The Eurasia Proceedings of
Educational & Social Sciences (EPESS)
ISSN: 2587-1730

The Eurasia Proceedings of Educational and Social Sciences (EPESS), 2025

Volume 43, Pages 17-38

ICRESS 2025: International Conference on Research in Education and Social Sciences

Content Validation and Teacher Perspectives on an Interactive Module for the Arabic Language in Primary Education

Siti Sharah Rajab
Universiti Utara Malaysia

Nurahimah Mohd-Yusoff
Universiti Utara Malaysia

Muhammad Noor Abdul-Aziz
Universiti Utara Malaysia

Abstract: The integration of interactive multimedia in Arabic language education remains limited, particularly at the primary school level in Malaysia, resulting in gaps in student engagement and content accessibility. To address this challenge, this study aimed to design, develop, and validate the TAALIM-EDU interactive Arabic language module tailored for Malaysian primary education. Employing a Design and Development Research (DDR) approach, the study was conducted in three phases: (1) needs analysis to identify critical deficiencies in existing Arabic learning resources; (2) systematic design and development guided by Mayer's Cognitive Theory of Multimedia Learning (CTML); and (3) evaluation through expert validation and teacher feedback. Content validity was established via Content Validity Index (CVI) analysis involving five educational experts, achieving an average Scale-level CVI (S-CVI) of 1.00, which indicates excellent content relevance and clarity. Complementary qualitative data from semi-structured interviews with five primary Arabic teachers, analyzed using the Technology-Usability-Pedagogy (TUP) framework, revealed strong usability, effective multimedia integration, and alignment with best pedagogical practices. Teachers also recommended future enhancements through gamification and emerging technologies. This study contributes to Arabic language education by offering a validated, theory-driven interactive module model, with practical implications for curriculum designers, policymakers, and educators seeking to elevate Arabic language instruction in primary education.

Keywords: Interactive learning module, Content validation, Arabic language education, Primary education

Introduction

The integration of interactive multimedia in Arabic language education remains limited, particularly at the primary school level in Malaysia. Consequently, this limitation has resulted in persistent gaps in student engagement, pedagogical innovation, and content accessibility (El-Ebiary et al., 2019; Mahmoud et al., 2013; Faryadi et al., 2007). Furthermore, Aqeela et al. (2023a) highlight that despite rapid technological advancements and the growing emphasis on 21st-century skills, Arabic language teaching often remains anchored in traditional, teacher-centred methods. Hamed et al. (2024) also note that limit opportunities for interactive and student-driven learning experiences, a concern further emphasized by Zaki et al. (2024). As a result, this mismatch between modern educational imperatives and existing instructional practices has raised significant concerns regarding the efficacy of Arabic language acquisition among young learners, especially at the foundational stage of education.

Moreover, while various studies have explored multimedia integration in language education broadly (Mayer, 2020; Moreno & Mayer, 1999), Arabic language education in "non-Arabic speaking" contexts, including Malaysia, remains in a transitional phase, with a growing need for more robust integration of interactive and

technology-driven learning methodologies. However, while progress has been made, existing Arabic learning materials often show limited application of multimedia learning principles that are essential for promoting cognitive engagement and knowledge retention (Prihartini et al., 2021). Additionally, compounding this issue, a lack of localised, context-sensitive modules tailored to primary school learners has further exacerbated challenges in motivation, comprehension, and long-term language mastery (Aqeela et al., 2023b). Therefore, these shortcomings underscore an urgent need for innovative, validated instructional designs that are pedagogically sound and culturally relevant.

In response to these identified gaps, the field of instructional design has increasingly advocated for the development of interactive learning modules grounded in empirical frameworks such as Mayer's (2020) Cognitive Theory of Multimedia Learning. Liu and Zhang (2024) emphasizes that effective multimedia modules are not merely a combination of text, audio, and visuals but require deliberate design principles that manage cognitive load, foster meaningful learning, and accommodate learner diversity. However, without rigorous content validation processes, the risk of developing superficially attractive yet pedagogically weak modules remain significant. Indeed, content validation ensures that learning materials align with educational standards, curriculum goals, and learner needs, thereby enhancing their credibility and impact (Ajjawi et al., 2020). Equally important, at the same time, teacher perspectives play a pivotal role in determining the practical viability and classroom integration of such modules. Teachers, as primary agents of educational delivery, offer crucial insights into the usability, adaptability, and pedagogical alignment of instructional innovations (Alam & Mohanty, 2023). Futhermore, Beltman and Poulton (2025) understanding teacher feedback not only strengthens the iterative improvement of modules but also ensures that the end products resonate with real-world teaching dynamics. Particularly, in the context of Arabic language education, where teaching practices are deeply rooted in cultural and religious traditions, soliciting teacher input becomes even more critical for fostering acceptance and successful adoption.

Accordingly, this study aims to address the pressing need for validated, context-sensitive Arabic language learning resources by designing, developing, and evaluating the TAALIM-EDU interactive module for Malaysian primary schools. Specifically, using a design and development Research (DDR) framework, this research integrates Mayer's multimedia principles, rigorous content validation via Content Validity Index (CVI), and systematic qualitative feedback from Arabic language teachers. In doing so, by bridging theoretical foundations with practical classroom realities, this study aspires to contribute a model for future innovations in Arabic language pedagogy, thus offering both theoretical advancement and tangible educational solutions. Therefore, in addressing the identified gaps in Arabic language education and the need for validated interactive learning resources, this study has formulated specific research objectives and corresponding research questions as follows.

Research Objectives

The primary aim of this study is to evaluate the TAALIM-EDU interactive Arabic language module developed for Malaysian primary education. Specifically, this study seeks to:

1. Evaluate the content validity of the TAALIM-EDU interactive Arabic language module through expert consensus using the Content Validity Index (CVI) method.
2. Explore primary Arabic language teachers' perspectives on the technological integration, usability and pedagogical alignment of the TAALIM-EDU module through qualitative interviews based on the Technology-Usability-Pedagogy (TUP) framework.

Research Questions

This study is guided by the following research questions:

1. To what extent is the TAALIM-EDU module valid in terms of content, as evaluated using the Content Validity Index (CVI) method?
2. How do primary Arabic language teachers perceive the TAALIM-EDU module in terms of technology, usability, and pedagogical alignment based on the TUP model framework?

Literature Review

Arabic Language Education in Malaysia

In Malaysia, Arabic language instruction at the primary level is guided by the *Kurikulum Standard Sekolah Rendah* (KSSR), which emphasizes the mastery of four fundamental language skills: listening (**استماع**), speaking (**كلام**), reading (**قراءة**), and writing (**كتابة**). According to Kementerian Pendidikan Malaysia (2019), this framework aligns with the Common European Framework of Reference for Languages (CEFR) at the A1 and A2 levels for primary learners. Specifically, the curriculum aims to foster independent proficiency through practical language use and real-world communication scenarios, thereby moving beyond tradisional rote memorisation. This approach fosters higher engagement, encourages students to take ownership of their learning, and promotes deeper exploration and retention knowledge compared to tradisional methods as emphasized by KPM (2017) and Kamarudin et al. (2016).

Moreover, contextualized learning supports the development of higher-order thinking skills (HOTS) by encouraging students to apply knowledge through real-world problem solving and inquiry processes. It aligns with constructivist theories where students actively construct knowledge based on their experiences, enhancing critical thinking, creativity, and collaboration (Suryawati & Osman, 2018). This method also nurtures students' intellectual potential by integrating cognitive, affective, and psychomotor domains, and by promoting teamwork and responsibility. An effective interactive or digital learning module is underpinned by several robust pedagogical theories that explain its efficacy in fostering language acquisition. Primarily, constructivism, as espoused by Jean Piaget (1954) and Vygotsky (1978), suggests that learners actively construct knowledge rather than passively receive it; thus, interactive elements like quizzes, drag-and-drop activities, and matching exercises within a module facilitate this active engagement, allowing students to build understanding through direct manipulation and exploration.

Concurrently, Cognitive Load Theory, developed by John Sweller (1994), guides the instructional design of digital modules to optimize learning by managing the mental effort required; adherence to multimedia learning principles (e.g., coherence, signaling) proposed by Richard Mayer (2009) ensures that visual appeal and effective presentation minimize extraneous cognitive load, making complex information more digestible. Furthermore, sociocultural theory, also heavily influenced by Vygotsky, emphasized the importance of social interaction and guided participation in learning; while a module might be individual, its design can incorporate structured scaffolding and simulated interactive contexts that operate within a learner's Zone of Proximal Development (ZPD), providing necessary support for skill development. Finally, drawing upon motivation theories like Self-Determination Theory (Ryan & Deci, 2000) and Flow Theory (Csikszentmihalyi, 1990), an interactive and visually appealing module can significantly enhance instrinsic motivation by offering autonomy, competence, and a sense of enjoyable challenge, crucial for sustained engagement in language learning.

