

Development of the Adabiya Android-Based Application for Teaching Social Media Ethics in Islamic Education and Character Building for 11th Grade at SMK PGRI 1 Ponorogo

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ARTICLE INFO	ABSTRACT
Keywords: Application; Development; Islamic Education and Character Building; Social Media Ethics	The appropriate use of learning media can make the learning process more engaging, yet the use of learning media in Islamic Religious Education and Character Education is still limited and tends to rely on lecture methods, a teacher-centered approach, and Student Worksheets, resulting in low student participation and lack of variation in learning activities. In addition, the rapid development of technology has not been optimally utilized to support learning. Therefore, this study aimed to: (1) describe the development process of the Android-based Adabiya mobile learning application as a learning media for Islamic Religious Education and Character Education on the topic Adab of Using Social Media for 11 th grade students of SMK PGRI 1 Ponorogo, (2) describe the feasibility of the application, and (3) describe students' responses toward its use. This study employed the Research and Development (R&D) method using the ADDIE model, consisting of analysis, design, development, implementation, and evaluation stages. Data were collected through observation, interviews, and questionnaires. The validation results showed scores of 96% from material experts and 95.2% from media experts, while students' responses reached 90.4%. These findings indicate that the Adabiya mobile learning application is highly feasible as a learning medium.
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INTRODUCTION

The development of the educational world continues progressively in line with the advancement of technology and science. This condition demands innovation in the learning system in order to produce high-quality and meaningful learning processes. In efforts to improve the quality of learning, teachers hold a strategic role as determining factors of success because they interact directly with students in every stage of the teaching and learning process.¹ Enjoyable, meaningful, effective, and engaging learning is influenced by various aspects, one of which is the use of diverse learning media that suit students' needs.²

Learning media have an important function in creating an effective, engaging, and interactive learning atmosphere. In the current digital era, learning media continue to develop alongside advancements in information and communication technology, ranging from visual and audio-visual media to internet- and computer-based digital applications.³ In the context of communication, the existence of media becomes one of the main aspects because it serves as a means of conveying information effectively from the communicator to the communicant.⁴

The appropriate use of media enables teachers to present learning activities that are more efficient and effective, while also increasing students' motivation and involvement in the learning process.⁵ In addition, the use of learning media helps deliver learning materials more concisely, makes them easier to understand, and facilitates the cultivation of positive values in students.⁶

The rapid development of technology has also encouraged the utilization of smartphones as learning media. Android-based smartphones not only function as communication tools, but also have great potential to support teaching and learning activities because they are easily accessible, flexible, and can be used anytime and anywhere.⁷ The presence of Android application-based learning media is believed to provide a different learning experience from conventional media, thereby increasing students' interest, motivation, and active participation in learning.⁸

However, the learning process of Islamic Religious Education (PAI) and Character Building is still often dominated by lecture methods, teacher-centered instruction, and reliance on textbooks and Student Worksheets (LKS).⁹ The results of observations at SMK PGRI 1 Ponorogo showed that the learning process still takes place in a one-way manner, so

¹ Widia Ningsih et al., *Buku Ajar Media Pembelajaran* (Purbalingga: Eureka Media Aksara, 2024), 1.

² Cepy Riyana, *Media Pembelajaran* (Jakarta Pusat: Direktorat Jenderal Pendidikan Islam Kementerian Agama RI, 2012), 3.

³ Isop Syafei, *Media Pembelajaran* (Bandung: Widina Media Utama, 2025), 1.

⁴ Muhammad Ilham et al., *Media Pembelajaran: Teori, Implementasi, Dan Evaluasi* (Bantul: Jejak Pustaka, 2023), 1.

⁵ Syahrudin Mahmud et al., *Media Pembelajaran* (Cirebon: Lovrinz Publishing, 2023), 1–2.

⁶ Rina Puji Utami, "Pentingnya Pengembangan Media Pembelajaran Dalam Kegiatan Proses Belajar Mengajar," *Dharma Pendidikan: Jurnal Pendidikan Dan Pembelajaran* 12, no. 2 (2017): 63–64.

⁷ Rizka Amisa Putri, Supri Wahyudi Utomo, and Nur Wahyuning Sulistyowati, *Buku Panduan Mobile Learning Berbasis Android Dengan Pendekatan Saintifik Pada Materi Jurnal Umum Untuk SMA* (Pekalongan: PT Nasya Expanding Management, 2020), 2.

