



Characteristics of Arabic Language Learning in Indonesia Era 4.0

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Abstract

Arabic language learning in Indonesia has undergone a significant transformation in the era of industrial revolution 4.0. Based on technological developments and changes in learner behavior, the background of this research includes several things, such as the development of digital technology that affects learning methods, changes in learner behavior that are more likely to be digital-native, continuous development of learning media, and the need for learning that is relevant to global developments and integration with other fields. This research aims to comprehensively examine the characteristics of Arabic language learning in the context of the digital era. The type of research used is a literature study. This research identifies subsections of Arabic language learning that are relevant to the use of technology. The research participants consisted of various written sources such as books, journals, and scientific articles that discuss Arabic language learning in the digital era. This method updates previous findings and identifies new trends in Arabic language learning. The research design used is descriptive qualitative, which allows the researcher to describe the characteristics and dynamics of Arabic language learning in depth. The results show some of the main characteristics of Arabic language learning in the 4.0 era, including: (1) Intensive use of technology, including mobile learning applications, e-learning platforms, and multimedia; (2) Curriculum adaptation that integrates 21st century skills and prepares students for global challenges; (3) Innovation of learning methods such as blended learning and adaptive learning; (4) Development of interactive digital learning media; and (5) Changes in the evaluation system towards computer-based assessment and authentic assessment. Although this transformation opens up new opportunities in Arabic language teaching, there are challenges such as the digital divide and the readiness of educators that need to be addressed. This study concludes that the characteristics of Arabic language learning in the 4.0 era show a shift towards a more dynamic and technology-based approach, but still emphasize the importance of integrating cultural values and local wisdom in the educational process. This research contributes significantly to mapping the landscape of Arabic language learning in the digital era. However, there are ample opportunities for further research, especially in the aspects of evaluating the effectiveness of media use, developing more focused learning models, and exploring and applying the latest technology. It is also hoped that future research will use a more diverse sample, covering various backgrounds and age groups, so as to produce more comprehensive findings on the development of Arabic language learning along with technological advances.

Keywords: Arabic Language Learning, Digital Technology, Era 4.0

ملخص

شهد تعلم اللغة العربية في إندونيسيا تحولاً كبيراً في عصر الثورة الصناعية ٤.٠. وترتكز خلفية هذا البحث على التطورات التكنولوجية والتغيرات في سلوك المتعلم، وتتضمن خلفية هذا البحث عدة أمور، مثل تطور التكنولوجيا الرقمية التي تؤثر على أساليب التعلم، والتغيرات في سلوك المتعلم الذي يميل أكثر إلى أن يكون رقمياً، والتطور المستمر لوسائط التعلم، والحاجة إلى التعلم المرتبط بالتطورات العالمية والتكامل مع المجالات الأخرى. يهدف هذا البحث إلى دراسة شاملة لخصائص تعلم اللغة العربية في سياق العصر الرقمي. أما نوع البحث المستخدم فهو دراسة أدبية. يحدد

هذا البحث الأقسام الفرعية لتعلم اللغة العربية ذات الصلة باستخدام التكنولوجيا. ويتكون المشاركون في البحث من مصادر مكتوبة متنوعة مثل الكتب والمجلات والمقالات العلمية التي تناقش تعلم اللغة العربية في العصر الرقمي. وتعمل هذه الطريقة على تحديث النتائج السابقة وتحديد الاتجاهات الجديدة في تعلم اللغة العربية. تصميم البحث المستخدم هو تصميم نوعي وصفي يسمح للباحثين بوصف خصائص وديناميكيات تعلم اللغة العربية بعمق. تُظهر النتائج بعض الخصائص الرئيسية لتعلم اللغة العربية في عصر ٤.٠، بما في ذلك: (١) الاستخدام المكثف للتكنولوجيا، بما في ذلك تطبيقات التعلم عبر الهاتف المحمول ومنصات التعلم الإلكتروني والوسائط المتعددة؛ (٢) تكييف المناهج الدراسية التي تدمج مهارات القرن الحادي والعشرين وتهيئ الطلاب لمواجهة التحديات العالمية؛ (٣) الابتكار في أساليب التعلم مثل التعلم المدمج والتعلم التكيفي؛ (٤) تطوير وسائط التعلم الرقمية التفاعلية؛ (٥) التغييرات في نظام التقييم نحو التقييم القائم على الحاسوب والتقييم الحقيقي. وعلى الرغم من أن هذا التحول يفتح فرصًا جديدة في تدريس اللغة العربية، إلا أن هناك تحديات مثل الفجوة الرقمية وجاهزية المعلمين التي تحتاج إلى معالجة. تخلص هذه الدراسة إلى أن خصائص تعلم اللغة العربية في عصر ٤.٠ تظهر تحولًا نحو نهج أكثر ديناميكية وقائم على التكنولوجيا، ولكنها لا تزال تؤكد على أهمية دمج القيم الثقافية والحكمة المحلية في العملية التعليمية. يقدم هذا البحث إسهامًا كبيرًا في رسم خريطة لمشهد تعلم اللغة العربية في العصر الرقمي. ومع ذلك، لا تزال هناك العديد من الفرص لإجراء المزيد من البحوث، خاصة في جوانب تقييم فعالية استخدام الوسائط، وتطوير نماذج تعليمية أكثر تركيزًا، بالإضافة إلى استكشاف أحدث التقنيات وتطبيقها. ومن المأمول أيضًا أن تستخدم البحوث المستقبلية عينة أكثر تنوعًا، تغطي مختلف الخلفيات والفئات العمرية، وذلك للخروج بنتائج أكثر شمولًا حول تطور تعلم اللغة العربية جنبًا إلى جنب مع التقدم التكنولوجي.

الكلمات المفتاحية: تعليم اللغة العربية، عصر ٤.٠، التكنولوجيا الرقمية

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Introduction

Arabic language learning in Indonesia has undergone a significant transformation along with the development of digital technology in the era of the industrial revolution 4.0.¹ Era 4.0, which is characterized by the development of advanced technologies such as the Internet of Things (IoT), big data, and artificial intelligence (AI), has had a significant impact on various aspects of life, including education. In this context, it is important to understand the characteristics of Arabic language learning in Indonesia, including how digital technology is integrated into the learning process so that Arabic language learning in Indonesia must also adapt to these changing times to remain relevant

¹ Adin Hamzah and Al-Arif and Septi Gumindari, "Pembelajaran Bahasa Arab di Era Digital: Tantangan Implementasi, dan Peluang," *Jurnal Ilmu Pendidikan* 2, no. 7 (2024): 987-98. <https://jip.ioln.org/index.php/pendidikan/article/view/273>

and effective. The basis of this research focuses on the influence of digital technology on methods, media, and interactions in Arabic language learning, as well as the challenges faced by educators and students. In addition, this research also draws on literature related to the use of technology in foreign language learning, especially in the context of the 4.0 era.² Arabic language learning in Indonesia has increased along with technological advances and the demands of the era of the industrial revolution 4.0. As one of the international languages, Arabic is used in various fields of life, such as education, economics, and diplomacy.³ Because Arabic in Indonesia is not only studied as a foreign language that has strategic value in the global context.⁴

The era of industrial revolution 4.0 is characterized by the integration of digital technology in various sectors, including education. With technology brings significant changes in the characteristics of Arabic language learning in Indonesia.⁵ The use of information and communication technology (ICT) in Arabic language learning is a must to improve the effectiveness and efficiency of the teaching-learning process.⁶ Innovations in learning methods, such as blended learning, mobile learning, and adaptive learning, have opened up new opportunities in Arabic language teaching that are more interactive, personalized, and learner-oriented.⁷

However, the implementation of technology in Arabic language learning in Indonesia faces various challenges. The digital divide between regions, the readiness of educators, and the need for curriculum adaptation are critical issues that need to be addressed.⁸ In addition, the integration of cultural values and local wisdom in technology-based Arabic language learning is also an important aspect that needs to be considered.⁹

Curriculum adaptation and the development of teaching materials in accordance with the characteristics of the 4.0 era are also the focus of attention of Arabic language educators. The Arabic language learning curriculum needs to be redesigned to integrate 21st century skills, such as critical thinking, creativity, collaboration, and communication, and prepare learners to face global challenges.¹⁰ The development of digital competency standards in Arabic language learning is also an urgent need to ensure graduates have skills that are relevant to the demands of the digital era.

