tabel 4. Suggestions, Recommendations, and Improvements

Validation Team	Suggestions and Feedback	Improvements
Subject Expert	Add case studies in the service sector. Do not only use case studies in the trading and manufacturing sectors. The goal is to ensure the presented case studies are comprehensive across various business sectors.	Include case studies in the service sector. The improvement aims to provide a broader perspective on the application of accounting in various industry practices.
Learning Media Expert	Add a practical session where students can collaborate in designing Excel VBA applications, enhancing teamwork and collaboration skills.	Integrate practical sessions where students work in groups to design Excel VBA applications based on provided cases. This improvement aims to develop teamwork skills that are highly valued in the job market.
Accounting Lecturer	a) Allow students to engage in Q&A sessions after presentations to foster greater engagement and deeper understanding of the topics. b) Provide constructive feedback after presentations to help students identify areas for improvement.	Develop assessment criteria for the Excel application design practicum and presentations. This improvement aims to enhance the quality of their work.

Source: Research Data, 2024

Suggestions and feedback from the validation team provide clear guidance for improvements in the learning model being developed. Based on the validation team's recommendations, researchers can enhance the quality of students' learning experiences in completing accounting application design projects using Excel VBA, developed based on provided case studies, and better prepare them to meet labor market demands. Cahyadi (2019) states that the proper implementation of changes will contribute to achieving established learning objectives. Additionally, systematically designed instructional development will maximize learning outcomes for students.

The fourth stage is the implementation stage, aimed at realizing the validated and refined learning model. This implementation phase was conducted over 16 sessions in 8 weeks, starting from July to September 2024. The learning model was implemented with 15 Accounting students at STIE Enam Enam Kendari, selected based on predetermined criteria. The stages of implementation carried out in the experimental class are detailed below.

Table 5. Learning Model Implementation Activities

Meeting	Activity
Meetings 1 - 4	The researcher provided in-depth conceptual understanding based on the predetermined materials.
Meeting 5	The researcher formed 5 groups, each consisting of 3 students. Each group was assigned a different case study to discuss and design the requirements for an accounting information system to be developed using Excel VBA.
Meetings 6 - 12	Practical sessions were conducted to complete the project of designing an accounting information system using Excel VBA. During these sessions, students were equipped with various references and guidance from the researcher.
Meetings 13 - 15	Presentation sessions where each group was given the opportunity to present and discuss their completed projects with other groups. During the presentations, the researcher acted as a financial manager requiring information for tactical and strategic decision-making.
Meetings 16	Evaluation session, where all students in the experimental class took a post-test to measure their skills and understanding acquired through the project-based learning model. The post-test results from this implementation phase will be utilized in the evaluation phase.

Source: Research Data, 2024

The formative assessment results indicate positive outcomes in enhancing students' understanding and skills through the project of designing accounting applications using Excel VBA. Additionally, active interaction among students within groups demonstrates that project-based learning can improve analytical skills and creativity. This aligns with findings by Malan & Van Dyk (2021) and Sholihin et al. (2020), emphasizing the importance of collaborative learning in increasing students' competitiveness in the job market. Through interactive and collaborative learning methods, students not only gain theoretical knowledge but also valuable practical experience (Sulindawati, 2020).

The fifth phase, the evaluation phase, aims to assess the effectiveness of the learning model implemented over 16 sessions. Additionally, this phase serves as a foundation for refining the learning model that has been implemented and as a basis for developing a better learning model in the future. The evaluation phase measures the extent to which Accounting students at STIE Enam Enam Kendari successfully understand and apply the taught material. The evaluation includes summative evaluation and formative evaluation. The results of the summative evaluation are presented in the graph below.

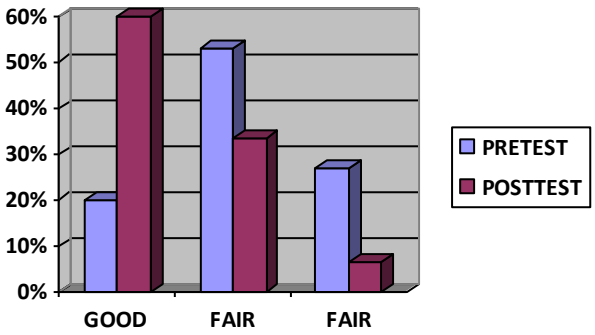


Figure 3. Result of the Summative Evaluation

Source: Research Data, 2024

Based on the analysis of the summative evaluation phase, the results indicate that the average student score during the summative evaluation session reached 81.06, which is higher than the average pretest score of 66.66. This demonstrates that students successfully absorbed the material and were able to apply it in practical contexts. According to the score distribution, students achieving scores above 80 (Good Category) increased by 60%. Meanwhile, students scoring between 60–79 (Fair Category) decreased by 33.33%. Additionally, students scoring below 59 (Poor Category) also decreased by 6.67%. These results conclude that the implementation of a project-based learning model for designing accounting information systems using Microsoft Excel VBA has effectively improved the understanding and skills of accounting students at STIE Enam Enam Kendari. Spatioti et al. (2022) stated that applying interactive and collaborative learning models not only instills theoretical knowledge in students but also provides valuable practical experience.

