

# Teacher's Skills and Challenges in Developing Interactive Learning Materials for Arabic Language Teaching

Mutthahirah Jaafar, Mohammad Taufiq Abdul Ghani

Department of Modern Languages, Sultan Idris Education University

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.91100255>

Received: 21 November 2025; Accepted: 28 November 2025; Published: 06 December 2025

## ABSTRACT

This study aims to explore the skills required by teachers in developing interactive learning materials to enhance students' Arabic language proficiency in the contemporary educational landscape. As digital transformation reshapes language pedagogy, understanding teachers' competencies and challenges in creating interactive materials has become increasingly critical for effective Arabic language instruction. A qualitative approach employing semi-structured interviews was conducted with 12 Arabic language teachers from government-aided religious schools (SABK) in Malaysia, selected through purposive sampling to ensure diverse teaching experiences and institutional contexts. The interview transcripts were systematically analysed thematically using Atlas.ti 2.0 software, enabling rigorous identification of recurring patterns and emerging themes related to teachers' competencies and pedagogical practices. The findings identify three key domains of skills essential for teachers: (i) technological competence as the foundation pillar for producing interactive materials, (ii) professional development strategies to continuously enhance teachers' expertise, and (iii) the ability to implement and adapt materials according to students' proficiency levels. The results underline the importance of digital literacy and flexible pedagogical strategies in enabling teachers to effectively address the challenges of developing interactive Arabic learning materials. The results underline the critical importance of digital literacy and flexible pedagogical strategies in enabling teachers to effectively address the multifaceted challenges of developing interactive Arabic learning materials in resource-constrained environments. The study suggests that structured and sustained support from various stakeholders including educational institutions, policymakers and technology providers, is necessary to strengthen teachers' capacity in producing high-quality interactive materials that positively impact students' language proficiency, engagement and motivation in Arabic language learning.

**Keywords:** Technological Skills, Arabic Language Teaching, Interactive, Teacher Challenges, TPACK.

## INTRODUCTION

The teaching of Arabic in Malaysia occupies a unique position within the national education system, particularly due to its historical, religious and socio-cultural significance. Although Arabic is not a compulsory subject for all students, it is formally offered within several educational pathways, including national religious secondary schools (SMKA), government-aided religious schools (SABK), state religious schools (SAN), Tahfiz institutions and selected national primary schools under the j-QAF programme. Through these programmes, Arabic is taught either as a compulsory subject (such as in SMKA and SABK) or as an additional language aimed at reinforcing students' understanding of Islamic studies. This places Arabic as an important component of Islamic education, especially in developing Qur'anic literacy, understanding primary religious texts, and enhancing communication skills related to religious discourse.

At the systemic level, Malaysia's education policy continues to support the expansion of Arabic instruction through curriculum initiatives such as the Common European Framework of Reference for Languages (CEFR)-aligned Arabic curriculum (KSSM Bahasa Arab) and the integration of technology-based pedagogy under the Digital Education Policy (2023–2030). These developments demonstrate the growing emphasis on adopting modern, student-centred approaches in Arabic language teaching. The integration of interactive learning materials such as digital quizzes, multimedia modules, mobile applications and gamified platforms has therefore

become an important strategy for enhancing student engagement and promoting more meaningful learning experiences.

However, the development of interactive learning materials is not an easy task for teachers. They must possess various competencies, including technological literacy, 21st-century pedagogy and creativity in instructional design to ensure that the materials produced are engaging, relevant and able to meet students' learning needs. This task becomes more challenging when teachers face time constraints, heavy workloads, varying levels of technological skills and limited institutional resources and support.

As such, this paper has been carried out to delve deeper into the nature of the skills needed by the teachers of Arabic language to create interactive learning resources to improve the proficiency of the students. The study uses a qualitative design to determine the experiences of teachers integrating technology in the teaching process and the obstacles that they have experienced. The implications that are likely to be faced in the results are that more comprehensive training, support and educational policies will be provided to empower teachers to create high-quality learning materials in an interactive form.

