

# DEVELOPMENT OF AN ANDROID-BASED BUGIS MORAL TEACHING APPLICATION FOR SHAPING THE ATTITUDES OF THE YOUNGER GENERATION

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## ABSTRACT

*This study employs a Research and Development (R&D) approach aimed at developing a mobile application that presents traditional Bugis moral teachings, specifically intended to foster positive attitudes among the younger generation. The motivation for this development stems from the limited availability of Bugis proverbs and advice in digital formats and the growing lack of awareness and engagement with ancestral wisdom among today's youth. The development process followed the Luther model, which includes stages such as concept, design, material collecting, assembly, testing, and distribution. The application was evaluated through expert validation and user testing. Media experts rated the application with an average score of 3.8, corresponding to a quality percentage of 76%, while material experts gave an average score of 4.1, equivalent to 82%. Furthermore, user testing yielded an average score of 63.25, with a quality percentage of 84%. These results indicate that the application is considered feasible and effective, meeting criteria of practicality and ease of use. Therefore, the Bugis moral teaching application holds potential as an innovative tool to preserve cultural values and support character education for young users.*

**Keywords:** Application Development, Attitude Formation, Bugis Culture, Moral Education, Younger Generation

## INTRODUCTION

The current millennial generation tends to spend more time with digital devices than engaging in direct social interactions, leading to increasing dependence on technology, particularly social media. This shift not only reduces face-to-face communication but also contributes to lifestyle changes and psychological issues such as anxiety and depression (Fauzi, 2018). According to Cindy Mutia Annur, the number of internet users in Indonesia as of January 2023 reached 213 million, accounting for approximately 77% of the total population of 276.4 million (Annur, 2023).

This statistic reflects the rapid advancement and widespread penetration of information and communication technology across Indonesian society. However, it has also led to an unintentional shift in values, largely influenced by globalization and Western cultural dominance in the digital space (Bayuseto, 2023). If left unaddressed, such trends could undermine local cultural values, weakening the national identity embedded in the motto *Bhinneka Tunggal Ika*, which represents Indonesia's unity in diversity.

Indonesia, as a multicultural nation composed of various ethnicities, cultures, religions, and local communities, faces the challenge of preserving its rich local wisdom amidst rapid technological development. This local wisdom has long served as a source of normative stability (Yuyun, 2023). Media ecology experts, such as Marshall McLuhan, assert that media and technology interact with social and cultural environments, significantly influencing human thought, emotion, and behavior (Meisyaroh, 2014).

Lance Strate further emphasizes that media and information technology can radically shift societal paradigms and alter social structures (Apriliyanti, 2020). Consequently, these changes may result in a state of social anomie, where society struggles to adapt, leading to what sociologists describe as cultural lag (Setiawan, 2018).

Local wisdom refers to the knowledge, values, and traditional practices rooted in specific regions or cultures, especially in relation to sustainable development. This includes traditional ecological knowledge, natural resource management, and environmental preservation (Usman, 2021). In

many cases, such practices are more effective than modern methods (Yuyun, 2023).

A notable example is the Bugis community of South Sulawesi, which continues to uphold its cultural identity despite modernization (Adhwaul, 2023). The Bugis people possess rich local wisdom, including life philosophies known as *pappaseng* or *pangaja*, which are moral messages that convey norms and etiquette relevant to various aspects of life such as social interaction, governance, politics, and economics (Mursalim, 2020). Historically, these teachings were transmitted orally by elders. Today, however, many of them exist in written form, preserved in *Lontara* manuscripts inscribed on palm leaves (Adhwaul, 2023; Hasbi, 2022).

These manuscripts contain a wealth of ancestral moral teachings (Adhwaul, 2023). The *pappaseng to riolo* (ancient messages) passed down across generations contain values that guide character and morality, functioning as a comprehensive philosophy of life (Iskandar, 2016; Handayani & Sunarso, 2020; Abbas, 2013). These messages promote key virtues such as responsibility, respect, justice, courage, compassion, discipline, care, and perseverance (Dalmeri, 2014; Jumrana, 2018).

Unfortunately, the transmission of these teachings is gradually diminishing, especially among the younger generation, who no longer receive them orally from elders. Therefore, this research seeks to support character development among youth through the development of an Android-based application that integrates Bugis moral teachings, using the Luther model as adapted by Hadi Sutopo (Sutopo, 2003).

Moreover, previous studies have demonstrated that Android-based applications focusing on moral education and the preservation of local wisdom are effective in engaging the younger generation, who are digital natives (Holilah et al., 2024). Various applications that promote local cultural values have been well-received by the public as educational media (Öztürk, 2023). These findings suggest that developing digital applications is not only a form of technological innovation but also a societal necessity to address the erosion of traditional moral values among youth (Mir'atul Maslahah, 2023). Consequently, such applications offer a relevant and engaging approach to

contemporary moral challenges by integrating educational content with digital accessibility.