Based on formative evaluation results, several feedback points were provided as a foundation for further developing the learning model:

Table 6. Formative Evaluation Results

Aspect	Description
Satisfaction	The majority of students expressed satisfaction with the applied learning model, which is project-based learning in designing accounting information systems using Excel VBA.
Difficulties & Challenges	Some students found it challenging to master certain advanced features in Excel VBA. They suggested allocating more time for practical sessions.
Usefulness	Most students found the presentation and discussion sessions highly beneficial as they enhanced communication skills and deepened their understanding of financial data analysis and the applications they developed.

Source: Research Data, 2024

Overall, it shows that the applied learning model has successfully improved students' understanding and skills in the accounting information system design project using Excel VBA. With a good proportion of students in the assessment categories and a high average pretest score, these results reflect the success of the implemented learning model. Therefore, based on these findings, it can be

concluded that the development of the learning model through the ADDIE approach, with project-based learning in accounting information system design using Excel VBA, has been effective in enhancing the skills and understanding of accounting students at STIE Enam Enam Kendari. This success also opens opportunities for further development of the learning model, with a focus on continuous improvement and support for students who still require additional assistance.

CONCLUSION

This research concludes that the project-based learning model for accounting information system design using Excel VBA has been effective in enhancing the understanding and skills of accounting students at STIE Enam Enam Kendari. This approach successfully met students' learning needs through accurate needs analysis, structured design, valid product development, and positive evaluation. The validation results show that the developed learning model has quality and can be effectively implemented in the teaching and learning process. Additionally, the interactive learning experience provided positive feedback from students, although there were challenges in mastering advanced Excel VBA features. The results of this study highlight the great potential of this learning model to be applied in higher education contexts to improve students' technological skills that are relevant to current workforce needs.

The findings of the development and discussion of the project-based learning model for accounting information system design using Excel VBA still have some shortcomings. It is recommended that STIE Enam Enam enhance the facilities supporting technology-based learning media. For lecturers in the Accounting Study Program, it is essential to continuously improve their competence in using digital accounting software, which will deepen their understanding of the technology relevant to today's workplace. For future researchers, it is suggested to explore the application of this learning model in other educational institutions, at various student competency levels, or in different courses. This approach is expected to provide a broader understanding of the effectiveness of technology-based learning models.

REFERENCES

Abidin, Z., Rumansyah, R., & Kurniawan, A. (2020). Pembelajaran Online Berbasis Proyek Salah Satu Solusi Kegiatan Belajar Mengajar di Tengah Pandemi COVID-19. *Jurnal Ilmiah Profesi Pendidikan*, *5*(1), 64–70. https://doi.org/10.29303/jipp.v5i1.111

Almelhi, A. M. (2021). Effectiveness of the ADDIE Model within an E-Learning Environment in Developing Creative Writing in EFL Students. *English Language Teaching*, *14*(2), 20. https://doi.org/10.5539/elt.v14n2p20

Bailey, C., & Ragland, L. (2022). Developing Students' Skills-Based Competencies: A Strategic Learning Approach. *The Accounting Educators' Journal*, *32*, 37–70.

Cahyadi, R. A. H. (2019). Pengembangan Bahan Ajar Berbasis Addie Model. *Halaqa: Islamic Education Journal*, *3*(1), 35–42. https://doi.org/10.21070/halaqa.v3i1.2124

Chusna, Z., & Haenilah, E. Y. (2022). *Development of Excel-Based Learning Media to Improve Understanding Statistical Concepts*.

Dick, W., Carey, L., & Carey, J. O. (2015). *The Systematic design of instruction (8th ed.)*. Upper Saddle River, New Jersey: Pearson.

Fitriani, F. S., Harahap, R. D., & Nurlaila, N. (2023). Perkembangan UMKM Di Indonesia: Peran Pemahaman Akuntansi, Teknologi Informasi dan Sistem Informasi Akuntansi. *Owner*, *7*(3), 2518–2527. https://doi.org/10.33395/owner.v7i3.1427

Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student Motivation and Associated Outcomes: A Meta-Analysis From Self-Determination Theory. *Perspectives on Psychological Science*, *16*(6), 1300–1323. https://doi.org/10.1177/1745691620966789

Januszewski, A., & Buchalska-Sugajska, N. (2022). Online Managerial Accounting education during the COVID-19 pandemic: A case study from Poland. *Procedia Computer Science*, *207*, 215–226. https://doi.org/10.1016/j.procs.2022.09.054

Khan, A. (2022). Development of Employability Framework through Skill-Discrepancy Method: A Perspective of LIS Interns and Librarians in the University of Peshawar, Pakistan. *International Information & Library Review*, *54*(1), 39–52. https://doi.org/10.1080/10572317.2021.1873052

Malan, M., & Van Dyk, V. (2021). Perceived pervasive skills acquired through educational games in an accounting undergraduate degree. *Journal of Economic and Financial Sciences*, *14*(1). https://doi.org/10.4102/jef.v14i1.555

Manurung, R., Sitohang, N., & Wahyuni, D. (2023). Making Simple Financial Reports for Excel-Based MSMEs. *Pejuang: Jurnal Pengabdian Kepada Masyarakat*, 1(2), 13-17.