⁸ Putri, Utomo, and Sulistyowati, 2.

⁹ Ani Nur Aeni et al., "Pelatihan Pembuatan Media Pembelajaran Aplikasi Android Berbasis Smart Apps Creator Untuk Meningkatkan Kemampuan Inovasi Guru Pendidikan Agama Islam," *Prima Abdika: Jurnal Pengabdian Masyarakat* 4, no. 3 (2024): 601.

students' involvement in teaching and learning activities has not been optimal. In addition, the lack of innovation and the limited use of technology-based media make learning less varied, less engaging, and more difficult for students to understand the learning materials.¹⁰

Based on these conditions, the development of Android-based learning media is considered relevant because most students already own Android-based smartphones, while learning media that follow technological developments are still limited. Therefore, the researcher developed the Android-based Adabiya mobile learning application as a learning medium for Islamic Education and Character Building on the topic of Ethics in Using Social Media for 11th grade students at SMK PGRI 1 Ponorogo.

Several previous studies that are related and relevant to this research include the study by Siti Sofiyatun (2024) regarding the development of Flipbook-based learning media, which was declared highly valid and feasible for use,¹¹ the study by Anis Faizatur Rahmah (2024) regarding the development of Pear Deck-based interactive learning media, which obtained a highly feasible category,¹² and the study by Firman Danar Prakoso (2024) regarding the development of Android application-based learning media, which was categorized as highly feasible and capable of attracting students' interest.¹³ The similarity between those studies and this research lies in the use of the Research and Development (R&D) method and the development of technology-based learning media to support Islamic Education and Character Building learning, while the differences lie in the types of media, application platforms, materials, and educational levels used.

This research and development study aims to describe the development process, the level of feasibility, and students' responses toward the use of the Android-based Adabiya mobile learning application in Islamic Education and Character Building learning. This application development offers novelty in terms of features, such as a simple interface design, comprehensive menus, ease of understanding, and an application development process that is easy to implement. This development is expected to become an alternative solution for creating learning that is more engaging, effective, and capable of encouraging students' active involvement in understanding the learning materials.

RESEARCH METHOD

This study employed the Research and Development (R&D) method. Research and development are directed toward creating a product through a series of systematic development stages.¹⁴ The development model applied in this study was ADDIE, which

¹⁰ "Observation at SMK PGRI 1 Ponorogo," October 29, 2025.

¹¹ Siti Sofiyatun, "Pengembangan Media Pembelajaran Pocket Book of Islamic Religion (Pokemon) Materi Adab Bersosial Media Dalam Pandangan Islam Fase D Mata Pelajaran Akidah Akhlak Menggunakan Aplikasi Flipbook" (Thesis, Nahdlatul Ulama Sunan Giri University, Bojonegoro, 2024).

¹² Anis Faizatur Rahmah, "Pengembangan Media Pembelajaran Interaktif Berbasis Aplikasi Pear Deck Pada Mata Pelajaran PAI Dan Budi Pekerti Materi Adab Menggunakan Media Sosial Kelas XI Di SMAN 1 Ngraho" (Thesis, Nahdlatul Ulama Sunan Giri University, Bojonegoro, 2024).

¹³ Firman Danar Prakoso, "Pengembangan Media Pembelajaran Akidah Akhlak Berbasis Aplikasi Android Untuk Siswa Kelas 7 MTs Negeri 5 Ngawi" (Thesis, Ponorogo State Islamic Institute, 2024).

¹⁴ Leon Andretti Abdillah et al., *Metodologi Penelitian Dan Analisis Data Comprehensive* (Cirebon: Insania, 2021), 117.

consists of five stages: analysis, design, development, implementation, and evaluation.¹⁵ The subjects of this study were 11th grade DKV students at SMK PGRI 1 Ponorogo.

