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# Smart Apps Creator as Digital Media in Arabic Language Learning

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## Abstract

<b>Keywords:</b> Smart Apps Creator; Arabic Language Learning; Interactive Digital Media	Arabic language learning in Islamic educational institutions continues to face challenges related to low student engagement and the limited use of interactive digital learning media. Although Smart Apps Creator (SAC) has been widely used to develop digital teaching materials, a comprehensive synthesis of its trends, effectiveness, and implementation challenges in Arabic language learning remains limited. This study aims to analyze research trends, identify advantages and limitations, and examine the effectiveness of SAC-based digital media in enhancing student motivation, engagement, and learning outcomes in Arabic language education. This study employs a literature review method by systematically collecting and analyzing relevant studies
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published between 2019 and 2024 from national and international academic databases. The findings indicate that SAC-based digital media are effective in increasing student motivation, engagement, and learning outcomes, particularly in reading, vocabulary, and writing skills. However, limitations are found in supporting speaking and listening skills, content personalization, teachers' digital competence, and technological infrastructure in certain contexts. This study contributes by providing a structured synthesis of empirical findings and offering pedagogical and technological recommendations for optimizing the use of SAC in Arabic language learning, particularly in Islamic educational settings.

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### Abstrak

**Kata Kunci:**

Smart Apps  
Creator;  
Pembelajaran  
Bahasa Arab;  
Media Digital  
Interaktif

Pembelajaran Bahasa Arab di lembaga pendidikan Islam masih menghadapi berbagai permasalahan, terutama rendahnya motivasi dan keterlibatan peserta didik serta keterbatasan pemanfaatan media pembelajaran digital yang interaktif. Meskipun Smart Apps Creator (SAC) telah banyak digunakan sebagai platform pengembangan media pembelajaran digital, kajian yang secara komprehensif memetakan tren, efektivitas, serta tantangan implementasinya dalam pembelajaran Bahasa Arab masih terbatas. Penelitian ini bertujuan untuk menganalisis tren penggunaan SAC, mengidentifikasi kelebihan dan keterbatasannya, serta menelaah efektivitas media digital berbasis SAC dalam meningkatkan motivasi, keterlibatan, dan hasil belajar Bahasa Arab. Metode yang digunakan adalah tinjauan literatur dengan menganalisis secara sistematis artikel-artikel relevan yang dipublikasikan pada periode 2019-2024 dari basis data nasional dan internasional. Hasil kajian menunjukkan bahwa media pembelajaran berbasis SAC efektif dalam meningkatkan motivasi, keterlibatan, dan hasil belajar peserta didik, khususnya pada keterampilan membaca, kosakata, dan menulis. Namun, ditemukan keterbatasan dalam pengembangan keterampilan berbicara dan menyimak, personalisasi konten pembelajaran, kompetensi digital guru, serta dukungan infrastruktur teknologi di beberapa konteks pendidikan. Penelitian ini berkontribusi dengan menyajikan sintesis temuan empiris secara terstruktur serta memberikan rekomendasi pedagogis dan teknologis untuk optimalisasi penggunaan SAC dalam pembelajaran Bahasa Arab, khususnya di lingkungan pendidikan Islam.

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## **Introduction**

The advancement of science and information technology has brought significant changes across various aspects of society, including in the field of education. This transformation has influenced perspectives, lifestyles, and patterns of human interaction with their environment. Specifically in education, information technology presents opportunities for innovations in learning that are more engaging, effective, and relevant to the needs of the current generation (Kurniasih et al., 2025). The utilization of technology not only helps teachers in delivering content but also enables students to learn more independently, flexibly, and interactively. With the advent of digital media, students can gain a rich learning experience that involves visual, audio, and animation elements, making it easier to grasp complex concepts (Koderi et al., 2020).

In Indonesia, Arabic language education plays a strategic role, particularly in Islamic educational institutions. Arabic is not only taught as a foreign language but also as the language of the Qur'an, carrying religious and historical significance for Muslims (Nasir et al., 2022). A good command of the Arabic language allows students to understand religious texts more deeply, making proficiency in this language an integral part of character and religious education in Islamic schools (Nur & Norkhafifah, 2024).