## **LITERATURE REVIEW**

Interactive learning materials in the language learning process have been of significant interest in the past few years especially as teachers and students come to terms with the technology driven environments. The use of interactive materials like digital quizzes, web-based apps, mobile apps and infographic-based modules is getting more and more popular due to their ability to improve the engagement and motivation as well as active participation of learners in classroom activities. This tendency denotes a larger pedagogical change where teacher-centered methodology has changed to learner-centered approaches where the materials are not only created with the aim of delivering the content, but also to promote meaningful interaction.

A number of studies have revealed that the interactive methods are useful in the Malaysian setting. According to Nowawi and Ahmad (2023), a preschool-level web-based interactive application on the learning of the Malay language showed significant enhancement in the motivation and understanding of the children. According to their findings, multimodal engagement (visual, auditory and kinesthetic) is significant in the process of consolidating early learning. In a similar way, Saad et al. (2023) proposed the Kaifa Haluka interactive comic to learn Arabic and discovered that multimodality design had a positive effect on the understanding and desire to speak Arabic, which confirms the importance of digital storytelling as a new educational instrument.

Mobile learning has also been ventured into as an accommodative way of providing interactive content. This is consistent with findings by Alqarni et al. (2020), who reported that mobile-assisted language learning provides flexible, interactive and ubiquitous learning opportunities for Arabic learners. Such perspectives support broader discussions on ubiquitous learning and the need for flexible resources that extend beyond the physical classroom.

In the context of Arabic grammar, Hamid et al. (2024) adopted the Fuzzy Delphi Method to develop and validate an interactive infographic module. Their findings demonstrated that infographic-based learning is both practical and effective, particularly in facilitating students' understanding of abstract grammatical concepts. In a subsequent study, Hamid et al. (2024) also examined students' acceptance of the infographic module and reported high levels of perceived usefulness and ease of use. Collectively, these studies strengthen the empirical foundation suggesting that infographic-based learning is a relevant, engaging and pedagogically beneficial approach in the teaching of language structures.

In addition to synchronous classroom practices, Riwanda (2024) examined asynchronous solutions based on hyperlinked PDFs and online media in learning Arabic language. This research has demonstrated that even rather uncomplicated and economical technologies can serve as an interactive resource with the help of which learners can navigate and access the resources and study efficiently on their own. These results show that interactive learning does not always require advanced platforms but rather a well-thought and calculated instructional design can result in effective innovation.

Taken together, these studies affirm the pedagogical potential of interactive learning materials across different platforms and contexts. However, gaps remain in the literature. Most existing studies concentrate on evaluating specific tools (e.g., comics, apps or infographics), while relatively few address the broader systemic and professional challenges teachers face in designing and sustaining the use of these materials. Teachers in Malaysia, for instance, often report being constrained by administrative tasks, limited digital literacy and inadequate institutional support. While interactive resources are empirically shown to enhance language learning outcomes, their practical implementation depends heavily on teacher readiness, time availability and professional development opportunities.

This research gap underscores the need to shift scholarly focus from isolated evaluations of tools towards examining the capacity-building and systemic supports required to enable teachers to integrate interactive materials sustainably in Arabic language education. Such an emphasis is essential to ensure that the proven benefits of interactivity can be realized consistently in real classroom contexts.

## **METHODOLOGY**

This study employed a qualitative case study approach aimed at gaining an in-depth understanding of Arabic language teachers' experiences in developing interactive learning materials. A total of 12 Arabic language teachers from four government-aided religious schools (SABK) in Seberang Perai Utara district, Penang, were selected using purposive sampling, based on criteria such as having at least five years of teaching experience, prior use of interactive materials and the ability to commit to the interview process.

The selection of schools was guided by specific criteria to ensure relevancy to the study's objectives. Only schools that met the following characteristics were included: (i) schools located within the Seberang Perai Utara district; (ii) schools categorised as government-aided religious schools (SABK); (iii) schools implementing the Kurikulum Bersepadu Dini (KBD); and (iv) employing at least three Arabic language teachers.

These school-selection criteria were used to ensure that the data obtained were specific, relevant and aligned with the qualitative approach adopted in this study. Such purposive sampling also enabled the researcher to capture a wider variation of teacher experiences and perspectives, thereby offering a more comprehensive understanding of the development and use of interactive learning materials in Arabic language teaching.

