

Developing an expertise-specific P5 module for vocational education: An ADDIE-based design

Anis Rahmawati ^{1*} , Agusti Tamrin ¹, Ponco Adi Septiawan ¹, Yusmarwati Yusof ²

¹ Universitas Sebelas Maret, Indonesia.

² Universiti Tun Hussein Onn Malaysia, Malaysia.

* Corresponding Author. Email: anisrahmawati@staff.uns.ac.id

ARTICLE INFO

Article History

Received:

16 October 2024;

Revised:

5 November 2025;

Accepted:

17 March 2026;

Keywords

ADDIE Model;
building modeling and
information design;
Merdeka Curriculum;
Pancasila Student
Profile Strengthening
Project (P5);
vocational education

ABSTRACT

Despite the implementation of the Merdeka Curriculum's Pancasila Student Profile Strengthening Project (P5) in Indonesian vocational schools, existing modules remain generic across expertise programs, limiting their effectiveness in integrating character development with vocational competencies. This study aimed to develop and validate an expertise-specific P5 module with an employment theme for the Building Modeling and Information Design (BMID) program using the ADDIE instructional design model. Development research was conducted through the five ADDIE stages involving P5 facilitators, subject matter experts, media experts, observers, teachers, and Grade XI BMID students. The developed module underwent expert validation and field implementation to evaluate its feasibility and instructional effectiveness. The results demonstrated high feasibility ratings from content experts (86.67%), media experts (90.91%), teachers (90.00%), and students (87.01%), indicating that the module is highly suitable for vocational learning. Unlike generic P5 modules, the developed module integrates BMID-specific technical competencies, authentic project-based learning activities, and employment-oriented contexts while simultaneously strengthening Pancasila character dimensions. This study contributes a systematic and replicable framework for developing expertise-specific P5 modules and provides practical guidance for vocational educators and curriculum developers in designing contextually relevant learning resources that enhance both vocational competence and character development under the Merdeka Curriculum.

This is an open access article under the CC-BY-SA license.



INTRODUCTION

Beyond the scope of fundamental technical proficiency, contemporary vocational curricula increasingly emphasize the synergistic integration of affective attributes and personal competencies, often referred to as workforce character or global skills (Slatinska, 2023). The Pancasila Student Profile Strengthening Project (Proyek Penguatan Profil Pelajar Pancasila/P5) is a core component of Indonesia's Merdeka Curriculum, designed to strengthen students' character while simultaneously fostering essential competencies through experiential learning (Kemendikbudristek et al., 2022). Unlike intracurricular learning, which primarily emphasizes subject-specific learning outcomes, P5 adopts a Project-Based Learning (PjBL) approach that engages students in authentic projects to develop the six dimensions of the Pancasila Student Profile, namely faith and devotion to God with noble character, global diversity, mutual cooperation, independence, critical reasoning, and creativity (Julianto et al., 2025; Listanto et al., 2024). Through interdisciplinary and contextual learning experiences, P5 seeks to integrate character formation with competency development, thereby supporting students' holistic growth beyond conventional academic achievement (Firoh et al., 2025).

Research indicates that PjBL is superior to conventional models in fostering critical thinking, autonomy, and vocational literacy, as it requires students to navigate authentic professional

challenges through extended, interdisciplinary tasks (Choi, 2023; Nurfaizana et al., 2025). As established by Saputro et al. (2018), the PjBL approach offers a comprehensive methodology for embedding soft skills within technical vocational training, thereby fostering a dual-competency development environment. Moreover, the integration of PjBL with specific content areas has been found to enhance student motivation and the practical application of theoretical knowledge (Fatiyas & Nurizzati, 2025; Sigit et al., 2022).

Recent empirical studies have highlighted P5's transformative potential in enhancing student engagement, character formation, and employment preparedness (Kholifah et al., 2025; Sanam, 2024). However, existing educational research predominantly addresses P5 implementation at the general curriculum level without critically examining expertise-specific or discipline-tailored module development (Maulida, 2022). The Ministry of Education and Culture currently provides standardized P5 modules for vocational schools, yet these materials remain generic across all expertise programs, regardless of specialization, and systematically fail to integrate vocational competencies specific to individual technical fields. This critical misalignment creates a structural gap between P5's ambitious character-building objectives and the specialized technical skill development required in sophisticated programs such as Building Modeling and Information Design (BMID) (Wahjusaputri & Bunyamin, 2022).

Despite growing institutional recognition of P5's importance within vocational education policy frameworks, limited research has systematically examined the development of expertise-specific P5 teaching modules for vocational schools, particularly those that combine project-based approaches with specialized technical domains. Current generic learning modules often fail to meaningfully integrate field-specific competencies, authentic industry contexts, and vocational pedagogical approaches tailored to particular occupational fields. Consequently, learning resources tend to resemble those used in general education, reducing their relevance to workplace practices and limiting opportunities for students to develop occupation-specific knowledge and skills through authentic vocational learning experiences (Billett, 2003; de Bruijn & Leeman, 2011). This theoretical and practical gap is particularly acute in technical-professional programs like BMID, where project activities must simultaneously achieve the dual objectives of developing Pancasila character dimensions and strengthening specialized vocational skills that are rigorously aligned with evolving industry standards and employer expectations.

This study addresses this critical gap by systematically developing and rigorously validating an employment-themed P5 module specifically designed for the BMID program using the systematic ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, recognized internationally as an evidence-based framework for educational product development (Adeoye et al., 2024; Dick et al., 1985). Unlike generic ministry modules, this research integrates architectural principles, construction knowledge, design thinking, and building information systems into P5 activities, creating authentic, contextually embedded vocational learning environments that simultaneously strengthen character formation and technical competencies.