The purpose of this study is to identify the characteristics of Arabic language learning in Indonesia in the 4.0 era, as well as to analyze the integration of digital technology in the Arabic

² Syindi Oktaviani R. Tolinggi, "Pembelajaran Bahasa Arab di Indonesia pada Era Revolusi Teknologi Tak Terbatas (Strengths, Weaknesses, Opportunities, and Threats)," *An-Nabighoh* 23, no. 1 (2021): 33–50. DOI: <https://doi.org/10.32332/an-nabighoh.v23i1.2231>

³ Kamaluddin Abunawas, *Perkembangan Bahasa Arab di Dunia*, (Tangerang Selatan: Yayasan Dar El-Ihsan, 2022), hlm. 230.

⁴ A. W. Rosyidi, *Pembelajaran Bahasa Arab di Indonesia: Teori dan Praktik*, (Malang: UIN Maliki Press, 2018), hlm. 21.

⁵ Samsuar A. Rani, "Pembelajaran Bahasa Arab Berbasis Teknologi Informasi dan Komunikasi," *AT-TA'DIB: Jurnal Ilmiah Prodi Pendidikan Agama Islam* 9, no. 2 (2017): 163–77. <https://www.ejournal.staindirundeng.ac.id/index.php/tadib/article/view/14/3>

⁶ T Taufik, *Strategi Pembelajaran Bahasa Arab di Era Digital*, (Jakarta: Prenadamedia Group, 2020), hlm. 43.

⁷ Azkia Muharom Albantani and Ahmad Madkur, "Musyabadat Al Fidyin: YouTube-Based Teaching and Learning of Arabic as Foreign Language (AFL)," *Dinamika Ilmu* 17, no. 2 (2017): 219–308. <https://eric.ed.gov/?id=EJ1169438>

⁸ Kamaluddin Abunawas, *Perkembangan Bahasa Arab di Dunia*, (Tangerang Selatan: Yayasan Dar El-Ihsan, 2022), hlm. 230.

⁹ Nadya Silva Nurhanifah, "Problematika Mahasiswa Bahasa Arab dalam Meningkatkan Kemahiran Menulis Bahasa Arab," *Semnasbama* 5, no. 1 (2021): 643–50. <https://prosiding.arab-um.com/index.php/semnasbama/article/view/838/787>

¹⁰ Suharto, *Pendidikan Islam di Era Revolusi Industri 4.0*, *SALIHA: Jurnal Pendidikan & Agama Islam*, 2, no. 2 (2019): 107-114. DOI: <https://doi.org/10.54396/saliha.v2i2.33>

language learning process. This research also aims to provide recommendations for curriculum development and learning methods that are more effective in facing the challenges and opportunities offered by the 4.0 era. By understanding these characteristics, it is hoped that new ways can be found to improve the effectiveness of Arabic language learning in Indonesia.

This research offers an update in the form of digital technology integration in Arabic language learning. The use of interactive learning applications, e-learning, LMS (Learning Management System) platforms, social media for collaborative learning, multimedia (audio-visual) content, flipped classroom methods, virtual reality (VR), and augmented reality (AR) are some examples of innovations recommended in this research.¹¹

Evaluation and assessment of Arabic language learning in the 4.0 era has also undergone significant changes. The use of technology allows the implementation of computer-based assessment and adaptive assessment that can provide faster and more accurate feedback on student learning progress. In addition, authentic assessment that combines language skills with digital competencies is becoming a new trend in Arabic language learning evaluation.¹²

As a comparison, there are several previous studies that are relevant to this research. First, the use of technology in Arabic Language Learning in Indonesia which examines the utilization of technology in Arabic language learning.¹³ Second, implementation of Arabic learning methods: case study in PJJ PAI IAIN Sheikh Nurjati Cirebon which examines the implementation of distance learning methods using e-learning in Arabic language learning.¹⁴ Third, Arabic language education curriculum in the dynamics of education history in post-independence Indonesia which examines the development of the Arabic language learning curriculum in Indonesia which is influenced by technological advances.¹⁵ Fourth, development of Arabic language learning in Indonesia at 19th - 21st century which examines the development of Arabic language learning in Indonesia ranging from methods, curriculum and media that develop over time.¹⁶ Fifth, Arabic language learning in the digital age which examines the challenges of implementation, and opportunities for Arabic language learning in the digital age.¹⁷

The characteristics of Arabic language learning in the 4.0 era reflect a shift from conventional methods towards a more dynamic and technology-based approach. The use of digital platforms, language learning applications, artificial intelligence, and virtual reality is beginning to color the

¹¹ Meisil Yanda, "Pengembangan Kurikulum Pendidikan Bahasa Arab Berbasis Kompetensi di Era Pendidikan 4.0," *Jurnal Review Pendidikan dan Pengajaran (JRPP)* 7, no. 1 (2024): 6285–93. <https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/download/36493/23824/120593>

¹² A.W. Rosyidi, *Pembelajaran Bahasa Arab di Indonesia: Teori dan Praktik*, (Malang: UIN Maliki Press, 2018), hlm. 21.

¹³ Muhammad Azhar et al., "Penggunaan Teknologi dalam Pembelajaran Bahasa Arab di Indonesia," *Jurnal Review Pendidikan dan Pengajaran* 6, no. 4 (2023): 3160–64. <https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/20984/15794>

¹⁴ Muhammad Shohibul et al. Anwar, "Implementasi Metode Pembelajaran Bahasa Arab: Studi Kasus di PJJ PAI LAIN Syekh Nurjati Cirebon," *Al-Jawhar: Journal of Arabic Language* 1, no. 1 (2023): 54–69. DOI: <https://doi.org/10.69493/ajoa.v1i1.13>

¹⁵ Iis et al. Susiawati, "Kurikulum Pendidikan Bahasa Arab dalam Dinamika Sejarah Pendidikan di Indonesia," *Tarbiyatuna Kajian Pendidikan Islam* 8, no. 1 (2024): 073. DOI: <https://doi.org/10.69552/tarbiyatuna.v8i1.1927>

¹⁶ Adin Hamzah Al-Arif and Septi Gumindari, "Pembelajaran Bahasa Arab di Era Digital: Tantangan Implementasi dan Peluang," *JIP: Jurnal Ilmu Pendidikan* 2, no. 7 (2024): 987–98. <https://jip.iain.org/index.php/pendidikan/article/view/273/248>

¹⁷ Nur Laila Azizah et al., "Development of Arabic Language Learning in Indonesia at 19th – 21st Century," *Jurnal Al Bayan: Jurnal Jurusan Pendidikan Bahasa Arab* 16, no. 1 (2024): 219. DOI: <https://doi.org/10.24042/albayan.v16i1.22767>

landscape of Arabic language education in Indonesia.¹⁸ This phenomenon not only changes the way material is delivered, but also how learners interact with learning content and fellow learners.

