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Development of Hots-Based E-Modules Using Integration of Digital Technology in Arabic Language Learning

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Abstract

This study aims to produce an Arabic language learning E-Module based on Higher Order Thinking Skills (HOTS) using digital technology integration, to determine the results of validation by subject matter experts, media experts, and education practitioners, as well as the strengths and weaknesses of the E-Module developed for Arabic language learning. This study is a Research & Development (R&D) using the 4D development model (Define, Design, Develop, Disseminate). Data was collected through observation, interviews, questionnaires, and document studies in eighth grade at SMP Islam Al Azhar 46 Pati to determine the suitability of the material and media contained in the E-Module with the student needs. Data analysis techniques in this study used a Likert scale to measure the validity and feasibility of the E-Module. The results of the validation by subject matter experts, media experts, and education practitioners on the developed E-Module were categorized as very good with a percentage of 92.80%. The advantages of HOTS-based E-Modules using digital technology integration that have been developed in Arabic language learning include ease of access through various devices anywhere and anytime as long as there is an internet connection; fostering discipline, critical thinking skills, creativity, teamwork, and self-confidence; and more interactive presentation of E-Modules. However, there are also some limitations, such as the need for a significant amount of time in developing the E-Module; the absence of a direct two-way discussion space within the E-Module; and the requirement for teachers to act as facilitators, continuously monitoring the learning process, providing support, and motivating students.

Keywords E-Module, HOTS, Digital Technology, Arabic Language Learning.

INTRODUCTION

21st-century education is characterized by rapid developments in information and communication technology and changes in various aspects of learning, including methods, strategies, and media used, sources and ways of learning, teachers' creativity and innovation in teaching, and students' ability to develop what they have learned. These changes are centered on the new challenges of the 4.0 industrial revolution era, which focuses on increasing productivity and efficiency through automation and digital technology. In addition, the fourth industrial revolution also influences the role of teachers in the 21st century (Harahap, 2018). Teachers must conduct teaching and learning activities that are cognitive, affective, and psychomotor and tailored to the needs of 21st-century learning (Febriani, 2020).

21st-century learning is student-centered to equip students with several skills, including critical thinking, problem solving, metacognition, communication, collaboration, information literacy, innovation, and creativity (Hayudiyani et al., 2020; Mardhiyah et al., 2021; Zulharby & Nuruddin, 2019). It is hoped that these skills will produce competent and qualified human resources. One important thing that teachers can do is to develop learning oriented towards Higher Order Thinking Skills (HOTS) (Wena, 2020). Furthermore, Higher Order Thinking Skills (HOTS)-based learning that is carried out appropriately will make students enthusiastic, motivated, not easily discouraged, and feel the need for learning, so that students will become active learners (N. Rahmawati, 2018). This approach should also be applied in all Arabic language learning activities to enhance learning outcomes, ultimately improving the quality of Arabic language education (Bahruddin et al., 2020; Tyas & Naibaho, 2021).

Based on initial observations at SMP Islam Al Azhar 46 Pati, most eighth-grade students struggled with vocabulary (mufrodzat), basic sentence structure (nahwu and sharaf), and pronouncing Hijaiyah letters according to Arabic phonetic rules. These difficulties are influenced by several factors, including the lack of Arabic language practice in school and home environments, low student motivation due to perceiving Arabic as difficult, and the limited learning media teachers use. As a result, students face obstacles in following lessons. The school has implemented a special policy encouraging teachers to innovate by developing technology-based learning media to make the learning process more engaging and effective. Before this study was conducted, the Arabic language modules used still had several weaknesses in terms of quality. In terms of content, the material presented tended to be dense and emphasized vocabulary memorization without

accompanying contexts for its use in everyday life. In terms of structure, the sequence of material presentation was not entirely coherent, making it difficult for students to understand the connections between chapters. Meanwhile, in the evaluation section, the available exercises were still conventional, limited to multiple-choice and short-answer questions, thus failing to train students' critical thinking skills.