However, Azlan et al. (2023), Haron et al. (2016), and Prihartini et al. (2021) have highlighted persistent challenges in achieving these goals, particularly the lack of interactive and engaging teaching materials that align with students' cognitive and linguistic levels. Traditional approaches still dominate classroom instruction, with limited integration of digital tools or multimedia elements to support active learning. Furthermore, Hinnawi et al. (2023) and Majid et al. (2015) report that teachers often face difficulties in accessing contextualized digital resources that reflect the sociocultural background of Malaysian learners. Moreover, a growing body of research has pointed to the increased demand from Arabic language teachers for high-quality, interactive teaching aids that can enhance student engagement and address learning diversity in the 21st-century classroom (Nedjar & M'hamedi, 2024; Zainuddin & Idrus, 2016). In response, there is an urgent need to develop validated digital modules that are pedagogically sound, visually appealing, and adaptable to classroom realities. The TAALIM-EDU module, as explored in this study, seeks to address these needs by offering a structured, curriculum-aligned, and multimedia-supported learning tool specifically tailored for Malaysian primary education.

Integration of Multimedia and Cognitive Theory of Multimedia Learning (CTML)

Moreno and Mayer (1999) highlight that the integration of interactive multimedia has revolutionised instructional design across disciplines, especially in language education. Specifically, multimedia components such as text, images, audio, video, and animations enhance learners' cognitive engagement, motivation, and knowledge retention. Sahrir et al. (2019) note that in Arabic language instruction, particularly in "non-Arabic speaking" contexts like Malaysia, multimedia tools offer multimodal input that caters to various learning preferences and fosters greater participation. However, despite the recognized benefits of multimedia integration, the adoption of

structured multimedia learning strategies in Arabic language education particularly in "non-Arabic speaking" contexts remains limited, often leading to missed opportunities for deeper learner engagement and improved comprehension (Abdullah et al., 2023; Hamzah et al., 2019).

To address this gap, the development of effective multimedia-based materials must be grounded in sound learning theory. The Cognitive Theory of Multimedia Learning (CTML), developed by Mayer (2002), provides a robust theoretical foundation for this purpose. As illustrated in Figure 1, Mayer's principles for multimedia e-learning outline how to design effective instruction, organizing strategies into three key categories aimed at reducing cognitive load and enhancing learning outcomes. First, reducing extraneous processing. These principles aim to minimize mental effort wasted on irrelevant information or poorly designed instuction, including the coherence principle, signalling principle, redundancy principle, and contiguity principles. Second, managing essential processing. These principles help learners effectively process the core information presented, encompasing the segmenting principle, pre-training principle, and modality principle. Third, fostering generative processing. These principles encourage deeper understanding and active knowledge construction by the learner, incorporating the personalization principle, voice principle, and embodiment principle. As research demonstrates, Laubscher et al. (2024), Mayer (2005), and Mayer et al. (2023) emphasize the importance of these integrated principles in multimedia design.

Building on this theoretical foundation, CTML posits that people learn more effectively from a combination of words and images than from words alone, based on three fundamental principles: (1) dual-channel processing (visual and auditory), (2) limited working memory capacity, and (3) active cognitive engagement. Accordingly, the guides instructional designers to manage cognitive load by minimizing extraneous elements, directing attention to essential information, and fostering meaningful construction of knowledge. Furthermore, Mayer's principles provide a scientifically-backed framework for creating multimedia learning materials that are not only engaging but also effective in promoting deep and lasting learning. This effectiveness stems from the theory's consideration of how the human mind processes information, thereby ensuring that instructional design aligns with cognitive processes.

The Role of Teacher Perspectives in Instructional Design (Introducing TUP Model)

Teacher perspectives play a pivotal role in shaping the success and sustainability of educational innovations. While the design quality of instructional materials is undoubtedly important, their practical effectiveness is ultimately determined by how teachers perceive, accept, and implement them in authentic classroom environments. Specifically, teacher buy-in influences the extent to which learning tools are used meaningfully and consistently during instruction (Bednarik et al., 2004; Ghazali et al., 2024). This is especially relevant in the context of Arabic language education in Malaysia, where pedagogical practices tend to follow traditional, teacher-centred models, as observed by Hamid et al. (2020) and where the integration of digital or interactive resources is still emerging, as reported by Tarigan et al. (2023). Therefore, to systematically capture and interpret teacher feedback, this study adopts the Technology-Usability-Pedagogy (TUP) model, introduced by (Bednarik et al., 2004b) as a comprehensive analytical framework. The TUP model encompasses three critical dimensions that provide a holistic evaluation framework for educational technology.

First, technology refers to the tool's ease of access, reliability, and technical integration within existing school infrastructure. This dimension assesses whether the technological components function seamlessly across different devices and platforms, ensuring compatibility with the hardware and software environments commonly found in educational institutions (Bednarik et al., 2004). Additionally, it evaluates the system's stability, loading times, and technical support requirements that may impact classroom implementation.

Second, usability focuses on user-friendliness, navigation flow, and practical use of the module in real-time teaching scenarios. This aspects examines the interface design, ease of navigation, and intuitive operation that enables both teachers and students to interact effectively with the learning tool without extensive training (Nielsen, 2012). Furthermore, usability considerations include accessibility features, responsive design, and the cognitive load imposed on users during interaction with the systems.

Third, pedagogy evaluates the degree to which the content aligns with curriculum objectives, learning outcomes, and instructional practices. This pedagogical dimension assesses whether the educational content supports effective strategies, promotes meaningful learning experiences, and integrates appropriately with existing classroom methodologies (Harris et al., 2009). Moreover, it examines how well the tool facilitates student

engagement, supports diverse learning styles, and contributes to achieving specified educational goals within the Arabic language curriculum context.

By using the TUP framework, this study not only assesses the technical and functional aspects of the TAALIM-EDU module but also foregrounds teachers' pedagogical insights ensuring that the design reflects classroom realities. This is particularly crucial in Arabic language education, where a mismatch between innovation and instructional culture can hinder adoption. Grounding the evaluation in teacher voices enables more responsive module refinement and supports a greater likelihood of sustainable implementation across schools.

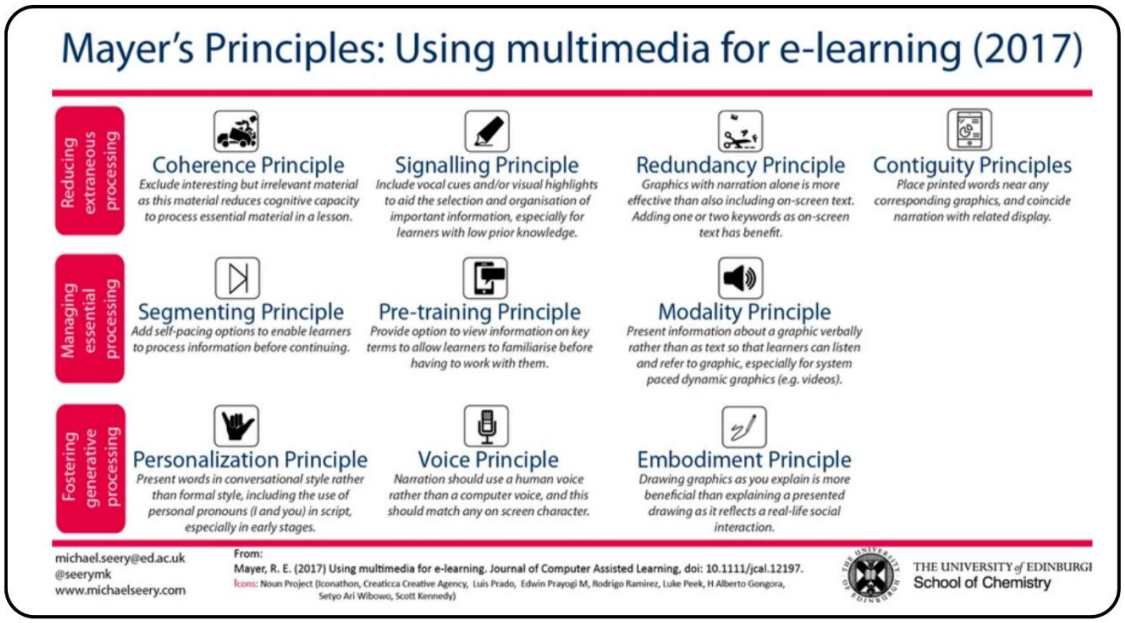


Figure 1. Mayer's 12 principles of multimedia learning, 2025 (Source from Digital Learning Institute,2025)

Method

Research Design

This study employs a design and development research (DDR) approach as proposed by Richey & Klein (2007), encompassing three phases: needs analysis, design and development, and evaluation (see figure 1). However, this paper seeks to address two primary research questions. First, it aims to determine the extend to which the TAALIM-EDU module demonstrates content validity when evaluated through the content validity index (CVI) method. Second, the research explores how primary Arabic language teachers perceive the TAALIM-EDU across three key dimensions. The evaluation combined quantitative (Content Validity Index, CVI) and qualitative (semi-structured interviews) methods to ensure comprehensive validation of the module.