This research aims to comprehensively examine the characteristics of Arabic language learning in Indonesia in the context of the 4.0 era. The main focus of the research is on changes in the learning paradigm, the use of digital technology, innovation in teaching methods, curriculum development and teaching materials, as well as challenges and opportunities faced in the implementation of technology-based Arabic language learning. The results of this study are expected to contribute to the development of Arabic language learning strategies and policies that are more adaptive and responsive to the demands of the digital era, as well as enriching the literature on foreign language learning in the era of the industrial revolution 4.0.

Based on a systematic literature review of previous research, there are several studies that have examined the implementation of technology in Arabic language learning. Amadi and Dina identified significant improvements in students' Arabic language skills through the use of digital learning platforms.¹⁹ Meanwhile, Fazri and Hernawan found a positive correlation between the use of technology-based learning media and motivation to learn Arabic.²⁰ However, there is still a gap in research related to the specific characteristics of Arabic language learning in the digital era, especially in the context of education in Indonesia.

The theoretical foundation of this research is built from the integration of several fundamental theories, including the theory of second language learning (Second Language Acquisition Theory) proposed by Krashen,²¹ constructivism learning theory in a digital context developed by Siemens,²² as well as the theory of connectivism that is relevant to learning in the digital era.²³ These theories provide a conceptual framework for understanding how technology can be effectively integrated in Arabic language learning.

The relevance of this research is all the more crucial given the strategic position of Arabic in the context of education in Indonesia, both as a religious language and an international language. In the era of globalization and digital transformation, Arabic language proficiency integrated with technological skills is an important component in preparing a globally competitive generation.

The focus of this research is to identify and analyze the characteristics of Arabic language learning in Indonesia in the 4.0 era. This research will examine various aspects of learning methodology and media, how technology can support the learning process and how it impacts student learning outcomes. Some of the research questions to be answered include: (1) What are the

¹⁸ A Ahmadi, "The Use of Technology in English Language Learning: A Literature Review," *International Journal of Research in English Education* 3, no. 2 (2018): 115–25. DOI: <https://doi.org/10.29252/ijree.3.2.115>

¹⁹ Aunur Shabur, Maajid Amadi, and Dina Wilda Sholikha, "Perkembangan Pendidikan Bahasa Arab di Era Digital: Sistematis Literature Review," *Jurnal Motivasi Pendidikan dan Bahasa* 1, no. 3 (2023): 301–9. DOI: <https://doi.org/10.59581/jmpb-widyakarya.v1i3.1112>

²⁰ Fajri Nur Ihsan and Acep Hermawan, "Perkembangan Teknologi Media Pembelajaran Bahasa Arab," *Jurnal Ilmiah Pendidikan Bahasa Arab* 4, no. 2 (2023): 158–78. DOI: <https://doi.org/10.52166/alf.v4i2.4795>

²¹ Nurlaila, "Konsep Pemerolehan Bahasa dan Implikasinya Terhadap Pembelajaran Bahasa," *Jurnal Studi Pendidikan* 12, no. 1 (2020): 47–64. DOI: <https://doi.org/10.47625/fitrah.v12i1.349>

²² Damai Ari Kontesa and Endang Fauziati, "Teori Connectivism dan Implikasinya Terhadap Pemanfaatan E-Learning dalam Pembelajaran di Sekolah Dasar," *Jurnal Mitra Swara Ganesha* 9, no. 2 (2022): 117–26. <https://ejournal.utp.ac.id/index.php/JMSG/article/view/2156>

²³ Dirgantara Wicaksono and Agus Suradika, "Desain Pembelajaran Berbasis Teori Konektivisme : Kertas Kerja Evaluasi Kurikulum di Prodi Magister Teknologi Pendidikan Universitas Muhammadiyah Jakarta," *Jurnal Perspektif* 2, no. 1 (2022): 22–30. DOI: <https://doi.org/10.53947/perspekt.v2i1.537>

characteristics of Arabic language learning in the 4.0 era in Indonesia? (2) How is the effectiveness of using technology in improving learners' Arabic language competence? (3) What are the challenges and opportunities faced in the implementation of technology-based Arabic language learning?

Based on the theoretical and empirical studies that have been conducted, the hypothesis is formulated that the characteristics of Arabic language learning in the 4.0 era show a pattern that is more interactive, collaborative, and oriented towards the use of digital technology. The hypothesis further states that the implementation of technology in Arabic language learning is positively correlated with the improvement of students' linguistic competence, digital literacy, and 21st century skills, besides that technology can help overcome limited access to Arabic language teaching in areas far from higher education centers.

This research is expected to make a significant contribution to the development of Arabic language learning models that are adaptive to the demands of the digital era, as well as answering various challenges in the implementation of Arabic language learning in Indonesia. The results of this research are also projected to be a reference in the development of Arabic language learning policies and practices in the era of the industrial revolution 4.0.

Method

This research uses a qualitative approach with a descriptive design. This design was chosen because it aims to provide an in-depth and comprehensive description of the “characteristics of Arabic language learning in Indonesia in the 4.0 era”. According to Guba in Salim and Syahrul, the skinative research method is interpreted by the term Naturalistic Inquiry because the prominent feature of skinative research is the way of observing and collecting data carried out in a natural setting, meaning without manipulation of the subject under study as it is, according to Bhangu, skinative research methods refer to investigative techniques that rely on non-statistical and non-numerical methods of data collection, analysis, and production of evidence.²⁴

This sub-section of the research includes collecting data from various written sources, such as books, journals, theses, theses, and relevant websites. These data sources provide information about the development of Arabic language learning, as well as the media and methods used in the learning process. This research does not involve participants or subjects directly. Instead, the object of research is relevant written sources, which are used to analyze and describe the characteristics of Arabic language learning in Indonesia in the 4.0 era. The data used are official documents, curricula, textbooks, journals, papers, and related records.

The research design used is a descriptive design, which aims to describe in detail and accurately the characteristics of Arabic language learning, as well as the developments and challenges faced in teaching the language in Indonesia in the 4.0 era. This design allows the researcher to systematically organize information and provide a deeper understanding of the topic under study. Data collection techniques are carried out by literature study and documentation study. Literature study research is research that collects data from various literature documents, research results, journals and research that has been conducted by previous researchers.²⁵ Documentation studies

²⁴ Saputra Adiwijaya, *Buku Ajar Metode Penelitian Kualitatif*, ed. Efitra, (Jambi: PT. Sonpedia Publishing Indonesia, 2024), hlm. 4-6. www.buku.sonpedia.com

²⁵ Kiki Kustina et al., “*The Intercultural Aspek of Teaching Arabic as a Foreign Language in Indonesia*,” *Mantiqutayr: Jurnal of Arabic Language* 4, no. 1 (2024): 279–93. DOI: <https://doi.org/10.25217/mantiquatayr.v4i1.4086>

were conducted by collecting, analyzing, and interpreting historical documents relevant to the research topic. To ensure the validity and reliability of the research, a data source triangulation technique will be applied. This involves combining and matching information from different data sources, such as historical documents, literature and previous research.²⁶ In addition, the data analysis process will involve collaboration between the researcher and experts in the field of Arabic language learning to ensure accurate and objective interpretations.

This research will provide a comprehensive picture of the characteristics of Arabic language learning in Indonesia in the 4.0 era with a special focus on the learning media and methods used. The researcher's findings are expected to provide valuable insights for practitioners, researchers, and policy makers in an effort to improve the quality and effectiveness of Arabic language teaching in Indonesia.

