



Development and Expert Validation of an Entrepreneurship Learning Module for Students in the Management Study Program

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ARTICLE INFO	ABSTRACT
<i>Article history:</i> Received Jun 10, 2026 Revised Jun 17, 2026 Received Jul 13, 2026 <i>Keywords:</i> Entrepreneurship; Modules; Strengthening student; Management;	Entrepreneurship education plays an important role in developing students' entrepreneurial competencies in higher education. However, the availability of structured and validated entrepreneurship learning modules that support competency-based learning in Management Study Programs remains limited. This study aimed to develop and validate an entrepreneurship learning module for students in the Management Study Program at Universitas Al Washliyah Labuhanbatu using the Research and Development (R&D) approach with the ADDIE model, covering the analysis, design, development, implementation, and evaluation stages. This article focuses on the module development and expert validation stages. The module was developed based on a needs analysis involving lecturers and students and was designed by integrating learning outcomes, instructional materials, case studies, project-based learning activities, and assessment instruments. The developed module was evaluated by subject matter, instructional design, media, and language experts to assess its content, presentation, instructional design, and language quality. The validation results indicated that the module was feasible in all assessed aspects, with an average score of 3.51 from instructional design experts, 3.43 from media experts, 3.42 from subject matter experts, and 3.40 from language experts, all of which were categorized as feasible. These findings indicate that the developed entrepreneurship learning module meets the quality standards required for higher education learning materials. Therefore, the module can serve as a validated learning resource to support entrepreneurship learning in the Management Study Program. <i>This is an open access article under the CC BY-NC license.</i>



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1. INTRODUCTION

Entrepreneurship education in higher education institutions is increasingly recognized as an important component in developing students' entrepreneurial competencies, such as

creativity, innovation, ability to identify opportunities, and decision-making skills. This type of education is not limited to theoretical understanding, but also emphasizes the development of practical abilities that prepare students to become future entrepreneurs (Audretsch et al., 2019). To achieve these goals, entrepreneurship learning needs to be designed in a structured and systematic way so that learning objectives, teaching materials, and assessment processes are well aligned in supporting competency development (Bacigalupo, Margherita, Panagiotis, Yves, 2016). In addition, learning approaches such as project-based learning and case-based learning have been shown to effectively increase student engagement as well as improve entrepreneurial skills in higher education settings (Pajala et al., 2025). The use of instructional design models such as ADDIE also plays an important role in producing well-structured and validated learning materials that support the implementation of competency-based education (Robert Maribe Branch, 2009). Therefore, continuous improvement in entrepreneurship education through innovative instructional design and well-developed learning modules is essential to strengthen students' entrepreneurial competencies in higher education (Wiyono et al., 2025);(H. Chen et al., 2022).

The development of the digital era has significantly transformed various aspects of life, including education and entrepreneurship. Digital transformation has created new technology-based business opportunities that require individuals to possess adequate digital entrepreneurship competencies. These competencies include the ability to utilize digital technologies, think creatively, innovate, and manage digital-based businesses sustainably (Muafi et al., 2021). Higher education institutions play an important role in developing these competencies through structured learning processes. Digital entrepreneurship education focuses not only on theoretical knowledge but also on the development of students' practical skills in identifying business opportunities and developing technology-based businesses (Linton & Klinton, 2019);(Bacigalupo, Margherita, Panagiotis, Yves, 2016). However, the implementation of digital entrepreneurship learning still faces several challenges, one of which is the limited availability of teaching materials specifically designed to support the strengthening of these competencies. Several studies have shown that the integration of digital literacy into entrepreneurship learning can enhance students' abilities in innovation and business development (Rusmana, 2020);(Erdisna et al., 2022). In addition, the use of teaching materials in the form of learning modules has been proven effective in improving students' learning independence and conceptual understanding because they are systematically and contextually designed (Handayani, 2018);(Harmini, 2019). Research conducted by (Putra et al., 2020);(L. Chen et al., 2021) demonstrated that module-based learning can improve students' learning autonomy and facilitate a more structured understanding of entrepreneurial concepts. Stated that the development of digital-based teaching materials can increase students' learning motivation in understanding entrepreneurship concepts in the Industry 4.0 era. In addition, (Erdisna et al., 2022) found that the integration of digital technology into entrepreneurship learning contributes to enhancing students' creativity and innovation skills in designing business ideas. Similarly,(Rahmawati et al., 2019) emphasized that systematically developed learning modules based on students' needs can improve the effectiveness of the learning process and the quality of learning outcomes.