However, despite its importance, Arabic language education often faces several challenges. One of the main issues is the lack of innovative media and teaching materials. Conventional teaching materials, such as textbooks, are often perceived as monotonous and less engaging for students, leading to low motivation. The static, lengthy, and less interactive nature of books causes digital-native students to lose interest quickly, especially since they are accustomed to interactive and dynamic content through digital media. This results in low student engagement in the learning process, ultimately affecting the achievement of Arabic language proficiency (Abidin et al., 2019).

With the advancement of technology and educational infrastructure, the use of interactive digital media offers a solution to improve the quality of Arabic

language learning. Educational technology allows teachers to provide more varied teaching materials, including text, images, audio, and animations, enabling students to learn anytime and anywhere (Hijriyah et al., 2022). This approach aligns with the constructivist principle, which emphasizes the importance of active learning through direct experience and interaction with the environment. According to Piaget (1972), students build their knowledge through active engagement, not merely by passively receiving information. In this context, interactive digital teaching materials support constructivist learning, where students can explore content, interact with the material, and make decisions in their learning process (Erlina et al., 2024).

One notable application that supports digital learning innovation is Smart Apps Creator. This application enables teachers to create mobile apps for Android or iOS without the need for programming. This medium supports various formats, including HTML5 and exe, allowing teaching materials to be presented in multimedia formats with text, images, video, and audio (Syadida, 2022). By using Smart Apps Creator, teachers can design engaging and interactive teaching materials, making it easier for students to access content independently through their smartphones. This application not only provides flexibility in time and place but also enhances student interest and motivation, as they can interact directly with the content according to their needs and learning pace.

Several studies highlight the effectiveness of Smart Apps Creator in the context of learning. Qoulan Syadida, Yeni Erita, and Nasir have proven that this app-based media is valid, practical, and capable of enhancing student engagement and motivation in thematic and craft-based learning. They emphasize its potential in flipped classroom models, which can improve student learning outcomes. Other research by Nurul Abidin, Syamsul Arifin, and Yelfi Dewi et al. (2021) underscores that this application strongly supports digital Arabic language learning, although its implementation remains limited in some educational institutions.

Moreover, recent literature reviews show that Smart Apps Creator has proven effective as an interactive digital learning medium. This platform simplifies the process for teachers to create multimedia apps, organize learning content, and tailor it to students' needs (Oktri Suhartati, 2022; Qoulun & Yeni, 2021; Nurul Abidin et al., 2021). With access through smartphones, students can learn independently anytime and anywhere, complete interactive exercises, watch educational videos, and deepen their understanding of the material. This medium also supports cost-effective learning with low data usage, making it an effective solution for time and resource constraints in schools.

With this interactive teaching material, students can study Arabic independently or with teacher guidance, explore content through visual and audio formats, and enhance their understanding. The creation of this media also allows teachers to deliver content more effectively, save time, and adjust the learning process to the characteristics of digital-native students.

This innovative idea aligns with the constructivist principle, where students actively learn, build knowledge through interactions with material, and develop critical thinking skills.(Anjelita & Supriyanto, 2024). Interactive digital teaching materials enable students to explore content visually and audibly, complete interactive exercises, and gain a deeper understanding of the material. This media not only improves comprehension but also boosts student motivation and engagement in the learning process.

Digital interactive teaching materials not only simplify learning Arabic but also enhance students' understanding of the material. The creation of this media also allows teachers to deliver content more effectively, save time, and adjust the learning to meet the characteristics of digital-native students. Thus, this study aims to analyze trends and developments in the use of SAC in Arabic language learning, identify the advantages, limitations, and challenges in using this medium, describe its effectiveness in enhancing student motivation, engagement, and learning outcomes, and provide recommendations regarding

strategies for the future development and implementation of SAC, particularly in Arabic language education.