The research systematically contributes: (1) a replicable, stakeholder-validated framework for developing expertise-specific P5 modules adaptable across diverse vocational specializations; (2) empirical evidence demonstrating that context-aligned, discipline-integrated modules significantly improve vocational learning quality, student engagement, and character building compared to generic implementations; and (3) practical pedagogical guidelines and implementation protocols for P5 facilitators and vocational educators transitioning from undifferentiated to specialized module delivery. This comprehensive approach provides an evidence-based model for other vocational programs seeking to develop contextually relevant P5 modules that optimize simultaneous achievement of both Pancasila character formation and specialized vocational skill development within the Merdeka Curriculum implementation framework.

METHOD

This study employed an educational development research methodology utilizing the ADDIE model as outlined by Dick et al. (1985). The ADDIE model was selected for its systematic structure and iterative nature, which facilitate continuous refinement through expert validation and repeated

field testing. ADDIE's five sequential stages, i.e., Analysis, Design, Development, Implementation, and Evaluation, offer a structured framework well-suited for educational product development, particularly where stakeholder involvement and feasibility assessment are critical. The overall research procedures based on the ADDIE model are illustrated in Figure 1. The research was conducted at a public vocational high school in Central Java, Indonesia, from January to June 2024.

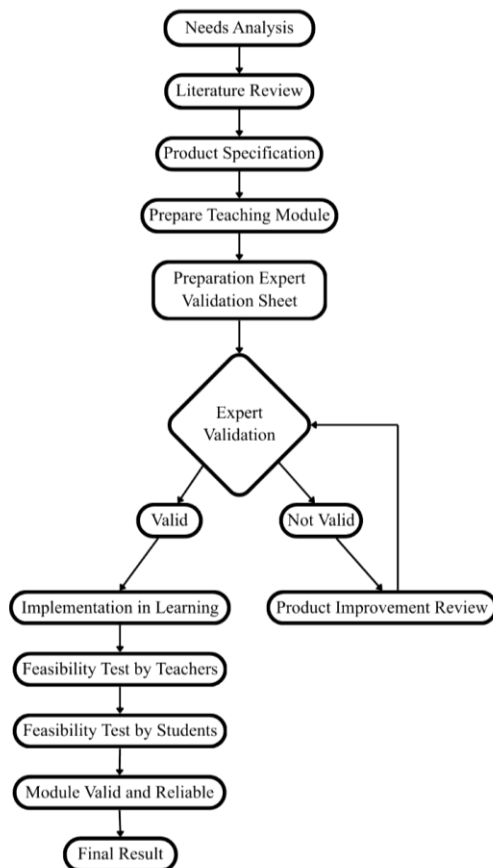


Figure 1. Research Procedures

The analysis phase aimed to gather information to support the development of the P5 learning module through observations of P5 activities on employment within the BMID program, analysis of guideline documents and P5 modules, and structured interviews with P5 coordinators at vocational schools in Central Java, using purposive sampling. The interview protocol was based on four indicators, i.e., module, objectives, activities, and assessment, following the P5 module components as referenced in the Ministry of Education's 2022 guidelines. Data accuracy was ensured by member checking.

In the design phase, the module was developed based on the findings of the analysis phase, involving the construction of the module framework, theme selection, reference collection, and preparation of evaluation instruments. For the development phase, the P5 module was produced by transforming the planning framework into a complete module. This process comprised drafting the initial module, expert validation, and revising the draft based on expert feedback to produce a prototype. Feasibility validation was conducted by content and media experts who met the required qualifications to evaluate the content, packaging, and the module's effectiveness in strengthening the Pancasila student profile in the BMID learning context. The Delphi method was applied in the expert validity process, using a content feasibility questionnaire adapted from Arsyad et al. (2009) and a media feasibility questionnaire adapted from Puspita (2019) to collect data. Content feasibility aspects include assessments of content, instructional, and technical quality, while media feasibility is reviewed based on quality, effectiveness, graphics, and presentation.

During the implementation phase, the prototype module was applied to 20 students in the 11th-grade BMID program (Phase F), who were divided into four groups. Three observers, including the researcher and research assistants, monitored the learning process and assessed the implementation of the lesson plan across four P5 sessions using triangulation of data sources. The observation aimed to provide feedback for improvement. Additionally, student representatives offered feedback through open questionnaires after each session. Module effectiveness was evaluated by both teachers and students. The teacher evaluation instrument, adapted from Chaeruman (2019), assessed usability and efficiency, while the student questionnaire, adapted from Puspita (2019), examined the module's content and objective quality, instructional quality, and technical quality.

RESULTS AND DISCUSSION

Results

The analysis stage began with an observation of the use of the P5 module provided by the Ministry of Education and Culture in the Merdeka Curriculum at vocational schools in Central Java. According to interviews with P5 teachers, the school modules are general across all fields of expertise, with differences in learning outcomes by phase level. A teacher is responsible for implementing P5 learning in a particular program; therefore, it is possible to develop a variety of P5 activities for each skill area. Meanwhile, a literature review of curriculum documents, P5 guidelines from the Ministry of Education and Culture, and relevant references was conducted to support module development. The results of the interviews and the literature review served as the basis for developing the module's framework and outline.

The design stage starts with creating a product layout framework, a module outline, and an evaluation instrument in Canva. The module components are based on the P5 guidebook of the Ministry of Education and Culture, which includes profiles, objectives, activities, and assessments. The module profile consists of cover planning, a preface, a table of contents, general information, and a bibliography (Kemendikbudristek et al., 2022). The objectives component includes information on the learning objectives, the flow and targets for P5 achievement, and the project's relevance to the vocational field of expertise. The activity component contains project stages, dimensions, elements, sub-elements, and learner activities. The assessment component outlines the achievement target, indicator-building theory, sub-element development, the reflection sheet, formative and summative assessment, and reflection from teachers and learners.