The data collection techniques were carried out through observation, interviews, and questionnaires. The data obtained from this study consisted of qualitative and quantitative data. The Likert scale was used as a reference in measuring the feasibility level of the developed learning media.¹⁶ The Likert scale consists of five assessment categories as explained below:¹⁷

Table 1. Scoring Criteria

Criteria	Score
Strongly Appropriate (SA)	5
Appropriate (A)	4
Moderately Appropriate (MA)	3
Less Appropriate (LA)	2
Strongly Less Appropriate (SLA)	1

The percentage results of the calculations were classified through score criteria based on the Likert scale. This classification was conducted to obtain an overview of the feasibility of the developed learning media. The score criteria according to the Likert scale are presented as follows:¹⁸

Table 2. Feasibility Criteria of Learning Media

No.	Score	Interpretation
1.	81%–100%	Highly Feasible
2.	61%–80%	Feasible
3.	41%–60%	Moderately Feasible
4.	21%–40%	Less Feasible
5.	0%–20%	Highly Less Feasible

RESULT AND DISCUSSION

The Development Process of the Android-based Adabiya Mobile Learning Application

The development process of the Android-based Adabiya mobile learning application was carried out by referring to the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation.¹⁹ Each stage was conducted sequentially and interrelatedly in order to produce learning media that are effective and aligned with users' needs.

¹⁵ Zef Risal, Rachman Hakim, and Aminol Rosid Abdullah, *Metode Penelitian Dan Pengembangan: Research and Development (R&D) Konsep, Teori-Teori, Dan Desain Penelitian* (Malang: CV Literasi Nusantara Abadi, 2022), 51.

¹⁶ Siti Fatimatuz Zahro and Sumadi, "Uji Validitas Media Pembelajaran Berbasis Video Animasi Menggunakan Aplikasi Doratoon Guna Meningkatkan Pemahaman Peserta Didik," *Pendas: Jurnal Ilmiah Pendidikan Dasar* 10, no. 2 (2025): 179.

¹⁷ Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, Dan R&D* (Bandung: Alfabeta, 2019), 146.

¹⁸ Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik* (Jakarta: Rineka Cipta, 2010), 44.

¹⁹ Risal, Hakim, and Abdullah, *Metode Penelitian Dan Pengembangan: Research and Development (R&D) Konsep, Teori-Teori, Dan Desain Penelitian*, 51.

1. Analysis

The initial stage, namely analysis, was conducted by collecting various data and identifying the needs that had to be fulfilled in the learning process. In the Islamic Education and Character Building subject for 11th grade DKV at SMK PGRI 1 Ponorogo, several conditions were found to underlie the development process, including the learning process still tending to be dominated by lecture methods with a teacher-centered approach, the use of teaching materials relying mostly on Student Worksheets (LKS), and the limited innovation and utilization of science and technology (IPTEK)-based media.²⁰

The observation results revealed that students had a high interest in the use of Android devices, which had become part of their daily activities. Nevertheless, the monotonous learning process created boredom and reduced students' enthusiasm for learning.²¹ Students expected innovations that could create a learning environment that is less monotonous and more engaging.

In my opinion, the media currently used are less helpful in understanding the learning materials. Learning activities rely more on books, which sometimes makes the lessons less engaging and causes me to become bored quickly. As a result, I also become less focused during the lessons and sometimes find it difficult to understand the explained materials.²²

So far, learning activities have relied heavily on Student Worksheets (LKS) as the primary source of learning. The limited utilization of technology-based media has caused the learning experience to be not fully interactive. Based on an interview with one of the students, the method was perceived as monotonous and often caused drowsiness during the learning process.

Previously, I felt that classroom learning was rather boring because we usually only read materials from books and then worked on the questions provided in those books. The learning process was often carried out in that way, so in my opinion it felt monotonous. I also think that such a method makes me become bored more easily and sometimes feel sleepy during the lessons.²³

2. Design

At the design stage, the researcher prepared the framework planning for the learning media in the form of an Android-based mobile learning application. The planning included the media structure and the presentation of materials so that both could be systematically and sequentially integrated. The materials included in the application were compiled based on the Islamic Education and Character Building textbook for Senior High School/Vocational High School Grade XI published by the Ministry of Education, Culture, Research, and Technology in 2021, which implements the Merdeka Curriculum, so that the learning content remains aligned with the applicable curriculum standards.

In the development process, the researcher prepared various supporting tools, including CorelDRAW Graphics Suite, Microsoft PowerPoint, iSpring Suite, Java, and

²⁰ "Observation at SMK PGRI 1 Ponorogo."

²¹ "Observation at SMK PGRI 1 Ponorogo."

²² I.F.Y (11th Grade DKV Student), "Pre-Research Interview at SMK PGRI 1 Ponorogo," trans. Author, November 12, 2025.

²³ I.F.Y (11th Grade DKV Student).