Based on the above description, the development of learning modules is considered one of the strategic solutions for strengthening students' digital entrepreneurship competencies. Learning modules enable students to learn independently, flexibly, and systematically in accordance with the learning demands of the digital era. In this context, the development of learning modules serves as a strategic solution to strengthen students' digital entrepreneurship competencies. Learning modules allow students to learn independently, purposefully, and in alignment with the evolving needs of today's digital industry. Thus, learning modules function not only as

learning resources but also as media for strengthening students' practical skills. Based on the background described above, the research problems of this study are: (1) How can a digital entrepreneurship learning module be developed for the Management Study Program at Universitas Al Washliyah Labuhanbatu? and (2) How feasible is the developed digital entrepreneurship learning module based on expert validation? Accordingly, the objectives of this study are: (1) to develop a digital entrepreneurship learning module for the Management Study Program at Universitas Al Washliyah Labuhanbatu, and (2) to determine the feasibility of the developed digital entrepreneurship learning module based on expert validation results. Therefore, this study focuses on strengthening students' digital entrepreneurship competencies through the development of a learning module in the Management Study Program at Universitas Al Washliyah Labuhanbatu. The development of this module is expected to improve the quality of learning and produce graduates who are well-prepared to face the challenges and opportunities of the digital economy era.

The novelty of this study lies in the development of an entrepreneurship learning module that is systematically designed using the ADDIE model and specifically tailored to the needs of students in the Management Study Program. Unlike previous studies that generally focus on the development of entrepreneurship learning materials without comprehensive expert validation across multiple dimensions, this study integrates subject matter, instructional design, media, and language validation to ensure the quality and feasibility of the module as a structured learning resource. In addition, the module is developed based on a detailed needs analysis involving both lecturers and students, ensuring that the learning content is aligned with curriculum requirements and contextual learning needs in higher education. Therefore, this study contributes a validated entrepreneurship learning module that can serve as a standardized instructional material for entrepreneurship courses in the Management Study Program.

2. RESEARCH METHOD

This study adopted a Research and Development (R&D) approach utilizing the ADDIE model, which consists of five sequential stages: Analysis, Design, Development, Implementation, and Evaluation. The model was employed to develop a digital entrepreneurship learning module for students enrolled in the Management Study Program at Universitas Al Washliyah Labuhanbatu. The R&D method was selected because it facilitates the development of educational products whose validity, practicality, and effectiveness can be systematically examined prior to broader implementation (Borg, W. R., & Gall, 2003); (Sugiyono., 2022). Meanwhile, the ADDIE framework was chosen due to its systematic and adaptable structure for instructional material development, encompassing processes from needs assessment to product evaluation (Branch, 2009); (Dick, W., Carey, L., & Carey, 2015) The primary objective of this research was to produce a digital entrepreneurship learning module capable of enhancing students' digital entrepreneurial competencies. Strengthening these competencies has become increasingly important as digital transformation continues to reshape the ways individuals identify entrepreneurial opportunities, design business models, and generate value through digital technologies (Giones & Brem, 2017). Furthermore, digital entrepreneurship is increasingly recognized as a key competency that higher education graduates should possess in order to adapt to economic changes and compete in the global labor market (For & Green, 2025). The first phase of the study was the analysis stage, which aimed to identify learning needs, student characteristics, course learning outcomes, and digital entrepreneurship competencies relevant to current industry demands. Data at this stage were collected through observations, interviews, and questionnaires administered to lecturers and students. Conducting a comprehensive needs assessment was essential because the success of instructional material

development largely depends on how well the product aligns with user requirements (Branch, 2009). In addition, needs-based digital entrepreneurship education has been shown to foster students' creativity, innovation, and readiness to establish technology-driven businesses (Aysi et al., 2024). The second stage involved the design process, which included formulating learning outcomes, organizing instructional content, planning learning activities, developing case studies, designing project assignments, and preparing assessment instruments. The module content was structured around entrepreneurial competency concepts, including opportunity recognition, creativity, decision-making skills, resource management, and the utilization of digital technology in business activities (Kuratko, 2021). The instructional design also incorporated digital literacy and digital business skills, which are increasingly regarded as essential competencies for students in the digital economy era.