The development stage was based on the draft framework and outline of the module prepared at the planning stage. The module was prepared in accordance with the Ministry of Education and Culture guidelines and was validated by subject-matter and media experts (Kemendikbudristek et al., 2022). This stage produced a prototype module entitled "Organizing Dreams: Becoming a Creative and Professional Architect," for phase F of the BMID program of Indonesian Vocational High School. There are five P5 learning stages in the module: introduction, conceptualization, action, reflection, and follow-up. The learning objectives in the introductory stage are to develop students' observation and analysis skills and to help them understand architectural principles by examining residential buildings from the understructure to the finish. The teacher prepares various learning resources for observation. The conceptualization stage aims to provide space to understand the theme through discussion, followed by presenting the results through media in the form of representations aligned with respective interests. Students' critical reasoning is developed through sorting relevant information from various sources and through group discussions. Meanwhile, learners can develop creativity by producing a media presentation.

The action stage aims to develop the creativity and hand skills required in architecture, design, and other fields that involve visual representations of complex ideas and concepts. This is achieved by creating a visual representation of a product in the form of a building mockup. The subsequent stage is reflection, which equips students to identify what was learned and areas for improvement. Subsequently, each experience maximizes professional development and the future. The teacher facilitates a discussion on implementing the P5 lesson plan, including the challenges and

potential for improvement. The last stage is a follow-up to communicate ideas and concepts in conducting projects to peers, teachers, and the public.

All stages of P5 learning support the achievement of the five dimensions. This phase of teaching module development elaborates the five P5 dimensions into elements and sub-elements, with achievement targets at the end of the phase. Outcome measurement uses instruments developed from the conceptual theories underlying each indicator, as reported in Table 1. The measurement instrument is a rubric for the developmental stage of each sub-element, describing the level of achievement as shown in Table 2.

Table 1. Development of P5 Learning Outcome Measurement Instruments

Sub-element	Criteria	Stage of Development	Constructing Theory Indicator	Indicator	Statement Questionnaire
Generate original ideas	Students observe relevant information to solve problems, think critically, evaluate ideas, and select relevant, creative, original ideas.	Beginning to Develop	Students collect related information before starting problem-solving (Mashitoh et al., 2019)	Observe relevant information.	Students find and select the correct information to solve problems.
		Developing	Taking a short break from problem-solving allows the subconscious mind to find creative solutions (Mashitoh et al., 2019)	Sharpen critical thinking skills.	Students can evaluate ideas or solutions in depth, including their advantages and disadvantages.
		Developing as Expected	Creative ideas and innovative solutions are developed during the incubation stage of the subconscious mind (Savic, 2016 in Mashitoh et al., 2019).	Deciding on an idea or ideas that emerge.	Students select the best solution based on careful evaluation and analysis.
		Highly Developed	Evaluate and test the solutions found to ensure correctness and effectiveness. (Savic, 2016 in Mashitoh et al., 2019)	Assess the results of the ideas generated.	Students evaluate options and alternatives before determining the best step.

The first Delphi cycle produced expert findings on the importance of diversifying activities by combining outdoor and indoor learning experiences. The module product needs to be improved in several areas: providing more detailed time allocations for each activity, adding keywords to guide students in exploring learning resources at the contextualization stage, and improving the statements on the reflection sheet. In this context, the module improvements were made based on expert advice. The expert then assessed the improved module. The subject matter expert validation results were 86.67%, indicating high feasibility, while the media expert assessment results were 90.91%, also indicating high feasibility.

The validated module was tested during the implementation stage to evaluate its usability and effectiveness in P5 learning. The trial was conducted over seven meetings: introduction,

contextualization, action, reflection, and follow-up. The first meeting lasted ten learning hours and implemented the introduction stage. At this stage, the facilitator poses questions to prompt engagement with the theme, access relevant learning resources, and address any questions about unclear aspects.

Table 2. Rubric for Measuring Learning Outcomes P5

Dimensions	Score			
	1	2	3	4
Have faith and fear of God Almighty, and have a noble character.	Students pay full attention without judgment when others speak.	Students understand and identify physical features that distinguish them from others.	Students respond to others' feelings with empathy and support.	Students show mutual respect and appreciation in every interaction.
Global Diversity	Students actively provide ideas and suggestions for improvement or problem-solving.	Students actively discuss and reinforce commitment to decisions.	Students identify and understand their responsibilities in completing the project.	Students show initiative and perseverance in completing tasks and in identifying and overcoming obstacles.

The second meeting implemented the conceptualization stage, which lasted 17 learning hours. The strategy applied is collaborative learning with the jigsaw method. The class is divided into four groups of five students to determine the representatives. There are five theme groups, namely foundation, structure, wall, frame, and roof. The groups work together to explore the theme through various learning resources using keywords provided by the facilitator. Subsequently, each representative presents the theme groups' findings to all members.

The action stage was completed over the third to fifth meetings, totaling 30 learning hours. In this stage, all groups worked on a project to make a mockup of a residential building, as seen in [Figure 2](#). The results of the exploration of the main components of the building, which consist of foundations, structural elements, walls, frames, and roofs from the conceptualization stage, were used as the basis for making working drawings and mockups of house buildings. Additionally, the facilitator guides students from preparing tools, materials, and working drawings to making mockups.



Figure 2. Action Stage: Students Working on the Project

The next stage was reflection, carried out at the sixth meeting and lasting 10 learning hours. At this stage, students and facilitators reflected on the implementation of P5 learning to identify its strengths and areas for improvement. The final stage was the follow-up stage, which comprised a student project exhibition lasting 10 learning hours. As shown in [Figure 3](#), the mockup products were

exhibited openly at the school. This exhibition activity enhanced students' communication skills and their ability to present project outcomes to the public, who were positioned as clients in the industrial context.

Observations by three observers during the implementation stage showed that teachers encountered obstacles as facilitators or students when implementing P5 learning using the developed modules. The main obstacle is class management, and the facilitator needs help paying attention to all the students with different project tasks. Moreover, students can work on projects inside or outside the classroom. Some did not complete part of the task by the deadline provided due to a lack of understanding of the concept or individual motivation. Therefore, some group work targets were not achieved within the allocated time, and only two of the four groups completed the mockup project. Observers also provided an assessment of implementation for each meeting's learning stages.