This is in line with the results of a study (Muradi et al., 2020), which found that most of the KD for MTs in KMA 183 of 2019 were in the LOTS category, and a small portion were in the MOTS category. Other research findings indicate that the Arabic textbook for grade X of the Ministry of Religious Affairs contains six types of HOTS-based questions, but they are still limited (Azzahra&Baroroh, 2024). In addition, teachers have not widely used HOTS in teaching and learning, especially in Arabic material (Faruq&Huda, 2020). Meanwhile, research findings (Tyas&Naibaho, 2021) reveal that the HOTS learning model is suitable for improving the quality of learning, both in schools and universities. The findings (Riyadi et al., 2018) in their research mention that students who, on average, do not yet have HOTS can be addressed by designing electronic-based worksheets. However, Ainin identified several challenges in implementing HOTS-based assessments, such as low motivation and Arabic language proficiency, ambiguous definitions of basic competencies in the curriculum, and insufficient HOTS textbook materials (Ainin, 2021).

Another opinion, according to (Lu et al., 2021), another opinion in their research, explains that peer interaction and learning motivation directly affect students' HOTS. Therefore, it is necessary to encourage teachers to conduct activities such as introducing language games, animations, student-centered teaching aids, and other factors to increase students' interest in learning Arabic (Kamarudin et al., 2016). Integrating content, media, and online evaluation can maximize Arabic language learning and enhance students' motivation and interest in participating in learning that is not limited by time and space (Febriani&Mahmudi, 2021).

Additionally, according to (Gazali & Saefuloh, 2019), Arabic language learning using audio-visual media, such as films and animations, is more preferred by students. Students' level of independent learning is high, especially in relation to the use of technology. This is reinforced by the opinion of (Baransi&Burbara, 2019) that technology enables independence and confidence for students to actively engage in the learning process because they can search for data, compare information, and draw conclusions. Furthermore, independent learning is key in 21st-century Arabic language learning, as independent students will be responsible for their abilities, results, and

learning processes (Samin et al., 2022). The Ministry of Education and Culture also explains that E-Modules are electronic teaching materials systematically organized to include content, images, audio, video, animations, and are connected to various learning platforms, thereby expanding students' learning resources. E-Modules are also referred to as the result of developing printed modules by adapting technology (Sugihartini&Jayanta, 2017).

The researcher conducted a literature review and identified several relevant scientific works related to the theme, including the study (Ayu et al., 2024) on the development of E-Modules for Arabic based on contextual learning, research (Hasyim et al., 2024) on the development of E-Modules based on digital literacy in Arabic, research (Sonnia et al., 2024) on the development of E-Modules based on the Canva application, followed by research (Azzahra & Baroroh, 2024) on the innovation of assessment instruments for *maharah kitabah* based on Higher Order Thinking Skills (HOTS) in Arabic textbooks for grade IX published by the Ministry of Religious Affairs of the Republic of Indonesia, and research (Saepurrohman et al., 2023) on HOTS assessment in four Arabic language skills.

Based on the literature review that has been conducted, there has been no research on the development of HOTS-based E-Modules. However, the urgency of its application in Arabic language learning is very high in line with the skills required by 21st-century students. Therefore, this study aims to produce HOTS-based Arabic language learning E-Modules by integrating digital technology.

METHOD

The research and development (R&D) method is used in this study. According to Sugiyono, development research is a method used to produce a specific product and test its effectiveness (Sugiyono, 2015). In education, this research method seeks to produce or develop various educational products in the form of designs, methods, strategies, teaching materials, or learning media used to overcome problems in education.