The third phase was development, during which the digital entrepreneurship learning module was created based on the previously established design framework. The initial product was subsequently evaluated by subject-matter experts and media experts to assess the quality of content, language, presentation, and graphical design. Expert validation constitutes a critical component of development research because it ensures that the product meets quality standards before being introduced to users (Dick, W., Carey, L., & Carey, 2015); (Richey, R. C., & Klein, 2007). Feedback and recommendations obtained from the validation process were utilized to revise and improve the module (Mat Darus et al., 2023); (Rukmana et al., 2024). The fourth stage was implementation, which involved applying the developed module to students of the Management Study Program at Universitas Al Washliyah Labuhanbatu. During this phase, students participated in learning activities using the module as the primary instructional resource. The implementation process aimed to examine the practicality of the module and evaluate its contribution to improving students' digital entrepreneurial competencies. Previous studies have indicated that entrepreneurship education integrated with digital technologies can enhance students' abilities to generate innovation, formulate digital marketing strategies, and manage businesses through digital platforms (Phillips et al., 2020).

The final stage was evaluation, which was conducted through both formative and summative assessment procedures. Formative evaluation was carried out throughout each stage of development to obtain feedback for continuous improvement, whereas summative evaluation was conducted following implementation to determine the effectiveness of the module in strengthening students' digital entrepreneurial competencies (Branch, 2009); (Dick, W., Carey, L., & Carey, 2015).

The competencies assessed included the ability to identify digital business opportunities, apply digital technologies in business operations, conduct digital marketing activities, develop digital business models, and manage technology-based ventures innovatively (Purwanti et al., 2024). The data collected in this study were intended to address two research questions: (1) how a digital entrepreneurship learning module could be developed for the Management Study Program at Universitas Al Washliyah Labuhanbatu, and (2) how feasible the developed module was based on expert validation results. To answer the first research question, data were gathered through observations, interviews, and needs assessments involving lecturers and students. These findings served as the basis for designing the module, selecting instructional materials, determining learning strategies, organizing learning activities, and constructing evaluation instruments tailored to students' digital entrepreneurship learning needs. To address the second research question, data were obtained through validation processes conducted by subject-matter experts and media experts using structured assessment instruments. The validation process focused on evaluating several aspects, including content quality, language appropriateness, presentation, graphical design, and alignment with the intended learning outcomes. The validators' assessments were analyzed using

descriptive quantitative techniques in the form of percentage calculations to determine the feasibility level of the developed module. In addition, qualitative feedback and suggestions provided by the experts were analyzed descriptively and used as a foundation for revising and refining the product prior to implementation. Based on these research questions, this study sought to develop a digital entrepreneurship learning module for the Management Study Program at Universitas Al Washliyah Labuhanbatu and to determine its feasibility through expert validation. Consequently, the resulting product is expected to meet established validity standards and be suitable for use as instructional material to support the enhancement of students' digital entrepreneurial competencies.

This study employed a Research and Development (R&D) approach using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. However, the implementation stage involving students and the summative evaluation were not conducted in this study. Therefore, the scope of this research was limited to the development and expert validation of an entrepreneurship learning module for students in the Management Study Program at Universitas Al Washliyah Labuhanbatu. The module was evaluated by four validators, consisting of one subject matter expert, one instructional design expert, one media expert, and one language expert. The number of validators was considered sufficient as it aligns with development research standards that recommend involving multiple experts to ensure the validity of instructional products. The selection of validators was based on their academic qualifications and professional experience. Each validator holds at least a master's degree in relevant fields such as management education, instructional technology, or language education, and has experience in teaching and developing instructional materials at the higher education level. All validators were considered competent in their respective fields related to entrepreneurship education and instructional material development. However, this study focused on general entrepreneurship learning materials, not specifically on digital entrepreneurship. The validation instrument used in this study was a structured questionnaire based on a Likert scale, which included indicators covering content quality, instructional design, presentation, language clarity, and alignment with learning objectives. The instrument was developed based on established instructional evaluation criteria and reviewed by experts to ensure its content validity. The reliability of the instrument was ensured through internal consistency testing using Cronbach's Alpha. The use of structured instruments and multiple expert validators ensured the reliability and objectivity of the data obtained. The analysis of data was conducted using descriptive quantitative techniques in the form of percentage scores to determine the feasibility level of the developed module. In addition, qualitative feedback from validators was analyzed descriptively and used as a basis for revising and improving the module. Formative evaluation was conducted throughout the ADDIE stages. In the analysis stage, needs analysis was carried out through observations, interviews, and questionnaires involving lecturers and students. In the design stage, the learning objectives, materials, activities, and assessment instruments were developed and reviewed. In the development stage, the module was validated by experts to assess its feasibility. The implementation stage was not conducted, and no small group trial was carried out in this study. This study obtained research permission from the Faculty of Economics, Universitas Al Washliyah Labuhanbatu. All research procedures were conducted in accordance with institutional research guidelines. Based on these procedures, the study focused on developing and validating an entrepreneurship learning module to ensure its feasibility as instructional material in higher education.