## Literature Review

The development of the *Petuah Bugis* Android application aims to support the cultivation of positive attitudes among the younger generation by utilizing technological advancements as a medium for moral education. Given the challenges in influencing students' attitudes and behaviors, this application is specifically designed to present moral norms and Bugis local wisdom in an interactive format. This approach aligns with the findings of Adilan and Mu'min, who argue that effective moral education requires direct experiences rather than relying solely on one-way verbal instruction (Adilan and Mu'min, 2023).

The application emphasizes the internalization of moral values through content that is accessible anytime and anywhere, offering users continuous opportunities to engage with educational materials. Drawing from Value and Moral Education Theory, Moral Development Theory, and Affective Theory, the application is expected to foster meaningful and lasting learning experiences while also contributing to positive social change among youth.

The traditional art of *Ma'balendo* reflects the cultural richness of the Luwu community by integrating spiritual, religious, and agricultural dimensions. It functions not only as a cultural tradition but also as a medium for transmitting profound moral and social values (Syukur, Gudang, and Rahmat, 2022). Inspired by this, the *Petuah Bugis* application seeks to digitize local wisdom such as *Ma'balendo*, making it more accessible to the younger generation. The application is designed to communicate Bugis moral teachings and values interactively, with the aim of fostering positive character development. Just as *Ma'balendo* emphasizes respect for land fertility and agricultural success, the application incorporates similar moral lessons to facilitate the internalization of cultural norms in everyday life. This approach strengthens local identity and promotes contextually relevant and meaningful learning among young users.

Research on Bugis values such as *Sipakatau*, *Sipakainge*, and *Sipakalebbi* reveals that these teachings are consistent with

Islamic principles. These values are reflected in the community's behavior, including mutual respect, ethical conduct toward government authorities, and honoring others (Hamzah, Zubair, and Satriadi, 2023).

Within the framework of the *Petuah Bugis* application, these values provide a foundational basis for shaping positive attitudes among youth. By presenting Bugis local wisdom in an interactive digital format, the application fosters the internalization of humanitarian values such as mutual respect, ethical reminders, and reciprocal appreciation. Moreover, this initiative contributes to Indonesia's religious moderation programs by promoting tolerance and national unity across different ethnic, religious, and cultural groups.

## Conceptual Framework

In the context of globalization and the pervasive influence of digital culture, the younger generation in Indonesia is undergoing a significant transformation in values. Moral principles and local wisdom, such as *pappaseng* or traditional Bugis moral teachings, which were once transmitted orally, are gradually being forgotten. This issue is exacerbated by the widespread use of digital devices among youth, who are more frequently exposed to global rather than local cultural content (Bayuseto et al., 2023). The erosion of moral identity among young people underscores the urgent need for innovative educational media that can internalize local values in ways that align with their digital habits. One strategic response is the development of the *Petuah Bugis* Android application, which presents Bugis moral teachings in a relevant and accessible digital format (Hamzah et al, 2023; Syukur et al., 2022).

This study is grounded in Media Ecology Theory, which views media as environments that shape individuals' thought processes and social interactions. In digital contexts, educational tools such as mobile applications are not merely neutral instruments; rather, they influence the cognitive and moral development of users. Digital media reshape communication patterns and have the potential to alter value systems, making media environments moral spaces in themselves (Apriliyanti, 2020; Dame Laoera and Wibowo, 2023). Thus, mobile applications have the potential to inform and

simultaneously transform moral development in young people.

The pedagogical foundation of this study draws on Thomas Lickona’s Moral Education Theory, which highlights three essential components: moral knowing, moral feeling, and moral behavior (Adilan and Mu’min, 2023). These components are crucial in evaluating the effectiveness of the application in delivering moral knowledge, nurturing empathy, and encouraging value-based actions. This is further supported by Krathwohl and Bloom’s taxonomy of the affective domain, which describes the process of internalizing values through structured learning experiences. These stages include receiving, responding, valuing, organizing, and characterizing (Ramdani et al., 2022).

Supporting the process of value internalization requires a deliberate structure in the application’s design, interactivity, and content. These elements are arranged to engage users at all levels of the affective domain. Additionally, this study is informed by Vygotsky’s Social Constructivist Theory, which asserts that knowledge and values are constructed through culturally and socially situated experiences. Educational content grounded in local wisdom enhances learners’ sense of identity and engagement (Gannar and Kilani, 2025; Usman et al., 2021). The relevance of the content to users’ cultural context is a key factor in ensuring affective and behavioral impact. Integrating constructivist and multimedia principles can improve higher-order thinking and cultural awareness (Siregar et al., 2024).