Result and Discussion

The industrial revolution 4.0 has brought about a fundamental paradigm shift in Indonesia's education system. The analysis shows that digital transformation not only affects the technical aspects of learning, but also fundamentally changes the way people perceive the essence of education. Empirical data indicates that Indonesia needs to accelerate the development of human resource competencies, especially in facing the challenges of education in the digital era.²⁷

The research findings reveal an urgent need for comprehensive reforms in various aspects of education. This reform includes three main dimensions: technology-based curriculum development, improving educators' digital competencies, and optimizing the use of technology in the learning process. Analysis of curriculum implementation shows that STEM (Science, Technology, Engineering, and Mathematics) learning orientation is crucial in preparing students for the industrial era 4.0.²⁸

Observations of learning practices in the field indicate that curriculum development has undergone a significant transformation by integrating Information and Communication Technology (ICT), Internet of Things (IoT), big data, and computerization components. This integration not only serves as a learning supplement, but has become an integral component in creating graduates who are competitive at the global level.²⁹

Analysis of educator competencies reveals the importance of mastering soft skills in the implementation of contemporary learning methods.³⁰ Data shows that the effectiveness of learning in the digital era is highly dependent on educators' ability to develop learning that is student-

²⁶ Vandarusni Alfansyur and Mariyani, "Seni Mengelola Data : Penerapan Triangulasi Teknik , Sumber dan Waktu pada Penelitian Pendidikan Sosial," *Historis* 5, no. 2 (2020): 146–50. DOI: <https://doi.org/10.31764/historis.v5i2.3432>

²⁷ Nabilah Purba, Mhd Yahya, and Nurbaiti, "Revolusi Industri 4.0 : Peran Teknologi dalam Eksistensi Penguasaan Bisnis dan Implementasinya," *Jurnal Perilaku dan Strategi Bisnis* 9, no. 2 (2021): 91–98. DOI: <https://doi.org/10.26486/jpsb.v9i2.2103>

²⁸ Syamsuar and Reflianto, "Pendidikan dan Tantangan Pembelajaran Berbasis Teknologi Informasi di Era Revolusi Industri 4.0," *E-TECH Jurnal Ilmiah Teknologi Pendidikan* 6, no. 3 (2018): 1–13. DOI: <https://doi.org/10.24036/et.v2i2.101343>

²⁹ Hari Mantik, "Revolusi Industri 4.0: Internet of Things, Implementasi pada Berbagai Sektor Berbasis Teknologi Informasi (Bagian 1)," *Jurnal Sistem Informasi Universitas Suryadarma* 9, no. 2 (2014): 21–19. DOI: <https://doi.org/10.35968/jsi.v9i2.919>

³⁰ Baginda Sitompul, "Kompetensi Guru dalam Pembelajaran di Era Digital," *Jurnal Pendidikan Tambusai* 6, no. 3 (2022): 13953–60. DOI: <https://doi.org/10.31004/jptam.v6i3.4823>

centered, collaborative and contextual. This approach is proven to be more effective in facilitating knowledge transfer and learner character building.

The research findings also identify significant challenges faced by educators in adapting digital technology as a learning instrument. The results of the analysis show that the success of educational transformation in the 4.0 era is highly dependent on educators' ability to integrate digital technology into the learning process effectively and meaningfully.

The way people view education has changed due to the industrial revolution 4.0. Therefore, Indonesia must improve the abilities and skills of its human resources to prepare for the challenges of education in the industrial revolution 4.0 era. Every aspect of education needs to be adjusted and changed to undergo changes including curriculum development, improving teachers' skills and abilities, and utilizing technology in the teaching and learning process. meaningful learning and learning that incorporates the values of everyday life.

A. Characteristics of Arabic Language Learning in Indonesia Era 4.0

The characteristics of Arabic language learning in Indonesia Era 4.0 are characterized by the development of technology, media, curriculum adaptation, learning methods, digital competency development and natural resources. This is because as the times develop, technology is increasingly rampant in life including the world of education. As for some characteristics of Arabic language learning in Indonesia, among others:

1. Technology utilization in learning

The utilization of technology in education has become an important factor in addressing current developments. In the field of Arabic language learning, the introduction of technology is considered a necessity to develop and improve the effectiveness of education. There is a significant change in the Arabic teaching and learning process and to create a more dynamic, interactive, and effective learning experience, where students can listen, speak, read and write using Arabic in their daily lives.³¹

Arabic language learning uses learning technology by using various kinds of media such as Power Point Slides, Canva, Google Slides, and other media to support student presentation and understanding. The use of Zoom Meeting and Google Meet is an alternative to face-to-face classroom learning meetings. This began since the co-19 pandemic which requires learning to continue with the help of technology. Thus Google Teams and Google Classroom are utilized as platforms for independent learning. In its application, the teaching and learning process using Zoom Meeting successfully attracts students' attention. During the teaching and learning process, students are expected to participate interactively and simulatively to pronounce the vocabulary that has been taught by the teacher.³²

The following are the benefits of technology for Arabic language learning: Global Accessibility, where technology allows global access to Arabic learning materials. Students can independently access materials, practice questions, and other resources anywhere. Thus, making it

³¹ Muhammad Azhar et al., "Arabic Language Learning Progress in Darussakinah Batu Bersurat Islamic Boarding School," *Lisanan Arabiya : Jurnal Pendidikan Bahasa Arab* 6, no. 2 (2022): 285–307. DOI: <https://doi.org/10.32699/liar.v6i2.3499>

³² Almi Novita and Munawir Munawir, "Media Pembelajaran Bahasa Arab Berbasis Teknologi Informasi Komunikasi pada Pembelajaran daring di Sekolah Dasar," *Edukatif: Jurnal Ilmu Pendidikan* 4, no. 1 (2022): 1378–86. DOI: <https://doi.org/10.31004/edukatif.v4i1.1947>

easier for students to learn Arabic. Through the Digital Learning app, this media allows students to learn individually, the app offers students some content that suits the level of ability. Teachers can recommend applications for practice to help students deepen their Arabic knowledge, the use of Multimedia such as video and audio will help students in understanding and mastering speaking and listening skills using Arabic. The use of multimedia is able to improve students' understanding in understanding vocabulary and grammar, so the role of language learning is very important in teaching foreign languages,³³ online collaboration allows students to interact with fellow Arabic language learners around the world.

This improves their communication skills and makes them familiar with different languages and types of communication. This is usually done by internationally-based schools which have Lastly, to track students' learning progress, there is a digital management system that allows teachers to track students' progress.³⁴ In addition, students should be given targets so that they continue to improve in learning Arabic.

2. Arabic Language Learning Media

Along with technological advances, the use of media in learning must be adjusted to current developments. Teachers must be familiar with advanced technology. Teachers must switch from relying only on makeshift media to appropriate media such as posters equipped with audio visuals, laptops/computers, video projectors, the internet as a form of learning. In the form of digital dictionaries, Arabic learning platforms and so on for better media innovation.

The use of media connected to the internet to guide students in accessing Arabic websites and links, such as YouTube to learn examples of Arabic usage by native speakers, and so on. However, the teacher must check carefully whether the selected content is correct or not.

Here are some media that can be used for learning Arabic:

a. WhatsApp

WhatsApp as a medium for learning Arabic and is a selected aspect in the utilization of learning media in the 4.0 era. In the industrial era 4.0, learning must be accompanied by the utilization of technology that makes it easier for teachers and students to carry out Arabic teaching and learning activities.