## **Method**

This study employs a literature review approach to analyze and synthesize findings from various studies relevant to the innovation of Arabic language learning based on Smart Apps Creator (SAC) (Laili Nararrya Putri, Abdul Muhid, Niken Titi Pratitis, 2025) his method was chosen because it allows the researcher to gain a comprehensive understanding of research trends, best practices, effectiveness, and challenges in the application of interactive digital media in Arabic language learning, while also identifying research gaps that can be explored in future studies. (Fitryansyah & Fauziah, 2024)

The data collection process involved systematic searches in reputable international and national academic databases, including Google Scholar, Scopus, JSTOR, and university journal portals. The keywords used included "Smart Apps Creator," "digital learning media," "Arabic language learning," and "learning innovation." The selected literature includes publications from 2019 to 2024, available in either Indonesian or English, and specifically addresses the use of SAC or interactive digital media in the educational context. Articles that were irrelevant, lacked clear methodology, or were duplicates were excluded from the analysis to maintain the quality of the reviewed literature.

Once the literature was gathered, the researcher conducted a descriptive content analysis to identify key themes, such as the effectiveness of SAC in enhancing student motivation and engagement, the advantages and challenges in the implementation of the media, and the models of media development that have been applied. Additionally, this study employed bibliometric analysis using VOSviewer software to map relationships between research studies, the strength of the research, and publication trends in the field of digital learning media development. This approach facilitates the systematic, critical, and academic

synthesis of information, thus providing a strong theoretical foundation for the development of SAC-based teaching materials.

## **Result and Discussion**

### **Trends and Developments in Research on Arabic Language Learning Innovation Based on Smart Apps Creator**

Digital technology has played a pivotal role in the transformation of teaching methods, including in Arabic language education. One prominent innovation is the use of Smart Apps Creator (SAC), a platform that enables educators to develop interactive learning applications without the need for programming skills. SAC offers ease in creating learning materials that can be accessed via mobile devices, thereby increasing flexibility and accessibility in the teaching and learning process.

The trend of using SAC in Arabic language education has shown significant growth. Research by (Hijriyah et al., 2022a) revealed that SAC-based Arabic language learning media developed for grade VIII students at MTs showed a very high quality of media, with expert material assessment reaching 93%, media expert assessment at 96.25%, and instructional expert assessment at 93.3%. Additionally, student responses to this learning media were highly positive, with a 86% approval rate in small groups and 92% in larger groups. The effectiveness test results showed a significant improvement in student learning outcomes, with a 38.75-point difference between pre-test and post-test scores.

One of the key strengths of SAC is its ability to increase student engagement in learning. SAC allows for the creation of interactive and engaging learning applications that can enhance students' motivation to learn Arabic. SAC helps students understand Arabic material in a more enjoyable and effective way.

Although SAC offers various benefits, its implementation also faces several challenges. One major challenge is the lack of technical skills among educators in developing learning applications using SAC. Research by (Setyaningsih et al., 2024) indicates that, although SAC is designed to be user-friendly, some educators still experience difficulties in optimizing the available

features. Therefore, training and support for educators are essential to maximize SAC's potential in Arabic language learning.

SAC also plays a crucial role in supporting 21st-century learning, which emphasizes the development of critical, creative, and collaborative skills. Research by (Mustafa & Efendi, 2016) developed interactive learning media based on SAC to support 21st-century skills in Pancasila education in elementary schools. Although the primary focus was not on Arabic, this study shows that SAC can be used to develop learning media that supports the development of 21st-century skills, which are also relevant in the context of Arabic language education.

In Indonesia, the use of SAC in Arabic language learning has great potential to improve the quality of education. Research by (Damulawan et al., 2023) developed SAC-based learning media for Arabic subjects at MTs Al-Hikmah Kotamobagu. The results showed that the developed learning media had very high quality, with material expert assessment at 88%, language expert assessment at 86.67%, and teacher assessment at 93%. This indicates that SAC can be an effective tool in improving the quality of Arabic language education in Indonesia.

**Table 1. Results of Relevant Studies**

No	Researcher & Title	Research Method	Research Findings
1	Amrina et al. (2021) - Utility of SAC Application as Arabic Language Teaching Media	Literature review & interviews	SAC is easy to use, supports the creation of interactive Arabic media.
2	Abidin & Arifin (2021) - Arabic Language Learning Design Through SAC	Conceptual design	Integrative SAC (text, audio, video) enhances motivation & interest in learning.