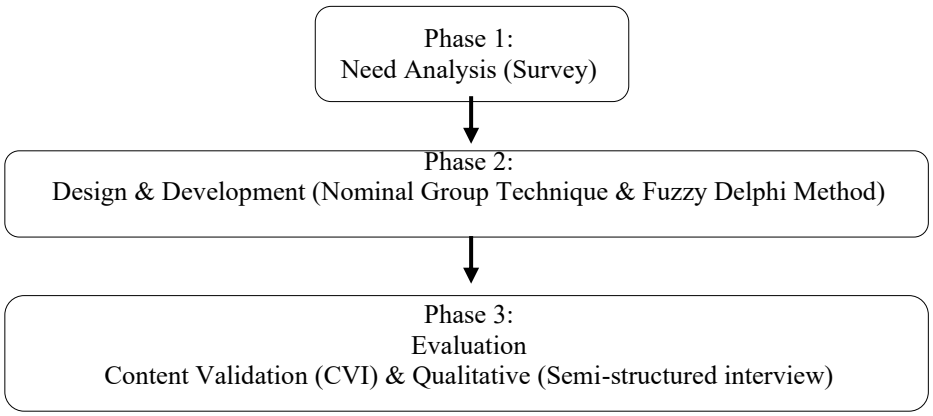


Figure 2. DDR approach model

Participants

Two groups of participants were involved in the evaluation phase (see Table 1). First, five educational experts specializing in Arabic language pedagogy and instructional design were purposively selected to assess the module's content validity. Subsequently, a second group consisting of five primary school Arabic language teachers participated in semi-structured interviews to provide practical feedback on the module's usability, technological integration, and pedagogical alignment. Drawing on established methodological principles, the selection of all participants was based on purposive sampling, a strategy highlighted by Patton (2002) and Creswell and Poth (2018), which ensured their inclusion based on their specific expertise, extensive teaching experience, and demonstrated familiarity with digital innovations in education.

The expert panel demonstrates strong gender representation with three females (60%) and two males (40%) (n = 5). Furthermore, most experts possess extensive experience, with four having over 20 years of expertise in their respective fields, while one expert has 6 years of experience. Consequently, this combination provides both seasoned perspectives and contemporary insights. In terms of expertise, the panel offers diverse yet complementary areas. Specifically, three experts specialize directly in Arabic pedagogy and education, ensuring strong subject-matter knowledge. Additionally, one expert brings instructional technology and media expertise, which is crucial for evaluating multimedia learning modules. Meanwhile, the fifth expert contributes specialized knowledge in Arabic teaching strategies, providing practical pedagogical insights. Moreover, the experts represent balanced institutional perspectives, with two from public universities and three from teacher training institutes. Therefore, this distribution ensures that both theoretical academic viewpoints and practical teacher preparation perspectives are considered (Ivankova et al., 2006).

The teacher panel shows balanced gender representation with three females (60%) and two males (40%). Additionally, their teaching experience ranges from 8 to 15 years, with a mean of approximately 11 years, thus indicating substantial classroom experience without being overly traditional in their approaches. Importantly, all five teachers specialize in Arabic language teaching at the primary school level, thereby providing directly relevant practical experience for evaluating the TAALIM-EDU module, as noted by Muawanah et al. (2024).

Table 1. Demographic profile of participants

Phase	Participant group	Gender	Years of experience	Area of expertise	Current institution
Content Validation Index (CVI)	Expert 1	Female	>20 years	Arabic Pedagogy & Curriculum Design	Public University
	Expert 2	Male	>20 years	Arabic Language Education	Teacher Training Institute
	Expert 3	Male	>20 years	Instructional Technology & Media	Teacher Training Institute
	Expert 4	Female	>20 years	Arabic Pedagogy	Teacher Training Institute
	Expert 5	Female	6 years	Arabic Teaching Strategies	Public University
Semi-structured interview (Evaluation)	Teacher 1	Female	8 years	Arabic Language Teaching	Primary School
	Teacher 2	Male	12 years	Arabic Language Teaching	Primary School
	Teacher 3	Female	9 years	Arabic Language Teaching	Primary School
	Teacher 4	Female	15 years	Arabic Language Teaching	Primary School
	Teacher 5	Male	11 years	Arabic Language Teaching	Primary School

Furthermore, their uniform expertise area ensures consistency in feedback quality and relevance. Significantly, the teachers' experience spans from 8-15 years, representing educators who have witnessed the evolution of educational technology integration in Malaysian primary schools, consequently making them ideal evaluators for

digital learning innovations. In terms of overall design, Ivankova, Creswell, and Stick (2006) emphasize that the two-group design effectively balances theoretical expertise with practical application. Specifically, the expert panel provides academic rigor and content validation, while conversely, the teacher panel offers real-world classroom implementation insights. As a result, the combined expertise covers all critical aspects needed for comprehensive module evaluation: content accuracy, pedagogical soundness, technological feasibility, and practical classroom applicability. Ultimately, this participant composition aligns well with the TUP model's three dimensions, thereby ensuring thorough evaluation across technology, usability, and pedagogy domains.

Data Collection

The Content Validity Index (CVI) data were collected through face-to-face meetings with the panel of five educational experts. During these sessions, experts independently evaluated the TAALIM-EDU module using a structured assessment form, followed by brief discussions to clarify item ratings where necessary, thus ensuring consensus on content relevance and clarity. To further clarify the calculation method applied, the CVI computed at two levels: (a) the item-level CVI (I-CVI) and (b) the scale level CVI (S-CVI). Specifically, the I-CVI for each item is determined by calculating the proportion of experts who rated the item as either “not suitable” or “very suitable” on a four-point ordinal scale aligns with (Polit & Beck, 2006) recommendations. According to this framework, the scale points are defined as 1=not suitable, 2=somewhat suitable, 3=suitable and 4=very suitable.

Subsequently, for CVI calculation purposes, these ratings were converted into binary values based on the validity judgement criterion: (a) ratings of 1 and 2 were recoded as 0 (Invalid), indicating that the item does not sufficiently meet the content relevance or clarity standards, (b) ratings of 3 and 4 were recoded as 1 (Valid), reflecting that the item is considered appropriate and relevant for the module’s intended educational purpose as recommended by Zamanzadeh et al. (2015).

Semi-structured interviews with the five Arabic language teachers were also conducted face-to-face at their respective schools. Specifically, each interview session lasted approximately 30 to 45 minutes and was audio-recorded with prior informed consent following established ethical research protocols (Creswell, 2009). Furthermore, the interviews were guided by a semi-structured protocol based on the Technology-Usability-Pedagogy (TUP) framework, allowing flexibility for probing emergent themes while maintaining consistency across participants, as recommended by Braun and Clarke (2006) for qualitative data collection. Subsequently, the qualitative data were then transcribed and analyzed thematically using ATLAS.ti, a qualitative data analysis software widely recognized for its effectiveness in managing analyzing qualitative research data (Soratto et al., 2020).

Data Analysis

For content validation, the Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index (S-CVI) were calculated following the guidelines of Polit and Beck (2006). An I-CVI score of 0.78 or higher and an S-CVI value approaching 1.00 were considered indicative of excellent content validity. To compute the item-level CVI (I-CVI), the following formula was applied:

$$\text{I-CVI} = \frac{\text{Number of experts rating item as 3 or 4}}{\text{Total number of experts}}$$

$$\text{I-CVI} = \frac{4}{5} = 0.80$$

For example, if 4 out of 5 experts rated an item as either “not suitable” or “very suitable”, the I-CVI would be:

Similarly, the Scale-Level Validity Index using the average method (S-CVI/Ave) was computed as

$$\text{S-CVI/Ave} = \frac{\sum \text{I-CVI for all items}}{\text{Total number of items}}$$

This high value reflects a strong overall agreement among experts regarding the relevance and appropriateness of the module content. For the qualitative data, thematic analysis was employed to explore teacher perspectives on TAALIM-EDU module. The analysis followed the six-phase framework proposed by Braun and Clarke (2006), which includes: (a) familiarization with the data, (b) generating initial codes, (c) searching the themes, (d) reviewing themes, (e) defining and naming themes, and (f) producing the final report. Subsequently, a deductive coding approach was adopted, guided by the TUP framework developed by Bednarik et al. (2004). This established model offers a comprehensive framework to evaluate digital learning tools based on three key aspects of TUP. Consequently, it helped ensure that the interview data were analyzed consistently within these predetermined themes. To facilitate this process, the coding and thematic development were conducted using Atlas.ti, a computer-assisted qualitative data analysis software. This platform enabled systematic management of interview transcripts and efficient organization of codes across participants. Furthermore, it supported the visualization of data relationships through network diagrams, which were subsequently generated to map the thematic interplay between categories and subthemes aligned with the TUP model.