This application allows teachers to create groups or chat rooms for students and organize topics of teaching and learning activities, such as exchanging some incomplete sentences, then asking students to complete orally or in written WhatsApp.³⁵ Al Salem argues that there is a group service in WhatsApp where learning is enhanced by discussing certain topics offered by the teacher. With that, a good learning environment will increase students' learning motivation.³⁶

³³ Muhammad Azhar, Hakmi Wahyudi, and Promadi Promadi, "Arabic Language Learning with Communicative Method and Factors Affecting Student's Speaking Ability," *Takuana: Jurnal Pendidikan, Sains, dan Humaniora* 1, no. 2 (2022): 92–101. DOI: <https://doi.org/10.56113/takuana.v1i2.33>

³⁴ E. Melati et al., "Pengaruh Metode Pengajaran Berbasis Teknologi Terhadap Kemampuan Berbicara dalam Pembelajaran Bahasa Ingris di Sekolah Menengah," *Jurnal Review Pendidikan dan Pengajaran (JRPP)* 6, no. 4 (2023): 14–20. <https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/19618>

³⁵ Muhammad Arif Mustofa, "Analisis Penggunaan WhatsApp Sebagai Media Pembelajaran Bahasa Arab di Era Industri 4.0," *Arabiyatuna : Jurnal Bahasa Arab* 4, no. 2 (2020): 333. DOI: <https://doi.org/10.29240/jba.v4i2.1805>

³⁶ Basma Issa Ahmad Alsaleem, "The Effect of 'WhatsApp' Electronic Dialogue Journaling on Improving Writing Vocabulary Word Choice and Voice of EFL Undergraduate Saudi Students," *Arab World English Journal* 4, no. 3 (2013): 213–25. <https://www.researchgate.net/profile/Basmah-Alsaleem>

b. Quiz app in online learning

Kahoot is a learning game that makes students more interested in learning Arabic. Assessment using this software will help motivate and stimulate students' learning spirit through interesting assessments.

Kahoot was created in August 2013 and is used in 180 countries. This game is used worldwide in educational programs, is cross-platform, accessible to all ages and can be used by people to play online using a desktop or laptop computer.³⁷

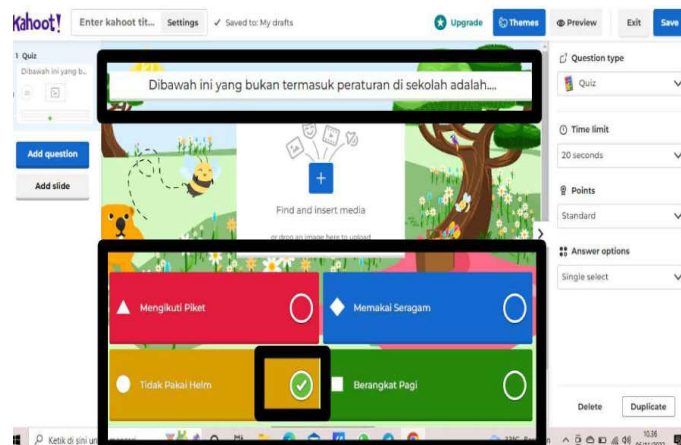


Figure 1. Kahoot App for Arabic Language Learning

Based on figure 1, it is found that kahoot application can be one of the interesting alternatives to improve the quality of Arabic language learning in the digital era. However, keep in mind that the use of technology such as kahoot must be balanced with other learning methods so that the learning process becomes more complete and effective.

c. Mobile Learning Apps

These learning apps such as Duolingo, Memrise, and Busuu provide interactive Arabic language courses that can be accessed through smartphones.³⁸

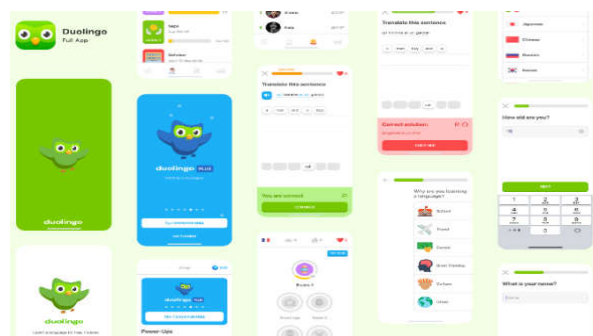


Figure 2. Duolingo Application

[2/publication/349830602 The Effect of WhatsApp Electronic Dialogue Journaling on Improving Writing Vocabulary Word Choice and Voice of EFL Undergraduate Saudi Students/links/604299da92851c077f1a8e26/The](https://doi.org/10.32699/liar.v4i2.1256)

³⁷ Nur Apriyanti Atika and Muassomah Muassomah, "Penggunaan Media Kahoot! Sebagai Media Pembelajaran Maharah Kitabah (Imla') Bahasa Arab di Era Industri 4.0," *Lisanan Arabiya: Jurnal Pendidikan Bahasa Arab* 4, no. 2 (2020): 277–97. DOI: <https://doi.org/10.32699/liar.v4i2.1256>

³⁸ M Ritonga, A Nazir, and S Wahyuni, "Pembelajaran Bahasa Arab Berbasis Teknologi Informasi dan Komunikasi di Kota Padang," *Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaan* 3, no. 1 (2016): 1–12. DOI: <https://doi.org/10.15408/a.v3i1.2879>

Based on figure 2, it is found that duolingo is an effective application to learn foreign languages independently in a fun and interactive way, this application offers flexibility, personalization, and a variety of features to support the learning process.

Duolingo has successfully created an innovative and accessible language learning platform. With engaging features and a personalized approach, it has helped millions of people around the world learn a new language.

The use of mobile media is increasingly visible in various parts of the world. With the power of portable computing in everyone's hands, it is time to use mobile devices in education. Mobile devices are an important part of a large set of ICT education platforms.³⁹

The development of a computer-aided learning platform involves several interrelated steps, namely problem analysis, design, testing and mass production. Each job has a different function. The recommended practice in learning platform development is described as follows:

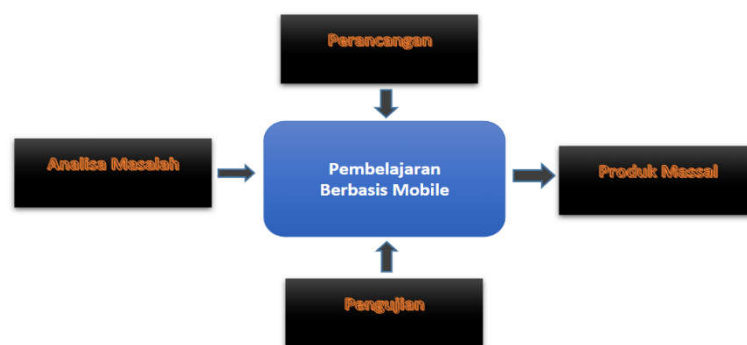


Figure 3. Learning Media Development Procedure

Based on Figure 3, it is found that the process of developing mobile-based learning media involves a series of interrelated stages. Starting from careful planning, creating interesting content, to continuous evaluation. The main goal of this process is to produce learning media that is effective, efficient, and in accordance with the needs of students.

d. E-learning Platform

The use of platforms such as Moodle, Google Classroom, or local platforms to provide Arabic learning materials online.⁴⁰ Video Learning using platforms such as YouTube to provide Arabic learning videos.

e. Social Media

The utilization of social media such as Instagram, Twitter, and Facebook in informal Arabic language learning.⁴¹ Which with all these social media students often access and implement them into life. In these social media, several Arabic songs can be inserted as well as the delivery of vocabulary in the form of conversations and songs. With this, students are more interested so that students tend to easily memorize new vocabulary.

³⁹ Heri Budiyanto, "Perangkat Mobile," Journal TIK 3, no. 2 (2016): 147. DOI: <https://doi.org/10.25126/jtiik.201632190>

⁴⁰ A. M. Albatani and A. Madkur, "Musyabadat Al Fidyu': Youtube Based Teaching and Learning of Arabic as Foreign Language (AFL)," Dinamika Ilmu 17, no. 2 (2017): 291–308. <https://eric.ed.gov/?id=EJ1169438>

⁴¹ A Ahmadi, "The Use of Technology in English Language Learning: A Literature Review," International Journal of Research in English Education 3, no. 2 (2018): 115–25. DOI: <https://doi.org/10.29252/ijree.3.2.115>

f. Augmented Reality (AR) and Virtual Reality (VR)

The utilization of AR and VR technology in creating an immersive Arabic learning environment. Augmented Reality (AR) technology can be utilized for the teaching and learning process. AR can form a visualization of concepts that are not easily understood. By seeing and communicating with three-dimensional shapes, diagrams, and illustrations used to explain difficult aspects of learning.