Figure 3. Follow-up Stage: Student Project Exhibition

The evaluation stage includes activities by teachers and students to assess the module's feasibility. Teachers assess the module's feasibility based on ease of use and efficiency. Meanwhile, students assess the content's quality and suitability for the learning objectives, as well as the module's instructional and technical quality. The assessment was conducted using a questionnaire with a Likert scale consisting of four scores, namely (1) disagree, (2) disagree less, (3) agree, and (4) strongly agree. The feasibility evaluation results indicate a 90% rating; hence, the module is a very feasible option for learning. The teacher suggested that this module could be applied most effectively by adding activities to refresh the atmosphere, such as icebreakers between project-making activities. In this context, P5 learning is delivered in a relatively long block schedule because students are at risk of becoming bored. The results of the feasibility assessment show that technical quality has the highest percentage at 88%, while the quality of content and objectives has the lowest at 85.94%.

Discussion

This research focuses on two main aspects: the ADDIE-based development process and the feasibility of the employment-themed P5 module for the BMID program.

P5 Module Development Process with ADDIE Method

The analysis, observation, and interview stages are carried out to identify the main problems in development research. The analysis of the P5 module, reinforced by interview data, revealed that the Ministry of Education and Culture's general modules, differentiated only by phase-level learning outcomes, can be customized by teachers to create varied activities tailored to specific skill areas, in line with research on curriculum and official guidelines. The findings point to the objectives of this educational development research. As mentioned by Kurt (2017), the analysis stage is the "Goal-Setting Stage," whereas, the findings from this stage served as the foundation for determining the specifications of the instructional product, ensuring that its design was aligned with learners'

characteristics, teachers' expectations, and the contextual demands of the learning environment (Harlinda & Suratmi, 2024; Riyanti et al., 2022; Susanti et al., 2025).

Literature research determines the characteristics of learning products that suit the needs of learners and teachers. The design phase of this research began with the creation of the product layout framework, module outline, and evaluation instrument, all of which were developed in Canva. The resulting module structure adheres to the Ministry of Education and Culture's P5 guidebook and incorporates the required profiles, objectives, activities, and assessments. The main questions for the learning design development team at this phase concern the availability of resources and how to allocate them (Allen, 2017). The design stage translated the results of the needs analysis into a systematic instructional blueprint for the product to be developed. This phase included designing the preliminary product, specifying the research participants and implementation context, developing data collection instruments, and preparing the assessment framework based on an extensive review of the literature. Consistent with the ADDIE instructional design framework, careful planning at this stage ensured that the subsequent development process was guided by clearly defined learning objectives, appropriate instructional strategies, and valid evaluation procedures (Adeoye et al., 2024; Tegeh & Kirna, 2013). This design process focuses on technical aspects and considers the needs and characteristics of end users.

According to Khair et al. (2025), the development stage involves developing the module design based on the data and design plans. The activities in the P5 module are planned to facilitate the achievement of learning objectives, foster the character of Pancasila students, and hone vocational competencies aligned with the field of expertise. Competencies developed through P5 activities extend beyond hard and soft skills, including communication, teamwork, problem-solving, and leadership (Sanam, 2024). The five stages of P5 learning developed have respective roles in efforts to achieve competence and character building. The introduction stage teaches students to understand the learning objectives. Based on an analysis of over 800 studies on learning, Hattie (2011) concluded that a clear understanding of learning objectives was a key factor in achieving successful learning outcomes. In the socio-constructivist framework, information-seeking efforts enhance students' understanding and active engagement in the learning process (DeBoy, 2017). The action stage builds competence aligned with expertise and sharpens the character of Pancasila across all dimensions, while training vocational soft skills (Sanam, 2024).

The reflection stage allows students to hone independence, responsibility, and communication skills. Reflecting on the series of learning practices has been proven by Di Stefano et al. (2014) to improve performance. The follow-up stage provides opportunities for students to disseminate and present their project outcomes to the school community, thereby enhancing their self-confidence, communication skills, and ability to convey ideas to a wider audience. Such activities are consistent with the celebration of learning in P5, which emphasizes the public presentation of project outcomes as a means of strengthening students' character and soft skills (Ulandari & Rapita, 2023; Zahrah & Mawasil, 2023).

The development stage also ensures that relevant experts validate the product. During the development of the P5 teaching module, validation was conducted by subject-matter and media experts. Validation by subject matter experts includes assessing the quality of content and objectives, instructional quality, and technical quality. According to Mafazah (2019), the validation ensures the material is suitable for the learning plan. Figure 4 shows the results of the subject matter expert assessment.

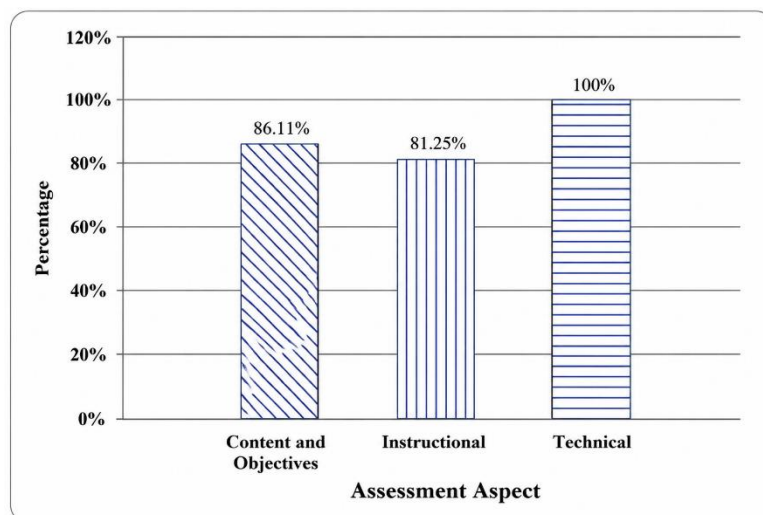


Figure 4. Diagram of Material Expert Assessment

The assessment by the subject-matter expert indicates that the module is highly feasible, with a score of 81%-100%. The module is equipped with indoor and outdoor activities to prevent boredom. Therefore, Module P5 incorporated learning outside the classroom to increase students' motivation, engagement, understanding of the material, and social skills. [Bamberger and Tal \(2008\)](#) stated that learning outside the classroom creates an exciting and varied learning experience that helps avoid boredom. Media experts were validated through assessments of quality, effectiveness, graphics, and presentation ([Mafazah, 2019](#)), as shown in [Figure 5](#).