Results and Discussion

To ensure the credibility and relevance of the TAALIM-EDU interactive Arabic language module, this study employed the Content Validity Index (CVI) methodology for content validation (see Table 2) as described by Polit and Beck (2006) and further supported by Zamanzadeh and colleagues (2015). The CVI approach was selected based on its widespread use and recognition as a robust, systematic method for evaluating the relevance, clarity, and appropriateness of educational instruments and learning material. For CVI calculation purposes, these ratings were converted into binary values based on a validity judgement criterion: Ratings of 1 and 2 were recorded as 0 (Invalid), indicating that the item does not sufficiently meet the content relevance or clarity standards. Conversely, ratings of 3 and 4 were recorded as 1 (Valid), reflecting that the item is considered appropriate and relevant for the module's intended educational purpose.

Table 2. Expert ratings and I-CVI scores for TAALIM-EDU module evaluation

No		CRITERIA	E1	E2	E3	E4	E5	EXPERT IN AGREEMENT	I-CVI	CATEGORY	UA
Q1	T	Technology Compatibility	1	1	1	1	1	5	1.00	Valid	1
Q2		Data Security	1	1	1	1	1	5	1.00	Valid	1
Q3		Accessibility	1	1	1	1	1	5	1.00	Valid	1
Q4	U	Multimedia Effectiveness	1	1	1	1	1	5	1.00	Valid	1
Q5		Content Clarity	1	1	1	1	1	5	1.00	Valid	1
Q6		Ease of Navigation	1	1	1	1	1	5	1.00	Valid	1
Q7		Interactive Effectiveness	1	1	1	1	1	5	1.00	Valid	1
Q8		Ease of Use and Learning	1	1	1	1	1	5	1.00	Valid	1
Q9	P	Learning Content Appropriateness	1	1	1	1	1	5	1.00	Valid	1
Q10		Learning Activities	1	1	1	1	1	5	1.00	Valid	1
Q11		Effective Information Delivery	1	1	1	1	1	5	1.00	Valid	1
Q12		Motivation and Student Engagement	1	1	1	1	1	5	1.00	Valid	1
		Total every expert	12	12	12	12	12				
		S-CVI/Average	1.00								

The CVI findings presented above offer a comprehensive overview of expert consensus on TAALIM-EDU module's content, focusing on three primary domains: (a) technology, (b) usability and (c) pedagogy (TUP). A total of twelve items were evaluated by five expert raters, with binary conversion applied to facilitate CVI computation. An I-CVI threshold of ≥ 0.78 was used to determine item level validity, as recommended by Lynn, (1986), while the overall S-CVI/Average benchmark for strong content validity was set at ≥ 0.90.

Notably, all four items under the Technology construct; technology compatibility, data security, accessibility and multimedia effectiveness received unanimous agreement from all five experts, resulting in I-CVI scores of 1.00. These exceptional results strongly affirm the module's technological robustness and reliability, which aligns with established standards for educational technology validation (Sibley et al., 2024). Furthermore, experts acknowledge that TAALIM-EDU could be accessed smoothly across devices, ensured user privacy and included high quality multimedia to support interactive learning. This comprehensive technological compatibility and multimedia integration are critical factors for successful digital learning implementation (Clark et al., 2003). Consequently, the strong I-CVI values reflect TAALIM-EDU's readiness for integration into diverse digital learning environments, thereby supporting the module's potential for widespread educational adoption (Davis et al., 1989; Venkatesh et al., 2003).

The usability of TAALIM-EDU was systematically evaluated based on four items: content clarity, ease of navigation, interactive effectiveness, and ease of use and learning. Importantly, these dimensions are firmly grounded in established usability theories. Specifically, Nielsen (1994) emphasizes the fundamental importance of clarity and user control, while simultaneously, ISO 9241-11 (2018) outlines usability as the effectiveness, efficiency, and satisfaction with which users achieve goals. Furthermore, Dix et al. (2004) stress the significant value of intuitive interaction in digital environments, and correspondingly, Norman (2013) established a clear link between good design principles and enhanced learning outcomes. Additionally, Squires and Preece (1996) specifically highlights usability in educational software development. Remarkably, all four usability items received perfect agreement from all five experts (I-CVI = 1.00), consequently indicating a strong consensus that TAALIM-EDU meets key usability principles. Therefore, these exceptional findings definitively confirm that the module is not only user-friendly and engaging but also effectively supports learning without causing cognitive overload. Ultimately, this unanimous expert validation demonstrates TAALIM-EDU's robust alignment with established usability standards for educational technology.

The pedagogical value of the TAALIM-EDU module was assessed through four items: learning content appropriateness, learning activities, effective information delivery, and motivation and student engagement. Fundamentally, these dimensions are rooted in well-established educational frameworks that emphasize the alignment of digital content with learning objectives, student development, and motivation. Theoretically, Mayer (2009) cognitive theory of multimedia learning posits that meaningful learning occurs when content is well-structured, relevant, and presented through appropriate multimedia channels. This theoretical foundation directly aligns with Q9 and Q11, which systematically assesses whether the module content is suitable for learners' levels and whether it delivers information effectively. Complementarily, Vygotsky (1978) social constructivist theory supports Q10 and Q12, emphasizing the role of guided learning and engagement in knowledge construction. Similarly, Malone and Lepper (1987) seminal work identified motivation and engagement as central elements in instructional design, thereby reinforcing the importance of these pedagogical dimensions. Remarkably, all four pedagogical items were rated as relevant by all five experts, resulting in I-CVI scores of 1.00 across the dimensions. This exceptional outcome reflects a strong consensus that the module's pedagogical design is not only robust but also highly effective for Arabic language instructions. Therefore, these outstanding results confirm that the TAALIM-EDU module is pedagogically sound, effectively supporting Arabic language learning through well-aligned content, motivating tasks, and developmentally appropriate delivery strategies.

Qualitative Semi-structured Interview

This section presents the qualitative findings from semi-structured interviews conducted with five Arabic language teachers to explore their perspectives on TAALIM-EDU interactive module. The interviews were designed to capture rich, detailed insights into teachers' experiences, perceptions, and professional opinions regarding the module's potential implementation in Arabic language instruction. This section aims to answer Research Question 2, which examines how primary Arabic language teachers perceive the TAALIM-EDU module in terms of technology, usability, and pedagogical alignment based on the TUP modle framework. Semi-structured interviews were deliberately chosen for their inherent flexibility in exploring participants' in-depth experiences while simultaneously maintaining a consistent methodological structure across all sessions (Kallio et al., 2016;

Adams, 2015). This approach enabled the researchers to delve deeper into specific areas of interest that emerged during conversations while ensuring that all key topics were systematically addressed with each participant. Furthermore, the semi-structured format facilitated a natural flow of discussion, allowing teachers to express their authentic views and share practical insights based on their professional expertise and classroom experience.

The analysis of these qualitative data provides valuable contextual understanding that complements the quantitative CVI validation results, thereby offering a comprehensive evaluation of TAALIM-EDU from both expert validation and practitioner perspectives. The following findings are organized according to the TUP framework to maintain consistency with the overall study design and to facilitate meaningful comparison between quantitative and qualitative results.

Theme 1: Perceived Effectiveness in Achieving Learning Objectives

Significantly, the interview findings revealed unanimous agreement among five Arabic language teachers regarding the technological compatibility and accessibility of TAALIM-EDU module. All participants reported that the module was functional and responsive across various devices, including laptops, tablets and smartphones. Teachers appreciated the fact that students were able to access the module in school and at home without facing significant technical issues. For instance, one teacher stated:

"No issues. The internet connection is fast, and the module works well for all students". (T1)

Multimedia elements such as audio and video were also highlighted as major contributors to the effectiveness of TAALIM-EDU. Teachers noted that these features increased student motivation and engagement while also improving comprehension of vocabulary and sentence structure. As noted by one teacher:

"Audio and video simplify complex concepts. Demonstration videos help students visualize, and audio offers detailed explanations". (T5)

Regarding data security, all five teachers confirmed that the module demonstrated sufficient protection of students' personal information. They noted that login procedures were simple, and no unnecessary data collection occurred. According to one teacher:

"Yes, the data security level is appropriate for learning purposes and students' usage". (T2)

Teachers also highlighted the practicality of TAALIM-EDU module supporting both teaching and learning processes. They observed that the integration of platforms like Google Slides made it easy to implement during lessons. The module's structure and tools were seen as effective in simplifying instructional delivery while also supporting student engagement. One teacher described the experience as:

"*Very helpful for both teaching and learning. It makes the process easier for teachers and students"*. (T1).