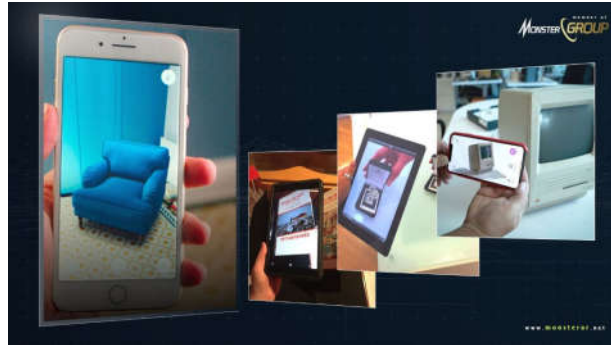


Figure 4. Using AR for Learning

Based on figure 4, it is found that overall, this figure highlights the huge potential of AR in revolutionizing the way we learn. With AR, learning becomes more visual, interactive and fun. However, keep in mind that the use of AR in learning also has some challenges such as cost, device availability and content quality.

In addition, AR can be utilized as an enhancement in collaborative learning. Learners can exchange experiences about AR with their teammates, do projects together, and learn from each other and provide tools for students to be more creative in education. Learners can design AR projects individually, produce interactive content, and express understanding through innovative media.⁴²

The utilization of Virtual Reality (VR) Technology for learning has successfully opened up several opportunities in improving learning and understanding of complex aspects. Using VR will take learners to places that are far away and unreachable in real life.



Figure 5. Using VR for Learning

⁴² Azura Team, “Manfaat Teknologi VR dan AR dalam Pendidikan,” Azura Labs, 2023. <https://azuralabs.id/blog-programming/manfaat-teknologi-vr-dan-ar-dalam-pendidikan>

Based on figure 5 above highlights the great potential of VR in revolutionizing the way we learn. With VR learning becomes more interesting, effective and flexible. However, similar to AR, the use of VR in learning also has some challenges such as cost, content availability and technical issues.

In addition, VR can also be utilized in making simulations of real situations. Learners can attend virtual classes by using VR headsets for learners who are unable to attend.⁴³

g. Digital Dictionaries and Translation Apps

The use of digital dictionaries and translation applications such as Google Translate to assist vocabulary learning and text comprehension.⁴⁴ Although translation applications are considered less effective for translating long sentences in the form of paragraphs, google translate helps students in acquiring new vocabulary.

h. Interactive Whiteboard

The use of interactive whiteboards in the classroom to increase interactivity in Arabic language learning.⁴⁵ This platform provides a space for discussion that encourages students to interact and work together on assignments, thus providing a learning experience and improving communication between students and teachers. In addition, it makes it easier for teachers to prepare students for exams.

3. Curriculum Adaption

The curriculum changes from time to time, some people say curriculum changes are due to changes and amendments made by the government. Currently, there is a new curriculum, namely the Merdeka curriculum, while the independent curriculum is used to determine the appropriate form of Arabic language learning curriculum and to find out the implementation of the independent curriculum carried out in various Madrasah.

The curriculum in Indonesia made changes and improved the previous curriculum, starting in 1947, 1964, 1968, 1973, 1975, 1984, 1994, 1997 (revised 1994 curriculum), 2004 curriculum (Competency Based Curriculum), 2006 curriculum (Education Unit Level Curriculum), 2013 curriculum (kurtilas), then the government made changes and revised it again in 2018 to become a better curriculum. And what is currently used is the Merdeka curriculum.⁴⁶

The Arabic language learning curriculum has three parts (cognitive, affective and psychomotor) and at the same time is balanced with the psychological development of students. In addition, the focus of PAI and Arabic language subjects does not prioritize understanding of social aspects of society, but rather creates knowledge with authentic learning.⁴⁷

⁴³ Azura Team, "Manfaat Teknologi VR dan AR dalam Pendidikan," Azura Labs, 2023. <https://azuralabs.id/blog-programming/manfaat-teknologi-vr-dan-ar-dalam-pendidikan>

⁴⁴ Ahmad Habibi Syahid, "Bahasa Arab Sebagai Bahasa Kedua (Kajian Teoretis Pemerolehan Bahasa Arab pada Siswa Non-Native)," *Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaaraban* 6, no. 2 (2014): 197–213. DOI: <https://doi.org/10.15408/a.v2i1.1797>

⁴⁵ M. A. Mustofa and H. Muhamad, "Penggunaan Media Pembelajaran Bahasa Arab di Era Revolusi Industri 4.0," *Lisanuna: Jurnal Ilmu Bahasa Arab dan Pembelajarannya* 10, no. 1 (2020): 44–53. <https://jurnal.ar-raniry.ac.id/index.php/lisanuna/issue/view/674>

⁴⁶ Novalia Indriyani, Rahmi Hanifah, and Yanti Fitria, "Penilaian Autentik pada Kurikulum Merdeka Belajar dalam Pembelajaran Ilmu Pengetahuan Alam (IPA) di Sekolah Dasar," *Pedas : Jurnal Ilmiah Pendidikan Dasar* 8, no. 1 (2023): 28–48. DOI: <https://doi.org/10.23969/jp.v8i1.6930>

⁴⁷ Darul Qutni and Muchlisin Nawawi, "Telaah Kurikulum Bahasa Arab SLTP dan SLTA di Era New Normal Provinsi Jawa Tengah," *Lisanul Arab: Jurnal of Arabic Learning and Teaching* 11, no. 1 (2022): 17. DOI: <https://doi.org/10.15294/la.v11i1.57653>

Adjustment of the Arabic language learning curriculum with learning objectives in the 21st century using a scientific approach, real skills and student character development in schools and KKNI in universities. To answer the current challenges, Darisy revealed the need to set appropriate standards in the Arabic language curriculum that not only focuses on material or content and skills, but also on technological and industrial developments. Making Arabic graduates become more qualified human resources and able to withstand the impact of technological developments⁴⁸ and can implement in the life to come.

4. Learning Methods

Arabic learning methods are divided into two categories based on their intended use, namely conventional and unconventional.⁴⁹ Conventional methods or classic methods that have long been used by teachers such as the grammar translate method, direct method, reading method, silent method, social language learning method, whole body response method, Mim-Mem method (Mimicry-Memorization Method), language listening method, eclectic method, etc. As for the unconventional method, it is defined as a method whose comprehension is new.

As for the unconventional method, it is defined as a method whose understanding is new in learning, such as Suggestopedia, The silent Way, and so on. Suggestopedia method is a method based on two considerations, namely, the role of the human brain in conscious or unconscious learning and students learn faster than other methods.