This study focuses on developing an E-Module based on Higher Order Thinking Skills (HOTS) using digital technology integration in Arabic language learning. The model used is the 4D development model (Define, Design, Develop, Disseminate) (Thiagarajan et al., 1974). The following are the development steps that will be carried out:

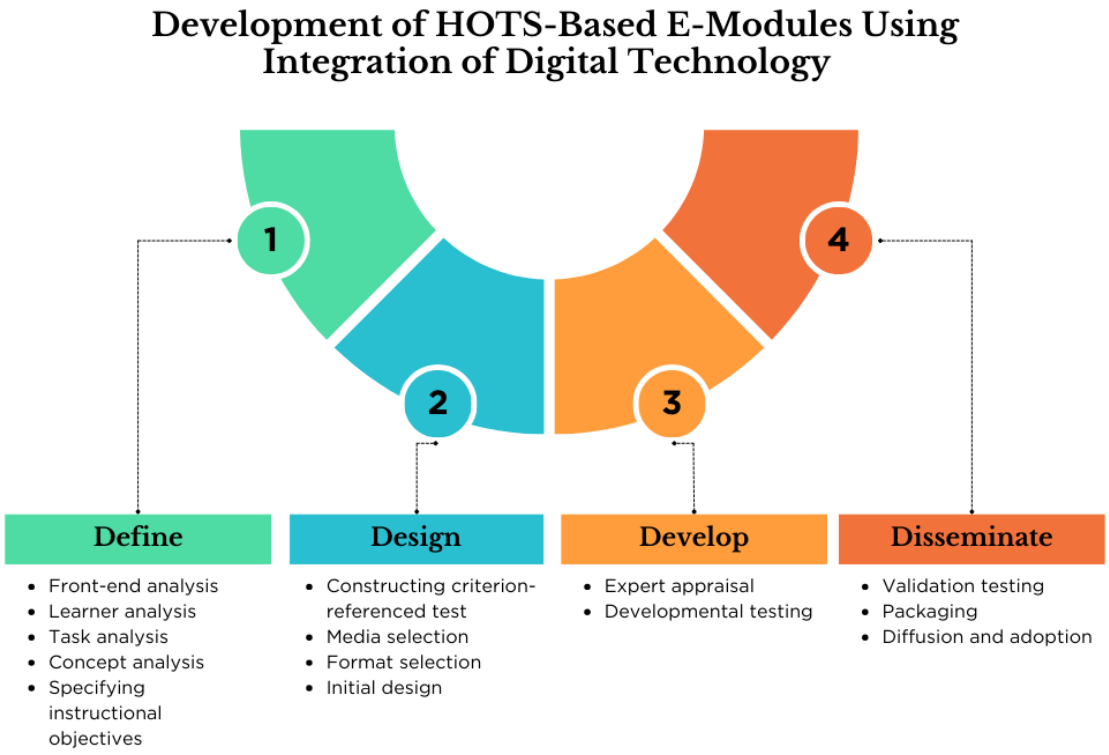

Figure 1. 4D Model E-Module Development Diagram

Data was collected using several techniques, including classroom observation in Grade VIII of SMP Islam Al Azhar 46 Pati, to understand the Arabic language learning process by observing and recording the subjects' behaviors using non-participatory observation. Subsequently, interviews were conducted with Arabic language teachers to obtain information about existing learning problems, feedback, criticism, and suggestions for improving E-Modules development based on HOTS using digital technology integration.

A documentation study was conducted to obtain information relevant to the research topic, such as the syllabus, Arabic textbooks used, and students' Arabic learning outcomes as a reference for basic competencies. The prototype development stage of the E-Module followed this. Subsequently, validation questionnaires were distributed to subject matter experts, media experts, education practitioners, and student response questionnaires to determine the alignment of the content and media in the E-Module with students' needs.