From a technical perspective, the application is developed using the Luther Model, also known as the Multimedia Development Life Cycle (MDLC), which comprises six stages: concept, design, material collection, assembly, testing, and distribution (Sutopo, 2003). The application incorporates core Bugis values such as *sipakatau* (mutual respect), *sipakainge* (reminding one another), and *sipakalebbi* (honoring others), which are key moral principles embedded in the daily life and spiritual traditions of the Bugis community. Ecological-based civics learning media can effectively connect moral education with local environmental values, making it more meaningful for learners (Feriandi et al., 2024). Digital media integrated with local cultural content can enhance both moral

competence and digital literacy among educators and students (Purworini et al., 2025).

This conceptual framework highlights that the success of the *Petuah Bugis* application is determined not only by its technical usability but also by its capacity to internalize moral values through educational, affective, and sociocultural mechanisms. The application is expected to function as both a digital learning tool and a medium for preserving and transmitting local wisdom to future generations in a way that is engaging, relevant, and transformative (Yuyun Elizabeth et al., 2023).

RESEARCH METHOD

This study employs a Research and Development (R&D) approach. R&D was selected because it emphasizes the creation and development of new products as well as their evaluation in terms of effectiveness (Sugiyono, 2016). Accordingly, the objective of this research is to develop an Android-based application that conveys Bugis moral messages. The development process follows the Luther model, adapted by Hadi Sutopo (Sutopo, 2003). This model is commonly used in media or application development and consists of several stages, including concept, design, material collection, assembly, testing, and distribution.

Research data were obtained through validation by subject matter experts and media experts, relevant literature on Bugis moral values, and the results of user surveys. Data collection techniques included interviews, observations, and literature review. In evaluating the feasibility of the developed application, this study employed research instruments in the form of questionnaires distributed to subject matter experts and media experts. These instruments were designed to assess the feasibility of the Android-based Bugis moral message application (table 1, 2,3).

Table 1. Instrument Grid for Users

No	Aspect	Indicator	Item Number
1	Display	Text Clarity	1
		Image Clarity	2,3,4
		Image-Content Relevance	5
2	Presentation of Bugis	Content Presentation	6,7,8,9,10

	Moral Messages	Content Comprehensibility	11
		Systematic Presentation Accuracy	12,13
		Sentences Clarity	14,15
		Writing Clarity	16,17
		Content Relevance to Daily Life	18
3	Usefulness	Bugis Moral Messages Comprehensibility	19,2
		Application Usage Interest	21
		Attitude Change Motivation	22,23,24
Total Items			24

Source: Data Analysis

**Table 2.** Instrument Grid for Subject Matter Experts

No	Aspect	Indicator	Item Number
1	Content	Content Completeness	1,2
		Content Breadth	3
		Content Depth	4
		Content Attractiveness	5,6
		Content Timeliness	7
2	Accuracy	Concepts Accuracy	8,9
		Facts and Data Accuracy	10,11
		References Accuracy	12
3	Presentation	Systematic Presentation Technique	13,14
		Presentation Coherence	15,16

Source: Data Analysis

**Table 3.** Instrument Grid for Media Experts

No	Aspect	Indicator	Item Number
1	Navigation Ease	Navigation Structure	1,2
		User Interface Ease	3,4
		Navigation Management	5,6
		Operating System Compatibility	7,8
2	Artistic and Aesthetic	Audio-Visual and Animation Display	9,1
		Motivational and Comfort-Enhancing Display	11,12

3	Overall Function	Display Relevant to Content	13,14
		User Capability Alignment	15,16
		User Expectation Fulfillment	17,18

Source: Data Analysis

This study used descriptive statistical analysis. The process includes the following steps:

- Calculating the average score for each instrument indicator
- Calculating the overall mean score for each assessment aspect based on the average scores of the indicators, and determining the feasibility category according to the specified score range.