3	Damulawan et al. (2023) - Development of Learning Media Using SAC for Arabic Language	R&D (ADDIE)	Media is valid, practical, and effective; significant improvement in learning outcomes.
4	Hijriyah et al. (2022) - Arabic Learning Media Based on SAC	R&D + effectiveness test	Highly feasible for use; positive student response; post-test scores improved.
5	MTs Study (2023) - Development of Arabic Media with SAC	Development study	SAC simplifies teaching for both teachers & students; learning is more engaging & effective.
6	Junaidi & Al Busthomi (2025) - Steps to Design Arabic Media with SAC	Guide/design	Provides installation stages & practical steps for designing Arabic media based on SAC.
7	Junaidi (2025) - Designing Arabic Media with SAC in Class	Practical study	SAC is practical for implementation; supports students' independent learning.
8	Sa et al. (2021) - Utility of SAC	Literature review	SAC enhances student motivation & interaction; highly efficient.
9	SMA Study (2023) - Digital Interactive Arabic Learning via SAC	R&D	SAC interactive media increases student participation & engagement.
10	Ferdiansyah (2025) - Development of Istima'	R&D (ADDIE)	The app improves students' listening skills.

	Application Based on SAC		
11	IAIN Madura (2025) - Development of SAC App for Listening Skill	R&D (ADDIE)	The app is valid, practical; significantly improves listening skills.
12	MTs Al-Hikmah (2023) - Development of SAC for Arabic Learning	R&D	High expert validation; learning outcomes improved after using SAC.
13	Jannah (2025) - Game-Based Kitābah Using SAC	R&D (Borg & Gall)	Game-based SAC improves Arabic writing skills in Islamic boarding schools.
14	Setyaningsih et al. (2024) - SAC Media for Career Awareness	Quasi-experimental	Demonstrates SAC's effectiveness as interactive media (methodological implications).
15	Hasrullah (2024) - SAC & Vocabulary Mastery	Pre-experiment	Vocabulary scores significantly improved; learning atmosphere

Overall, research related to Arabic language learning innovation based on SAC shows positive results in improving the quality and effectiveness of learning. However, to maximize SAC's potential, training and support for educators are needed, as well as the development of learning materials that align with student needs. Future research is expected to explore the use of SAC in broader contexts, including Arabic language learning across various education levels and regions in Indonesia.

While SAC is effective in improving reading and writing skills in Arabic, significant limitations arise in developing speaking and listening skills. This is due to the lack of interactive features that support direct speaking and listening exercises. Research by (Ilmiah et al., 2025) shows that, although SAC can enhance

reading comprehension, the application is not yet optimal for honing students' speaking and listening skills. Therefore, additional features in SAC that allow for effective speaking and listening exercises are needed.

SAC provides general learning media that cannot be tailored to the individual needs of students. This reduces the effectiveness of learning, especially for students with special needs or different learning styles. Research by Anggraeni et al. (2025) shows that, although SAC is effective in improving 21st-century skills, the application has not yet been able to provide personalized learning experiences that align with individual student needs. Therefore, future development of SAC should consider personalization features that allow customization of content and learning methods according to each student's characteristics and needs.

The implementation of SAC requires adequate hardware and software, as well as a stable internet connection. In areas with limited access to technology, this becomes a significant barrier to SAC implementation. Research by (Reza et al., 2025) revealed that, although SAC can improve learning outcomes, technological infrastructure limitations remain a major obstacle to its implementation. Therefore, efforts to improve access to technology and training for educators in areas with limited infrastructure are necessary.

Most existing studies focus on short-term evaluations of SAC's effectiveness in Arabic language learning. The lack of long-term evaluations limits the understanding of SAC's impact on students' overall competency development. Research has shown that, while SAC is effective in improving narrative writing skills, long-term evaluations of its impact on the overall competency development of students have not been conducted. Therefore, further research is needed to evaluate the long-term impact of SAC use in Arabic language learning.

SAC, as a digital learning medium, tends to reduce social interaction among students. This can hinder the development of social and collaborative skills, which are essential in Arabic language learning. Research by (Sutrisni et

al., 2022) shows that, although SAC can improve learning outcomes, excessive use of digital media can reduce social interaction among students. Therefore, it is important to integrate collaborative elements into the use of SAC, such as group discussions or joint projects, to support the development of students' social skills.