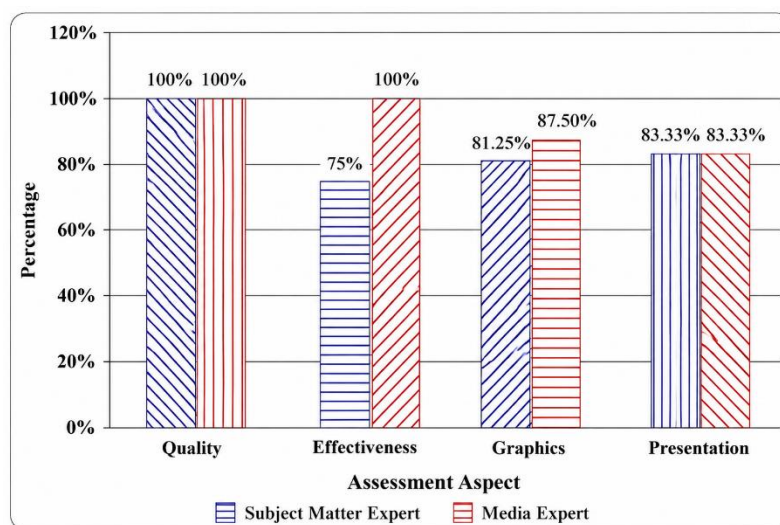


Figure 5. Media Expert Validation Assessment

The media expert suggested adding keywords at the contextual stage to identify sources for exploration. This module incorporates a keyword-based prompting strategy to increase creativity, following the views of [Simamora and Rosmawaty \(2016\)](#), which stimulates creativity. Media experts assessed the module's final results as highly feasible, with a range of 81% -100%.

Each meeting at the implementation stage includes two main activities, namely learning using the developed P5 module and observational assessment of implementation. [Widyastuti and Susiana \(2019\)](#) stated that this stage applied the results of educational product development to determine the effect on quality, effectiveness, attractiveness, and efficiency of learning. Implementation is conducted in small groups to gather input from observers, teachers, and students.

At the evaluation stage, an assessment of the quality of the module product is carried out from analysis through implementation, as mentioned by Syafruddin et al. (2016). The evaluation procedure followed established educational product development practices involving multiple stages of product assessment. First, the developed module underwent expert validation to examine its feasibility in terms of usability, instructional quality, and efficiency before classroom implementation. Subsequently, during the implementation stage, observers evaluated the learning process using observation sheets, while teachers and students assessed the module's practicality and feasibility through structured questionnaires after the learning activities. Such multi-perspective evaluation is widely recommended to ensure the validity, practicality, and effectiveness of educational products (Pratiwi & Yuliana, 2026; Safitri et al., 2025).

Feasibility Level of Module P5 Development

Module P5, 'Organizing Dreams: Becoming a Creative and Professional Architect,' has been developed through several feasibility test processes. The process includes testing the implementation of learning by observers, as well as feasibility tests from teachers and students. Puspita (2019) stated that the purpose of the feasibility test of educational products was to obtain the necessary information and suggestions suitable for the learning process. According to Maulida (2022), the criteria for determining a suitable Merdeka Curriculum module included several aspects, namely (1) Essential, where all learning materials and methods can be received thoroughly. This aspect is reflected in the introduction section, where students are invited to actively explore knowledge about waste online, bringing learning to life. (2) Meaningful and engaging to include students in learning. The activities in the P5 module are designed to explore knowledge through the internet, with teachers serving as facilitators to guide project activities. (3) Relevant and contextual, meaning that the module can be related to daily life in the environment of students. The project activities are closely aligned with authentic real-world practice. (4) Sustainable shows that the P5 module material is adjusted to the phase or level of education. The three observers discussed the observation assessment of learning implementation using the research product during the 17th learning meeting for the five stages. The assessment was conducted on each relevant aspect, and the results are shown in the assessment diagram.

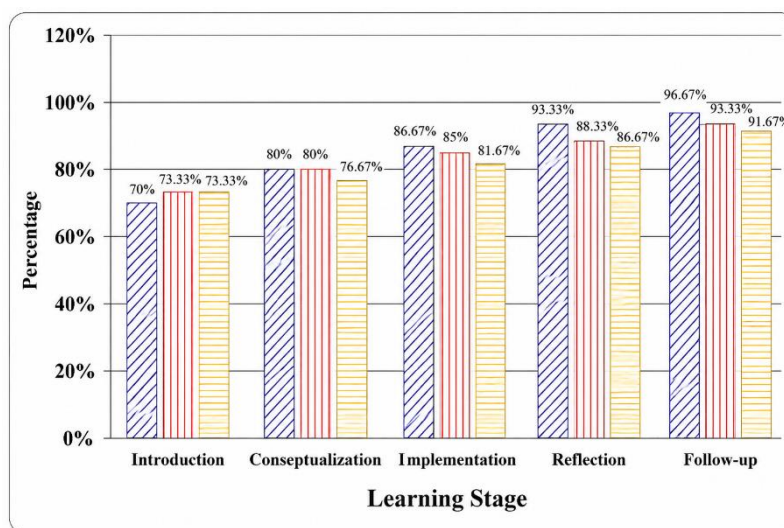


Figure 6. Diagram of Learning Implementation Observation Assessment

The observation of lesson plan implementation showed an increase from the first to the last meeting. The results reinforce the view that learning interventions should be implemented continuously, as multiple applications may be required. Teacher assessment evaluation of the feasibility level includes ease of use and efficiency. The average teacher assessment is 90%, indicating that the product is feasible and aligns with the findings of Fourilla and Fauzi (2021), who reported a positive assessment of the module.