Data analysis of the validation questionnaires from subject matter experts, media experts, education practitioners, and student response questionnaires was conducted by classifying the data and then tabulating it. Subsequently, respondent answers were scored based on the Likert scale according to the table below:

Table 1. Likert Scale

Response Options	Weight Score
Very Good	5
Good	4
Fair	3
Poor	2
Very Poor	1

The data obtained was then measured according to the interpretation scale in the table below:

Table 2. Interpretation of the Likert Scale

Percentage	Interpret
0% - 20%	Very Poor
21% - 40%	Poor
41% - 60%	Fair
61% - 80%	Good
81% - 100%	Very Good

Findings and Discussion

Findings

The development of an E-Module based on Higher Order Thinking Skills (HOTS) using digital technology integration in this study was carried out through four stages: define, design, develop, and disseminate.

Define Stage

This stage involves the researcher analyzing and defining various needs in Arabic language learning. This stage has five steps: front-end analysis, learner analysis, task analysis, concept analysis, and specifying instructional objectives. The front-end analysis aims to identify the fundamental problems teachers and students face in learning. Thus, facts, expectations, and alternative solutions to problems can be obtained from the analysis, and the effectiveness of Arabic language learning can be improved. The problems faced in Arabic language learning at SMP Islam Al Azhar 46 Pati include limited learning resources for students, mainly Arabic textbooks, learning not oriented towards Higher Order Thinking Skills (HOTS), and limited learning time each week.

The future expectation is that students will be able to review the material independently according to their abilities by accessing knowledge from various sources outside the Arabic textbook and develop their skills through various independent and collective projects to practice Higher Order Thinking Skills (HOTS). The development of an E-Module based on HOTS using digital

technology integration has been implemented to address the existing issues and achieve the desired learning objectives. Learner analysis examines student characteristics in learning, including academic background, cognitive abilities, and motivation to learn. This analysis is conducted to determine students' initial Arabic language proficiency and to set appropriate learning objectives.

The students come from various elementary schools in Pati District and have not previously received Arabic language instruction. The results of the midterm and final exam scores analysis indicate that most students have moderate Arabic language proficiency, with some at a low level, and exhibit low motivation to learn Arabic. The task analysis aims to identify the material or skills that must be mastered so that students can achieve the Minimum Completion Criteria (KKM). The material provided is " في السوق" with four Arabic language skills that must be mastered, namely *maharah istima'* (listening), *maharah kalam* (speaking), *maharah qira'ah* (reading), and *maharah kitabah* (writing).

The following materials were selected based on alignment with the Arabic language textbook "*Al-Lughah Al-Arabiyah Sahlah"* for Grade VIII of the Islamic Boarding School Al Azhar Foundation.

Concept analysis was conducted to identify the concepts to be used and to develop systematic steps, starting from the development of the core material to be studied, basic competencies, indicators, and learning resources that support the development of the E-Module. The fundamental competencies (KD) in Arabic that students must master are:

1. Identifying the sounds of words, phrases, and sentences in Arabic related to the theme فِي السُّوقِ both orally and in writing.
2. Demonstrating simple expressions about the topic فِي السُّوقِ while paying attention to the correct text structure and linguistic elements that are appropriate to the context.

The learning indicators for the Arabic language on the theme "في السوق" are as follows:

1. Showing pictures corresponding to the sounds of Arabic words, phrases, and sentences that are heard.
2. Identifying the meaning of Arabic words, phrases, and sentences that are heard.
3. Rearrange/reconstruct the sounds of Arabic words, phrases, and sentences while paying attention to the correct text structure and linguistic elements appropriate to the context.
4. Retelling (narrating) the content of the text that has been heard.

The step of specifying instructional objectives aims to summarize all previous analysis results so that they can serve as a basis for determining relevant learning objectives.

The learning objectives in the E-Module, based on Higher Order Thinking Skills (HOTS), are:

1. After observing, questioning, trying, reasoning, and communicating about the topic فِي السُّوقِ, students can imitate, demonstrate, and show pictures correctly.
2. After observing, asking questions, trying, reasoning, and communicating, students can demonstrate simple expressions to state, ask, respond to, and convey various simple oral information about the topic فِي السُّوقِ.
3. After observing, asking questions, trying, reasoning, and communicating about the topic فِي السُّوقِ, students can read qira'ah texts and answer several questions about the text structure and linguistic elements contained therein.
4. After observing, asking questions, trying, reasoning, and communicating about the topic فِي السُّوقِ, students can construct sentences in Arabic according to the correct rules of Arabic writing.