Martinez-Blasco, M., Serrano, V., Prior, F., & Cuadros, J. (2023). Analysis of an event study using the Fama–French five-factor model: Teaching approaches including spreadsheets and the R programming language. *Financial Innovation*, *9*(1), 76. https://doi.org/10.1186/s40854-023-00477-3

Muda, I., & Erlina, E. (2020). Sustainable HR development to support successful implementation of offline accounting apps by rural enterprises in Indonesia. *Journal of International Studies*, *13*(4), 70–88. https://doi.org/10.14254/2071-8330.2020/13-4/5

Mujiani, S., Kurniawan, E., Soedarso, P., & Irvan, R. (2022). MSMEs in Jatirasa, Bekasi: Design and Implementation of SAK-EMKM Financial Reports Using Microsoft Excel. *Asian Journal of Community Services*, *1*(2), 37–44. https://doi.org/10.55927/ajcs.v1i2.913

Nugraha, I. R. R., Supriadi, U., & Iman, M. (2023). Efektivitas Strategi Pembelajaran Project Based Learning dalam Meningkatkan Kreativitas Siswa. *Jurnal Penelitian dan Pendidikan IPS (JPPI)*, 17(1), 39-47.

Nurmi, N., Yunita, A., Yusri, R., & Delyana, H. (2020). Efektivitas Penggunaan Lembar Kerja Mahasiswa Berbasis Project Based Learning (PjBL) Terintegrasi ICT. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *9*(4), 1018. https://doi.org/10.24127/ajpm.v9i4.3190

Parra, F., Jacobs, A., & Trevino, L. L. (2021). Shippy Express: Augmenting accounting education with Google Sheets. *Journal of Accounting Education*, *56*, 100740. https://doi.org/10.1016/j.jaccedu.2021.100740

Rebman, C. M. (2023). An Industry Survey of Analytics Spreadsheet Tools Adoption: Microsoft Excel vs Google Sheets. *Asian Journal of Coummunity Service*, 1(2), 37-44. https://doi.org/10.55927/ajcs.v1i2.913.

Rizal, R., Rusdiana, D., Setiawan, W., & Siahaan, P. (2021). Development of a Problem-Based Learning Management System-Supported Smartphone (PBLMS3) Application Using the ADDIE Model to Improve Digital Literacy. *International Journal of Learning, Teaching and Educational Research*, *20*(11), 115–131. https://doi.org/10.26803/ijlter.20.11.7

Sholihin, M., Sari, R. C., Yuniarti, N., & Ilyana, S. (2020). A new way of teaching business ethics: The evaluation of virtual reality-based learning media. *The International*

Journal of Management Education, *18*(3), 100428. https://doi.org/10.1016/j.ijme.2020.100428

Siregar, M. N. N., & Aghni, R. I. (2021). Pengembangan Perangkat Pembelajaran Berbasis Problem Based Learning (PBL) untuk Meningkatkan Higher Order Thinking Skill (HOTS). *Jurnal Pendidikan Akuntansi (JPAK)*, *9*(2), 292–301. https://doi.org/10.26740/jpak.v9n2.p292-301

Sitompul, D. N., Dongoran, F. R., & Hayati, I. (2021). Pengembangan Pembelajaran Akuntansi Berbasis Model Pembelajaran Student Facilitatory And Explaining. *Jurnal EduTech, 7*(2), 207-213.

Spatioti, A. G., Kazanidis, I., & Pange, J. (2022). A Comparative Study of the ADDIE Instructional Design Model in Distance Education. *Information*, *13*(9), 402. https://doi.org/10.3390/info13090402

Sugiyono. (2012). *Metode Penelitian Kuantitatif, Kualitatif dan Research & Development*. Bandung: Alfabeta.

Sulindawati, N. L. G. E. (2020). Testing the Design and Implementation of Teaching Materials Developed for Writing Budget Reports Using Microsoft Excel Media. *JPI (Jurnal Pendidikan Indonesia)*, *9*(2), 266. https://doi.org/10.23887/jpi-undiksha.v9i2.24545

Suryanti, N., Sukarni, S., & Setiawati, W. (2023). Pengembangan Model Pembelajaran Project Based Learning (PjBL) dalam Akuntansi Keuangan. *Jurnal Pendidikan Ekonomi (JUPE)*, *11*(2), 86–91. https://doi.org/10.26740/jupe.v11n2.p86-91