The feasibility criteria based on score ranges are shown in the following table:

**Table 4.**

Feasibility Criteria Based on Score Range for Application Testing

Score Range	Category
$X > Mi + 1.8 (SDi)$	Very Feasible
$Mi + 0.6 < X < Mi + 1.8 (SDi)$	Feasible
$Mi - 0.6 < X < Mi + 0.6 (SDi)$	Moderately Feasible
$Mi - 1.8 (SDi) < X < Mi - 0.6 (SDi)$	Less Feasible
$X < Mi - 1.8 (SDi)$	Not Feasible

Source: Data Analysis

Explanation:

X = Empirical Score

Mi = Ideal Mean, calculated using the formula:

$Mi = \frac{1}{2} (\text{Highest Score} + \text{Lowest Score})$

SDi = Ideal Standard Deviation, calculated using the formula:

$SDi = \frac{1}{6} (\text{Highest Score} - \text{Lowest Score})$

The feasibility assessment scores in the table above serve as a reference for interpreting the results of expert evaluations. The scores obtained from the questionnaires indicate the feasibility level of the Android-based Bugis moral message application.

The quality percentage of the assessment is determined by calculating the total score from all assessment aspects and comparing it to the ideal total score. The following formula is used:

$$\text{Quality Percentage (\%)} = \frac{\text{Total Score of All Assessments}}{\text{Ideal Total Score}} \times 100\%$$

## DISCUSSION

The Bugis moral message application was developed using Kodular, a platform accessible through Google by logging in with an email account. The application was designed following the Luther development model, also known as the Multimedia Development Life Cycle (MDLC), which consists of six stages.

The first stage is the **concept stage**, which involves defining the objectives, content, and materials for the application. The second stage is the **design stage**, where a flowchart of the application is created to outline the structure. The third stage is the **material collection stage**, which includes gathering all content relevant to the Bugis moral messages. The fourth stage is the **assembly stage**, where the application is constructed according to the previously designed flowchart.

The results of this development process are illustrated through several interface displays, including the Bugis Moral Message logo (Figure 1), the prologue page (Figure 2), the login page (Figure 3), the user registration page (Figure 4), the main menu (Figure 5), and the top-left button menu (Figure 6). Other parts of the application include the application usage view (Figure 7), the references page (Figure 8), the instructions menu (Figure 9), the content display of Bugis moral messages (Figure 10), and the user profile page (Figure 11).

**Figure 1.** Bugis Moral Message Logo



**Figure 2.** Prologue Page Display



**Figure 3.** Login Page



**Figure 4.** User Registration Page



Figure 5. Main Menu



Figure 6. Top-Left Button Menu



Figure 7. Application Usage



Figure 8. References Page Display



Figure 9. Menu Page Instructions



Figure 10. Bugis Morale Messages Content Display





Figure 11. Profile Page Display



Source: Application Development Documentation by Research Team

The fifth stage is the **testing stage**, during which the application is evaluated to identify any functional or design errors. The results of expert reviews are presented in Table 5 dan Table 6.

Table 5.

Expert Interview Results: Media and Content Experts

Interview with Experts				
No	Questions	Media Expert	Content Expert I	Content Expert II
1	2	3	4	5
1	According to you, is this Bugis proverb application appropriate and appealing to users?	The application is quite appealing in various aspects and is generally suitable for users. However, the color scheme should be adjusted according to the target users' age.	The application is appealing, but the font used for Bugis proverbs should be improved for readability. It is recommended to use Arial font specifically for the proverbs.	It would be better to include the Lontara script, its meaning, and translation in the proverb menu.
2	Is the content presented in the application clear and easy to understand?	A lighter background is recommended for the Bugis proverbs to ensure the text is easy to read.	The Bugis proverbs should be categorized into themes such as discipline, honesty, etc., so users can easily locate specific content.	The collection of Bugis proverbs needs to be expanded so that each category includes at least three proverbs.

Interview with Experts				
No	Questions	Media Expert	Content Expert I	Content Expert II
1	2	3	4	5
3	What do you think about the visual aspects (images, colors, text, background, etc.)?	The visual design is good, but improvements are needed to align with the users' age group. Revisions should include the background, font style, and opening page. A login feature could also be added to monitor user access.	The visualization is generally good, though some adjustments are needed regarding text and font size.	The use of images, colors, and text is adequate, but the background should be better suited to the theme of Bugis proverbs.
4	Is the dialog menu presentation in the learning media correct and systematic?	The dialog menu is presented correctly and systematically. However, the instruction button should be placed at the bottom, as users may be less inclined to read it if placed at the top.	The menu should be structured more systematically, and the instruction button should be positioned at the top.	The presentation is systematic, but the text on the buttons should be more emphasized.
5	Is the Bugis moral message application suitable for shaping the attitudes of young people?	After certain improvements, the application is suitable for young people.	The application is appropriate and ready for testing.	The application is suitable for use by young people.

