

Challenges and Opportunities for the Utilization of Android Technology in Arabic Language Learning

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ABSTRAK

Pemanfaatan teknologi Android dalam pembelajaran Bahasa Arab semakin relevan pada era digital karena menyediakan media belajar yang fleksibel, mudah diakses, dan mendukung variasi metode pengajaran. Namun, implementasinya di lingkungan pendidikan Islam masih menghadapi sejumlah kendala. Penelitian ini bertujuan untuk mengidentifikasi tantangan serta peluang penggunaan teknologi Android dalam pembelajaran Bahasa Arab di Islamic Centre Bin Baz Yogyakarta. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi kasus, melibatkan guru dan siswa sebagai informan. Data dikumpulkan melalui observasi pembelajaran, wawancara mendalam, dan dokumentasi aktivitas penggunaan aplikasi Android selama proses belajar mengajar. Data dianalisis melalui reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa tantangan utama meliputi keterbatasan literasi digital guru, akses internet yang tidak stabil, kontrol kelas yang lebih sulit ketika siswa menggunakan perangkat Android, serta distraksi tinggi yang dapat mengganggu konsentrasi belajar. Meskipun demikian, penelitian menemukan peluang signifikan, seperti akses sumber belajar yang lebih beragam, peningkatan kompetensi digital guru, fleksibilitas pembelajaran tanpa batas tempat dan waktu, serta terciptanya pengalaman belajar yang lebih menarik melalui fitur interaktif aplikasi. Teknologi Android memiliki potensi besar untuk meningkatkan efektivitas pembelajaran Bahasa Arab, asalkan didukung dengan peningkatan kompetensi guru dan penguatan infrastruktur pendukung.

Abstract

The use of Android technology in learning Arabic is increasingly relevant in the digital era because it provides flexible learning media, is easily accessible, and supports a variety of teaching methods. However, its implementation in the Islamic education environment still faces a number of obstacles. This study aims to identify challenges and opportunities for the use of Android technology in Arabic language learning at the Bin Baz Islamic Center Yogyakarta. This study uses a qualitative approach with a case study method, involving teachers and students as informants. Data was collected through learning observations, in-depth interviews, and documentation of Android app usage activities during the teaching and learning process. Data is analyzed through data reduction, data presentation, and conclusion drawn. The results of the study show that the main challenges include limited teachers' digital literacy, unstable internet access, more

difficult classroom control when students use Android devices, and high distractions that can interfere with learning concentration. However, the research found significant opportunities, such as access to more diverse learning resources, improved teachers' digital competence, learning flexibility without time and place, and the creation of a more engaging learning experience through the app's interactive features. Android technology has great potential to increase the effectiveness of Arabic language learning, as long as it is supported by improving teacher competence and strengthening supporting infrastructure.

Introduction

The development of digital technology in the last decade has brought fundamental changes in various aspects of life, including in the world of education. The advancement of mobile devices, especially Android-based technology, has created great opportunities to improve the quality of learning at various levels of education. In the context of language learning, the use of Android technology provides space for teachers and students to utilize interactive media, learning applications, and internet-based learning resources that can enrich the learning process. Arabic as one of the subjects that requires mastery of the four main skills *isti'mā'*, *kalām*, *qirā'ah*, and *kitābah* has great potential to be developed through the support of these technologies. Arabic language learning in Islamic educational institutions is currently required to be more adaptive, innovative, and responsive to the times. The Bin Baz Islamic Center as one of the educational institutions that has an orientation to strengthening religious knowledge, including Arabic, recognizes the importance of integrating technology in the learning process. The use of Android devices such as smartphones and tablets is starting to be looked at as a means to enrich teaching methods, create a more interesting learning atmosphere, and facilitate students to learn more independently and flexibly. However, the use of this technology does not always run smoothly. In practice, teachers face various challenges related to digital competence, infrastructure, and students' readiness to utilize technology.