The primary data collection instrument was semi-structured interviews, covering aspects such as teachers' background, experience with interactive materials, required skills, challenges faced and suggestions for improvement. Interviews were conducted face-to-face based on an interview protocol validated by subject-matter experts, subsequently recorded and transcribed verbatim.

The interview transcripts were analysed thematically following the framework of Braun and Clarke (2006), assisted by Atlas.ti 2.0 software. To ensure the validity and reliability of the data, expert review was conducted to ensure the appropriateness of the interview instrument, while member checking was carried out by requesting participants to verify the accuracy of the transcripts and the initial interpretation of the findings obtained.

## **RESULTS**

### **Skills Required by Teachers to Develop Interactive Learning Materials**

The education environment of the 21st century (where the use of technology in education, in particular, is prioritized) requires educators to have not only content knowledge of the subject but also certain skills on designing and delivering interactive learning materials (Bahroom et al., 2021). The skills play a vital role in making sure that the teaching and learning process would be more interactive, student-focused, and able to improve the engagement and comprehension of the Arabic language by the learners.

Atlas.ti 2.0 software was utilized to conduct the analysis and it revealed three dominant themes: (1) Technological Skills (2) Approaches to Skills Enhancement and (3) Challenges in Skills Implementation. All these themes are further subdivided into the following sub themes:

## Theme 1: Technological Skills

Within the framework of the 21<sup>st</sup> century education system, teachers do not simply convey knowledge, but must serve as facilitators of active and student-focused learning. The statistical analysis of the data has shown that the technological skills mastery is one of the fundamental elements demanded by teachers to create the interactive learning materials. These results bring out the relevance of teachers in the choice and use of technology based on the suitability of the content as well as in the acquisition of basic digital literacy skills.

### Selection of Technology Based on Content Suitability

With the help of technology, teachers stress selecting the technology that will correspond to the content of teaching and the level of the students. It is aligned with the concept of Technological Knowledge (TK) in the Technological, Pedagogical and Content Knowledge (TPACK) model that emphasizes the competencies of teachers to be able to access and manage technology in learning environments (Mishra and Koehler, 2006). One of the platforms that are widely used is Canva, PowerPoint, Google Slides and Kahoot which will support the effectiveness of content delivery and interactive engagement with a student. The results show that most of the teachers recognize the need to use technology intentionally in instruction design.

A respondent stated:

*“Kemahiran asas yang perlu dimiliki oleh guru bergantung juga pada kandungan pengajaran. Sebagai contoh, saya melihat bahawa kemahiran menggunakan platform seperti Canva sangat penting untuk guru mahir dalam membangunkan bahan pembelajaran interaktif yang menarik dan berkesan.” (R12)*

(“The basic skills that teachers need to possess also depend on the teaching content. For example, I see that the skill of using platforms such as Canva is very important for teachers to be proficient in developing interactive learning materials that are attractive and effective.”)

This view is further supported by another respondent who emphasized:

*“Guru kena mahir guna pelbagai aplikasi yang sedia ada. Kita boleh dedahkan aplikasi yang sesuai kepada pelajar mengikut kandungan yang mereka belajar.” (R8)*

(“Teachers need to be proficient in using various available applications. We can introduce suitable applications to students according to the content they are learning.”)

Both statements demonstrate that teachers are not only exposed to a variety of digital platforms but also adapt their use according to instructional needs. This finding is consistent with Al-Hariri and Al-Hattami (2017), who argued that selecting appropriate digital platforms enhances the effectiveness of teaching and promotes active student engagement.

### Basic Digital Literacy

Basic digital literacy is considered a key prerequisite for teachers in producing effective interactive learning materials. Teachers need to be confident in managing digital software and applications to transform ideas into instructional materials that are engaging and easy to understand.

One respondent explained:

*“Guru kena tahu dan pandai kemahiran berkomputer. Sekurang-kurangnya boleh edit dan buat slide di Canva, terutamanya untuk mengajar pelajar menengah rendah yang memerlukan pendekatan lebih interaktif.” (R11)*

(“Teachers need to know and be skilled in computer literacy. At least, they should be able to edit and create slides in Canva, especially for teaching lower secondary students who require a more interactive approach.”)