Web 2 Apk Builder. The resulting product was named Adabiya because it is related to the topic of Ethics in Using Social Media, thereby reflecting the focus of teaching and learning contained within the application.

With careful planning, the developed application is expected to support learning activities effectively and efficiently. The learning media design prepared by the researcher consists of several components, namely the splash screen, main menu, navigation drawer, bottom navigation bar, Learning Materials, Murattal of *Naqli* Evidence on Ethics in Social Media Use, Practice Questions, Learning Videos, Material Summaries, Games, Self-Analysis, Learning Objectives, Group Discussions, User Guide, Help Services, and About the Application.

3. Development

At the development stage, the researcher began realizing the previously prepared design into an application form. This stage included three main activities, namely the creation of the Android-based Adabiya mobile learning application, the implementation of validation tests by media experts and material experts, and the revision of the application based on suggestions and recommendations from the experts.

In general, the stages of developing the Android-based Adabiya mobile learning application until it became a product ready for feasibility testing included designing the application interface using CorelDRAW Graphics Suite, inputting the interface design into Microsoft PowerPoint, creating practice questions using iSpring Suite, inserting learning videos and external links, arranging navigation and hyperlinks between pages, and converting the PowerPoint file into HTML format through iSpring Suite.

The product validation process in this study was divided into two categories, namely material expert validation and media expert validation. The material expert validation was conducted by two validators to assess the suitability of the content with the objectives and characteristics of learning, namely Siti Rohmaturosyidah Ratnawati, which was conducted on Tuesday, February 24, 2026, and Mohamad Isno, which was conducted on Wednesday, February 25, 2026. Meanwhile, the media expert validation was conducted by Yoga Prismanata on Wednesday, February 25, 2026, focusing on the aspects of appearance, design, and the technical feasibility of the application.

The validation results from the material experts and media expert indicated that the product fell into the “highly feasible” category. Nevertheless, the developed media still required several improvements as a follow-up to the suggestions and feedback provided by the validators. The recommendations for revision from the material experts and media expert included that terms using foreign languages should be written in italic format; more detailed descriptions or explanations regarding *naqli* evidence on ethics in using social media should be added; and instructions for use should be added to the Learning Materials menu page to help users understand the learning flow more easily.

In addition, several other suggestions were also provided, namely that the text in the learning materials should use justified alignment to create a neater and more comfortable appearance for reading; in the subsection Ethics in Using Social Media, the use of bold formatting should not be applied because it only emphasizes certain specific

points; and decorative elements on the learning material content pages should be reduced so that users' focus remains directed toward the learning materials.

4. Implementation

The implementation stage was the field testing process conducted after the product had obtained approval from the media expert and material experts and had undergone revisions based on the validators' suggestions. At this stage, the Android-based Adabiya mobile learning application was implemented with the research subjects, namely 18 students of 11th grade DKV at SMK PGRI 1 Ponorogo, consisting of 5 male students and 13 female students.

The implementation stage aimed to determine the feasibility of using the media in actual learning situations while also obtaining an overview of students' responses toward the developed application. The implementation process was carried out through two stages of trials, namely a small-scale trial (pilot study) and a trial involving all students in one class. The small-scale trial involved five students and was conducted on Thursday, February 26, 2026, while the one-class trial was conducted on Thursday, March 5, 2026.

During the implementation stage, several obstacles were still encountered, so a number of adjustments to the Android-based Adabiya mobile learning application were required. The improvements made included compressing or reducing the application file size, considering that some students' devices had limited storage capacity; providing alternative access for students using iOS devices; and addressing issues in the Game feature, particularly in the crossword puzzle game, where problems occasionally occurred when users entered or typed answers.

The Adabiya Android-based Mobile Learning application, developed as a learning media product for Islamic Education and Character Building on the topic of Ethics in Using Social Media for 11th Grade students, can be downloaded via the following link: <https://s.id/unduhadabiya> or by scanning the QR code below.



Figure 1. QR Code for Downloading the Adabiya Application

5. Evaluation

The final stage of the application development process was evaluation. The implementation of the Android-based Adabiya mobile learning application for 11th grade DKV students at SMK PGRI 1 Ponorogo produced data regarding students' responses toward the developed learning media. The data were obtained after the students participated in learning activities using the application, thereby providing an overview of

their responses toward the use of the media in the learning process.