On the other hand, the use of Android technology also opens up significant opportunities in improving the quality of Arabic learning. Applications such as digital dictionaries, online learning platforms, interactive videos, and educational games can help students understand the material more easily and fun. Through technology, teachers have the opportunity to enrich teaching methods, expand learning resources, and increase student interaction and engagement in learning. However, the reality on the ground shows that there is a gap between the potential of Android technology and real implementation in learning. Some teachers still do not fully master the use of educational applications, while some students have limitations in accessing devices or internet networks. In addition, the use of technology in learning often faces obstacles related to student learning discipline, distractions from non-learning features, and limited school policies in regulating the use of gadgets. It is in this context that qualitative research on "Challenges and Opportunities for the Utilization of Android Technology in Arabic Language Learning at the Bin Baz Islamic Centre" becomes relevant and important to be conducted. This study seeks to explore in depth how Arabic teachers utilize Android technology in teaching and learning activities, what obstacles they face, and what opportunities can be developed to improve the quality of learning in the future. Through a qualitative approach, this study emphasizes a more comprehensive understanding of teachers' subjective experiences, learning situations, and interaction dynamics that occur during the learning process.

In this study, the main problem to be studied departs from the need to understand more deeply how Android technology is actually used in learning Arabic at the Bin Baz Islamic Center. This research wants to explore the various obstacles experienced by teachers when trying to integrate Android devices into the teaching process, both related to aspects of competencies, facilities, and the condition of students. At the same time, this study also seeks to uncover various opportunities that arise from the use of this technology—including the potential to increase learning effectiveness, expand learning resources, and strengthen student interaction and motivation. Thus, the focus of the problem formulation in this study is focused on understanding what challenges arise in the use of Android technology for learning Arabic and what opportunities can be optimized from the presence of this technology in the context of learning at the Bin Baz Islamic Center. This research is significant because there are not many local studies that specifically discuss the integration of Android technology in Arabic learning based on teacher experience in Islamic educational institutions. In addition, the results of this research are expected to be a reference for educational institutions, especially the Bin Baz Islamic Centre, in designing training and policies that better support the use of digital technology. The impact of this research is not only felt by teachers and students, but also by institutions as a whole in an effort to improve the quality of learning in line with the needs of today's digital generation.

Thus, the use of Android technology in Arabic learning is not just a trend, but a need that must be responded to strategically by educators and educational institutions. Through this research, it is hoped that various insights can be found that help answer challenges, optimize opportunities, and encourage the creation of Arabic language learning that is more effective, interactive, and relevant to the times.

Theoretical Studies

Android Technology

Android technology is a Linux-based operating system developed by Google with an *open source* concept that allows developers to create and modify various applications freely. Android was designed specifically for mobile devices such as smartphones and tablets, and has now become the most widely used mobile operating system in the world. According to Purcell (2017), the popularity of Android is not only due to its open nature, but also to its flexibility in running various applications, including applications that support educational activities. Android's architecture consisting of kernel layers, runtime, libraries, and application frameworks gives devices the ability to manage multimedia, data storage, internet networks, and user interactions very effectively. In the context of education, Android technology is becoming increasingly relevant because it provides a very broad application ecosystem that is easily accessible to students and teachers alike. The Google Play Store offers a variety of educational applications such as digital dictionaries, interactive learning platforms, e-books, and educational games that can be used to support the learning process in the classroom or independently. Wijaya (2020) explained that the use of Android devices provides opportunities for students to take advantage of various learning media that are more interesting and interactive, so that they can increase their motivation to learn. Android's ability to integrate text, audio, video, and images also strongly supports modern learning that emphasizes a multisensory learning experience, especially for language subjects.

In its application in the field of education, Android can function as a learning medium, additional learning resource, evaluation tool, as well as a means of communication between teachers and students. According to Sharples (2019), mobile technology such as Android allows learning to take place flexibly and without space and time, so it is very compatible with the concept of *mobile learning*. Learning can take place in or out of the classroom, and students can access a variety of subject matter independently. The use of Android can also support *blended learning* and *flipped classroom* learning models because it allows students to learn material at home through videos or digital applications before further discussion in class. The

use of Android technology in learning Arabic provides significant benefits. Apps such as digital Arabic dictionaries, *flashcards*, learning videos, and grammar exercises can help students understand the material visually and contextually. According to Hakim (2021), the use of Android-based Arabic applications can improve vocabulary mastery and train language skills gradually. Teachers can also use Android to develop more creative and interactive teaching methods, so that learning becomes more varied and less monotonous. Android provides space for students to learn independently, iterate over material, and enrich their understanding through widely available digital learning resources.