Another respondent added:

*“Kemahiran guna platform digital seperti Canva, PowerPoint, Google Slides, Genially, Kahoot, Quizizz sangat penting untuk menarik minat pelajar menengah rendah.” (R4)*

(“Skills in using digital platforms such as Canva, PowerPoint, Google Slides, Genially, Kahoot, and Quizizz are very important to attract the interest of lower secondary students.”)

These findings suggest that mastery of basic digital skills enables teachers to produce more creative learning materials that are relevant to students’ needs. According to Norazah et al. (2019), the ability of teachers to use educational technologies is a crucial factor in the formation of an environment of more active and interesting learning. This means that the teachers should be sensitive to changes in the field of educational technology and they should be ready to test new methods of content delivery.

The effectiveness of technology integration in teaching directly depends on the level of digital literacy of teachers as technologically literate teachers can develop more dynamic and engaging interactive materials. Thus, the ability of teachers to choose and learn the technological skills based on the appropriateness of the content as well as the necessity to achieve digital literacy becomes the burning point in the creation of interactive learning materials.

## **Theme 2: Methods for Enhancing Teachers’ Skills**

The analysis reveals that teachers employ various continuous approaches to strengthen their technological skills to develop effective interactive learning materials. Among the main strategies identified are participation in In-Service Training (*Latihan Dalam Perkhidmatan, LDP*) and collaborative learning with students.

### **In-Service Training (LDP)**

In the context of Malaysian schools, *Latihan Dalam Perkhidmatan* (LDP) functions as a formal professional development mechanism aimed at enhancing teachers’ pedagogical and technological competencies. LDP is an institutional initiative mandated by the Ministry of Education Malaysia (MOE) and is implemented at the school level by ICT coordinators and senior teachers with relevant domain expertise.

The content of LDP varies according to the needs of each school, but it commonly includes hands-on workshops on the use of digital tools (such as Canva, Google Workspace, Quizizz and Learning Management Systems), sessions on technology-integrated pedagogy, and collaborative activities that support teachers in lesson design and multimedia production. During these sessions, expert teachers demonstrate step-by-step procedures, provide guided practice and facilitate peer-sharing discussions to help participants explore and apply newly acquired skills. For many teachers, LDP serves as an accessible and practical platform for continuous skills development, particularly in schools with limited access to external training opportunities.

A respondent explained:

*“Kalau macam dekat sekolah ustazah ni ada buat LDP. Macam kami ada cikgu-cikgu pakar dalam bidang IT ni, jadinya yang pakar akan berkongsi ilmu IT kepada guru-guru lain. Kiranya banyak explore juga lah.” (R11)*

(“For example, at my school, we have LDP (in-service training). We have teachers who are experts in IT, so they will share their IT knowledge with other teachers. In a way, we get to explore a lot as well.”)

This approach reflects the practice of internal capacity building at the school level, which encourages the sharing of expertise and accelerates the mastery of technology among teachers. Continuous professional collaboration has the potential to enhance teachers’ confidence and effectiveness in integrating technology for pedagogical purposes (Darling-Hammond et al., 2017).

### **Collaborative Learning with Students**

In addition, teachers also enhance their technological skills through collaborative learning with students, particularly those with higher levels of digital literacy. In certain situations, teachers learn directly from students

about the use of applications or software, especially when carrying out technology-based tasks such as video presentations or interactive slides.

Respondent R12 noted:

*“Saya juga turut belajar daripada pelajar yang mahir dalam bidang ICT.” (R12)*

(“I also learn from students who are skilled in ICT.”)

An experienced teacher, Respondent R10, also shared:

*“Saya tak berapa mahir nak set-up dalam bilik komputer tu, selalunya pelajar lah yang akan tolong, ustazah pun belajar sikit-sikit dari pelajar cara nak guna apps, perisian teknologi yang ada.” (R10)*

(“I am not very skilled at setting up in the computer lab, usually the students will help me. I also learn little by little from them how to use apps and available technology software.” )

These findings highlight the occurrence of intergenerational learning within modern classrooms, where students play a role in assisting teachers with technical aspects and technology use. As emphasized by Greenhow et al. (2009), this two-way learning process allows teachers to understand students' perspectives on technology while simultaneously enhancing their self-efficacy.