### **Advantages, Limitations, and Challenges of Using Smart Apps Creator in Arabic Language Teaching Materials**

Smart Apps Creator (SAC) has emerged as a practical solution for developing digital teaching materials without the need for programming, allowing educators to create multimedia content (text, images, audio, video) accessible via smartphones. Several development studies report that SAC-based teaching materials are deemed feasible and practical by experts and receive positive feedback from students, with significant post-test score improvements in specific case studies. These findings highlight that, in terms of accessibility and content production speed, SAC offers a tangible value for teaching Arabic at the secondary school level. (Abidin & Arifin, 2021)

An important advantage of SAC is its ability to enhance student engagement and motivation through interactive and multimedia elements. Development research shows that SAC facilitates the presentation of interactive exercises, quizzes, and audiovisual materials, making learning sessions more engaging compared to static textbooks. This effect is evident through increased enthusiasm and participation during trials. Additionally, SAC supports self-paced learning, allowing students to review material as needed, thus supporting differentiated learning for varying levels of ability. (Hijriyah et al., 2022)

However, there are functional limitations that need to be acknowledged. Many studies show that SAC is effective for presenting reading content, vocabulary, and written exercises, but it falls short in supporting oral practice and real-time verbal interaction—crucial components in language proficiency. The audio recording/replay feature is helpful, but it does not replace paired interactions or pronunciation guidance that require direct feedback from the

teacher or peers. This limitation indicates that SAC should be integrated with other learning strategies (e.g., synchronization with face-to-face sessions or video conferencing platforms) to address shortcomings in oral language skills. (Ilmiah et al., 2025)

From the perspective of personalization and adaptability, SAC currently has significant limitations. Most of SAC's templates and content flows are linear or menu-based, so they do not support automatic adaptation according to the learner's profile, such as providing material recommendations based on student performance. Research in R&D suggests that, to enhance a learning experience more responsive to individual needs—especially for students requiring remediation or acceleration—SAC needs to integrate differentiation mechanisms such as branching scenarios and adaptive quizzes. Without these adaptive features, SAC's potential is maximized only for homogeneous groups of students, while its use becomes suboptimal in classes with a wide range of abilities.

Another challenge in implementation is infrastructure and educators' digital literacy. Field studies in various schools highlight issues such as limited device availability, unstable internet connections, and low technical skills among most teachers in designing and maximizing SAC's features. Although SAC is designed with a user-friendly interface, intensive training and technical support are still needed to ensure consistent quality and usage across schools, especially in resource-limited areas. Additionally, data costs (internet quotas) also influence the utilization of multimedia applications in certain contexts.

Methodologically, the majority of existing studies are development research (R&D) and small-scale trials with short-term evaluations. Thus, there is an urgent need for longitudinal research and large-scale experiments to assess the sustained impact of SAC usage on Arabic language proficiency, including oral productivity, long-term retention, and skill transfer. Furthermore, comparative research testing SAC's effectiveness against other digital platforms or hybrid learning models will provide a clearer understanding of the conditions under which SAC is most effectively used.

Although SAC is effective in presenting reading content, vocabulary, and written exercises, the app's built-in features are still insufficient for authentic interactive oral practice. Recording and replaying voice can assist in pronunciation exercises, but they cannot fully replace direct feedback or collaborative interactions between students (Ilmiah et al., 2025). Furthermore, using this application individually may reduce opportunities for students to develop their social and collaborative skills unless it is coupled with synchronous/collaborative activity designs. Therefore, research combining SAC with synchronous learning strategies, such as paired speaking tasks or video conferencing, remains limited and requires further enhancement.

Overall, SAC implementation faces several practical barriers that must be overcome, such as device availability, data costs/internet access, and varying levels of digital literacy among teachers. While SAC is designed for ease of use, many educators require intensive training to design quality content and maximize the available interactive features (Setyaningsih et al., 2024). Dependence on technological infrastructure further exacerbates access gaps between regions. Practical recommendations include the development of ongoing training programs for teachers, consistent technical support at the school level, and the creation of offline or data-efficient versions.