Furthermore, several teachers emphasized that the module's flexibility allowed for differentiated instruction, catering to diverse student proficiency levels and learning styles. This adaptability was seen as a key strength, enabling teachers to customize lessons and provide additional support where needed. The interactive nature of the module was also praised for fostering active learning, encouraging students to participate more fully and take ownership of their language development.

Overall, the teachers' feedback underscores TAALIM-EDU's potential to enhance Arabic language education by combining technological reliability with pedagogical effectiveness. Their positive evaluations reflect how the module addresses both practical classroom challenges and the need for engaging, accessible learning resources, aligning well with contemporary and the educational technology principles and cognitive load management strategies.

Theme 2: Enhanced Student Motivation and Interest

Teachers reported that the TAALIM-EDU module demonstrated a high degree of usability, particularly in terms of clarity, ease of navigation, and student engagement. All five participants emphasized that the layout, structure,

and language used in the module were simple and straightforward, making it easy for both students and teachers to use independently. As one teacher noted:

"Very clear and engaging. The layout text, graphics support comprehension and make learning enjoyable". (T4).

The inclusion of immediate feedback within activities was also highly praised. Teachers observed that real-time feedback helped students self-correct and stay motivated throughout the learning process. One participant commented:

"Yes, especially for primary students. More quizzes would enhance engagement'. (T2).

Teachers also appreciated the interactive elements embedded in the module, describing them as effective in maintaining student attention and enhancing understanding, particularly for vocabulary acquisition. For example:

"Yes. Interactive activities in Google Slide allows students to engage collaboratively such as answering questions or completing mind maps". (T5).

In addition, the visual design was described as appealing and age appropriate. Colorful graphics, clear fonts, and well-structured activities contributed to a pleasant learning experience. One teacher remarked:

"Yes, the visuals help attract student attention and improve focus". (T1)

Collaboration was further enhanced through certain module activities that encouraged peer discussion and cooperative learning, especially when used in group settings. As one teacher explained:

"Yes, I use them in group activities. The interactive parts encourage collaboration". (T3)

Moreover, several teachers highlighted that the module's intuitive design reduces cognitive load, enabling students to focus on learning content without being overwhelmed by complex navigation or unclear instructions. This aligns with cognitive load management principles, which are essential for effective multimedia learning. Overall, the usability dimension of the TAALIM-EDU module was highly rated by participants. Its intuitive design, responsive interactivity, and thoughtful structure made it a practical and engaging tool for Arabic language learning in the primary classroom. The module's ability to foster independent learning, maintain motivation, and support collaborative activities positions is a valuable resource in contemporary language education contexts.

Theme 3: Significant Support for Teaching Process

Teachers acknowledged that the TAALIM-EDU module is well-aligned with the national Arabic language curriculum and effectively supports the development of key language competencies. As highlighted by T1, the module integrates all four core skills.

"Yes, the module aligns with learning objectives and includes all four skills". (T1)

One of the key strengths identified by teachers is the module's structured sequencing of content. As noted by teacher 2, the TAALIM-EDU module follows a logical progression of language skills, beginning with foundational elements such as listening and speaking, before moving on to reading and writing. This scaffolded design reflects sound pedagogical principles and ensures that students build competence gradually, in alignment with how language is naturally acquired.

"Yes, the sequence matches skill progression such as listening and speaking". (T2)

The teachers agreed that the TAALIM-EDU module demonstrates strong alignment with both curriculum requirements and students' language proficiency levels. As highlighted by teacher 2, the content is appropriately pitched to match students' abilities, ensuring that learning remains accessible yet challenging. This balance is crucial in maintaining learner motivation while supporting steady skill development. The module's alignment with the curriculum's skill focus also affirms its relevance as a teaching tool that addresses the targeted competencies outlined in national education standards.

"The content matches student ability levels and the curriculum's skills focus". (T2)

In addition, teachers emphasized that the TAALIM-EDU module is not only aligned with curriculum standards but also demonstrably effective in helping students meet specific learning outcomes. As noted by teacher 1, the module supports students in mastering key Arabic language skills, reinforcing classroom instruction through structured activities and interactive tasks. Its multimedia integration and progressive task design contribute to increased engagement and better retention, making the module a highly effective tool for achieving learning goals.

"Very effective in achieving learning goals". (T1)

Teachers highlighted the role of interactive multimedia in enhancing students' motivation and engagement with Arabic language learning. As mentioned by teacher 3, platforms like Wordwall and Quizizz were particularly effective in sustaining student attention and fostering a fun, competitive learning environment. The inclusion of gamified elements not only made the content more accessible but also encouraged repeated practice, which is essential for language retention. These tools align well with student-centred pedagogical strategies, making learning more active and meaningful.

"Very effective. The use of interactive multimedia boosts motivation and focus. Students enjoy using wordwall and Quizizz". (T3)

These findings suggest that integrating interactive and gamified tools within the TAALIM-EDU module significantly contributes to both achieving learning objectives and creating an engaging learning environment.

Teacher Suggestions and Recommendations

Teachers provided valuable feedback regarding potential interactivity and additional suggestions for the TAALIM-EDU module, highlighting avenues for future enhancement and sustainable implementation. One recurring theme for improvement is centered on enhancing interactivity and engagement capabilities. Specifically. T5 explicitly recommended increasing interactive components, stating that *"more interactive elements need to be added to enhance student engagement"*.

Similarly, T3 echoed this sentiment by expressing intentions to *"introduce more interactive and gamification elements",* thereby indicating educators' desire for richer, more immersive learning experiences within the module. These suggestions reflect a collective recognition that while the current module demonstrates effectiveness, there remains significant potential for deepening student engagement through expanded interactive functionalities. Looking forward to future innovation, teachers proposed incorporating cutting-edge educational technologies to further enhance the learning experience. Notably, T3 envisioned the integration of emerging technologies, suggesting that "*AR and VR technology could be added to make learning more immersive".* This forward-thinking perspective demonstrates educators' awareness of technological trends in education and suggests a clear pathway for the module's evolution towards next-generation educational tools that could revolutionize Arabic language learning experiences.

Beyond specific feature enhancements, teachers also provided strategic insights into the ongoing development and evaluation processes. Emphasizing the importance of expert collaboration, T2 highlighted that "*for the construction of interactive modules, we need to obtain advice and guidance from experts",* which underscores the value of interdisciplinary cooperation in educational technology development. Complementing this developmental approach, T5 stressed the necessity of systematic monitoring, asserting that *"periodic evaluations need to be conducted to monitor the effectiveness of module usage".* This emphasis on continuous assessment reflects a commitment to evidence-based improvement and quality assurance.

While acknowledging the module's current strengths as T5 noted that *"these additional materials help enrich students' learning experiences and build stronger background knowledge"*. The collective feedback from teachers points towards a comprehensive roadmap for continuous refinement. This pathway encompasses the integration of advanced interactive features, adoption of emerging technologies, maintenance of expert collaboration, and implementation of ongoing evaluation protocols. Ultimately, these recommendations ensure the module's sustained effectiveness and continued relevance in contemporary primary Arabic language education, while simultaneously positioning it for future technological advancements in the educational landscape.

Conclusion

This study aimed to validate and explore teacher perspectives on the TAALIM-EDU interactive Arabic language module for primary education (see Figure 3). In order to accomplish this, a DDR approach was employed, through which content validation using the Content Validity Index (CVI) revealed strong expert consensus, specifically evidenced by an overall S-CVI/Average of 1.00. During the CVI validation phase, a panel of five subject matter experts systematically evaluated each item within the module against predetermined criteria of relevance, clarity, and appropriateness for the target learning objectives. The evaluation process involved experts rating each component pn 4-point Likert scale, where ratings of 3 or 4 were considered acceptable for content validity. Remarkably, all evaluated items achieved unanimous agreement among the expert panel, resulting in individual item-level CVI (I-CVI) scores of 1.00 across all components. Furthermore, the scale-level content validity index using the averaging method (S-CVI/AVE) also yielded a perfect score of 1.00, which significantly exceeds the recommended threshold of 0.90 for acceptable content validity. Additionally, the experts provided qualitative feedback confirming that the module's interactive elements, assessment strategies, and learning activities were developmentally appropriate and culturally sensitive for the target demographic.

Subsequently, thematic analysis of semi-structured interviews guided by TUP framework further revealed the module's strengths in three key areas: its technological compatibility, ease of use, and pedagogical impact. The qualitative phase involved conducting in-depth semi-structured interviews with five Arabic language teachers who had implemented the TAALIM-EDU module in their classrooms over a six-week period. Following a systematic approach, the interviews were audio-recorded, transcribed verbatim, and analyzed using Braun and Clarke's six-phase thematic analysis procedure. Initially, the research team engaged in familiarization with the data captured meaningful segments related to teachers' experiences with the module. Through an iterative process, these codes were then grouped into potential themes, which were subsequently reviewed and refined to ensure they accurately represented the data patterns.