Source: Expert Assessment Survey Results

Table 6. Questionnaire Validation Results by Subject Matter Experts on the Content Aspect

No	Assessment Item	Expert	Expert	Total	Average
		Material 1	Material 2		
1	Material Completeness	4	4	8	4
2	Material Breadth	4	4	8	4
3	Material Depth	5	4	9	4,5
4	Material Attractiveness	4	5	9	4,5
5	Material Currency	4	3	7	3,5
Total		41		20,5	
Average		4,1			

Source: Expert Assessment Survey Results

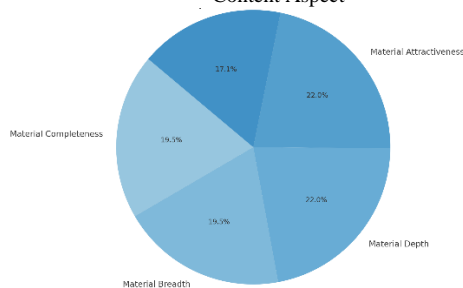
The table above presents the results of the second evaluation by subject matter experts. The aspects of material completeness



and breadth each received an average score of 4. The aspects of material depth and attractiveness scored 4.5, while the currency of the material scored 3.5. The overall average score for the content aspect was 4.1, indicating that the Bugis moral message application meets the feasibility criteria. Therefore, further evaluation by subject matter experts is not required.

Figure 12 illustrates the proportion of average scores for each content aspect, based on evaluations from two material experts. Each segment represents the relative contribution of each aspect to the overall average score.

**Figure 12.** Proportion of Average Scores for Each Content Aspect



Source: Data Analysis

$$\text{Quality Percentage (\%)} = \frac{\text{Total score from evaluation}}{\text{Ideal total score}} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{41}{5 \times 5 \times 2} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{41}{501} \times 100\%$$

$$\text{Quality Percentage (\%)} = 82\%$$

This indicates that the application has achieved a quality percentage of 82%. Based on expert evaluations, the Bugis moral message application is considered feasible for use after two rounds of revisions.

**Table 7.** Validation Results by Media Expert

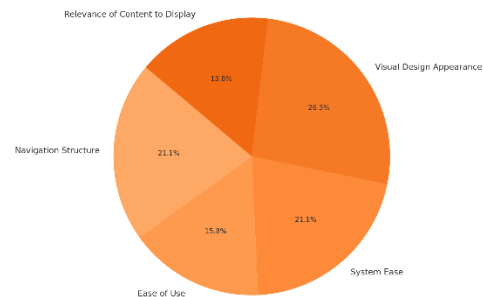
No	Assessment Item	Media Expert	Total	Average
1	Navigation Structure	4	4	4
2	Ease of Use	3	3	3
3	System Ease	4	4	4
4	Visual Design Appearance	5	5	5
5	Relevance of Content to Display	3	3	3
<b>Total</b>			19	19
<b>Average</b>		3,8		

Source: Evaluation Results from Media Experts

According to Table 7 above, the application received scores of 4 for navigation structure and system functionality, 3 for ease of use and content-display relevance, and 5 for visual design appearance. The overall average score was 3.8, which places the media aspect within the “suitable” category based on the feasibility criteria. Thus, no further revisions by media experts are deemed necessary.

Figure 13 presents the proportion of average scores for each assessment item based on the media expert’s evaluation. Visual Design Appearance received the highest proportion (26.3%), while Ease of Use and Relevance of Content to Display received the lowest proportions (15.8% each).

**Figure 13.** Proportion of Average Scores for Each Assessment Item



Source: Data Analysis

$$\text{Quality Percentage (\%)} = \frac{\text{observed score}}{\text{expected score}} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{19}{5 \times 5 \times 1} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{19}{25} \times 100\%$$

$$\text{Quality Percentage (\%)} = 76\%$$

Based on the calculations above, the assessment quality percentage is 76%. This indicates that, according to the media expert’s evaluation, the Bugis moral message application for Android is suitable for use following two rounds of revision. With an average score of 3.8 and a quality percentage of 76%, it can be concluded that the Bugis moral messages presented in the application are appropriate for use. Following evaluations by subject matter and media experts, the next step is user testing.

**Table 8.** User Evaluation of Visual Aspects

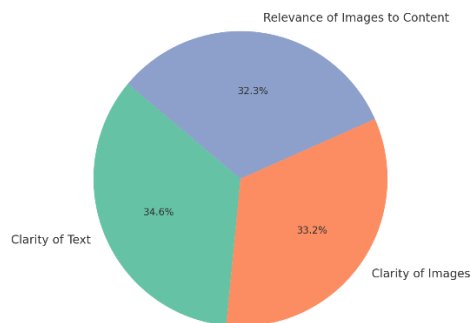
No	Assessment Indicator	Total Score	Average
1	Clarity of Text	75	3,75
2	Clarity of Images	72	3,6

3	Relevance of Images to Content	70	3,5
<b>Total</b>		<b>217</b>	<b>10,85</b>
<b>Average</b>		<b>3,62</b>	

Source: User Evaluation Results

Figure 14 illustrates the user evaluation data on the visual aspect. The largest proportion is attributed to Clarity of Text, followed by Clarity of Images, and Relevance of Images to Content.