### **Effectiveness of This Media in Enhancing Student Motivation, Engagement, and Learning Outcomes**

The advancement of digital technology has had a significant impact on education, including in Arabic language learning. One of the emerging innovations is the use of application creation platforms such as Smart Apps Creator (SAC) to create interactive learning media. Research by (Sa et al., 2021) shows that SAC makes it easier for educators to design engaging learning materials that are accessible to students.

SAC enables the creation of varied and interactive learning content, such as quizzes, puzzles, and animations, which can enhance student motivation. A study by (Hijriyah et al., 2022a) revealed that the use of SAC in Arabic language

learning at MTs Al-Hikmah significantly improved student motivation, with a positive response rate of 92% in large groups.

SAC-based learning media encourages students to be more active in the learning process. Research by Hijriyah et al. (2022) shows that students using SAC media exhibited higher engagement compared to conventional methods. Direct interaction with the material through SAC's interactive features made students more focused and enthusiastic in their learning, significantly improving their learning outcomes.

The effectiveness of SAC in enhancing student learning outcomes has also been demonstrated through research. A study by (Rizkiah & Asih, 2025) indicated that the use of SAC in Arabic language learning significantly improved student learning outcomes. T-test analysis revealed a significant difference between pre-test and post-test scores, with  $t_0 = 62.5 > t_{table} = 2.093$ , which demonstrates the effectiveness of SAC media in improving student learning outcomes.

SAC offers various advantages in Arabic language learning, such as ease in creating multimedia content, flexible access through Android devices, and the ability to integrate various learning elements such as text, audio, and video, allowing educators to create engaging materials that cater to students' needs.

Although SAC offers numerous benefits, there are several challenges in its implementation. (Ardiansyah, 2025) identifies that limitations in technological infrastructure, such as inadequate devices and unstable internet access, can hinder the effectiveness of SAC in Arabic language learning. Moreover, training is necessary for educators to maximize SAC's potential in the learning process.

Overall, the use of Smart Apps Creator (SAC) in Arabic language learning has proven effective in enhancing student motivation, engagement, and learning outcomes. However, to optimize its benefits, more attention is required towards the existing challenges, such as technological infrastructure limitations and the need for educator training. Recommendations for future research include conducting longitudinal studies to evaluate the long-term impact of SAC in

Arabic language learning, focusing on learning outcomes over a broader timeframe.

Most existing research tends to focus on short-term quantitative evaluations, such as pre-tests and post-tests, which only capture short-term cognitive score changes. However, motivation and engagement in learning have affective and behavioral dimensions that are more complex, such as intrinsic vs. extrinsic motivation, as well as behavioral, cognitive, and affective engagement. These aspects require different instruments, such as standardized questionnaires, structured observations, interaction logs, and repeated measurements to assess the sustainability of changes (Fahlevi & Aminatun, 2023) Without multi-dimensional and longitudinal evaluations, the positive results found only represent temporary changes without considering long-term impacts.

Many positive findings related to increased student engagement are attributed to the multimedia elements and interactive exercises provided by SAC. However, it is important to be cautious about whether this increased engagement truly leads to deep learning or is merely superficial due to the novelty effect (interest in something new). Some studies show that students are more enthusiastic because of the new and engaging aspects of the application, but this does not automatically improve higher-level skills, such as oral communication skills, without pedagogical designs that emphasize repeated practice and quality feedback. In other words, SAC usage should be integrated with clear instructional strategies to ensure that student engagement leads to meaningful learning outcomes (Hijriyah et al., 2022; Ilmiah, Hasyim, & Rizal, 2025).

The assessment instruments used in many studies related to SAC are still relatively simple and focus more on cognitive aspects, such as knowledge tests. However, Arabic language learning requires more comprehensive assessments that cover reading, writing, listening, and speaking skills. Stronger evidence of SAC's effectiveness in improving learning outcomes should involve standardized oral assessments, communicative skill measurements, and long-

term retention analysis—areas that are still relatively underexplored in the existing literature (Rukoyah & Bektiningsih, 2024)).