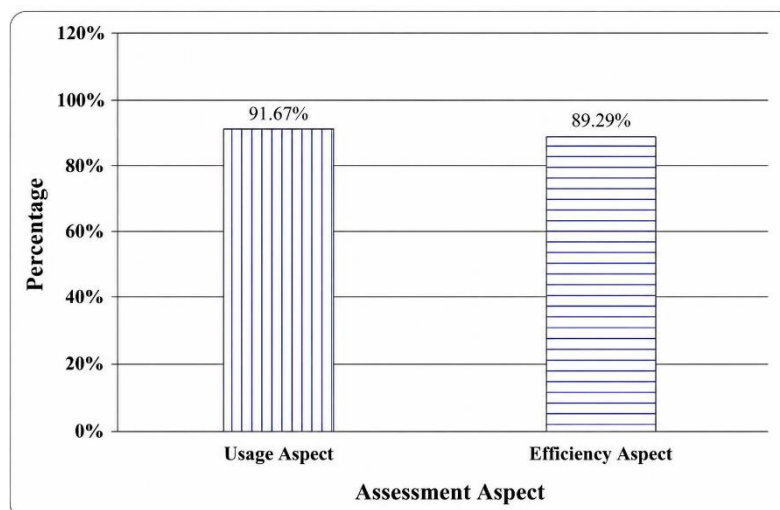


Figure 7. Teachers' Feasibility Assessment

Students evaluate the module's feasibility by assessing the quality of its content and objectives, instructional quality, and technical quality. The assessment results for each aspect are shown in the diagram in Figure 8, with an average percentage of 87.01%.

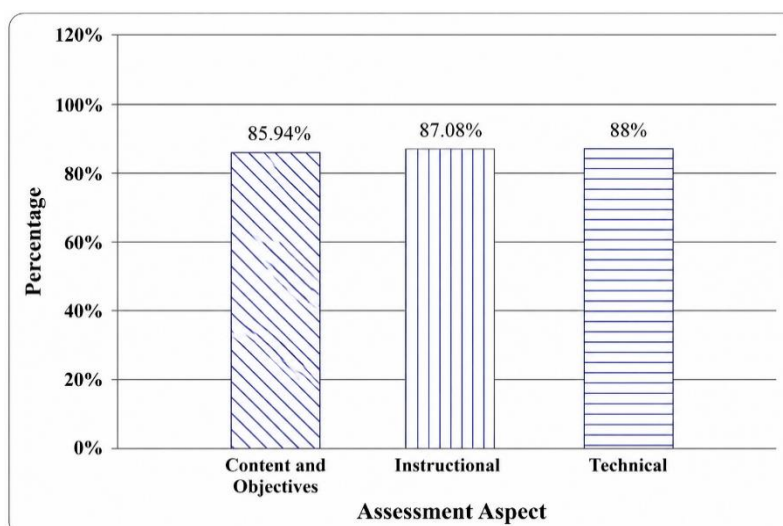


Figure 8. Diagram of Evaluation of Learner Feasibility Assessment

The P5 module on employability has significant theoretical and practical impacts. Theoretically, this module broadens understanding of P5 implementation and the Merdeka Curriculum and can serve as a valuable reference in education. In practice, the employability-themed P5 module can serve as an innovative learning resource relevant to the BMID area of expertise, making it a strategic reference for developing modules that meet the needs of vocational school students. In addition, the development of this module has the potential to enhance individual learning abilities and contribute to research and knowledge in P5 module development.

This P5 module can also serve as an example of implementing P5 activities in vocational schools as part of the Merdeka Curriculum. It is designed to help vocational school students, particularly those in the BMID program, gain an understanding of the world of work relevant to their expertise and to support learning objectives. Currently, existing modules are general across all study programs and have not yet fully met students' specific needs. However, research on module development remains limited due to a lack of references during preparation. Therefore, future

research on P5 module development can be expanded and improved so that this study may serve as a valuable reference for ongoing efforts.

CONCLUSION

This study successfully developed and rigorously validated a P5 module with an explicit employment-theme focus, specifically designed for the BMID vocational program using the systematic ADDIE methodology. Multi-stakeholder validation yielded consistently high feasibility scores (content experts: 86.67%; media experts: 90.91%; teachers: 90%; students: 87.01%), demonstrating the module's quality and appropriateness. The implementation trial with 20 students across seven learning sessions, totaling 84 contact hours distributed across five structured learning phases, demonstrated the module's capacity to simultaneously integrate Pancasila character formation with BMID technical competency development. This research presents methodological contributions: a systematic, evidence-based framework for developing expertise-specific P5 modules in vocational education contexts, advancing beyond generic ministry approaches through validated instruments and replicable stakeholder engagement protocols applicable across diverse vocational specializations.

The pedagogical contribution of this study lies in demonstrating that of the dual learning objectives, namely strengthening Pancasila character values alongside technical BMID competencies, that can be harmoniously integrated through authentic project-based learning design, representing a significant advancement compared to previous modules treating character and competency dimensions as separate curricular elements. The empirical contributions came from multi-stakeholder validation data, which provide compelling evidence for the superiority of skill-specific modules over generic implementations, directly supporting policy recommendations to develop contextually relevant, locally adapted P5 modules that maximize both character formation and vocational skill development. The research offers practical contributions by providing vocational P5 facilitators, technical teachers, curriculum developers, and educational policymakers with evidence-based guidance and practical implementation protocols for transitioning from undifferentiated generic modules to specialized, discipline-integrated P5 delivery approaches.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Anis Rahmawati	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	
Agusti Tamrin	✓	✓		✓	✓	✓	✓			✓		✓	✓	
Ponco Adi Septiawan		✓		✓	✓	✓	✓	✓		✓	✓			
Yusmarwati Yusof	✓	✓		✓	✓					✓		✓		

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial or non-financial interests that could have appeared to influence the work reported in this paper.