However, the use of Android in learning is inseparable from challenges. Some teachers may not have adequate digital competencies to operate educational applications optimally. Additionally, not all students have access to an Android device or a stable internet network. Distractions arising from smartphone use, such as access to social media or digital games, can also interfere with students' concentration in learning. Tambunan (2018) said that the success of technology integration in learning is highly dependent on teacher readiness, school policies, and the management of device use by students. Therefore, the use of Android needs to be designed with the right strategy so that technology really becomes a tool to support learning, not an obstacle.

Overall, Android technology has great potential in supporting the learning of Arabic and other subjects, but its utilization needs to be balanced with the readiness of human resources, facilities, and clear rules of use. Understanding these potentials and barriers is important as a foundation for research on the challenges and opportunities of using Android technology in learning in various educational institutions, including the Bin Baz Islamic Centre.

Arabic Language Learning

Learning Arabic is a process that aims to develop students' language competence, which includes four main skills: listening (*istimā'*), speaking (*kalām*), reading (*qirā'ah*), and writing (*kitābah*). Arabic has an important position in Islamic education because it is the language of the Qur'an, hadith, classical Islamic literature, as well as various sharia disciplines. According to Mahmud (2018), mastery of Arabic is not only a linguistic ability, but also a means to understand the intellectual heritage of Islam more deeply. Therefore, learning this language requires an appropriate pedagogical approach, especially in the context of modern Islamic educational institutions that face the challenges of technological development and the characteristics of digital generation students.

Pedagogically, Arabic learning should ideally focus not only on mastering linguistic elements such as vocabulary (*mufradāt*) and grammar (*qawā'id*), but also on communicative aspects that emphasize the ability to use language in a real context. Abidin (2019) explained that learning Arabic needs to integrate a communicative approach so that students are able to actively use the language in daily interactions, not just understanding the rules theoretically. This communicative approach is strengthened by the use of varied learning media, including visual, audio, and multimedia media that can help students understand structure and meaning more contextually. In the context of modern education, learning Arabic faces a number of challenges related to students' learning motivation, limitations of traditional teaching methods, and lack of engaging learning media. Al-Saad (2020) stated that lecture and memorization methods that are still dominant in some educational institutions make it difficult for students to develop their communicative skills. Therefore, innovation in learning methods and media is an important need so that the learning process is more interesting, interactive, and in accordance with the learning styles of the current generation. The use of digital technology, including Android devices, is one of the solutions that can increase learning effectiveness by providing access to richer apps, videos, interactive exercises, and online learning resources.

In addition to method and media factors, the success of Arabic learning is also influenced by teachers' competence in managing the classroom and utilizing the right learning strategies. According to Nisa (2021), Arabic teachers need to master a *student-centered approach*, adapt educational technology, and be able to create a conducive learning environment for active language practice. Teachers who are able to integrate listening, speaking, reading, and writing activities in a balanced learning scenario will help students achieve communicative competence gradually. This is in line with the demands of a curriculum that encourages competency-based and collaborative learning. In recent developments, the integration of technology including Android technology provides a great opportunity for the development of Arabic language learning. Digital applications that provide dictionaries, vocabulary exercises, qirā'ah and *listening* materials, and educational games can help students learn the language independently and more interestingly. Saleh (2022) emphasized that the use of technology in learning Arabic can increase motivation, enrich learning resources, and encourage more active student involvement. Therefore, the use of technology is an important aspect in strengthening communicative approaches and improving student learning outcomes.

Overall, learning Arabic requires an integrated strategy between the right pedagogical approach, teacher competence, relevant learning media, and the use of modern technology. This theoretical study is the basis for research on how Android technology can open up new opportunities as well as present challenges in learning Arabic, especially in the context of education at the Bin Baz Islamic Centre.