Additionally, the aspects of learning differentiation and personalization have not been widely adopted in the SAC designs reported. Without adaptive features or integrated remediation strategies, improvements in student learning outcomes tend to be uneven. Students with intermediate to advanced abilities may benefit more, while struggling students require additional interventions to catch up. Therefore, a practical recommendation for SAC's development is to combine the app with adaptive modules, scaffolding, and periodic monitoring to ensure its effectiveness is inclusive and accessible to all types of students (Mustafa & Efendi, 2016).

Future research should expand evaluation methodologies by incorporating both quantitative data (pre-tests, post-tests, control) and qualitative data (in-depth interviews, case studies, classroom observations), as well as application usage logs (learning analytics) to understand how student interaction, content, and instructors influence motivation and learning outcomes. A mixed-methods approach and longitudinal studies can provide stronger evidence of SAC's long-term effects and mechanisms in Arabic language learning (Zeinalipour et al., 2025)

### **Opportunities for Development and Innovative Strategies for Optimizing the Use of Smart Apps Creator in Future Arabic Language Learning**

The advancement of digital technology has had a significant impact on education, including in Arabic language learning. One of the innovations that has emerged is the use of application creation platforms, such as Smart Apps Creator (SAC), to create interactive learning media. Research by (Sa et al., 2021) shows that SAC makes it easier for educators to design engaging learning materials that are easily accessible to students. This application allows the creation of varied and interactive learning content, such as quizzes, puzzles, and animations, which can enhance student motivation.

SAC offers various opportunities for development in Arabic language learning. According to (Abidin & Arifin, 2021). SAC enables the creation of varied and interactive learning materials, such as quizzes, puzzles, and animations, which can boost student motivation. Additionally, SAC allows for the integration of various learning elements such as text, audio, and video, which can help students better understand the material.

To optimize the use of SAC in Arabic language learning, innovative strategies are required. (Hijriyah et al., 2022) recommend that educators take advantage of SAC's interactive features to create engaging learning materials that meet students' needs. Furthermore, educators should undergo training to maximize the potential of SAC in the learning process.

Integrating the latest technology can enhance SAC's effectiveness in Arabic language learning. According to (Zeinalipour et al., 2025), the use of large language models such as GPT-4-Turbo could be applied to generate educational puzzles that are relevant to Arabic learning material. This could make the learning process more engaging and interactive for students.

The development of local and contextual content can enhance SAC's relevance in Arabic language learning. Developing learning media that align with local contexts can help students better understand the material and increase their engagement in learning (Damulawan et al., 2023).

Continuous evaluation and improvement are necessary to ensure the effectiveness of SAC in Arabic language learning. It is important to evaluate the use of SAC to identify its strengths and weaknesses so that necessary improvements can be made. Overall, the use of Smart Apps Creator in Arabic language learning has great potential to enhance student motivation, engagement, and learning outcomes. With innovative strategies and the integration of the latest technology, SAC can be optimized to create more effective and enjoyable learning experiences for students.

Smart Apps Creator (SAC) offers great potential as a quick platform for producing multimedia learning materials, including text, audio, images, and

video, which are easily accessible via smartphones. This potential is particularly relevant to Arabic language learning as it allows for enriched audio input (pronunciation), contextual text, and cultural videos that increase student attention and motivation. Several development studies report high validity and positive responses from students regarding SAC products in language subjects and others, providing an empirical foundation for further development in Arabic language education.

For these opportunities to be fully realize

For these opportunities to be fully realized, SAC's instructional design must evolve from merely presenting content to becoming an integrated learning platform. This means SAC should be combined with pedagogical models – such as flipped classrooms, scaffolding, and problem-based learning – to ensure that the engagement it generates is productive and leads to in-depth language skills, including oral skills. Several studies recommend integrating SAC with pedagogical strategies as a practical recommendation to enhance its effectiveness (Kurniasih et al., 2025).