The students showed positive responses while using the application. These responses indicated that the application could be used properly and provided an enjoyable learning experience for the students. They stated that the Android-based Adabiya mobile learning application was able to help explain the learning materials, making them easier to understand.

In my opinion, the materials available in the Adabiya application help me understand the concepts being studied. The explanations are arranged clearly, making it easier for me to grasp the content of the materials. I can study the materials independently through my smartphone without having to wait for explanations from the teacher in class. The materials are already available in the application, so I can reread them anytime whenever I want to understand the lesson better.²⁴

The students also expressed their interest in the Game feature available in the application. The presence of this feature made the learning process more engaging so that they did not become bored easily. On the contrary, the games presented provided their own challenges for the students.

The materials presented in the Adabiya application make me more interested in studying them. The way the materials are presented does not feel monotonous, so I can focus more while reading and understanding the content. In addition, I also like the Game section more. It prevents me from getting bored easily and even feels like a challenge to find out how well I understand the materials.²⁵

The Feasibility of the Android-based Adabiya Mobile Learning Application

The feasibility level of a learning medium is a very important aspect. Before being utilized in the learning process, a medium needs to undergo testing based on several criteria to ensure its level of feasibility.²⁶ Through this process, the suitability level of the learning media with the criteria required to support the teaching and learning process can be determined.

In this study, the feasibility level of the Android-based Adabiya mobile learning application was determined through a validation process conducted by experts, namely material experts and media experts. Media experts are individuals who possess expertise and experience in the field of learning media development, while material experts are parties who have an understanding of the learning materials that become the focus of the media.²⁷ By involving both types of experts, the test results obtained are expected to provide an overview of the quality and feasibility of the developed application.

²⁴ I.S. (11th Grade DKV Student), "Evaluation Interview on the Implementation for All 11th Grade DKV Students," trans. Author, March 5, 2026.

²⁵ I.F.Y. (11th Grade DKV Student), "Evaluation Interview on the Implementation for All 11th Grade DKV Students," trans. Author, March 5, 2026.

²⁶ Muh. Rijalul Akbar et al., "Kelayakan Media Pembelajaran Flashcard Interaktif Dalam Pemanfaatannya Pada Pembelajaran Yang Berintegrasi Pada Budaya Lokal (Leksikon Kuliner Bima)," *JPPI: Jurnal Pendidikan Dan Pembelajaran Indonesia* 4, no. 4 (2024): 1407.

²⁷ Marlina Eliyanti Simbolon, Fazrul Prasetya Nur Fahrozy, and Sindi Ladya Baharizqi, *Bahasa Indonesia Untuk Perguruan Tinggi* (Yogyakarta: Deepublish Digital, 2024), 88.

Table 3. Material Expert Validation Results

No.	Aspect	Indicator	Assessment				
			1	2	3	4	5
1.	Content Feasibility	The materials are aligned with the established competency standards and basic competencies.					2
		The materials are appropriate to the students' developmental level.					2
		The material content is relevant to the needs of teaching materials in the learning process.					2
		The materials are aligned with the studied topics or subject matter.					2
		The materials help broaden students' knowledge and insights.					2
		The material content is aligned with prevailing moral values and social norms.				1	1
2.	Language	The text in the materials is easy to read and understand.					2
		The information is conveyed clearly.					2
		The language usage is in accordance with proper and correct Indonesian language rules.				1	1
		The language used is communicative, straightforward, and not overly wordy.				1	1
3.	Presentation	The learning objectives or achievement indicators are presented clearly.					2
		The materials are presented sequentially and systematically.					2
		The materials have an appeal that can increase learning interest.					2
		The materials encourage interaction through students' stimulus and responses.				1	1
		The presented information is complete and supports comprehensive understanding.				2	
		Total Responses				6	24
Accumulated Response Score					24	120	
Total					144		
Average					4,8		
Percentage					96%		

The validation of product feasibility was conducted using a questionnaire instrument developed based on the Likert scale. This instrument was used to obtain validation from material experts regarding the quality of the content contained in the developed application. Based on the test results, a score percentage of 96% was obtained. This percentage achievement indicates that the Android-based Adabiya mobile learning application possesses

good material quality and has fulfilled the standards required in the development of learning media.