REFERENCES

- Adeoye, M. A., Wirawan, K. A. S. I., Pradnyani, M. S. S., & Septiarini, N. I. (2024). Revolutionizing education: Unleashing the power of the ADDIE model for effective teaching and learning. *JPI (Jurnal Pendidikan Indonesia)*, 13(1), 202–209. <https://doi.org/10.23887/jpiundiksha.v13i1.68624>
- Allen, M. (2017). Designing online asynchronous information literacy instruction using the ADDIE model. In *Distributed Learning* (pp. 69–91). Elsevier. <https://doi.org/10.1016/B978-0-08-100598-9.00004-0>
- Arsyad, A., Sanaky, H. A. H., & Arsyad, A. (2009). *Media pembelajaran* (A. Rahman (ed.)). Raja Grafindo Persada.
- Bamberger, Y., & Tal, T. (2008). Multiple outcomes of class visits to natural history museums: The students' view. *Journal of Science Education and Technology*, 17(3), 274–284. <https://doi.org/10.1007/s10956-008-9097-3>
- Billett, S. (2003). Vocational curriculum and pedagogy: An activity theory perspective. *European Educational Research Journal*, 2(1), 6–21. <https://doi.org/10.2304/eeerj.2003.2.1.11>
- Chaeruman, U. A. (2019). Evaluasi media pembelajaran. *Dipetik Januari*, 1, 2021. [https://lmsspada.kemdiktisaintek.go.id/pluginfile.php/79786/mod_resource/content/2/Instrumen dan Pedoman Evaluasi Media Pembelajaran.pdf](https://lmsspada.kemdiktisaintek.go.id/pluginfile.php/79786/mod_resource/content/2/Instrumen%20dan%20Pedoman%20Evaluasi%20Media%20Pembelajaran.pdf)
- Choi, J. Y. (2023). A meta-analysis of project based learning effects in vocational high school. *Korean Association for Literacy*, 14(2), 435–462. <https://doi.org/10.37736/KJLR.2023.04.14.2.14>
- de Bruijn, E., & Leeman, Y. (2011). Authentic and self-directed learning in vocational education: Challenges to vocational educators. *Teaching and Teacher Education*, 27(4), 694–702. <https://doi.org/10.1016/j.tate.2010.11.007>
- DeBoy, C. A. (2017). Student Use of self-data for out-of-class graphing activities increases student engagement and learning outcomes. *Journal of Microbiology & Biology Education*, 18(3), 10–1128. <https://doi.org/10.1128/jmbe.v18i3.1327>
- Di Stefano, G., Gino, F., Pisano, G. P., & Staats, B. R. (2014). Learning by thinking: How reflection Aids performance. *SSRN Electronic Journal*, 1. <https://doi.org/10.2139/ssrn.2414478>
- Dick, W., Carey, L., & Carey, J. O. (1985). *The systematic design of instruction*. Scott, Foresman Glenview, IL. <https://studentebookhub.com/wp-content/uploads/2024/preview/9780135824146.pdf>
- Fatias, S., & Nurizzati, N. (2025). The Impact of Audiovisual-Assisted Project-Based Learning and Motivation on Drama Writing Skills in Vocational High School Students. *AL-ISHLAH: Jurnal Pendidikan*, 17(3), 5258–5267. <https://doi.org/10.35445/alishlah.v17i3.7744>
- Firoh, L. M., Raharjo, T. J., Sukasih, S., Subali, B., & Widiarti, N. (2025). A systematic review of the implementation of Projek Penguatan Profil Pelajar Pancasila (P5) in Indonesian Schools (2020–2024). *Journal of Educational Sciences*, 9(4), 2152–2163. <https://jes.ejournal.unri.ac.id/index.php/JES/article/view/532>
- Fourilla, F., & Fauzi, A. (2021). Validasi emodul fisika SMA berbasis inquiry based learning terintegrasi mitigasi bencana kekeringan. *Jurnal Penelitian Pembelajaran Fisika*, 7(2), 113. <https://doi.org/10.24036/jppf.v7i2.114346>
- Harlinda, A., & Suratmi, S. (2024). Needs analysis as the first step of articulate storyline assisted learning media development. *Jurnal Cakrawala Pendas*, 10(3), 446–457. <https://doi.org/10.31949/jcp.v10i3.9082>