Overall, methods for enhancing teachers' technological skills involve not only formal training, such as LDP but also informal, collaborative learning. This combination of approaches helps teachers remain relevant and adaptable to technological changes in the preparation of high-quality interactive learning materials.

### **Theme 3: Challenges in Implementing Teachers' Skills**

Although teachers possess basic technological skills and demonstrate commitment to developing interactive learning materials, classroom implementation often encounters multiple constraints. The key challenges identified include time constraints, limited technological facilities, workload demands and the need to adapt instructional strategies to students' proficiency levels.

#### **Time Constraints**

Time constraints represent one of the main barriers preventing teachers from consistently producing interactive learning materials. Despite their mastery of digital applications, teachers are often bound by the syllabus, school activities and student management responsibilities.

Respondent R11 stated:

*“Guru ni kena tahu dan pandai nak kendalikan kemudahan komputer, tapi masa yang kita ada tu kadang tak cukup nak siapkan bahan.” (R11)*

(“Teachers need to know and be able to manage computer facilities, but sometimes the time we have is not enough to prepare materials.”)

This was supported by Respondent R4, who explained:

*“... memang tak sempat sebab nak mengejar silibus lagi. Biasalah pelbagai program dan aktiviti sekolah yang bagi saya sedikit mengganggu jadual pengajaran.” (R4)*

(“... there really isn't enough time because we are also rushing to complete the syllabus. As usual, various school programs and activities, in my opinion, somewhat disrupt the teaching schedule.”)

Such challenges affect teachers' ability to prepare comprehensive interactive materials, especially when addressing the varied proficiency levels of students. To overcome this limitation, some teachers such as Respondent R10, took the initiative to organize additional classes:

*“Kekangan masa. Sampaikan buat tuisyen khas untuk pelajar... memang buat juga untuk tolong pelajar.” (R10)*

(“Time constraints. To the point that I had to conduct special tuition for the students... I really did it to help them.”)

The introduction of supplementary classes helps students strengthen their understanding in a more interactive and guided environment. These findings underscore the need for teachers to adjust lesson planning amid time constraints a challenge commonly noted in studies of technology integration (Lim et al., 2024).

### **Limited Technological Facilities**

Technological tools such as smartboards, smart TVs, tablets, computers, projectors and internet access are essential requirements in 21st-century teaching. However, their use is often restricted due to equipment breakdowns, limited space or the necessity of making advance bookings.

Respondent R3 noted:

*“Yang menjadi cabaran ketika ini dari sudut fasiliti lah. Sekolah kami agak kecil dan terhad jika semua pelajar ingin menggunakananya. Tambahan, baru-baru ni Smart TV yang sedia ada rosak dan perlu diselenggara segera.” (R3)*

(“The current challenge is in terms of facilities. Our school is relatively small and limited if all students want to use them. Moreover, recently the available Smart TV was damaged and needed immediate maintenance.”)

Respondent R11 also shared:

*“Cuma kekangannya bila alatan terhad, cikgu kena berebut la buat tempahan bilik ICT.” (R11)*

(“The constraint is when the equipment is limited, teachers end up having to compete to book the ICT room.”)

These limitations directly affect the smooth implementation of interactive learning and require teachers to plan to secure access to the necessary equipment. Several initiatives have been introduced to help mitigate these limitations, including MOE's Digital Education Policy (2023–2030), efforts to upgrade ICT facilities and the gradual provision of digital devices to schools. However, the effectiveness of these initiatives varies depending on school location, available budget and institutional priorities. Consequently, teachers continue to face challenges in securing consistent access to technological tools, highlighting the need for more targeted support for SABK schools.

### **Teachers' Workload**

Teachers today are burdened with various responsibilities beyond teaching, including administrative tasks, co-curricular management and program reporting. This situation restricts the time that can be allocated for planning and developing interactive learning materials.

Respondent R6 explained:

*“... iya betul. Cikgu lani banyak tugas-tugas lain yang kena buat kat sekolah... tugasan guru penasihat kelab, urus wakil pelajar bertanding, nak kena buat laporan program, nak kena isi data macam-macam la.” (R6)*

(“Yes, that's true. Teachers nowadays have many other tasks to do at school... being a club advisor, managing student representatives for competitions, preparing program reports and filling in all sorts of data.”)