Android Technology for Learning

The use of Android technology in the world of education has become an important part of the development of *mobile learning* that offers flexibility, independence, and high accessibility for students. Android as an *open source* operating system provides ample opportunities for developers to create various educational applications that can be used in both formal and informal learning processes. According to Park (2017), Android devices have developed into an effective learning medium because of their ability to present material in multimedia formats such as text, audio, images, and videos, making it easier to adjust to the learning characteristics of students. The existence of smartphones as devices that are always attached to students makes Android have a strategic position as a bridge between traditional learning and digital learning.

In the context of learning, Android technology is able to provide more interactive, dynamic, and collaborative learning activities. The applications available on the Play Store allow students to access various learning resources, ranging from e-books, learning videos, interactive modules, to practice automatic questions that can provide direct feedback. Sharples (2019) emphasized that the use of mobile devices such as Android increases the focus on needs-based learning (*personalized learning*), as students can adjust their own time, place, and learning pace. This makes Android a learning medium that not only strengthens cognitive comprehension, but also increases student motivation and engagement through engaging features. Teachers also benefit from Android technology because it can help them in designing, presenting, and evaluating learning more efficiently. Through applications such as *learning management systems* (LMS), digital quizzes, presentation media, and communication platforms, teachers can deliver materials quickly and facilitate more intensive learning interactions. According to Sari (2020), the integration of Android in learning makes it easier for teachers to vary teaching methods, for example through video tutorials, *voice notes*, or interactive simulations that can rarely be done with conventional methods. Thus, Android not only serves as a supporting medium, but also as a tool to transform teaching strategies towards more creative and responsive learning models.

Despite having many advantages, the use of Android technology in learning still faces a number of obstacles. The limitations of teachers' digital competence, the lack of stable internet

facilities, and the potential for distraction from non-learning applications such as social media or digital games are some of the main challenges that need to be considered. Yusuf (2021) explained that the effectiveness of Android is highly dependent on the management of use by teachers and students, as well as school policies that support technology-based learning. If not controlled properly, Android devices can actually interfere with the learning process and reduce students' focus. However, various studies show that the benefits of Android in learning are far greater than the challenges if the technology is used appropriately and in a targeted manner. Android plays an important role in creating a more flexible, inclusive, and innovative learning environment, providing opportunities for students to learn more independently and deeply. In the context of learning Arabic, Android technology is a potential means to help understand vocabulary, master reading and listening skills, and increase motivation to learn through interactive applications. Therefore, the use of Android in education is a relevant and strategic step to answer the needs of learning in the digital era.

Method

This study uses a descriptive qualitative approach to describe in depth how Android technology is utilized in Arabic language learning at the Bin Baz Islamic Centre. This approach was chosen because it can capture the real experience of teachers and students in the learning process, including the challenges and opportunities that arise during the use of Android devices. The research subjects consisted of Arabic teachers and a number of students who were selected through purposive sampling techniques, which is the selection of informants who are considered to know the most about Android-based learning practices in the institution. Data was collected through observation of learning activities, in-depth interviews with teachers and students, and documentation in the form of photos, videos, and learning tools. The data obtained was analyzed using the Miles and Huberman interactive analysis model, which included data reduction, data presentation, and conclusion drawn. To ensure the validity of the data, source triangulation techniques and techniques are used, namely comparing the results of observations, interviews, and documentation from various informants. With these steps, the study aims to produce a valid and comprehensive picture of the challenges and opportunities for the use of Android technology in Arabic language learning at the Bin Baz Islamic Center.