Figure 14. User Evaluation on Visual Aspect



Source: Data Analysis

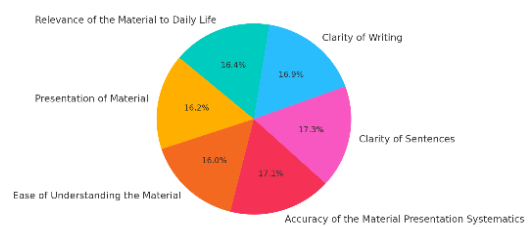
Table 9. User Assessment of Bugis Proverb Material Presentation

No	Assessment Indicator	Total Score	Average
1	Presentation of Material	72	3,6
2	Ease of understanding the material	71	3,55
3	Accuracy of material systematics	76	3,8
4	Clarity of sentences	77	3,85
5	Clarity of writing	75	3,75
6	Relevance to daily life	73	3,65
<b>Total</b>		<b>444</b>	<b>22,2</b>
<b>Average</b>		<b>3,7</b>	

Source : Evaluation Results from Content Experts

Figure 15 presents the user assessment data on the presentation aspect of the Bugis proverb material. Each slice represents the proportion of the total score for each assessment indicator.

Figure 15. User assessment on the presentation aspect of the Bugis proverb material



Source: Data Analysis

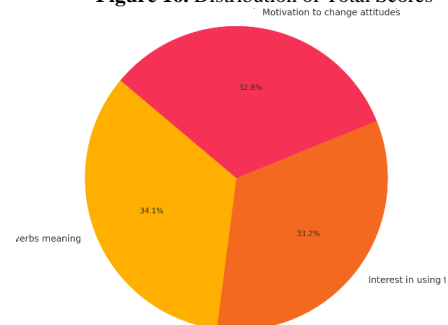
Table 10. User Assessment of Benefits

No	Assessment Indicator	Total Score	Average
1	Ease of understanding Bugis proverbs	79	3,95
2	Interest in using the application	77	3,85
3	Motivation to change attitudes	76	3,8
<b>Total</b>		<b>232</b>	<b>11,6</b>
<b>Average</b>		<b>3,87</b>	

Source : Evaluation Results from Content Experts

Figure 16 depicts the distribution of total scores for the three benefit indicators of the Bugis proverb application.

Figure 16. Distribution of Total Scores



Source: Data Analysis

Figure 16 indicates that the three indicators are relatively balanced, with Ease of Understanding emerging as slightly more dominant than the others. Based on the data derived from the evaluation of all aspects by users, the overall results of the user trial are presented in Table 11.

Table 11. Summary of User Testing Results

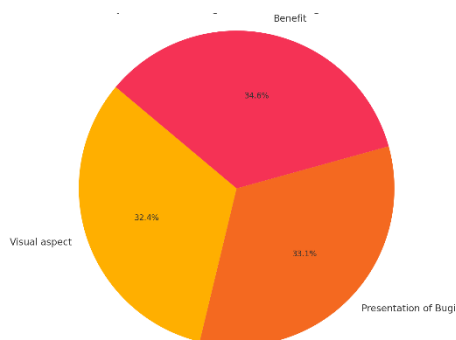
No	Aspect	Average
1	Visual aspect	3,62
2	Presentation of Bugis proverbs	3,7
3	Benefit	3,87
<b>Average</b>		<b>3,73</b>

Source : Evaluation Results from Content Experts

Table 11 shows that the application achieved average scores of 3.62 for visual aspects, 3.70 for material presentation, and 3.87 for benefits. The overall average user score is 3.73, indicating that the application is suitable for use.

Figure 17 illustrates the summary of user testing results. It presents user evaluations across three main aspects: visual aspect (32.4%), presentation of Bugis proverbs material (33.1%), and benefit (34.6%). Although the values are relatively balanced, the benefit aspect received the highest proportion, indicating that users found the application particularly valuable in terms of its practical advantages, such as enhancing understanding of Bugis culture and wisdom. The presentation and visual aspects also played significant roles, highlighting the importance of clear content delivery and user-friendly design. Overall, the chart suggests that while all three aspects contribute meaningfully to the application's quality, the perceived benefits have the most significant impact on user satisfaction.