Several teachers also highlighted that last-minute instructions from administrators are a significant challenge to their instructional planning. Such instructions often involve requests to prepare reports or serve as committee members for school programs. When these tasks are assigned unexpectedly and require completion within a short period, they disrupt teaching plans and reduce the time available to develop or improve interactive materials.

### Adapting Instructional Strategies

The findings also reveal that teachers consider the diversity of students' proficiency levels when planning Arabic language learning activities. They must adapt interactive teaching strategies according to students' abilities. This approach involves selecting suitable activities to ensure that all students whether weak, average or advanced can participate actively.

Respondent R8 explained:

*“Saya susun aktiviti ikut empat kemahiran. Saya akan lantik pelajar yang okey sikit (cemerlang) sebagai mentor untuk bantu pelajar yang lemah. Ada juga buat aktiviti lakonan, hiwar dan aktiviti berkumpulan untuk galakkan semua pelajar bercakap dalam bahasa Arab.” (R8)*

(“I organize activities according to the four language skills. I appoint students who are more advanced (excellent) as mentors to help weaker students. I also conduct role plays, dialogues and group activities to encourage all students to speak in Arabic.”)

Respondent R9 added:

*“Saya biasanya mulakan kelas dengan tasmik tasrif dulu, lepas tu baru susun aktiviti ikut kemahiran. Jadi pelajar boleh kuasai satu-satu kemahiran dengan lebih jelas.” (R9)*

(“I usually begin the class with *tasmik tasrif* first and then I organize activities based on the language skills. This way, students can master each skill more clearly.”)

Such practices align with cooperative learning strategies, which not only strengthen the proficiency of high-achieving students but also provide opportunities for weaker students to improve their skills through peer guidance. Teachers are therefore required to possess المهارات التكيفية (*adaptive skills*) in planning technology-assisted learning activities that align with the realities of school contexts and available facilities (Abdel Hamid, A. F. (2010).

## DISCUSSION

The findings of this study confirm that technological skills form the foundation for Arabic language teachers in producing interactive learning materials. This is consistent with the TPACK framework (Mishra & Koehler, 2006), which emphasizes the integration of technological, pedagogical, and content knowledge in teaching. In this study, the teachers showed their understanding that they needed to choose digital tools like Canva, PowerPoint, Kahoot and Quizizz depending on the content and the level of students proficiency. The result supports previous studies of Al-Hariri and Al-Hattami (2017) that found that the successful adoption of technology improves student engagement and learning processes. However, the research also suggests that digital literacy among the teachers is not evenly spread, especially in the process of getting used to new applications. This brings about the need to expose and train on a continuous basis to make teachers competent in utilizing technology in instructional design.

The findings also show that educators go out of their way to seek ways of improving their competencies through in-service training (LDP) and cooperative learning with pupils. This is an illustration of the significance of formal and informal professional development in enhancing technological competence. In line with the research conducted by Darling-Hammond et al. (2017), the current study supports the idea that continued professional learning communities play a crucial role in maintaining the confidence of the teachers regarding the issue of

technology integration. Interestingly enough, intergenerational learning turned out as a viable approach in which teachers were benefiting out of the digital skills of the students, creating a two-way process of knowledge sharing. This finding indicates that technology-enhanced teaching is not a one-way process but rather a co-learning ecosystem, which makes teachers and students co-learners.

The full implementation of interactive learning materials is hindered by some major challenges despite these efforts. Teachers have huge workloads, inadequate facilities and time and the issues raise by Norazah et al. (2019) and Lim et al. (2024) are reflected by the idea that these institutional constraints make teaching less innovative. These challenges are further aggravated by the need to align interactive strategies with the varying proficiency levels of the diverse students that compels teachers to have adaptive instructional-planning abilities. This demonstrates the need of systemic support by the school administrators, policymakers and other stakeholders. The lack of proper infrastructure, decreased administrative overheads and professional growth with a specific focus will limit the ability of teachers to implement interactive materials in a sustainable manner. Therefore, as individual teacher competence is paramount, institutional support and policy interventions are also paramount in terms of bringing the proven advantages of interactivity to the practices in the classroom on a regular basis.