3. RESULTS AND DISCUSSIONS

The results of this study produced a digital entrepreneurship learning module developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). This module was designed to support the learning process in the Management Study Program at Universitas Al Washliyah Labuhanbatu, with a focus on strengthening students' digital entrepreneurship competencies. As a form of visual presentation of the validation results, a bar chart is displayed showing the average evaluation scores of the entrepreneurship module as assessed by experts consisting of instructional design experts, subject matter experts, media experts, and language experts. This presentation aims to clarify the comparison of feasibility levels across each assessed aspect, as shown in Figure 1, the following bar chart.

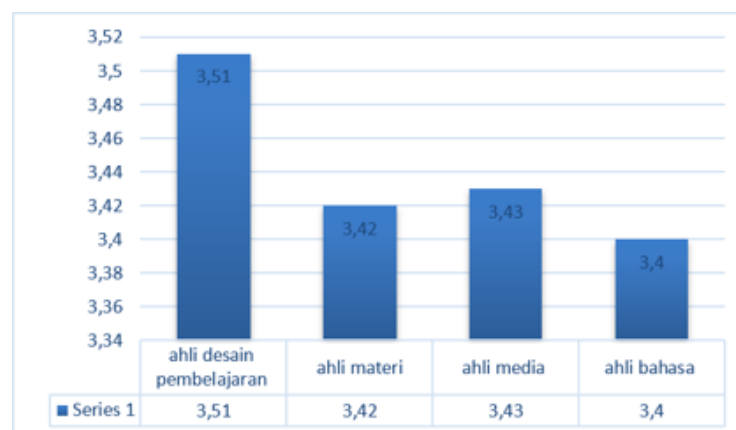


Figure 1. Bar Chart of the Average Expert Evaluation Scores for the Teacher Guide Book

Based on Figure 4.2, which presents the bar chart of the average expert evaluation scores for the instructional module, it can be observed that the overall mean scores from all experts fall within the “feasible” category. Instructional design experts provided the highest average score of 3.51, followed by media experts with a score of 3.43, and subject matter experts with a score of 3.42. Meanwhile, language experts assigned an average score of 3.40, which represents the lowest score among the evaluated aspects; however, it still remains within the “feasible” category. Accordingly, the validation results indicate that the developed entrepreneurship module is appropriate and suitable for use. The expert evaluation results were analyzed using feasibility percentage calculations. Overall, the developed module was classified as “feasible” across several aspects, including content, presentation, language, and instructional media design. These findings indicate that the developed digital entrepreneurship learning module meets the required standards of instructional material feasibility. This is consistent with previous studies emphasizing that expert validation is a critical stage in instructional material development to ensure product quality prior to its implementation in learning environments (Branch, 2009);(Dick, W., Carey, L., & Carey, 2015).

The validation results of the entrepreneurship learning module were analyzed using a Likert scale ranging from 1 to 4, where the score interpretation was categorized into four levels: 1.00–1.75 (not feasible), 1.76–2.50 (less feasible), 2.51–3.25 (feasible), and 3.26–4.00 (very feasible). Based on this categorization, the average score of 3.51 obtained from the overall expert assessment falls into the “very feasible” category, indicating that the developed module meets high-quality standards for instructional materials. The validation process was conducted using structured indicators that included content quality, instructional design, presentation structure, language clarity, and alignment with learning objectives. Rather than presenting only the overall mean

score, the evaluation was also carried out across these specific indicators to ensure a comprehensive assessment of the module's quality. The results showed consistent positive evaluations across all aspects, with instructional design obtaining the highest mean score (3.51), followed by media (3.43), content (3.42), and language (3.40), indicating that the module was well-structured, readable, and pedagogically appropriate.

In addition to quantitative findings, the validators also provided qualitative feedback that contributed to the improvement of the module. The feedback included suggestions to refine the clarity of learning instructions, improve the layout consistency, enhance the visual presentation of learning materials, and adjust several case study examples to better align with students' learning context. These revisions were incorporated to strengthen the instructional quality of the module. The relatively high validation scores can be explained by the systematic development process based on the ADDIE model, which ensured that the module was designed according to identified learner needs, aligned with curriculum requirements, and reviewed iteratively before expert evaluation. Furthermore, the involvement of experienced validators with expertise in management education, instructional design, media development, and language ensured that the assessment was both objective and comprehensive.