**Figure 17.** Summary of User Testing Result



Source: Data Analysis

**Table 12.** Feasibility Criteria Based on Score Range

Score Range	Category
$X > 4,20$	Very Suitable
$3,40 < X \leq 4,20$	Suitable
$3,00 < X \leq 3,40$	Quite Suitable
$2,00 < X \leq 3,00$	Not Suitable
$X \leq 2,00$	Very Not Suitable

Source : Evaluation Results from Content Experts

Based on Table 12 above, the user evaluation results for the content aspect fall into the "feasible" category, as the overall average score obtained is 3.73.

$$\text{Quality Percentage (\%)} = \frac{\text{Observed Score}}{\text{Expected Score}} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{217+444+232}{12 \times 5 \times 20} \times 100\%$$

$$\text{Quality Percentage (\%)} = \frac{893}{1200} \times 100\%$$

$$\text{Quality Percentage (\%)} = 74.4\%$$

Based on these calculations, the assessment quality percentage is 74.4%. This result indicates that, according to user testing, the Android-based Bugis moral message application is suitable for use after undergoing user trials, with an average score of 3.73 and an assessment quality of 74.4%. Therefore, it can be concluded that the Bugis moral messages delivered through the application are appropriate for learning Bugis teachings.

Following the evaluations conducted by media experts, subject matter experts, and users to assess the application's feasibility, appeal, and effectiveness, the final stage is distribution. This process involves uploading the Bugis moral message application to the Play Store for installation on Android-based smartphones.

## CLOSING

The results of expert validation indicate that the Bugis moral message application is suitable for use. The media expert assessment produced an average score of 3.8 with a quality assessment percentage of 76%, while the subject matter expert assessment yielded an average score of 4.1 and a quality percentage of 82%. These values fall within the feasible category based on the evaluation criteria.

User testing further supports the application's suitability, with an average score of 63.25 and a quality assessment percentage of 84%. These results demonstrate that the application is considered practical, easy to use, and beneficial for users in understanding Bugis moral values.

However, the application still contains limited content related to Bugis moral teachings. Further development is recommended to expand the material by integrating additional Bugis values from various available sources. This will enhance the application's effectiveness as a cultural learning tool and broaden its educational impact.

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## REFERENCES

- Abbas, Irwan. 2013. "Pappaseng: Kearifan Lokal Manusia Bugis Yang Terlupakan." *Sosiohumaniora* 15(3):272. doi: 10.24198/sosiohumaniora.v15i3.5752.
- Adhwal, Hasna. 2023. "Pappaseng Sebagai Nilai Kearifan Lokal Masyarakat Bugis." *Kompasiana*. Retrieved (<https://www.kompasiana.com/hasnaadhwaul5960/64077baa4addee6b864c4022/pappaseng-sebagai-nilai-kearifan-lokal-masyarakat-bugis>).
- Adilan, Dilan Imam, and Mu'min. 2023. "Value And Moral Insights In Higher Education In Bandung." *Al-Qalam: Jurnal Penelitian Agama Dan Sosial Budaya* 29(1).
- Annur, Cindy Mutia. 2023. "Pengguna Internet Di Indonesia Tembus 213 Juta Orang Hingga Awal 2023." *Databooks*.
- Apriliyanti, Rosa. 2020. "Ecological Media Perspective on WhatsApp Status Features." *Indonesian Journal of Social Sciences* 12(2):73. doi: 10.20473/ijss.v12i2.22910.
- Bayuseto, Agung, Apriliandi Yaasin, and Asep Riyan. 2023. "Upaya Menanggulangi Dampak Negatif Globalisasi Terhadap Generasi Muda Di Indonesia." *Integritas Terbuka: Peace and Interfaith Studies* 2(1):59–68. doi: 10.59029/int.v2i1.10.
- Dalmeri. 2014. "Pendidikan Untuk Pengembangan Karakter." *Journal of Chemical Information and Modeling* 14(1):269–88.
- Dame Laoera, Bruce, and Tangguh Okta Wibowo. 2023. "Indonesian Online News and Digital Culture: A Media Ecology Perspective." *Jurnal Studi Komunikasi (Indonesian Journal of Communications Studies)* 7(2):355–68. doi: 10.25139/jsk.v7i2.6190.
- Fauzi. 2018. "Peran Pendidikan Dalam Transformasi Nilai Budaya Lokal Di Era Millenial." *Insania* 23(1):51–65.
- Feriandi, Yoga Ardian, Risti Aulia Ulfah, Corresponding Author, Article History, and Article Link. 2024. "How Can Ecology-Based Civics Learning Media " PKN Ekologi " Foster Ecological Competence in Students ?" 21(2):191–98.
- Gannar, Sonia, and Chiraz Kilani. 2025. "Contextualized Learning and Social Constructivism: Implementing a Project-Based Approach in Information Systems Development Education." 8(December 2024). doi: 10.17509/jsl.v8i1.72667.
- Hamzah, Hamzah, Asni Zubair, and Satriadi Satriadi. 2023. "The Relevance of the Buginese Local Wisdom Values To Religious Moderation." *Al-Qalam* 29(1).
- Hasbi. 2022. "Mengungkap Sejarah Daun Lontar." *Jurnal Post* Oktober.
- Holilah, Mina, Muhammad Nur, Retno Ayu Hardianti, and Qori Aulia. 2024. "The Innovation of Social Studies Journal Implementation of Digital Teaching Material Containing Local Wisdom Values for Strengthening Pancasila Student Profile Project (P5) of Kurikulum Merdeka in Social Studies Learning." *The Innovation of Social Studies Journal* 5(2):121–31.
- Iskandar. 2016. "Bentuk, Makna, Dan Fungsi Pappaseng Dalam Kehidupan Masyarakat Bugis Di Kabupaten Bombana." *Jurnal Bastra (Bahasa Dan Sastra)* 2(1):2503–3875.
- Meisyaroh, Siti. 2014. "Instant Messaging Dalam Perspektif Ekologi Media Dan Komunikasi." *Semiotika Jurnal Komunikasi* 8(1):118–30.
- Mir'atul Maslahah, Hanum. 2023. "Moral Education in the Digital Age: Building Character and Instilling Faith Values in the Era of Technological Advancement." *ICOE: The Ananual*