The analysis revealed three prominent themes that aligned with the TUP framework dimensions. Regarding technological compatibility, teachers emphasized the module's seamless integration with existing classroom technology infrastructure, noting that "*the platform worked smoothly across different devices without requiring additional technical support*." In terms of usability, participants highlighted the intuitive interface design, with one teacher commenting that "*even students who were less familiar with technology could navigate the module independently within the first session*." From a pedagogical perspective, teachers reported significant improvements in student engagement levels, particularly observing increased participation during Arabic vocabulary exercises and enhanced retention of language concepts through the module's interactive storytelling features.

Moreover, the thematic analysis uncovered unexpected benefits, including improved collaborative learning behaviors among students and increased teacher confidence in integrating technology into Arabic language instruction. Consequently, teachers reported that the module not only supported meaningful student engagement and reinforced core Arabic language skills but also aligned exceptionally well with national curriculum standards, thereby facilitating more effective lesson planning and assessment practices.

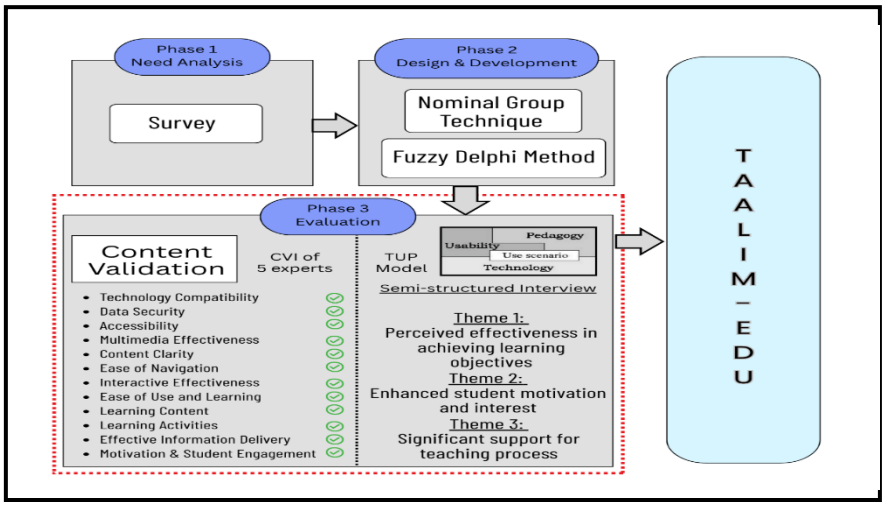


Figure 3. Structural model TAALIM-EDU

Recommendations

In light of the findings, several key recommendations are proposed to strengthen the implementation and future development of the TAALIM-EDU module. Firstly, it is recommended that the module be expanded to a wider range of primary schools, including those in rural and underserved areas, to ensure equitable access to quality Arabic language resources. In order to support this, ongoing teacher training programs should be introduced to build digital teaching competencies and familiarize educators with the module's features and integration strategies. This will empower teachers to adapt the content to diverse classroom contexts and learner needs.

Furthermore, future enhancements of the module could incorporate additional gamification elements such as points, badges, and progress tracking to further boost student motivation and engagement. Personalized learning pathways should also be considered to cater to students with varying levels of Arabic proficiency. To address connectivity issues, particularly in remote areas, it is advisable to develop offline access options or lightweight versions of the module that can be preloaded onto devices.

Finally, it is recommended that the Ministry of Education (KPM) consider adopting the TAALIM-EDU module as a scalable digital teaching tool within national policy initiatives. Its alignment with curriculum standards, demonstrated pedagogical effectiveness, and positive teacher reception make it a valuable model for future innovations in Arabic language instruction at the primary level.

Scientific Ethics Declaration

* The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

Conflict of Interest

* The authors declare that they have no conflicts of interest

Funding

* There is no funding.

Acknowledgements or Notes

* This article was presented as an oral presentation at the International Conference on Research in Education and Social Sciences (www.icress.net) held in Peja/Kosovo on July 10-13, 2025.

References

ABaker El-Ebiary, Y., Makki Elbishr Ali Hassan, E., Babikir Elhag, I., Suleiman, H., Issa, K., & Ts, A. (2019). The ınfluence of multimedia in teaching languages-Arabic language as a study. *Turkish Journal of Physiotherapy and Rehabilitation*, *33*(1), 31–40.

Abdul Hamid, M. F., Sahrir, M. S., Ab. Halim, Z., Yahaya, M. F., Nasir, M. S., Sha'ari, S. H., & Amiruddin, A. Z. (2024). Needs Analysis for the development of website-based ınteractive ınfographic modules in Arabic grammar learning. *Ijaz Arabi Journal of Arabic Learning*, *7*(1), 131–140.

Abdullah, M. R., Yaakob, M. A., Zulkifli, M. F., & Sahrir, M. S. (2023). A Review of studies related to arabic language learning based on the common european framework of reference for language (CEFR). *Ijaz Arabi Journal of Arabic Learning*, *6*(2), 463–475.

Ahmed Mahmoud, A. R., Muhammad Sabri Sahrir, & Rahmah Ahmad H. Osman. (2013). Integration of an interactive program in learning arabic language for non-native speakers via virtual tutor. *GEMA: Online Journal of Language Studies*, *13*(3), 117–131.

Ajjawi, R., Joanna, T., Tran Le, H. N., David, B., Liz, J., & Patrick, C. J. (2020). Aligning assessment with the

needs of work-integrated learning: the challenges of authentic assessment in a complex context. *Assessment & Evaluation in Higher Education*, *45*(2), 304–316.

Alam, A., & and Mohanty, A. (2023). Educational technology: Exploring the convergence of technology and pedagogy through mobility, interactivity, AI, and learning tools. *Cogent Engineering*, *10*(2), 2283282.

Aqeela, M. M. F., Munas, M. H. A., & Ahana, M. R. F. (2023a). Traditional and Modern Teaching Methods in Teaching Arabic as a Second Language : A Comparative Study. *Sprin Journal of Arabic-English Studies*, *2*(03), 48–53.

Aqeela, M. M. F., Munas, M. H. A., & Ahana, M. R. F. (2023b). Traditional and modern teaching methods in teaching Arabic as a second language: A comparative study. *Sprin Journal of Arabic-English Studies*, *2*(3), 48–53.

Azlan, D., Baharum, S., Hazwan, M., & Rahman, A. (2023). *Interactive learning Arabic materials platform in T&L process: A preliminary study at Usim*. Retrieved from http://ajocs.com

Bednarik, R., Gerdt, P., Miraftabi, R., & Tukiainen, M. (2004). Development of the TUP model - evaluating educational software. *International Conference on Advanced Learning Technologies* (pp.699–701). IEEE.

Beltman, S., & Poulton, E. (2025). Strategies teachers use to maintain motivation. *Teaching and Teacher Education*, *155*, 104882.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Clark, R. C., Mayer, R. E., & Thalheimer, W. (2003). E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning. *Performance Improvement*, *42*(5), 41–43.

Creswell, J.W. and Poth, C. N. (2018). *Qualitative ınquiry and research design choosing among five approaches* (4th ed.). Thousand Oaks: Sage Publication.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. London: Harper&Row.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, *35*(8), 982–1003.

Dix, A., Finlay, J., Abowd, G., & Beale, R. (2004). *Human-computer ınteraction*. Prentice Hall.

Faryadi, Q., Bakar, Z. A., & Maidinsah, H. (2007). Determining an effective ınteractive multimedia Arabic language courseware for Malaysian primary school children : An alternative paradigm for learning in the classroom. *National Conference on Software Engineering & Computer Systems*, 1–12.

Ghazali, A., Mohamad Ashari, Z., Hardman, J., & Abu Yazid, A. (2024). Development and effectiveness of the e-sky module based on Pbl in the teaching and facilitation process of early science. *Journal of Baltic Science Education*, *23*(2), 221–239.

Hamid, M. F. A., Halim, Z. A., & Sahrir, M. S. (2020). An insight on needs analysis towards the development of animated infographic module in Arabic grammar learning. *Journal of Language and Linguistic Studies*, *16*(3), 1387–1401.

Hamzah, M., Ghani, M. T. A., Daud, W. A. A. W., & Ramli, S. (2019). Digital game-based learning as an innovation to enhance student's achievement for arabic language classroom. *International Journal of Recent Technology and Engineering*, *8*(3), 2108–2112.

Haron, S. C., Ahmed, I. H., Mamat, A., Ahmad, W. R. W., & Rawash, F. M. M. (2016). Challenges in Learning to Speak Arabic. *Journal of Education and Practice*, *6*(33), 99–105.

Hinnawi, M., Abdel-Rahim, R., & Azzam, S. (2023). Effectiveness of distance e-learning in teaching and learning Arabic for non-native speakers: An-Najah's Arabic for non-native speakers ınstitute as a model. *Global Journal Al-Thaqafah*, *13*(2), 179–211.