Design Stage

The stage where the researcher designs the prototype of the E-Module to be developed. This stage consists of four steps: constructing criterion-referenced tests, media selection, format selection, and initial design. The constructing criterion-referenced test step is a step to explore students' cognitive abilities, arranged based on learning objectives and student analysis results, followed by the preparation of a test grid for learning outcomes and an evaluation tool after product implementation.

The steps for developing an Arabic language assessment based on Higher Order Thinking Skills (HOTS) are as follows:

1. Determining the Basic Competencies (KD) or objectives of the Arabic test.
2. Selecting test materials.
3. Developing indicators or specific objectives to be measured.
4. Developing a test outline.
5. Developing draft questions.
6. Reviewing the test.

Figure 2. Basic Competencies (KD) and Project-Based Questions

The media selection step is carried out to determine the appropriate media for the learning material and objectives. The selected media is also adapted to the results of concept analysis, task analysis, student characteristics, and school facilities to make E-Modules more optimal. The media selected for the development of this E-Module is the Canva application (Azizah & Ratnaningrum, 2025), which is then integrated with various other digital platforms such as YouTube, TikTok, Telegram, Google Classroom, Zoom, Moodle, Website, Podcast, and Quizizz.

Figure 3. Learning Objectives and Materials

The E-Module was developed based on the analysis of students who dislike monotonous learning, prefer easy access anytime and anywhere, and desire an E-Module that can be used for self-learning. Additionally, the school facilities support this initiative as they have already implemented digital-based learning using iPads. The format selection step in E-Module development is intended to design the learning content, select strategies, approaches, learning methods, and learning resources appropriate for the selected media. The selected format must be engaging, easy to use, and helpful in learning Arabic. The initial design step refers to the overall design of the Arabic language learning materials that must be completed before the pilot test is conducted. This includes various structured Arabic language learning activities, such as usage instructions, learning objectives, presentation of materials, summaries, practice questions, and answer keys.

Development Stage

The development stage aims to realize the established design or complete the prototype developed to produce an E-Module based on Higher Order Thinking Skills (HOTS) by validating or assessing the feasibility of the developed product. There are two steps in this stage: expert appraisal

and developmental testing. The expert appraisal step involves experts evaluating the developed E-Module, covering content, language, and format. Based on revisions and feedback from content experts, media experts, and education practitioners, the E-Module has been improved to ensure it is accurate, adequate, user-friendly, and of high quality. Expert content validation is conducted to determine the accuracy and relevance of the content of the developed product to students' needs. The following is a descriptive summary of the validation results from two content experts on the E-Module based on Higher Order Thinking Skills (HOTS):

Table 3. Results of Validation by 2 Subject Matter Experts

Relevance of Content Aspect	**1,2,3,4,5**	**4**	**4.4**	**88%**
Aspect of Material Organization	6,7,8,9,10,11,12	6	4.36	87.14%
Evaluation/Practice Questions Aspects	13,14,15,16,17,18,19	58	4.14	82.86%
Language Aspects	20,21	17	4.25	85%%
Learning Strategy Aspects	22, 23, 24, 25	3	4.13	82.5%
Total		**213**	**4.26**	**85.2%**

Table 3 shows the validation results from two subject matter experts on the Higher Order Thinking Skills (HOTS)-based E-Module, showing an average score of 4.26 with a feasibility percentage of 85.2%. Referring to the validation criteria (81–100% = very feasible), this instrument can be categorized as "very feasible" for use.