- International Conference On Education* 429–32.
- Mursalim. 2020. “Butir-Butir Dalam Falsafah Bugis : Getteng, Lempu, Ada Tongeng.” *Bone.Go.Id.*
- Öztürk, Durdane. 2023. “Student Perceptions of Moral Values in a Digital Environment.” *Türk Akademik Yayınlar Dergisi* 7(3):298–319. doi: 10.29329/tayjournal.2023.609.12.
- Purworini, Dian, Endang Wahyu Pamungkas, Gedala Mulliah Naidoo, Rona Rizkhy, and Bunga Chasana. 2025. “Enhancing Digital Literacy In Early Childhood School Teachers: Technology And Analysis Approaches Based On Social Cognitive.” (January). doi: 10.20414/transformasi.v20i2.10605.
- Ramdani, Heni, Rizal Fahmi, Aisha Nadya, and In Indahsari. 2022. “Affective Domain (Taxonomy Krathwohl) and Interpersonal Communication of Students in e-Learning Activities.” (6). doi: 10.4108/eai.25-11-2021.2318828.
- Setiawan, Daryanto. 2018. “Dampak Perkembangan Teknologi Informasi Dan Komunikasi Terhadap Budaya.” *JURNAL SIMBOLIKA: Research and Learning in Communication Study* 4(1):62. doi: 10.31289/simbolika.v4i1.1474.
- Siregar, Budi Halomoan, Asmin Panjaitan, Hasratuddin Hasratuddin, Kairuddin Kairuddin, Mulyono Mulyono, and Arief Aulia Rahman. 2024. “Digital Media Innovation Based on Multimedia Cognitive and Constructivist Theory in a Cultural Context: Encouraging Students’ Higher Order Thinking Skills.” *JTAM (Jurnal Teori Dan Aplikasi Matematika)* 8(1):269. doi: 10.31764/jtam.v8i1.16800.
- Sugiyono. 2016. *Metode Penelitian Dan Pengembangan (Research and Development)*.
- Sutopo, Ariesto Hadi. 2003. “Multimedia Interaktif Dengan Flash.” *Yogyakarta: Graha Ilmu* 32–48.
- Syukur, Syamzan, Wahyuddin Gudang, and Rahmat Rahmat. 2022. “Local Wisdom in Ma’Balendo’S Traditional Arts At the Harvest Festival in Belopa, Luwu Regency.” *Al-Qalam* 28(1).
- Usman, Usman, Bahraeni Bahraeni, and Sabaruddin Garancang. 2021. “Developing Teaching Materials of Islamic Education and Ethics Based on the Values of Local Wisdom.” *Lentera Pendidikan : Jurnal Ilmu Tarbiyah Dan Keguruan* 24(1):56. doi: 10.24252/lp.2021v24n1i6.
- Yuyun Elizabeth, Patras, Hidayat Rais, and Muliyawati Yuli. 2023. “A Need Analysis for The Development of Multicultural Learning Model Based on Local Wisdom Integrated Gamification: Public Schools and Female Teachers Need More.” *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran* 9(4):1071–82.