As mentioned, Arabic teaching methods have progressed significantly, but those who use conventional methods, especially the grammar translate method, are still practiced by teachers. There are many reasons for using this method, including the paradigm of educators who think that Arabic can be mastered if students understand grammar, so this method is considered the best to teach it. Educators must innovate to combine the grammar translate method with other methods so that learning remains in line with the latest curriculum and sophisticated technology.⁵⁰

B. Challenges and Opportunities in Arabic Language Learning Using Technology Era 4.0

1. Challenges of Arabic Language Learning in the Era of Transformation 4.0

In this digital revolution era, there are many benefits gained from technological advances, especially in the field of education, so many people want to take advantage of these developments. However, it cannot be denied that there are many obstacles that hinder its utilization in education.⁵¹

The challenges of learning Arabic in the era of transformation 4.0 involve several important aspects that need attention. One of the main challenges is the scarcity of Arabic teachers and their quality being the two main issues affecting the quality of education. In this issue, the analysis includes assessing teacher training, understanding effective teaching methods and efforts to improve teachers' ability to meet the needs of students from various backgrounds. To meet the KKM

⁴⁸ Nurhidayati, "Media Power Point dan Pemanfaatannya dalam Proses Pembelajaran Bahasa Arab," *Prosiding Konferensi Nasional Bahasa Arab V* 5, no. 5 (2019): 463–70. <http://prosiding.arab-um.com/index.php/konasbara/article/view/515>

⁴⁹ Nasution and Sakholid, "Metode Konvensional dan Inkonvensional dalam Pembelajaran Bahasa Arab," *Jurnal Ilmiah DIDAKTIKA* 12, no. 2 (2012): 259–71. DOI: <https://doi.org/10.22373/jid.v12i2.452>

⁵⁰ Achmad Kunto Widagdo, "Hasil Pembelajaran dengan Metode Konvensional dan Metode Tutor Sebaya," Universitas Negeri Semarang, 2010. <https://lib.unnes.ac.id>

⁵¹ Amin Akbar and Nia Noviani, "Tantangan dan Solusi dalam Perkembangan Teknologi Pendidikan di Indonesia," *Prosiding Seminar Nasional Program Pascasarjana Universitas PGRI Palembang*, no. 2019: Seminar Nasional Pendidikan 03 Mei 2019 (2019): 18–25. <https://jurnal.univpgri-palembang.ac.id/index.php/Prosidingpps/article/view/2927>

(Minimum Completeness Criteria), educators must have the knowledge and skills to implement digital tools and resources in the classroom. In other words, teachers must be able to understand the topics of both scientific and information technology topics that are used and taught to students.⁵²

As Darius Yonata said in his research, the challenges in education in the current technological era are most students who do not have access to technology, limited tools, internet connections, and learning media. The inequality of internet access between developed and remote areas creates problems. Some school students have Android-based cellphones that allow them to follow online learning. In addition, many of the parents said that there is no cost to buy online data package.⁵³

Developing the right technology and content in Arabic language learning is another challenge that will transform Arabic language teaching and learning in the digital era. Limited infrastructure and learning opportunities can affect the quality of Arabic education. It is important to ensure the availability of learning spaces, technological equipment and other learning resources to determine the extent to which these facilities can support Arabic language learning.⁵⁴

It is important to develop digital technology in education, but technology cannot always replace direct interaction between teachers and students in the learning process. In the context of e-learning, although many Arabic language learning applications are available, many of them are less effective because they only focus on one aspect, such as vocabulary or grammar, without covering language skills as a whole.⁵⁵ This is due to the lack of involvement of Arabic language experts in the development of the application, so the quality of the material delivered is often not in accordance with the correct language rules. Therefore, involving Arabic language experts in app development is essential to ensure the materials taught are appropriate and comprehensive, and cover all language skills such as speaking, listening, reading and writing.⁵⁶ That way, the app can provide an optimal learning experience and help users achieve a better mastery of Arabic.

Data security and privacy refers to the protection of students' and teachers' academic and personal information involved in online learning. It includes protection against unauthorized access, misuse of data, and keeping sensitive information confidential. Data security and privacy in technology-based Arabic language learning consists of several aspects, such as: account security by ensuring user accounts in the online learning platform are protected from unauthorized access. Data security and privacy issues related to the use of online learning platforms should be highly

⁵² Muhammad Aspi, and Syahrani, "Profesional Guru dalam Menghadapi Tantangan Perkembangan Teknologi Pendidikan," Adiba: Journal of Education 2, no. 1 (2022): 64–73. <https://adisampublisher.org/index.php/adiba/article/view/57>

⁵³ F. S. Nama, D. Y., & Tanggur, "Disparitas Media Pembelajaran pada Era Digitalisasi Pendidikan di Wilayah Perbatasan Ri-Rdtl (Refleksi Pembelajaran Online Daerah Perbatasan)," Pendidikan Teknologi Informasi (JUKANTI) 5, no. (2) (2022): 295–305. DOI: <https://doi.org/10.37792/jukanti.v5i2.797>

⁵⁴ U Manan, A., & Nasri, "Tantangan dan Peluang Pendidikan Bahasa Arab: Perspektif Global," Ilmiah Profesi Pendidikan 9, no. 1 (2024): 256–265. DOI: <https://doi.org/10.29303/jipp.v9i1.2042>

⁵⁵ S. Haq, "Pembelajaran Bahasa Arab di Era Digital: Problematika dan Solusi dalam Pengembangan Media," MUKADIMAH: Jurnal Pendidikan, Sejarah, dan Ilmu-Ilmu Sosial 7, no. (1) (2023): 211–222. [https://scholar.google.com/scholar?lookup=0&q=S.+Haq,+\"Pembelajaran+Bahasa+Arab+Di+Era+Digital:+Problem+atika+Dan+Solusi+Dalam+Pengembangan+Media,\"+MUKADIMAH:+Jurnal+Pendidikan,+Sejarah,+Dan+Ilmu-Ilmu+Sosial+7\(1\)+\(2023\):+211-222&hl=id&as_sdt=0.5](https://scholar.google.com/scholar?lookup=0&q=S.+Haq,+\)

⁵⁶ S. T. Andini, "Faktor-Faktor yang Mempengaruhi Lemahnya Kemampuan Peserta Didik dalam Memahami Bahasa Arab Kelas VIII MTs DDI Lero Kec. Suppa Kab. Pinrang [Institut Agama Islam Negeri (LAIN) Parepare]," In Jurnal Berkala Epidemiologi, 2020. <https://repository.iainpare.ac.id/id/eprint/2751/>

considered. Educational institutions must ensure student data is protected and not misused.⁵⁷ Data encryption is responsible for protecting data by converting it into a code that is difficult to crack.⁵⁸ As well as regulatory compliance with laws and regulations related to data privacy.⁵⁹

2. Arabic Language Learning Opportunities in the Age of Technologi 4.0

In the era of Technology 4.0, digital technology plays an important role in facilitating access to Arabic language learning. With various mobile applications, online videos, and multimedia platforms, people can now learn Arabic anytime and anywhere. This provides an opportunity for anyone to deepen their knowledge of Arabic without having to go to an educational institution. A variety of quality learning materials can also be accessed online, allowing learners to improve their abilities in vocabulary, grammar, and other language.⁶⁰

In addition, cooperation between educational institutions is also one of the important solutions in overcoming the challenges of education in the digital era. Cooperating Arabic language colleges can share resources and knowledge, and develop curricula that are more relevant to technological developments. This collaboration not only improves the quality of education, but also helps equalize access to education, so that Arabic language learning can be attended by students from all over the world. Through this collaboration, students can utilize technology to learn Arabic without geographical limitations, making it more accessible to everyone.⁶¹

Technology has also brought innovation in the way we learn Arabic. Interactive apps and digital media allow learning to be more innovative and communicative. This approach encourages students to interact directly with learning materials through various digital resources such as e-books, videos and social media. Teachers can also utilize these technologies to adopt a communicative approach to teaching, so that students can practice speaking and communicating in Arabic directly. This makes learning more interesting and effective, and helps students to understand Arabic more easily.⁶²

With the opportunities offered by technology, Arabic language learning is now more accessible and flexible. Collaboration between educational institutions and the use of digital technology has opened up greater access to education, and enabled learning to be more innovative and communicative. All of this gives learners around the world the opportunity to learn Arabic in a more efficient and enjoyable way.