Regarding material relevance, with a score of 88%, it achieved the highest score among all aspects. This indicates that the material presented is highly relevant to the competencies or learning objectives. In other words, the content aligns with students' needs and supports the achievement of learning outcomes.

In terms of material organization, the score was 87.14%, indicating that the presentation of the material was sufficiently systematic and logical, making it easy for students to understand. The presentation structure was considered to support the learning process.

Regarding evaluation/exercise questions, the score was 82.86%, which was relatively lower than in other aspects. This indicates that although the exercise questions were good, there is still room for improvement, especially regarding question variety, relevance to the material, and level of difficulty to measure students' comprehensive understanding.

In the language aspect, 85% of the results indicate that the language used in the material is transparent, communicative, and in accordance with scientific language rules. However,

adjustments are still needed to make it simpler and easier for students from various backgrounds to understand. Regarding learning strategies, with a score of 82.5%, this aspect received the lowest score. This indicates that the learning strategies can still be improved, for example, by enriching the variety of methods, using active learning approaches, or utilizing interactive media to support learning objectives better. Overall, subject matter experts rated the developed E-Module product as very suitable (85.2%). However, the evaluation/exercise questions and learning strategies aspects still require special attention for improvement. By revising these two aspects, it is hoped that the quality of the instrument will be optimized and able to support more effective learning.

Based on the qualitative data collected from the comments and suggestions of subject matter experts after reviewing and observing all components of the E-Module, the experts provided the following comments, suggestions, and critiques:

1. Guidelines for graphic design should be sought in the writing of the E-Module.
2. Clearly state the sources of images or concept maps presented in the E-Module.
3. The content aligns with the learning outcomes (KI and KD), but requires vocabulary enrichment.

Media expert validation was conducted to assess the accuracy and appropriateness of the product design developed in relation to student needs. The following are the descriptive results of the validation by two media experts on the E-Module based on Higher Order Thinking Skills (HOTS):

Table 4. Results of Validation by 2 Media Experts

Operational Aspects	**1,2,3,4**	**40**	**5**	**100%**
Visual Aspects	5,6,7,8,9,10,11,12,13,14,15,16	113	4,71	94,17%
Total		**153**	**4,78**	**95,63%**

Table 4 shows the validation results from two media experts on the Higher Order Thinking Skills (HOTS)-based E-Module, which obtained an average score of 4.78 with a feasibility percentage of 95.63%. Referring to the validation criteria, this result is categorized as "very feasible". Regarding operability, the E-Module achieved a perfect score of 100% from the validators. This indicates that the developed E-Module is easy to access, runs smoothly without technical issues, and is compatible with the devices used by students. In other words, from a functional and operational perspective, this media is already optimal and does not require significant revisions.

Regarding visual aspects, the score was 94.17%, which is also very high. This means the E-Module's appearance is attractive, proportional, consistent, and aligned with learning design principles.

However, despite being categorized as highly suitable, there is room for improvement, such as enriching graphic design variations, refining color selection, or adding more contextual illustrations to enhance visual appeal.

Overall, the media expert validation results indicate that the HOTS-based E-Module is highly suitable for use in the learning process, with a suitability rating of 95.63%. The main strengths lie in its ease of operation, while the visual aspect is also perfect, although it can still be improved. Thus, this module is suitable, practical, and attractive for supporting innovative learning. Regarding the qualitative data collected from the comments and suggestions of media experts after reviewing and observing all components of the E-Module, the media experts provided the following comments, suggestions, and critiques:

1. The image text is unclear and needs to be replaced (20).
2. An infographic of the material should be created on page 13.
3. If E-Module users are beginners, the instructions in the questions should be in Indonesian.