ISO 9241-11. (2018). *Ergonomics of human-system interaction Part 11: Usability: Definitions and concepts*. Retrieved from https://www.iso.org/standard/63500.html

Ivankova, Nataliya V, Creswell, John W, & Stick, Sheldon L. (2006). Using mixed-methods sequential explanatory design: from theory to practice. *Field Methods*, *18*(1), 3–20.

John W. Creswell. (2009). Qualitative, Quantitative, and Mixed-Methods Research. *Microbe Magazine*, *4*(11), 485–485.

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965.

Kamarudin, M. Y., Yusoff, N. M. R. N., Yamat, H., & Abdul Ghani, K. (2016). Inculcation of higher order thinking skills (HOTS) in Arabic language teaching at Malaysian primary schools. *Creative Education*, *7*(2), 307–314.

Kementerian Pendidikan Malaysia. (2019). Pelan transformasi ICT kementerian Pendidikan Malaysia 2019-2023. *Bahagian Pengurusan Maklumat,* 1–28.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge

(TPACK)?. *Contemporary İssues in Technology and Teacher Education*, *9*(1), 60-70.
Laubscher, H., Loos, B., & Theart, R. P. (2024). Engage and learn: Improved learning of cellular structures using a virtual reality-based learning experience. *Computers and Education: X Reality*, *5*, 100089.
Liu, X., & Zhang, L. (2024). Exploring the relationship between teachers' professional capital and technology-enhanced teaching innovation: The mediating role of constructivist belief. *Teaching and Teacher Education*, *139*, 104434.
Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*(6), 382–385.
Majid, O. B., Hilmi, M. F., Rashid, N. A., Syed-Mohammad, S. M., Malim, N., & Zainol, Z. (2015). Collaborative learning environment with think-pair-share method and learning tools for learning Arabic online. *Proceedings - 2013 Taibah University International Conference on Advances in Information Technology for the Holy Quran and Its Sciences, NOORIC 2013*, 77–82.
Malone, T. W., & Lepper, M. R. (1987). *Making learning fun a taxonomy of ıntrinsic motivations for learning*. Routledge.
Mayer, R. E. (2002). Multimedia learning. In *Psychology of learning and motivation* (Vol. 41, pp. 85–139). Elsevier.
Mayer, R. E. (2005). Cognitive theory of multimedia learning. *The Cambridge Handbook of Multimedia Learning*, *41*(1), 31–48.
Mayer, R. E. (2009). *Multimedia learning* (2nd ed., p 304). Cambridge University Press.
Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.
Mayer, R. E., Makransky, G., & Parong, J. (2023). The promise and pitfalls of learning in immersive virtual reality. *International Journal of Human–Computer Interaction*, *39*(11), 2229–2238.
Moreno, R., & Mayer, R. E. (1999). Cognitive principles of multimedia learning: The role of modality and contiguity. *Journal of Educational Psychology*, *91*(2), 358–368.
Muawanah, U., Marini, A., & Sarifah, I. (2024). The interconnection between digital literacy, artificial intelligence, and the use of E-learning applications in enhancing the sustainability of regional languages: Evidence from Indonesia. *Social Sciences & Humanities Open*, *10*, 101169.
Nedjar, I., & M'hamedi, M. (2024). Interactive system based on artificial intelligence and robotic arm to enhance arabic sign language learning in deaf children. *Education and Information Technologies*, *29*(18), 24563-24580.
Nielsen, J. (2012). *Usability 101: A gentle ıntroduction to the ımportant topic of usability*. Retrieved from https://www.nngroup.com/articles/usability-101-introduction-to-usability
Norman, D. (2013). The design of everyday things. In *Interactions* (Vol. 15, Issue 2).
Patton, M. Q. (2002). *Qualitative evaluation and research methods*. Thousand Oaks, CA: Sage.
Piaget, J. (1954). *The construction of reality ın the child* (1st ed). Routledge.
Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, *29*(5), 489–497.
Prihartini, Y., Buska, W., & Ridha D. S., M. (2021). The development of ınteractive multimedia of Arabic learning. *Proceedings of the 5th Asian Education Symposium 2020, 566*, 80–86.
Richey, R. C., & Klein, J. D. (2014). *Design and development research: Methods, strategies, and issues*. Routledge.
Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78.
Sahrir, M. S. bin, Yahaya, M. F. bin, & Nasir, M. S. bin. (2019). Instructional feedback analysis of an online virtual language learning platform through EZ-Arabic among Malaysian teachers of primary schools. *International Journal of Asian Social Science*, *9*(2), 204–212.
Sibley, L., Russ, H., Ahmad, G., Baumgärtner, B., Bräutigam, D., Brümmer, S., Bussmann, H., Erb, N., Evans, L., Fischer, S., Gradl, L., Guddemi, R., Hauptmann, K. B., Hieke, J., Hilsdorf, S., Högerle, F., Hoppe-Brixner, B., Jeong, W., Karl, S., & … Lachner, A. (2024). Does technology-based non-interactive teaching enhance students' learning in the classroom? *Computers and Education Open*, *7*(November).
Soratto, J., Pires, D. E. P. de, & Friese, S. (2020). Thematic content analysis using ATLAS.ti software: Potentialities for researchs in health. *Revista Brasileira de Enfermagem*, *73*(3), e20190250.
Squires, D., & Preece, J. (1996). Usability and learning: Evaluating the potential of educational software. *Computers & Education*, *27*(1), 15–22.
Suryawati, E., & Osman, K. (2018). Contextual learning: Innovative approach towards the development of students' scientific attitude and natural science performance. *Eurasia Journal of Mathematics, Science and Technology Education*, *14*(1), 61–76.
Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction*, *4*(4), 295–312.
Tarigan, W. P. L., Sipahutar, H., & Harahap, F. (2023). The impact of an interactive digital learning module on

students' academic performance and memory retention. *Computers and Children*, *2*(2), em004.
Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of ınformation technology: toward a unified view. *MIS Quarterly*, *27*(3), 425–478.
Vygotsky, L. S. (1978). *Mind in society* (Vol. 108). Harvard University Press.
Zainuddin, N., & Idrus, R. M. (2016). A hybrid e-learning framework for Arabic language flipped classroom kerangka e-pembelajaran hibrid untuk kelas berbalik bahasa Arab. *Jurnal Sultan Alauddin Sulaiman Shah (JSASS)*, *3*(1), 1-13.
Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi Majd, H., & Nikanfar, A.-R. (2015). Design and ımplementation content validity study: development of an instrument for measuring patient-centered communication. *Journal of Caring Sciences*, *4*, 165–178.

Author(s) Information

Siti Sharah Rajab
Universiti Utara Malaysia,
Sintok, 06010 Bukit Kayu Hitam, Kedah, Malaysia
Contact e-mail: *sharahrajab@gmail.com*

Nurahimah Mohd-Yusoff
Universiti Utara Malaysia,
Sintok, 06010 Bukit Kayu Hitam, Kedah, Malaysia

Muhammad Noor Abdul-Aziz
Universiti Utara Malaysia,
Sintok, 06010 Bukit Kayu Hitam, Kedah, Malaysia

To cite this article:

Rajab, S.S., Mohd-Yusoff, N., & Abdul-Aziz, M.N. (2025). Content validation and teacher perspective on interactive module for Arabic language in primary education. *The Eurasia Proceedings of Educational and Social Sciences (EPESS), 43,* 17-38.

.

Appendix A:

Question for experts in determining decisions using CVI method for content validation:

1. The module functions well across various devices (computers, tablets, smartphones) and web browsers. The module is stable and there are no significant technical issues such as lag or system crashes.
- 1 2 3 4

2. User information is well protected. The module meets the security and privacy requirements for student data and does not require unnecessary personal information.
- 1 2 3 4

3. Modules are easily accessible without technical issues or login problems. There are brief guides or instructions to facilitate access for students and teachers
- 1 2 3 4

4. Multimedia elements such as audio, video, and animation are effectively used to support learning. The quality of these elements is clear and functions smoothly.
- 1 2 3 4

5. The content in the module aligns with the learning objectives of Arabic language education and follows the prescribed curriculum. It is related to real-life situations or appropriate for the students' age group.
- 1 2 3 4

6. Students can navigate through the module easily. The layout of the menu and navigation buttons is clear and intuitive, without causing confusion.
- 1 2 3 4

7. The interactive activities function well and promote student engagement. Each interactive element is easily accessible and captures students' interest in the learning process.
- 1 2 3 4

8. The module is easy for students to learn and use without requiring extensive guidance. Students are able to master how to use the module after a few attempts.
- 1 2 3 4

9. The content in the module aligns with the objectives of Arabic language learning and follows the prescribed curriculum. It is related to real-life situations or is age-appropriate for the students.
- 1 2 3 4