Results

Challenges of Utilizing Android Technology in Arabic Language Learning

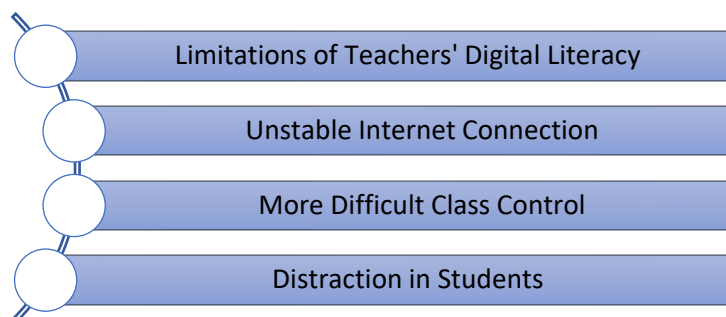


Diagram 1.1 Android Technology Challenges

Opportunities for Utilizing Android Technology in Arabic Language Learning

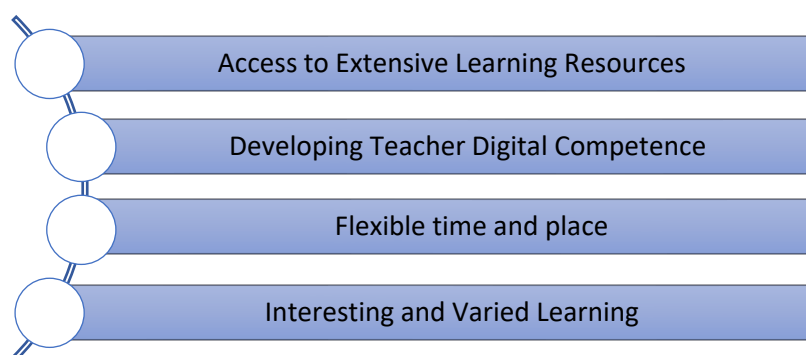


Diagram 1.2 Android Technology Opportunities

Discussion

Challenges of Utilizing Android Technology in Arabic Language Learning

The use of Android technology in Arabic learning brings new innovations for teachers and students, but its implementation is inseparable from a number of challenges that need to be critically examined. One of the biggest challenges is the limitation of teachers' digital literacy, which can be seen from teachers' uneven abilities in operating learning applications, managing media features, and integrating technology according to class needs. Although some teachers show motivation and a positive attitude towards the use of technology, limited technical skills cause many of the app's features to not be utilized optimally. This condition is in line with the TPACK (Technological, Pedagogical and Content Knowledge) theory which emphasizes that mastery of technology must be integrated with pedagogical skills and mastery of materials for successful learning. When one aspect, especially digital literacy, is not yet strong, the technology-based learning process tends to run less effectively and has the potential to increase the burden on teachers.

The second challenge that is very influential is the unstable internet connection, which directly hinders the smooth teaching and learning process. Many Arabic learning applications, such as video hiwar, network-based digital dictionaries, or reading and listening training platforms, require a strong internet connection to run smoothly. When the network is often disconnected, teachers have difficulty delivering material, while students cannot access the

application to the fullest. This problem not only disrupts the rhythm of learning, but also lowers the motivation of students who feel frustrated when the material is not well accessible. Theoretically, digital infrastructure is an important component in the successful integration of educational technology. Without adequate network support, the quality of Android-based learning will continue to experience obstacles even if teachers and students already have the devices and the willingness to use them.

The next challenge has to do with more difficult classroom controls, especially when students use Android devices individually. In traditional learning, teachers can easily set the dynamics of the classroom through direct supervision. However, when technology-based learning is implemented, teachers face additional tasks to ensure that students continue to use the devices according to the learning objectives. This condition causes the monitoring process to be more complex, because not all students' digital activities can be observed directly. Teachers must develop new strategies, such as periodic monitoring, seating arrangements, or the use of device control apps, to keep the classroom in check. When classroom control is weakened, learning becomes unfocused and Arabic learning objectives are difficult to achieve, especially materials that require full attention such as qira'ah (reading) or hiwar (conversation). Related to classroom control constraints, another challenge is distraction for students. Android devices used for learning also provide a variety of entertainment applications such as social media, games, and video platforms that can easily attract students' attention. This distraction is one of the biggest obstacles in technology-based learning because it can significantly reduce student concentration and engagement. Some students were found to open other applications during learning without the teacher's knowledge, so that the learning time was not optimal. This phenomenon is supported by the theory of educational psychology which states that technology has two sides: a facilitator of learning as well as a source of distraction. Without strong mentoring and effective classroom settings, Android devices can switch functions into entertainment tools that reduce the effectiveness of Arabic learning.