Educational practitioner validation was conducted to assess the accuracy and appropriateness of the content and design of the developed product in relation to student needs. The following are the descriptive results of the first educational practitioner validation of the E-Module based on Higher Order Thinking Skills (HOTS):

Table 5. Results of Validation by 1 Education Practitioner

Operational Aspects	1,2,3,4	20	4	100%
Visual Aspects	5,6,7,8,9,10,11,12,13, 14,15,16	57	4,75	95%
Relevance of Content	17,18,19,20,21	25	5	100%
Aspect of Material Organization	22,23,24,25,26,27,28	34	4,86	97,14%
Evaluation/Exercise Questions Aspects	29,30,31,32,33,34,35	34	4,86	97,14%
Language Aspects	36,37	10	5	100%
Learning Strategy Aspects	38,39,40,41	20	5	100%
Total		**200**	**4,88**	**97,56%**

Based on Table 5, the validation of the E-Module based on Higher Order Thinking Skills (HOTS) by one education practitioner obtained an average score of 4.88 with a percentage of 97.56%. Based on the assessment criteria, this result falls into the "very feasible" category. In terms of relevance of content, language, learning strategies, and operational aspects, the E-Module received

perfect scores, highlighting its key strengths. Meanwhile, while the visual and evaluation aspects are already excellent, they can still be improved to provide a more engaging and challenging learning experience. The qualitative data collected from the comments and suggestions of education practitioners after reviewing and observing all components of the E-Module resulted in the following comments, suggestions, and critiques from the practitioners:

1. Praise be to Allah, when I accompanied the researcher in explaining the E-Module to students in the classroom, they were enthusiastic. They easily understood the material in the developed E-Module.

Based on the validation results from subject matter experts, media experts, and education practitioners, the HOTS-based E-Module was deemed "highly suitable" with an average suitability score ranging from 85.2% to 97.56%. The E-Module has strengths in terms of material relevance, ease of operation, learning strategies, and language. However, the evaluation/exercise questions and visualization aspects can still be improved to enhance the overall quality of the product. Therefore, this E-Module is suitable for use as an innovative learning medium that supports the development of students' higher-order thinking skills. Developmental testing is a product trial conducted to obtain direct feedback from students through responses, reactions, and comments on the developed E-Module. The results of the limited trial are used to refine the E-Module.

Dissemination Stage

This stage is the final stage in development. Three steps must be taken: validation testing, packaging, diffusion, and adoption. In the validation testing step, the developed E-Module is implemented in its target setting, namely the eighth grade of SMP Islam Al Azhar 46 Pati. Then, the achievement of the predetermined Arabic learning objectives is measured to determine the product's feasibility. In the packaging step, after going through the validation stage by subject matter experts, media experts, and education practitioners, the Higher Order Thinking Skills (HOTS)-based E-Module is packaged in an interactive digital format so that it can be easily accessed through various devices (laptops, tablets, and smartphones).

The E-Module has attractive visuals, straightforward navigation, and interactive links to facilitate user experience. To ensure distribution quality, the E-Module is stored on cloud storage and provided with an access link to prevent changes during download. In the diffusion stage, dissemination is carried out through online socialization using the Zoom Meeting application. The socialization activities involve all Arabic language teachers within the Islamic Boarding School

Foundation as the primary target audience. At this stage, the researchers present the background of the E-Module development, its objectives, HOTS-based advantages, and how to use it in learning.

Teachers were given the opportunity to try accessing the E-Module directly and discuss the potential implementation and obstacles that might arise. The E-Module download link was shared through the foundation's official WhatsApp group so all teachers could have permanent access. In the adoption phase, teachers were allowed to apply the E-Module in real learning in their classes after the socialization. The researchers monitored and assisted through an online discussion group to facilitate questions and answers regarding using the E-Module. Teachers are asked to provide feedback on their experiences using the E-Module, ease of access, effectiveness in improving students' critical thinking skills, and suggestions for improvement. The results of this adoption serve as a basis for reflection to assess how well the E-Module is accepted, used, and beneficial within the Islamic Boarding School Foundation. The final results of developing the E-Module based on Higher Order Thinking Skills (HOTS) using digital technology integration in Arabic language learning can be accessed via the link https://bit.ly/E-ModulBerbasisHOTS.