3.1 Discussion

The development of this digital entrepreneurship learning module demonstrates that the ADDIE model is effective in producing systematic and well-structured instructional materials. The needs analysis stage played a crucial role in ensuring that the developed module aligns with students' learning requirements as well as the demands of the digital-based labor market. The findings of this study support previous research indicating that digital entrepreneurship education can enhance students' abilities to identify business opportunities, develop business innovations, and utilize digital technologies in business activities. In addition, digital entrepreneurial competencies are closely related to digital literacy skills and the ability to adapt to technological developments.

a. Research Gap

Based on the literature review, most previous studies have primarily focused on general entrepreneurship development or conventional entrepreneurship training. Research specifically addressing the development of digital entrepreneurship learning modules that are integrated with university students' learning needs remains limited, particularly studies that fully employ the ADDIE model and directly link it to strengthening students' digital competencies. Furthermore, prior studies tend to emphasize entrepreneurial intention rather than the development of structured instructional products in the form of modules that can be directly implemented in classroom learning. Therefore, this study contributes novelty by developing a needs-based digital entrepreneurship learning module that has been validated by experts and designed to enhance students' practical competencies.

b. Research Contribution

The main contribution of this study is the development of an ADDIE-based digital entrepreneurship learning module that can be used as instructional material in the Management Study Program. The module not only focuses on theoretical concepts but also integrates practical digital entrepreneurship activities through case studies and digital business projects. From a theoretical perspective, this study strengthens the body of knowledge on digital entrepreneurship education in higher education. From a practical perspective, the module can be utilized by lecturers as teaching material to improve learning quality and enhance students' competencies in digital entrepreneurship. Accordingly, this study is expected to serve as a reference for the development of digital-based instructional materials in other higher education institutions.

The novelty of this module lies in its systematic development based on the ADDIE model and its alignment with the specific needs of students in the Management Study Program. Unlike previously published entrepreneurship learning materials that are often general in scope, this module integrates structured learning outcomes, case-based learning, project-based activities, and competency-oriented assessments tailored to higher education contexts. Therefore, the developed module provides a more contextualized and structured learning resource that can support entrepreneurship instruction in Management Study Programs.

4. CONCLUSION

The findings of this study emphasize that the development of digital entrepreneurship-based teaching modules not only plays a role in providing learning materials but also contributes to strengthening students' competencies in utilizing digital technology for entrepreneurial activities. This indicates that the developed module has the potential to enhance students' readiness in facing the demands of a digital economy-based workforce. In addition, this study implies that the ADDIE development model can be effectively used to produce teaching materials that are relevant to the needs of higher education, particularly in the field of digital entrepreneurship. Therefore, this module can not only be implemented in the Management Study Program of Universitas Al Washliyah Labuhanbatu but also has the potential to be further developed and adapted in other study programs that offer similar courses. For future research, it is recommended that the development of the module does not stop at the expert validation stage, but is continued with broader effectiveness testing across various universities, as well as integration with digital learning platforms. Furthermore, future studies may develop the module based on a Learning Management System (LMS) or interactive digital applications to better align with the advancement of educational technology and the needs of today's students. Thus, this study contributes to the development of valid and feasible digital entrepreneurship teaching materials that have the potential to improve students' digital entrepreneurship competencies in the era of digital transformation.

The main innovation of this study lies in the systematic development of an entrepreneurship learning module based on the ADDIE model, which integrates needs analysis, structured learning outcomes, case-based learning, project-based activities, and competency-oriented assessments tailored to the characteristics of students in the Management Study Program. Unlike conventional entrepreneurship learning materials that are often general and less structured, this module was specifically designed based on empirical needs analysis and validated through multiple experts, including subject matter, instructional design, media, and language experts, to ensure its quality and feasibility as an instructional resource in higher education. Therefore, this study contributes a more contextualized and systematically validated entrepreneurship learning module that can support more effective teaching and learning processes in entrepreneurship education.

However, this study has several limitations. First, the research was limited to the development and expert validation stages and did not include field testing with students. Second, the study did not measure the effectiveness of the module in improving students' learning outcomes through experimental methods such as pre-test and post-test. Third, the validation process was based on a limited number of experts, which may restrict the generalizability of the findings. Therefore, future research is recommended to implement the module in classroom settings and conduct empirical testing to evaluate its effectiveness in enhancing students' entrepreneurial learning outcomes.

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