Table 4. Feasibility Criteria of Material Expert Validation Results

No.	Score	Interpretation
1.	81%–100%	Highly Feasible
2.	61%–80%	Feasible
3.	41%–60%	Moderately Feasible
4.	21%–40%	Less Feasible
5.	0%–20%	Highly Less Feasible

Thus, the developed product can be declared highly feasible for use as one of the learning media in the learning process. The validation results refer to the feasibility criteria of learning media, which state that scores within the range of 81%–100% are categorized as highly feasible for use.²⁸

These results also indicate that the developed application has fulfilled several criteria in terms of material quality. According to the Indonesian Ministry of National Education (Depdiknas), these criteria include aspects of content feasibility, language, and presentation.²⁹ These three aspects became the main indicators used in the validation questionnaire instrument to assess the quality of the materials presented in the application. The fulfillment of these three aspects indicates that the delivered materials are aligned with learning needs, presented using clear language, and organized systematically, thereby making it easier for students to understand the learning materials.³⁰

Table 5. Media Expert Validation Results

No.	Aspect	Indicator	Assessment				
			1	2	3	4	5
1.	<i>Functional Suitability</i>	The application has complete features according to users' needs.					✓
		The application produces accurate outputs in accordance with the commands given by users.					✓
		The features in the application assist and facilitate users in achieving the objectives of use.				✓	
2.	<i>Performance Efficiency</i>	The software responds to commands quickly.					✓
		The software does not excessively consume memory, battery, or storage.				✓	
		The application remains stable during use.					✓
3.	<i>Compatibility</i>	The software can run properly even when used simultaneously with other applications.					✓
		The application can exchange and utilize data with					✓

²⁸ Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, 44.

²⁹ Depdiknas, *Panduan Pengembangan Bahan Ajar* (Depdiknas, 2008), 25.

³⁰ Santrianawati, "Pengembangan Buku Media Pembelajaran Berbasis Produk Menggunakan Pendekatan Kontekstual Sebagai Sumber Belajar," *Indragiri Journal* 1, no. 4 (2018): 49.

No.	Aspect	Indicator	Assessment				
			1	2	3	4	5
		other systems smoothly.					
4.	Usability	The software can be used easily and comfortably by all users.					✓
		The software is easy to learn and understand in a short time.					✓
		The application is easy to operate and control without significant difficulties.					✓
		The application has an attractive and visually comfortable appearance.					✓
		The software uses layouts, colors, and typography that are consistent and easy to read.				✓	
		The application displays clear illustrations, icons, and images that support users' understanding.					✓
5.	Portability	The application can run properly on various devices or usage conditions.					✓
		The software is easy to install and uninstall without obstacles.				✓	
		The application can be used without causing problems or disruptions.					✓
		Total	81				
		Average	4,76				
		Percentage	95,2%				

Meanwhile, the validation results conducted by the media expert showed a score percentage of 95.2%. This score indicates that the media elements contained in the Android-based Adabiya mobile learning application have been assessed as being in accordance with the principles of learning media development. With this percentage achievement, the developed application can be categorized as having good media quality, making it highly feasible to be utilized as a supporting tool in learning activities.

Table 6. Feasibility Criteria of Media Expert Validation Results

No.	Score	Interpretation
1.	81%–100%	Highly Feasible
2.	61%–80%	Feasible
3.	41%–60%	Moderately Feasible
4.	21%–40%	Less Feasible
5.	0%–20%	Highly Less Feasible

The validation results from the media expert also indicated that the Android-based Adabiya mobile learning application had fulfilled several main criteria, namely functional suitability, performance efficiency, compatibility, usability, and portability.³¹ Based on the

³¹ Nadiyah Ratnaduhita, Yupit Sudianto, and Aris Kusumawati, "ISO/IEC 25010: Analisis Kualitas

ISO 25010 quality standards, these aspects generally relate to the suitability of the application's functions, the capability and performance of the application, ease of use, and the flexibility of the application. Compliance with these five aspects indicates that the developed application possesses good quality as a learning medium.

This is also in line with the view of the Association for Educational Communications and Technology (AECT), which defines media as both channels and forms used to convey learning messages or information.³² Thus, the feasibility of the Adabiya application is not only reflected in its material content, but also in its ability to serve as a medium for delivering learning messages to students.

This feasibility can also be understood through the perspective of Oemar Hamalik, who stated that learning is an integrated system involving various interconnected elements, such as materials, people, facilities, procedures, and equipment.³³ In this context, the Adabiya application not only functions as a medium for delivering materials, but also becomes part of the learning system that supports the integration of these elements.