Discussion

There are advantages and disadvantages based on the implementation of the E-Module based on Higher Order Thinking Skills (HOTS) using digital technology integration in Arabic language learning. The E-Module can be accessed on various devices anytime and anywhere, which aligns with research findings (Mardhiyah et al., 2021; Simamora et al., 2018; Yazid et al., 2023) that E-Modules can be used on various devices, such as computers, laptops, and mobile devices; students can learn anytime and anywhere; Minimal risk of damage; E-Modules can be presented in various formats, including audio, video, and interactive questions; fostering self-confidence, critical thinking, and optimism in problem-solving.

In addition, students are also encouraged to become active learners who can construct arguments, evaluate information, and solve problems with Arabic language skills (Aziz et al., 2024). E-Modules can also facilitate students in both independent and conventional learning. They are equipped with guidelines for independent learning, enabling students to learn according to their abilities and meet all the competencies they need to master.

The results of implementing HOTS-based E-Modules in Arabic language learning are critical, creative, and innovative thinking competencies, communication skills, collaboration, and self-confidence, which are the target characteristics of students as 21st-century skills. The indicators of

basic competency achievement per the findings reflect the abilities to create, evaluate, and analyze (Saepurrohman et al., 2023). Other findings on the implementation of E-Modules have proven to be effective in improving Arabic language learning (Ayu et al., 2024; Hasyim et al., 2024; Herlina, 2024; Maulidiana & Nasiruddin, 2020). The quality of HOTS-based questions also influences students' Arabic learning outcomes (Mahmudi et al., 2024). In addition, HOTS-based learning utilizing interactive learning media, digital platforms, Augmented Reality (AR), Virtual Reality (VR), and websites encourages students to be rich in learning resources so that they can relate Arabic language knowledge to real life (Arthana et al., 2024; Khoiri et al., 2024).

In reality, implementing Higher Order Thinking Skills (HOTS) in learning cannot be done suddenly using HOTS-based assessments. It is necessary first to implement HOTS-based learning, starting from the learning methods and strategies, the materials and modules provided, the media used, and the evaluations employed, all of which must be HOTS-oriented. This entire process must be carried out holistically and continuously in the learning process, supplemented by increasing Arabic writing practice (Susanti & Asyrofi, 2020). Equally important, Arabic language teachers must master digital competencies, including information and communication skills, content creation, and educational problem-solving (Siregar et al., 2024) to understand the concepts of HOTS-based learning. Therefore, more training in HOTS-based learning using digital technology integration is needed to produce other interactive E-Modules (R. Rahmawati et al., 2023; Tolere et al., 2023). To ensure the success and sustainability of this innovation, educators and technology developers must collaborate (Fatimah et al., 2025; Fauzan et al., 2022).

CONCLUSION

Developing Higher Order Thinking Skills (HOTS)-based E-Modules using digital technology integration in Arabic language learning has proven to be an important innovation in responding to the challenges of 21st-century education. This product has been deemed highly feasible by subject matter experts, media experts, and education practitioners, and has received positive responses from students. Its advantages lie in its cross-device accessibility, interactive interface, and evaluative content that fosters critical thinking, creativity, communication, and collaborative skills. Overall, this E-Module enhances the quality of Arabic language learning and supports the development of independent, adaptive, innovative learners ready to face the challenges of the digital age. Further research is recommended to expand the development of HOTS-based E-Modules on other Arabic

language themes with more complex competency coverage, while integrating innovative technologies such as Augmented Reality (AR), Virtual Reality (VR), and Learning Management Systems (LMS) to make learning more interactive and contextual. Pilot tests should also be conducted on a larger scale across schools and educational levels to assess the overall effectiveness of the E-Module, while developing more varied evaluation instruments to comprehensively refine students' critical thinking, creative, collaborative, and communicative skills.

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