One technical gap that needs to be addressed is the limitation of content adaptability and personalization. Many SAC templates are linear/menu-driven and are less responsive to differences in student abilities. Therefore, the development of features such as branching, adaptive quizzes, and learning analytics can help provide differentiated learning paths, allowing struggling students to receive remediation while advanced students can take on more challenging tasks. Literature reviews on SAC trends recommend the integration of adaptive elements to enhance inclusive learning (Edi, Rofi'i Suhari, 2025)

Infrastructure and teacher capacity stand out as barriers to large-scale implementation. Field studies show that although SAC products are valid and practical, challenges such as limited devices, connectivity issues, and teachers' digital literacy reduce the potential for field implementation (Setyaningsih et al., 2024). Therefore, strategic recommendations include continuous training programs for teachers, providing offline/data-efficient versions of the app, and

technical support from educational authorities to ensure widespread adoption of SAC.

From a research perspective, much of the current evidence comes from R&D studies and small-scale trials; to provide a policy and investment foundation, quasi-experimental/experimental studies and longitudinal research that measure multi-dimensional outcomes (cognitive, affective, oral skills) and long-term retention are needed. Furthermore, comparative studies testing SAC against other platforms or hybrid models will help identify the contextual conditions under which SAC is most effective (Rahmawati, 2024; Ilmiah et al., 2025).

New technologies such as Large Language Models (LLMs) and speech recognition offer innovative opportunities for SAC: integrating LLM for adaptive exercise creation, automatic feedback on writing or quizzes, and using speech recognition for pronunciation practice and automated oral assessments. Pilot integrations with LLM/speech engines could be tested to assess feasibility and accuracy in the context of Arabic, but ethical evaluations, language quality, and data usage need to be considered to ensure safety and educational relevance (technology trends & recommendations in educational app development literature).(Qotrunnada et al., 2025)

Policy and Practice Recommendations:(1) develop implementation packages that include sac templates based on arabic language syllabi and teacher training modules; (2) prioritize adaptive and offline features for contexts with connectivity limitations; (3) encourage longitudinal and experimental research by universities partnering with school; (4) integrate collaborative elements to ensure that digital learning does not reduce social interaction; dan (5) provide cost/data (quota) support in educational funding schemes so that sac usage does not exacerbate disparities. These steps will transform SAC's technical potential into an educational impact that is equitable and sustainable.

## **Conclusion**

Based on the discussion, it can be concluded that the use of Smart Apps Creator (SAC) in Arabic language learning presents significant opportunities to enhance the quality of the learning process through the integration of interactive media such as text, audio, images, and video. SAC has demonstrated effectiveness in fostering student motivation, engagement, and learning outcomes in a flexible manner that aligns with the characteristics of the digital generation. However, the effectiveness of SAC remains subject to several limitations. From a pedagogical perspective, SAC-based learning has not fully addressed the development of speaking and listening skills, which require intensive oral interaction, real-time feedback, and communicative practice that extend beyond the platform's current capabilities. In addition, limitations are evident in the lack of content adaptability to individual learner needs, variations in technological infrastructure, and disparities in teachers' digital literacy across educational contexts.

Furthermore, as a literature review, this study is limited by its reliance on previously published research, which varies in methodological quality, research design, sample size, and learning contexts. Most of the reviewed studies focus on short-term interventions and emphasize cognitive learning outcomes, while long-term impacts, affective dimensions, and higher-order language skills remain underexplored. The dominance of descriptive and quasi-experimental studies also limits the generalizability of findings across different educational levels and institutional settings.

Therefore, optimizing the use of SAC requires innovative strategies, including the development of adaptive and personalized learning features, the integration of pedagogical models that emphasize collaboration and oral language practice, and the provision of continuous technical support and professional development for educators. With these measures, SAC has the potential not only to function as an engaging learning medium but also to evolve

into a sustainable and inclusive tool for strengthening Arabic language competencies across diverse educational contexts.

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### **Author' Contribution Statement**

Conceptualization and research design were carried out by Ihda Auliya Ainul Jannah and Syarifudin Basyar. The development of the learning media and data collection were conducted by Ihda Auliya Ainul Jannah. Data analysis and interpretation were performed collaboratively by Erlina and Koderi. The literature review and theoretical framework were developed by Nurul Fadlilah. Writing of the original draft was prepared by Ihda Auliya Ainul Jannah, while Syarifudin Basyar, Erlina, and Koderi contributed to reviewing and editing the manuscript. All authors read and approved the final version of the manuscript.

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