This is also related to the view of Robert Heinich, who defined media as facilities or channels in the learning communication process. A medium can be categorized as learning media if it contains messages designed to achieve learning objectives. In this regard, the Adabiya application has fulfilled these criteria because it not only presents learning materials, but also organizes them systematically in accordance with the competencies to be achieved. Furthermore, Heinich emphasized the close relationship between media, messages, and methods. This is reflected in the Adabiya application, which integrates these three elements harmoniously.³⁴

Although the Android-based Adabiya mobile learning application was considered highly feasible for use as a learning medium, the material experts and media expert provided several suggestions and recommendations for improvement. Some of the suggestions given were related to adding explanations to the materials, providing learning instructions, improving aspects of text arrangement, and adjusting several decorative design elements. These suggestions were intended to ensure that the developed application could be utilized more optimally.

Students' Responses toward the Android-based Adabiya Mobile Learning Application

Students, as the primary users of learning media, need to have their responses toward the media used in the learning process identified. These responses may take the form of positive or negative evaluations that reflect their experiences while using the learning media. One way to obtain such information is through the distribution of user response questionnaires.

Sistem E-Learning Sebagai Media Pembelajaran Online,” *Journal of Information System, Graphics, Hospitality, and Technology* 5, no. 1 (2023): 10.

³² Melda Veby Ristella Munthe et al., *Media Pembelajaran* (Tasikmalaya: Perkumpulan Rumah Cemerlang Indonesia, 2023), 4.

³³ Ilham et al., *Media Pembelajaran: Teori, Implementasi, Dan Evaluasi*, 1.

³⁴ Rudi Susilana and Cepi Riyana, *Media Pembelajaran: Hakikat, Pengembangan, Pemanfaatan, Dan Penilaian* (Bandung: CV Wacana Prima, 2018), 6.

Table 7. User Response Questionnaire Results

No.	Aspect	Indicator	Assessment				
			1	2	3	4	5
1.	<i>Appropriateness Recognisability</i>	Users can quickly understand the usefulness of the application and the scope of the presented materials.				7	11
		The available features and menus are easily recognized as tools for studying the materials.			1	8	9
		The presented content feels relevant to users' learning needs.			1	6	11
2.	<i>Learnability</i>	Users can understand the presented materials through the available features.				8	10
		The presentation of materials (texts, images, videos, or illustrations) helps the process of understanding concepts.			1	5	12
		Clear navigation helps users move systematically between material sections.			1	8	9
		The available exercises or evaluations help users deepen their understanding of the materials.			2	4	12
3.	<i>Operability</i>	Navigation between pages runs smoothly and consistently.	1	1		5	11
		Commands given by users produce appropriate responses.				8	10
		Users can control and access features according to their preferences without difficulty.			1	9	8
4.	<i>User Error Protection</i>	The system provides confirmation before important actions are performed.	1	1		6	10
		Users can correct errors easily without losing important data.				9	9
5.	<i>User Interface Aesthetics</i>	The display layout appears neat and well-structured.			2	7	9
		The combination of colors and typography is visually comfortable.			1	4	13
		The design of icons and visual elements is attractive and consistent.			1	5	12

No.	Aspect	Indicator	Assessment				
			1	2	3	4	5
6.	Accessibility	The visual design supports attractiveness and increases users' learning motivation.		1		4	13
		The materials can be read clearly on various device screen sizes.				9	9
		Users can access the materials anytime according to their learning needs.				6	12
		The color contrast and text size support the readability of the materials.	1	1	5	11	
		The content can be accessed without requiring complicated technical settings.			1	6	11
Total Responses			4	15	129	212	
Accumulated Response Score			8	45	516	1060	
Total			1629				
Average			4,52				
Percentage			90,4%				

Based on the results of the questionnaire distributed to all 11th grade DKV students at SMK PGRI 1 Ponorogo, a score percentage of 90.4% was obtained. These results indicate that the Android-based Adabiya mobile learning application falls into the highly feasible category for use as a medium in learning activities.