Opportunities for Utilizing Android Technology in Arabic Language Learning

Despite the various challenges, the use of Android technology in learning Arabic also opens up great opportunities that can improve the quality of the teaching and learning process. One of the main opportunities is access to very wide learning resources. Through Android devices, teachers and students can access various supporting applications such as digital dictionaries, mufradat applications, learning videos, Arabic podcasts, and interactive exercise platforms. This access provides a wealth of learning resources that were previously difficult to obtain through conventional methods. Students can listen to live word pronunciation examples from native speakers, practice grammar through an interactive app, or watch Arabic conversations in a real-world context. With open access to these learning resources, students have a greater opportunity to expand their understanding of vocabulary, language structure, and language use in everyday situations. In addition, Android technology also provides great opportunities for the development of teachers' digital competencies. In the context of the Bin Baz Islamic Centre, the use of Android encourages teachers to continue learning, explore new applications, and adapt learning methods to technological developments. This condition shows that technology not only provides benefits for students, but also plays an important role in improving teacher professionalism. Teachers who are used to using learning applications will have better adaptability to educational technology developments. This is in line with the demands of 21st century education that emphasizes the importance of digital literacy for educators. With the increase in teachers' digital competence, the learning process becomes more creative, effective, and innovative.

Another very significant opportunity is the flexibility of time and place in the learning process. Android allows students to access materials anytime and anywhere without being limited by classrooms. When students want to repeat the material, listen to the audio of the

song again, or practice mufradat, they can do it independently outside of class hours. This flexibility helps students deepen their mastery of the material, especially oral materials that require repetitive practice such as pronunciation and dialogue comprehension. From a *self-regulated learning* perspective, this flexibility gives students more control over their learning process, increasing their independence and learning responsibility. In addition to flexibility, Android technology also opens up opportunities for the creation of more interesting and varied learning. Various multimedia features such as images, audio, video, animation, and educational games can be used by teachers to convey material more creatively. This approach makes learning Arabic no longer seen as a difficult and boring subject, but as a fun and interactive activity. A variety of learning media can increase students' interest, strengthen learning *engagement*, and help students understand language concepts more easily because the material is presented visually and auditory. This diversity greatly supports the learning of language skills—listening, speaking, reading, and writing, so that student learning outcomes have the potential to increase significantly.

Overall, these opportunities show that the use of Android is able to make a positive contribution to improving the quality of Arabic language learning at the Bin Baz Islamic Centre. With the right use, technology can bridge the needs of modern students, support teachers in developing competencies, and create a more effective and innovative learning environment. Optimizing this opportunity requires advanced mentoring, teacher training, and the use of relevant applications so that the benefits of technology can be fully felt by all parties involved.

Conclusion

Research on the use of Android technology in Arabic learning at the Bin Baz Islamic Centre shows that this technology has great potential to improve the quality of learning, although its implementation still faces various challenges. In terms of challenges, the limitations of teachers' digital literacy are the main factors that hinder the optimization of the use of learning applications. An unstable internet connection also has a direct impact on smooth access to materials, while aspects of classroom control and distraction in students are pedagogical obstacles that need serious handling. These challenges indicate that human resource readiness, infrastructure, and classroom regulation are critical components for the success of technology-based learning. On the other hand, the study also found that Android technology opens up great opportunities for Arabic language learning. Access to a wide range of learning resources, flexibility of time and place, and the ability to deliver more engaging and varied learning have a positive impact on student motivation and engagement. In addition, the use of Android also encourages the development of teachers' digital competencies, which ultimately enriches strategies and creativity in teaching. These opportunities show that Android technology can be an effective medium in supporting Arabic language mastery, especially in listening, speaking, and vocabulary comprehension skills.

Overall, this study confirms that the use of Android in Arabic learning has excellent prospects if supported by improving teachers' digital competence, strengthening internet infrastructure, and effective classroom management strategies. The optimization of these aspects is expected to be able to make learning Arabic more modern, interactive, and in accordance with the needs of the current generation of learners.

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