## CONCLUSION

This study concludes that the ability of Arabic language teachers to come up with interactive teaching resources is directly related with their technological competence, their professional growth and development of the institution. Teachers express the realization of the significance of the correct choice of digital tools in accordance with the material and student level. Meanwhile, cooperative education and multi-generational knowledge exchange enhance their flexibility in a more computerized educational environment. Nevertheless, challenges such as workload, time constraints and limited facilities remain significant barriers. Thus, stakeholders, including school administrators and policymakers need to provide adequate infrastructure, reduce administrative burdens, and design targeted training programs. In doing so, teachers will be better equipped to deliver sustainable, interactive and effective Arabic language learning experiences.

## REFERENCES

1. Abdel Hamid, A. F. (2010). *Al-tajnūlujiyā al-ta'līmiyyah bayna al-nazariyyah wa-al-taṭbīq* [Educational technology between theory and practice]. Cairo: Dar al-Fikr al-‘Arabi.
2. Ahmad, Nurul & Rathakrishnan, Mohan. (2025). Digital Technology Integration in Teaching and Learning Among Teachers in Kedah, Malaysia. *International Journal of Instruction, Technology and Social Sciences*. 4. 83-94. <https://doi.org/10.47577/ijitss.v4i.144>
3. Al-Hariri, M. T., & Al-Hattami, A. A. (2017). Impact of Students' Use Of Technology On Their Learning Achievements In Physiology Courses At The University Of Dammam. *Journal of Taibah University Medical Sciences*, 12(1), 82–85.
4. Bahroom, R., Ismail, H. N., & Yusoff, M. Z. (2021). Integrasi Teknologi Dalam Pengajaran Bahasa Arab: Isu Dan Cabaran Dalam Kalangan Guru Sekolah Menengah. *Jurnal Pendidikan Bahasa Arab*, 11(2), 33–45.
5. Braun, V., & Clarke, V. (2006). Using Thematic Analysis In Psychology. *Qualitative Research In Psychology*, 3(2), 77-101.
6. Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective Teacher Professional Development. *Learning Policy Institute*.
7. Greenhow, C., Robelia, B., & Hughes, J. E. (2009). Learning, Teaching, and Scholarship in a Digital Age: Web 2.0 and Classroom Research: What Path Should We Take Now? *Educational Researcher*, 38(4), 246–259.
8. Hamid, M. F. A., et al. (2024). Application of Fuzzy Delphi Method in Designing Interactive Infographic Module for Learning Arabic Grammar. (International Journal/conference paper, 2024).
9. Ismail, M. R., Ghazali, A. R., & Latif, K. a. A. (2025). Integrasi Teknologi Dalam Pembangunan E-Kamus Wazifiy: Analisis Keperluan Dan Implikasi. *Malaysian Online Journal of Education*, 9(1), 126–140. <https://doi.org/10.53840/attarbawiy.v9i1.276>

10. Lim, G. F. C., Jalil, N., & Omar, M. (2024). Pengintegrasian Teknologi Dalam Pendidikan: Cabaran Guru [Contrastive Analysis Technological Integration In Education: Challenges for educators]. *International Journal of Modern Languages and Applied Linguistics*, 8(1), 49–67.
11. Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108(6), 1017–1054.
12. Norazah, M. N., Azizah, J., Wong, S. L., & Rosnaini, M. (2019). Teachers' readiness to use technology in the classroom: An empirical study. *Asian Journal of University Education*, 15(3), 1–14.
13. Nowawi, N. L. M., & Ahmad, N. A. (2023). Malay Language Learning for Kindergarten Students through Interactive Web-based Application. *International Journal of Academic Research in Progressive Education and Development*, 12(2), 351–363.
14. Riwanda, A. (2024). Empowering Asynchronous Arabic Language Learning using Hyperlinked PDF / online media. *International Review of Research in Open and Distributed Learning*
15. Saad, M. L. I. H. M., Baharim, A., Razimi, R., & Juaini, J. (2023). Kaifa Haluka Comic: Facilitating Arabic Language Learning through Innovative and Interactive Technology. *Malaysia Journal of Invention and Innovation*.