- Hattie, J. (2011). Which strategies best enhance teaching and learning in higher education? In *Empirical Research in Teaching and Learning* (pp. 130–142). Wiley. <https://doi.org/10.1002/9781444395341.ch8>
- Julianto, D. R., Mustadi, A., Senen, A., & Sugara, U. (2025). How the Merdeka Curriculum enhances the Pancasila Student Profile in education. *Indonesian Journal of Educational Research and Review*, 8(1), 15–34. <https://doi.org/10.23887/ijerr.v8i1.86041>
- Kemendikbudristek, B., Adiprima, P., Sekar, W. K., & Harjatanaya, T. Y. (2022). Panduan pengembangan proyek penguatan profil pelajar Pancasila. In *Jakarta: Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian*. Pusat Kurikulum dan Pembelajaran Badan Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. https://uploads.belajar.id/document/files/Panduan_Pengembangan_Projek_Penguatan_Profil_Pelajar_Pancasila_01j1z0ye6pj383h2y1336ck050.pdf
- Khair, A. A., Nur Fauzan, M. I., Aspari, R. S., & Ghazali, W. R. (2025). Development of augmented reality-based learning media to increase student learning motivation: Computer networks. *Jurnal Guru Komputer*, 5(2), 78–90. <https://doi.org/10.17509/jgrkom.v5i2.69820>
- Kholifah, N., Nurtanto, M., Mutohhar, F., Triyanto, T., Saputro, I. N., & Masek, A. (2025). Realization of Profil Pelajar Pancasila based on project learning in vocational education at Tamansiswa, Indonesia. *Qualitative Research in Education*, 14(2), 133–155. <https://doi.org/10.17583/qre.12554>
- Kurt, S. (2017). ADDIE model: Instructional design. *Educational Technology*, 29. <https://educationaltechnology.net/the-addie-model-instructional-design/>
- Listanto, V., Sipahutar, N. Y. P., Aflahah, S., & Muntakhib, A. (2024). Model for developing Pancasila Student Profile strengthening project based on gender relations. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 10(2), 591. <https://doi.org/10.33394/jk.v10i2.9756>
- Mafazah, N. (2019). *Pengembangan media flashcard kosakata dasar untuk penguasaan kosakata Bahasa Indonesia siswa kelas VII Ansorayah Wittaya School, Chana District, Thailand tahun ajaran 2018/2019* [Universitas Muhammadiyah Surabaya]. <https://repository.um-surabaya.ac.id/id/eprint/8094/>
- Maulida, U. (2022). Pengembangan modul ajar berbasis kurikulum merdeka. *Tarbawi: Jurnal Pemikiran Dan Pendidikan Islam*, 5(2), 130–138. <https://doi.org/10.51476/tarbawi.v5i2.392>
- Nurfaizana, D. R., Churiyah, M., & Basuki, A. (2025). Enhancing character competency through Learning Design Module (LDM): a qualitative case study of P5 implementation in vocational. *Research and Development Journal of Education*, 11(1), 707. <https://doi.org/10.30998/rdje.v10i1.23184>
- Pratiwi, D. E., & Yuliana, L. (2026). Elementary schools' learning tools development based on understanding by design. *Curricula: Journal of Curriculum Development*, 5(1), 321–334. <https://ejournal-education.upi.edu/curricula/article/view/208>
- Puspita, L. (2019). Pengembangan modul berbasis keterampilan proses sains sebagai bahan ajar dalam pembelajaran biologi. *Jurnal Inovasi Pendidikan IPA*, 5(1), 79–88. <https://doi.org/10.21831/jipi.v5i1.22530>
- Riyanti, I., Copriady, J., & Linda, R. (2022). Student needs analysis for the development of augmented reality integrated e-modules about particles in science learning. *Unnes Science Education Journal*, 11(2), 115–122. <https://doi.org/10.15294/usej.v11i2.58309>
- Safitri, L., Hidayati, N., & Suryanti, S. (2025). Integrating problem-based learning into e-modules : A development study with validation and student response analysis. *Jurnal Kependidikan*:

- Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 11(1), 397. <https://doi.org/10.33394/jk.v11i1.14836>
- Sanam, S. (2024). Optimizing the connection of Projek Penguatan Profil Pelajar Pancasila (P5) with vocational soft skills development. *IJIET (International Journal of Indonesian Education and Teaching)*, 8(2), 294–301. <https://doi.org/10.24071/ijiet.v8i2.7720>
- Saputro, H., Suharno, S., Widiastuti, I., & Harjanto, B. (2018). Production-based education model for improving technical and vocational teachers ability. *IOP Conference Series: Materials Science and Engineering*, 306, 012052. <https://doi.org/10.1088/1757-899X/306/1/012052>
- Sigit, D. V., Ristanto, R. H., & Mufida, S. N. (2022). Integration of project-based e-learning with STEAM: An innovative solution to learn ecological concept. *International Journal of Instruction*, 15(3), 23–40. <https://doi.org/10.29333/iji.2022.1532a>
- Simamora, C. R., & Rosmawaty, R. (2016). Pengaruh metode pancangan kata kunci terhadap kemampuan menulis puisi oleh siswa kelas VIII SMP Swasta Mulia Pratama Medan Tahun Pembelajaran 2014/2015. *Basastra*, 4(4), 54747. <https://jurnal.unimed.ac.id/2012/index.php/basastra/article/view/3763>
- Slatinska, A. (2023). New approaches to developing the global skills and intercultural competence of future teachers (Virtual exchange and blended intensive programs as possibilities for future research and higher-education internationalization). *Intercultural Relations*, 7(2(14)), 26–41. <https://doi.org/10.12797/RM.02.2023.14.02>
- Susanti, E., Hikmat, A., & Tarmini, W. (2025). Needs analysis for the development of web-based teaching materials in scientific writing skills instruction for eleventh-grade vocational high school students. *BAHA STRA*, 45(2), 222–231. <https://doi.org/10.26555/bs.v45i2.1407>
- Syafruddin, S., Sajidan, S., & Sugiyarto, S. (2016). Pengembangan modul biologi berbasis inquiry lesson pada materi bioteknologi kelas XII SMA Negeri 1 Magelang. *INKUIRI: Jurnal Pendidikan IPA*, 5(3), 77–89. <https://jurnal.uns.ac.id/inkuiri/article/view/9448>
- Tegeh, I. M., & Kirna, I. M. (2013). Pengembangan bahan ajar metode penelitian pendidikan dengan addie model. *Jurnal Ika*, 11(1). <https://ejournal.undiksha.ac.id/index.php/ika/article/view/1145>
- Ulandari, S., & Rapita, D. D. (2023). Implementasi proyek penguatan Profil Pelajar Pancasila sebagai upaya menguatkan karakter peserta didik. *Jurnal Moral Kemasyarakatan*, 8(2), 116–132. <https://doi.org/10.21067/jmk.v8i2.8309>
- Wahjusaputri, S., & Bunyamin, B. (2022). Development of teaching factory competency-based for vocational secondary education in Central Java, Indonesia. *International Journal of Evaluation and Research in Education (IJERE)*, 11(1), 353. <https://doi.org/10.11591/ijere.v11i1.21709>
- Widyastuti, E., & Susiana, S. (2019). Using the ADDIE model to develop learning material for actuarial mathematics. *Journal of Physics: Conference Series*, 1188, 012052. <https://doi.org/10.1088/1742-6596/1188/1/012052>
- Zahrah, F., & Mawasil, H. (2023). Penerapan Projek Penguatan Profil Pelajar Pancasila (P5) untuk melatih soft skill siswa madrasah ibtidaiyah. *Jurnal Prakarsa Paedagogia*, 6(2). <https://doi.org/10.24176/jpp.v6i2.11914>