From some of these explanations, the results found by researchers from various findings are:

⁵⁷ M. Ritonga, A. Nizar, and S. Wahyuni, “Pembelajaran Bahasa Arab Berbasis Teknologi Informasi dan Komunikasi di Era 4.0,” *Jurnal Pendidikan Bahasa Arab* 3, no. (1) (2016): 71–86. DOI: <http://eprints.umsb.ac.id/id/eprint/258>

⁵⁸ Muhammad Faheem Musthaq, Sapicee Jamel, and Zahraddeen Abubakar Pindar, “A Survey of Encryption Algorithms and Their Use in Information Security,” *International Journal of Advanced Computer Science and Applications* 8, no. 11 (2017): 333–44. DOI: <https://doi.org/10.14569/IJACSA.2017.081141>

⁵⁹ Christina Tikkinen-Piri, Anna Rohunen, and Jouni Markkula, “EU General Data Protection Regulation: Changes and Implications for Personal Data Collecting Companies,” *Computer Law & Security Review* 34, no. 1 (2018): 134–153. DOI: <https://doi.org/10.1016/j.clsr.2017.05.015>

⁶⁰ R. L. (n.d.). Isnaini, “Optimalisasi Manajemen Sarana Pembelajaran Bahasa Arab di Era Digital: Tantangan dan Peluang. *Pertemuan Ilmiah Internasional Bahasa Arab (PINBA)*,” *Prosiding Pertemuan Ilmiah Internasional Bahasa Arab (PINBA)* 14, no. (1) (2023): 1234–48. <http://www.prosiding.jmla.or.id/index.php/pinba/article/view/431>

⁶¹ Herdah, *Kolaborasi dan Elaborasi dalam Pembelajaran Bahasa Arab*, 2020. [https://repository.iainpare.ac.id/id/eprint/2959/1/Kolaborasi dan Elaborasi dalam Pembelajaran Bahasa Arab.pdf](https://repository.iainpare.ac.id/id/eprint/2959/1/Kolaborasi%20dan%20Elaborasi%20dalam%20Pembelajaran%20Bahasa%20Arab.pdf)

⁶² A. Budiriyanto and S. Putra, “Model Pembelajaran Bahasa Arab di Era Globalisasi Melalui Pendekatan Komunikatif Digital,” *Prosiding Seminar Internasional Peluang dan Tantangan Perguruan Tinggi di Era Industri 4.0 dan Society 5.0* 1(1) (2023): 152–158. <https://publikasiilmiah.unwahas.ac.id/icon/article/view/10577>

Table 1. Characteristics of Arabic Language Learning in the Era of Industrial Revolution 4.0

Aspects	Changes
Learning Objectives	to develop learners' abilities, including soft and hard skills at primary, secondary, or tertiary school levels.
Curriculum	Adjusts to the direction and goals of 21st century learning, including the scientific approach, approach, character development and life skills in the school world, and KKNi at the university stage.
Learning Methodology	From traditional methods to modern methods, such as the grammar translate methods, the lecture method has become a method that can activate the class and make students more creative.
Learning Media	Teacher media in the learning module has the addition of audio-visual based media, such as projectors, computers, the internet (macromedia flash, e-learning, google classroom, etc.) and applications (android applications, digital applications (language corpus).
Evaluation	Evaluation is faced with three domains: affective, cognitive, and psychomotor. In addition, it has changed from pencil-based tests (written tests) to real tests (results, portfolios, self-evaluations, journals, personality assessments).

Based on the table above 1, the characteristics of Arabic language learning in Indonesia in the 4.0 era have progressed in the education system in Indonesia. Judging from the aspects of goals in learning, curriculum, learning methods, learning media and assessment. The characteristics of Arabic language learning in the era of industrial technology are learning objectives and the development of interpersonal skills and technical skills in students, a curriculum that is adjusted to learning objectives that contain a scientific approach, character reconstruction and authentic skills, modernization of learning methods such as translation and grammar methods, lecture methods are replaced with methods that can activate the class and build creativity, learning media are more widespread and rely on advanced technology and learning evaluations that are shifted from written exams to other outputs that can develop student skills.

In this discussion, there are implications obtained from the research, namely a shift in learning objectives, learning curriculum, methods used by teachers, more varied learning media and learning evaluations that do not refer to academic tests alone.

There are limitations in the preparation of this article, namely the widespread characteristics of Arabic language learning in Indonesia in the era 4.0 make the author must further underline which aspects have been implemented. Thus, the researcher suggests for future research to focus more on one aspect so that research can systematically and deeply examine the characteristics of modern Arabic language learning.

From this study, researchers found some interesting findings such as 1). Technology utilization that identifies the types of technology that can be used in learning Arabic, such as applications, online platforms, social media, or educational games. 2). Intensive use of technology, including mobile learning applications, e-learning platforms, and multimedia; (3) Innovation in learning methods such as blended learning and adaptive learning; (4) Development of interactive digital learning media; 5) Learning characteristics, with the rapid development of technology, students' learning styles are more dominant in the digital generation in the context of learning. Arabic language learning and the factors that influence motivation to learn Arabic, such as relevance to daily life, interest, and environmental support. 6) Curriculum and learning materials, the level of

relevance of the curriculum and learning materials to the needs of the labor market and the times as well as how far the curriculum has integrated the use of technology in learning and the need to develop more interesting, interactive, and project-based learning materials. 7) Challenges and opportunities such as the digital divide, the quality of connectivity, the level of digital literacy and potential opportunities for developing Arabic language learning innovations utilizing technology.

This research makes a significant contribution in understanding the characteristics of Arabic language learning in Indonesia in the 4.0 era. However, this research lacks in-depth investigation of the influence of technology on students' learning motivation and the lack of research on how the effective use of learning media relates. For future research, it is recommended to focus on the use of more varied media that suit the needs of students and create a learning model that combines face-to-face and online approaches. In addition, how effective is the use of new technology and its impact in improving Arabic language skills. It is also expected that future research uses a more diverse sample, covering various backgrounds and age groups, so as to produce more comprehensive findings on the development of Arabic language learning along with technological advances.

Closing

Arabic language learning in Indonesia has undergone a significant transformation in line with technological advances and the demands of the times. The 4.0 era brings changes in learning objectives, which now focus more on developing students' abilities, both soft skills and hard skills. The curriculum also needs to be adjusted to integrate 21st century skills and better prepare students for global challenges. The use of technology for learning has become a fundamental aspect, with the adoption of methods such as blended learning, mobile learning, and adaptive learning that create a more interactive and personalized learning experience. Learning media now includes a variety of digital tools, such as learning apps, e-learning platforms and multimedia, that support effective teaching and learning. However, the implementation of this technology faces challenges, including the digital divide between regions and the readiness of educators. Therefore, curriculum adaptation as well as the development of relevant teaching materials are important to ensure that Arabic language learning can run well throughout Indonesia. Finally, learning evaluation has also changed with the implementation of computer-based assessment and authentic assessment that is more relevant to students' abilities in the digital era. Overall, the characteristics of Arabic language learning in the 4.0 era show a shift towards a more dynamic and technology-based approach, as well as emphasizing the importance of integrating cultural values and local wisdom in the educational process. Research on the characteristics of learning in Indonesia in the 4.0 era is very important to read for several reasons such as, understanding the changes, knowing the development of technology, knowing the different types of applications in learning, improving the quality of education, identifying challenges and finding opportunities. In other words, this research is a roadmap for us to navigate in the ever-changing world of education. By understanding this roadmap, we can take the right steps to ensure that education in Indonesia remains relevant and quality.

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