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A Practicality Test of The Selected Topics Module In Artificial Intelligence as a Tool For Student-Led Self-Study

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Article	Abstract
Keywords: practicality of modules, self-directed learning; artificial intelligence; digital modules; educational technology. Article History Received: Jan 11, 2026; Reviewed: Feb 13, 2026; Accepted: Mar 16, 2026; Published: August 27, 2026;	<i>This study aims to evaluate the practicality of the Selected Topics in Artificial Intelligence Module as a self-learning resource for students in the Computer Engineering Program at Makassar State University. This study employs the Research and Development (R&D) method using the 4-D development model, which includes define, design, develop, and disseminate. The research subjects consisted of 10 students in the small-group pilot test and 30 students in the large-group pilot test, as well as one lecturer in charge of the course. The research instrument was a practicality questionnaire that assessed three main indicators: content, media, and usefulness. The results of the practicality test showed that the lecturer's assessment received an average score of 82% in the practical category. Meanwhile, the questionnaire results from 21 students showed an overall average score of 85% in the practical to very practical categories, specifically: content 85% (practical), media 88% (very practical), and utility 83% (practical). These findings indicate that the developed module is easy to use, enhances conceptual understanding, and supports students' independent learning in the Artificial Intelligence Capita Selecta course. Thus, this module is deemed suitable and practical for use as a digital learning medium in higher education.</i>



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INTRODUCTION

Advances in information and communication technology in the era of the 4.0 Revolution have driven major transformations in the world of education. One technology that has seen particularly rapid development is Artificial Intelligence (AI) (Rochmat dkk., 2024). Artificial Intelligence has been applied in various fields, including education, healthcare, industry, economics, and government. In higher education, Artificial Intelligence is not only used as a tool for academic administration but is also leveraged to support a more adaptive, personalized, and effective learning process (Darmawan dkk., 2026).

The application of artificial intelligence in education offers significant opportunities for universities to improve the quality of learning (Sharma, 2023). AI enables students to have a more flexible learning experience through the use of digital learning materials, adaptive learning systems, and interactive learning resources. AI in education can enhance the effectiveness of learning by personalizing course materials and strengthening students' critical thinking skills (Trivedi, 2023). In addition, the use of AI also supports the development of independent learning, which is one of the key competencies in 21st-century education (Trivedi, 2023).

Self-directed learning is a learning process in which students actively engage by independently setting learning goals, strategies, and evaluations (Rahmi dkk., 2017). Learning autonomy is crucial in the digital age because students are expected to possess lifelong learning skills (Shadiev dkk., 2024). However, the implementation of self-directed learning in higher education still faces various challenges, such as limited learning resources, a lack of interactive teaching materials, and low student motivation to study the material independently.

This issue highlights the need to develop learning materials that enable students to learn independently, flexibly, and in an easily understandable manner (Lutfiani dkk., 2025). One such learning tool is the digital learning module. A module is a systematically organized set of instructional materials designed to help students achieve specific learning objectives on their own. A good module should be self-instructional, self-contained, stand-alone, adaptive, and user-friendly.

In Artificial Intelligence courses, students often struggle to understand abstract concepts such as machine learning, neural networks, natural language processing, and data mining. AI material generally requires visualizations, case studies, and systematic exercises to make it easier to understand. Therefore, the development of a "Kapita Selekt" module in Artificial Intelligence serves as a solution to help students grasp AI material more effectively.

The “Selected Topics in Artificial Intelligence” module was developed as a self-paced learning resource that presents AI material in a structured format, complete with application examples, illustrations, exercises, and learning assessments. The module is designed in a digital format, making it accessible via both computers and smartphones. The use of a digital module gives students the flexibility to learn anytime and anywhere.

Previous research has shown that the use of digital modules can enhance student motivation and learning outcomes. A study conducted by Pratama and Widodo (2021) found that AI-based digital modules can improve the effectiveness of student learning in information technology courses. Another study by Rahmawati et al. (2023) concluded that digital learning media are highly practical in supporting student self-directed learning.

However, research on the practicality of the “Kapita Selektta” module in the field of Artificial Intelligence as a self-directed learning tool for students remains limited. Most previous studies have focused solely on the effectiveness or validity of the learning tool, while the practicality of the module’s use by students has not been thoroughly examined.

The novelty of this study lies in the development and testing of the practicality of a “Kapita Selektta” module in the field of Artificial Intelligence, specifically designed to support students’ independent learning in higher education. This study not only evaluates the presentation and quality of the material but also assesses the module’s user-friendliness, time efficiency, and its benefits for students’ independent learning.

Based on the above discussion, this study aims to determine the practicality of the Selected Topics in Artificial Intelligence module as a self-study resource for students.

METHOD

This study employs the Research and Development (R&D) method using the 4D model, which consists of the define, design, develop, and disseminate stages. This model provides systematic steps for developing learning tools so that the resulting products can be tested in stages before being widely implemented (McKenney & Reeves, 2022). In this study, data collection was conducted using a practicality questionnaire distributed to lecturers and students as respondents. The questionnaire was designed based on indicators of content, media, and the usefulness of the module. Each statement in the questionnaire was measured using a Likert scale with a score range of 1 to 5. The use of the Likert scale aims to measure respondents’ attitudes, opinions, and perceptions regarding the social phenomenon or product being evaluated (Sugiyono, 2019). This scale allows qualitative perception data to be converted into quantitative data so that it can be statistically analyzed.