Table 8. Feasibility Criteria of User Response Questionnaire Results

No.	Score	Interpretation
1.	81%–100%	Highly Feasible
2.	61%–80%	Feasible
3.	41%–60%	Moderately Feasible
4.	21%–40%	Less Feasible
5.	0%–20%	Highly Less Feasible

The results of the user response questionnaire indicate that the application has fulfilled several criteria related to user comfort and the suitability of media usage by users. One of the software testing standards that can be used to evaluate the quality of developed software is the ISO 25010 quality standard.³⁵ Based on this standard, several criteria are included, namely appropriateness recognisability, learnability, operability, user error protection, user interface aesthetics, and accessibility.³⁶ In general, these aspects relate to the clarity of the application's

³⁵ Mustari S. Lamada, Muhammad Riska, and Muhammad Fiqri W.R, "Pengembangan Media Pembelajaran Berbasis Android Menggunakan Aplikasi Construct 2 Pada Materi Ekosistem Siswa MTs Tanah Gunung," *Jurnal Media TIK: Jurnal Media Pendidikan Teknik Informatika Dan Komputer* 6, no. 3 (2023): 136.

³⁶ Amrullah Maulana Fiqri, Arif Alfariy, and Tata Sutabri, "Evaluasi Kualitas Learning Management System Berdasarkan ISO 25010 Pada SMK Muhammadiyah 1 Palembang," *Explore: Jurnal Sistem Informasi Dan Telematika (Telekomunikasi, Multimedia Dan Informatika)* 14, no. 1 (2023): 81.

functions, ease of learning and operation, the application's ability to minimize user errors, an attractive and comfortable interface design, and ease of access in utilizing the application.³⁷

In addition, the students also responded that the Android-based Adabiya mobile learning application was able to help them understand the learning materials better. The presentation of the materials was considered not too lengthy, organized concisely, and easy to understand. The appearance of the application was also regarded as attractive, thereby increasing students' interest in learning. Several features available in the application also provided a more enjoyable learning experience and encouraged students to become more interested in studying the materials.

Nevertheless, the students also reported several obstacles that occasionally appeared, such as difficulties during the application installation process and disturbances in certain features. However, these obstacles could be resolved immediately during the implementation process, so they did not hinder the use of the application in learning activities. Based on the observation results as well, the developed Android-based Adabiya mobile learning application was able to function properly as a learning medium, thereby fostering positive responses in classroom learning activities.

The Adabiya application has fulfilled various criteria related to the comfort and suitability of media usage. These findings are in line with the view of Robert M. Gagne, who stated that media are all elements within the learning environment that can stimulate the occurrence of the learning process.³⁸ In this context, the Adabiya application not only serves as a supporting tool, but also as a stimulus capable of attracting attention, facilitating the understanding of learning materials, and encouraging students' active involvement.

The view of Leslie J. Briggs states that media are physical devices that can be utilized to present information while simultaneously encouraging students to learn.³⁹ In this context, the Adabiya application is not merely a tool for delivering materials, but also a medium capable of fostering learning motivation through its attractive appearance and interactive features. Thus, when related to the theories of Gagne and Briggs, the Adabiya application can be understood as part of the learning environment as well as a physical device that functions to encourage students in the learning process.

CONCLUSION

The development of the Android-based Adabiya mobile learning application was carried out using the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation. The development process began with an analysis of learning needs, followed by the design of the application interface and learning materials, and continued with product development through validation by material experts and media experts, as well as revisions based on their suggestions. The validation results showed a score percentage of 96% from the material experts and 95.2% from the media experts, indicating that the Android-based Adabiya mobile learning application falls into the

³⁷ Ratnaduhita, Sudianto, and Kusumawati, "ISO/IEC 25010: Analisis Kualitas Sistem E-Learning Sebagai Media Pembelajaran Online," 10.

³⁸ Munthe et al., *Media Pembelajaran*, 4.

³⁹ Munthe et al., 4.

highly feasible category for use as a learning medium for Islamic Education and Character Building on the topic of Ethics in Using Social Media.

The responses of 11th grade DKV students at SMK PGRI 1 Ponorogo toward the use of the Android-based Adabiya mobile learning application obtained a score percentage of 90.4%, categorized as highly feasible. These results indicate that the application can be utilized as a learning medium that helps students understand the learning materials more easily and clearly. Therefore, this application can be used as an alternative learning medium to support the delivery of Islamic Education and Character Building materials, and it can also be used independently by students to deepen their understanding of the learning content.

Future development is expected to include the addition of materials, features, and other improvements so that the use of the application can become more optimal. In addition, the results of this study may serve as a reference for future research to conduct further studies that not only assess the level of feasibility and user responses, but also examine the effectiveness of the media in improving students' learning outcomes.

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