10. The activities are organized according to the students' developmental levels. They encourage students to understand and gradually practice Arabic language skills, progressing from basic to more advanced levels.
- 1 2 3 4

11. The module presents information clearly and helps students achieve the learning objectives. The use of examples, illustrations, and clear step-by-step guidance supports students in better understanding the content.
- 1 2 3 4

12. The module successfully captures students' interest and encourages active participation. The activities include elements of gamification or interactive features that boost students' motivation.
- 1 2 3 4

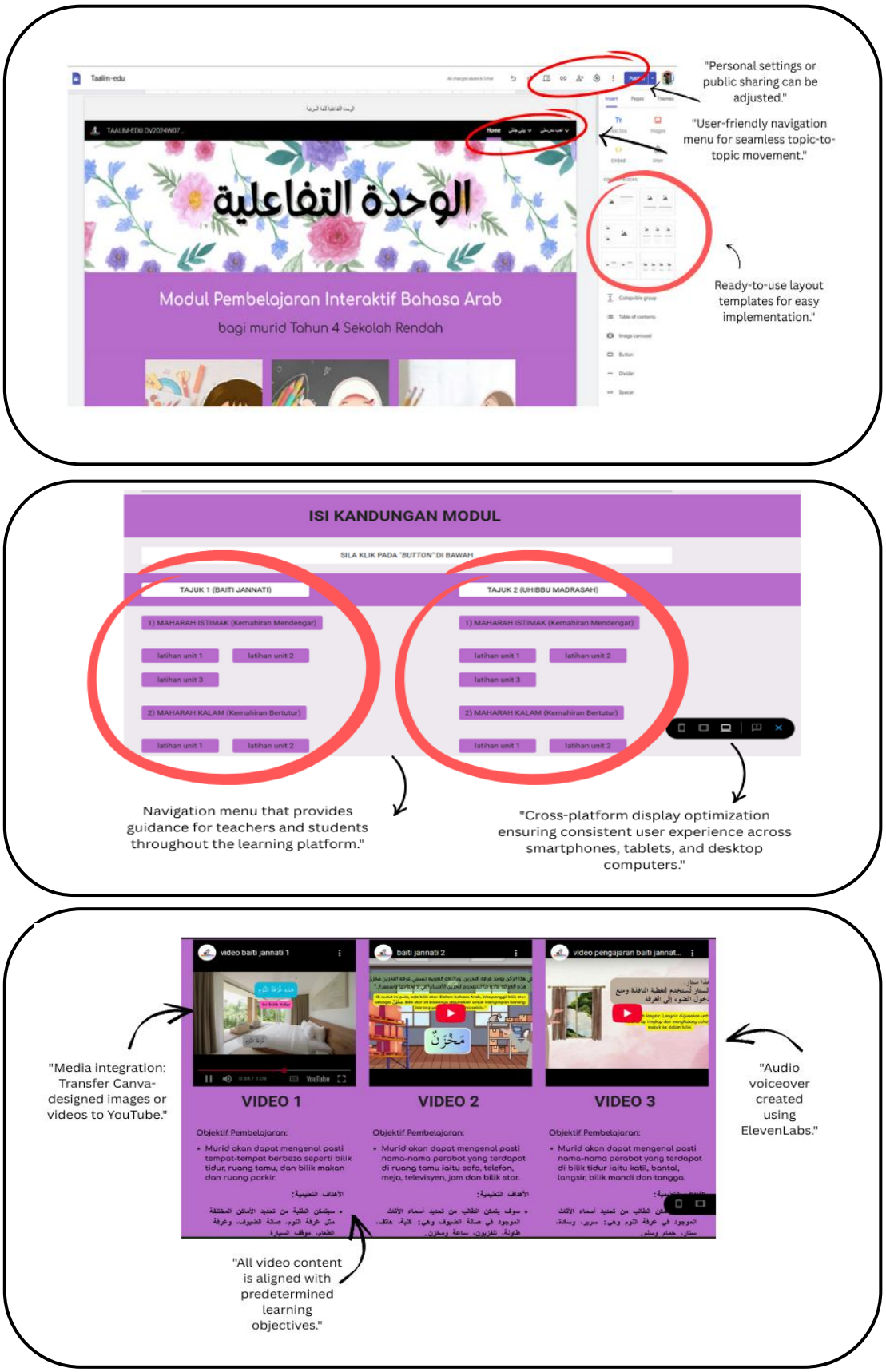
Appendix B:

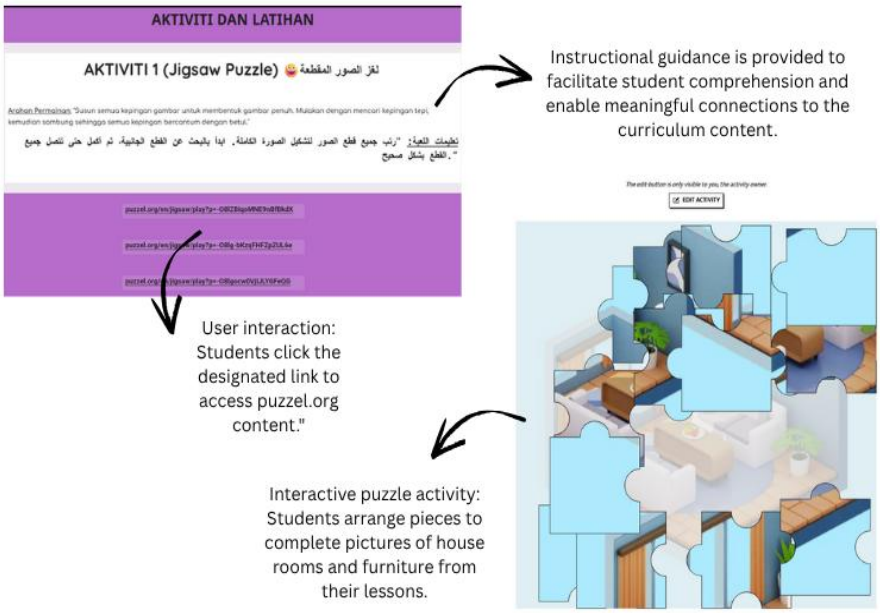
The following semi-structured interview questions relate to the evaluation of the usability of the TAALIM-EDU module, based on the TUP model. These questions are designed to gather in-depth feedback from Arabic language teachers regarding their experiences and perceptions after using the module in real classroom settings:

1. How do you view the compatibility of the TAALIM module with various devices (computer, tablet, smartphone)? Any technical issues?
2. To what extent do multimedia elements (audio, video) help in teaching and learning?
3. Is it easy for students to log into Google Slides?
4. Does the module ensure adequate data security for students?
5. Are the contents (text, graphics, layout) clear and helpful?
6. Is the module easy to use for both teacher and student?
7. Do the interactive elements engage students effectively?
8. Do the interactive features support Arabic learning?
9. Can students use the module independently, or do they need guidance?
10. Is the content aligned with Arabic learning objectives (listening, speaking, reading, writing)?
11. Which content elements are most effective and level-appropriate?
12. Are the activities well-structured from basic to advanced?
13. How effective is the module in helping students achieve learning goals?
14. Does the module increase student motivation and interest in Arabic?
15. Does the module help or simplify your classroom teaching?
16. If you could improve or change something in the module, what would it be?
17. Any additional suggestions for improvement?

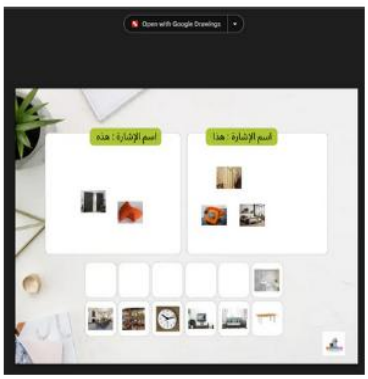
Appendix C:

TAALIM-EDU Module for Arabic teachers developed by the authors.




AKTIVITI DAN LATIHAN
AKTIVITI 1 (Jigsaw Puzzle)
Instructional guidance is provided to facilitate student comprehension and enable meaningful connections to the curriculum content.
User interaction: Students click the designated link to access puzzel.org content."
Interactive puzzle activity: Students arrange pieces to complete pictures of house rooms and furniture from their lessons.


Exercise content is downloadable, allowing students to store materials on their personal devices.
صفات الأشياء
Teachers have sharing capabilities to collaborate with other educators and/or deploy content to Google Classroom platforms.
The exercise requires students to drag words into the appropriate answer area.




AKTIVITI 2 (Drag & Drop)
All educational activities include accompanying pedagogical instructions.

All flip book materials include predetermined learning objectives.

Students and teachers can redirect to the visually enhanced Heyzine interface via the link.

Students have download functionality to store exercises on their devices.

Eye-catching Canva designs featuring clear, readable text for enhanced user experience.