The Likert scale score ranges used in this study are presented in Table 1

Table 1. Practicality Questionnaire Rating Scale

Category	Score
Strongly Agree	5
Agree	4
Somewhat Agree	3
Disagree	2
Strongly Disagree	1

The survey data was then analyzed by calculating the total scores obtained from all respondents and comparing them to the expected maximum score. The practicality percentage was calculated using the following formula:

$$P = T_{Se} / T_{Sh} \times 100\%$$

where P is the percentage score, T_s is the total score obtained from the respondents, and T_h is the expected maximum total score (Arikunto, 2010). These percentage scores are then classified based on criteria regarding the product's practicality to determine the categories of very practical, practical, somewhat practical, or impractical (Try Lysa Handayani & Sugianto, 2019).

The resulting percentages were then classified based on criteria related to the product's practicality, as shown in Table 2.

Table 2. Product usability criteria

Percentage (%)	Category
85 - 100%	Very practical
70 - 85%	Practical
40 - 70%	Somewhat practical
20 - 40%	Impractical
01 - 20%	Very impractical

This classification is used to determine the level of suitability of the module based on user perceptions (Try Lysa Handayani & Sugianto, 2019). Thus, the analysis results not only show numerical percentage values but also provide a categorical interpretation of the practicality of the developed module.

RESULTS AND DISCUSSION

The results of the practicality test for the “Selected Topics in Artificial Intelligence” module were obtained by distributing a questionnaire to faculty members and students, who were divided into small and large groups. The analysis was conducted by calculating the percentage scores for each indicator: content, media, and usefulness.

Results of the Small-Group Student Responses

In the small-group trial, the average scores were 87% for content, 88% for media, and 85% for usefulness. The overall average was 87%, which falls into the “Very Practical” category.

Table 3. Summary of Practical Work Results for Small Groups of Students

Respondent	indicator			Category
	Content	Media	Benefits	
R1	12	18	25	Practical
R2	12	21	26	Practical
R3	15	24	33	Very Practical
R4	12	22	31	Very Practical
R5	15	25	35	Very Practical
R6	15	25	35	Very Practical
R7	15	25	34	Very Practicals
R8	10	17	23	Pretty Practical
R9	13	23	28	Very Practical
R10	12	20	26	Very Practical
Level of practicality	131	220	296	Very Practical
degree of practicality	87%	88%	85%	

The overall score for the aspects of content, media, and usefulness in the small-group test was 647, while the highest possible score based on the number of responses in the survey was 750. Therefore, the following formula was used to calculate the proportion of the total score for practical statements across all aspects:

$$P = \frac{TSe}{TSh} \times 100\%$$

$$P = \frac{647}{750} \times 100\% = 86\%$$

Thus, the overall evaluation score across all criteria is 86% of the maximum score of 100%, which falls into the “Very Practical” category.

Results of the Large-Group Student Responses

This field test was conducted among students in the TEKOM program at UNM. The study involved 21 students from the 2021 Tekom A cohort who had taken the elective course "Kapita Selektta." The questionnaire covered three aspects and consisted of 15 items. A summary of the responses from the 21 UNM JTIK students is presented in Table 4 below.

Table 4. Summary of Practical Work Results for Large-Groups of Students

Respondent	Indicator			Category
	Content	Media	Benefit	
R1	12	18	25	Practical
R2	12	21	26	Practical
R3	15	24	33	Very Practical
R4	12	22	31	Very Practical
R5	15	25	35	Very Practical
R6	15	25	35	Very Practical
R7	15	25	34	Very Practical
R8	10	17	23	Practical
R9	13	23	28	Very Practical
R10	12	20	26	Practical
R11	12	24	28	Very Practical
R12	13	23	28	Very Practical
R13	13	21	28	Practical
R14	14	23	34	Very Practical
R15	14	25	30	Very Practical
R16	13	22	29	Very Practical
R17	12	22	27	Practical
R18	13	23	29	Very Practical
R19	12	20	28	Practical
R20	12	19	29	Practical
R21	10	19	21	Practical
Level of Practicality	269	461	607	Very Practical
Degree of Practicality	85%	88%	83%	

The total score for the content, media, and usefulness aspects from the large-group testing was 1,337, while the maximum expected total based on the number of statements in the questionnaire was 1,575. Therefore, the following formula was used to calculate the proportion of the total score for practical statements across all aspects:

$$P = \frac{TSe}{TSh} \times 100\%$$

$$P = \frac{1337}{1575} \times 100\% = 85\%$$

The overall score for all aspects is 85% of the maximum total of 100%, which falls into the “Very Practical” category.

Faculty Feedback Results

Based on the survey results, faculty feedback on the module showed that the content aspect received a score of 82%, the media aspect 84%, and the usefulness aspect 80%. The overall average score for faculty feedback was 82%, which falls into the “Practical” category.

Table 5. Summary of the Results of the Practicality Assessment of Faculty Responses

No	Indicator	Expected score	Total Score	Percentage	Category
1	Content	315	269	82%	Practical
2	Media	525	461	84%	Practical
3	Usefulness	735	601	80%	Practical
Average				82%	Practical

These results indicate that the module meets the criteria for ease of use and can be implemented in the learning process without requiring major revisions.

CONCLUSION

Based on the results of the practicality test of the Selected Topics in Artificial Intelligence module, it can be concluded that the developed module meets the criteria for practicality and is suitable for use as a self-study resource. The average score from the faculty evaluation was 82%, which falls within the “practical” category. The average score from the student survey was 85%, based on three indicators: content, media, and usefulness. The scores ranged from “practical” to “very practical.” The media indicator received the highest score, indicating that the visual design, image presentation, and overall appearance of the module are all highly beneficial for learning. Meanwhile, the content and usefulness indicators also show that the module presents content clearly and relevantly, while enhancing students’ motivation and curiosity in learning about artificial intelligence concepts. This means that the AI Kapita Selekt module can be used in the learning process and can facilitate more effective self-directed learning for students.

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