



## The development of digital Malay ethnoparenting: “Preserving culture for parenting in digital age”

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Article info	Abstract
Keywords parenting, ethnoparenting, digital device development	This research aims to design and develop a Digital Malay Ethnoparenting application based on Riau Malay culture. Using the research and development method with a quantitative and qualitative approach, the research stages follow the ADDIE model. (Analysis, Design, Development, Implementation, Evaluation). The results of the analysis indicate the need for culturally-based parenting content that is relevant to the digital lifestyle of millennial parents. The application content is designed to include the values of Tunjuk Ajar Melayu, which contains moral and spiritual guidance. The application prototype was tested in alpha and beta phases, involving 48 parents in Pekanbaru. The trial showed that this application is innovative, easy to use, and meets the needs of modern parenting. Expert evaluation ensures the system's cultural validity and functionality. The research results confirm the potential of the application to preserve the cultural values of Riau Malay through technology, bridging the need for modernization without leaving behind the local cultural heritage.

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### 1. Introduction

Becoming a parent is a challenging process. Although many difficulties and barriers exist to overcome, supporting a child's growth and development also brings joy and priceless moments. Parental support in the early years of a child's life and responsive interaction between parents and children are significant elements that impact a child's entire development. Petersen et al. (2020) found that positive relationships between parents and children in the early years of life positively impact various aspects of development, including language skills, communication, and executive functions.

In every family, parenting quality is a highly anticipated element. Children learn various skills and knowledge through observing and imitating other people and their surroundings (Bandura, 2018). In this context, the concept of Parenting and Family Adjustment, as explained by (Sanders et al., 2014), strongly correlates with the quality of parenting. The primary indicators of this concept are the consistency of income, positive behavior, family satisfaction, and collaborative work among family members. These elements are consistent with social learning theory's positive and negative reinforcement principles. Aside from that, attentive parenting is a key factor in promoting discipline with a strong foundation. The principles of mindful parenting (Bögels et al., 2014) are based on the concepts of self-regulation, self-improvement, and reciprocal determinism, as identified by Bandura. According to this theory, a person's actions become a long-term example for their children, a process known as behavior modeling. This concept can be explored using the Value in Action scale (Park & Peterson, 2009), which examines human characteristics such as perseverance, independence, mental health, and transcendental values.

Early interventions to support parents in parenting are effective in improving child development. For example, research on digital parenting intervention conducted by Awah et al. (2022) discovered that some caregivers felt their involvement in the study had influenced their positive parenting practices. Data from adolescents confirmed that the caregivers' involvement in the study resulted in less strict parenting and better relationships between them and their kids. Altafim et al. (2024) imply that the digital parenting program can help parents by improving parenting and reducing behavioral issues in children, showing the possibility of broader adoption in comparable situations. Furthermore, Modecki et al. (2022) concluded that online-based interventions can reduce behavioral problems in parenting and help parents achieve better outcomes in supporting their children.

The local values passed down from one generation to the next also impact parenting in the context of daily life. Lansford (2022) states that a cultural process in parenting enables the child to learn and adapt to the culture around them. As explained by Bornstein (2017), culture negates the transmission of faith that is used jointly, while Rothenberg et al. (2021) state that parenting pattern is significantly impacted by tradition and traditional culture. As a country with a strong religious observance, Indonesia is seeing the adverse effects of foreign holidays, particularly Barat holidays. It highlights local values that are reasonably priced, such as Melayu Riau's holidays. It is known that Riau Malay culture has rich customs that are loaded with noble values. According to Noviana et al. (2023), Tunjuk Ajar Melayu or Malay's teachings encourage people to care for their lives by fostering guidance, advice, and examples. This day serves as a reminder of moral and spiritual principles that uplift the daily lives of the Riau people (Hidayati et al., 2020).

Ethnoparenting is a result of using the parenting concept in daily life. Ethnoparenting is a practice of teaching based on local customs or ethnic groups. It sums up the beliefs, customs, and ideologies offered roundaboutly. Parenting is an essential aspect of education, and through encouragement, educational values are passed down to the following generations (Rachmawati, 2017). Even if digital technology is accelerating, it is still crucial to maintain a balance between technological adaptation and traditional values (Parsons, 2020). Adapting to technology, including using digital media as a source of parenting information, is crucial to guide parents and increase their access to it (Novianti et al., 2023). Based on Melayu Riau culture, parenting can improve collaboration between parents and schools in fostering children's development (Novianti et al., 2024). However, research on digital parenting applications based on Melayu Riau culture is still lacking.

With the motto "Tak akan Melayu hilang di bumi," the study aims to develop digital applications to promote Riau Malay culture, which will be observed through wisdom and noble

values. In the current millennial generation, which is dominated by young people, digital technology is essential to their daily lives (McCrindle, 2021). This application is designed to improve the quality of people's travel experiences with the Melayu Riau culture. It is believed that EMERALD can provide a positive impact on the quality of parenting, which is measured using the Parenting and Family Adjustment Scale (PAFAS), the Mindfulness in Parenting Questionnaire (MIPQ), and the Character Scale of Individuals using Value in Action. Therefore, the study aims to evaluate and develop a digital application of Malay ethnoparenting and provide a comprehensive overview of the quality of parental care in accompanying children.

## 2. Literature Review

### **Parenting**

Parents are individuals who nurture, protect, and guide their children from infancy to adulthood (Weaver et al., 2020). Similarly, the Encyclopedia of Psychology defines parenting as parents ensuring their children's health and safety, preparing them to live as productive adults, and transmitting cultural values. Both definitions emphasize the role of parents in preparing their children for adulthood, which is referred to as parenting or caregiving. Furthermore, parenting is seen as a form of stimulation and a critical target for early intervention, prevention, and treatment (Stockings et al., 2016). Parental control involves specific methods or approaches parents apply to educate and train their children (Ebrahimi et al., 2017). Parenting or caregiving can be described as the interaction between children and their caregivers (parents or other significant individuals) using certain methods or approaches as forms of stimulation or intervention to support optimal child development and readiness for adulthood. Parenting aims to provide love, safety, and emotional support, help children understand moral and social values, and support their cognitive and educational development (Faircloth, 2023).

### **Etnoparenting**

Harkness et al. (2015) define parental ethno theories as parental cultural beliefs used in child-rearing practices. Moreover, Harkness et al. (2009), cited in Zheng et al. (2019), suggest that parental ethno theories can adequately understand parental belief systems in cross-cultural contexts. These theories refer to implicit ideas about what is considered "natural" or "correct" regarding children, parenting, and family, often tied to cultural themes or daily aspects unrelated to culture. Studies on the relationship between parenting and culture have been conducted for a long time by parenting experts, child development researchers, and cultural observers. However, the term ethnoparenting has not been widely used in various literature. Ethnoparenting refers to parenting activities based on specific local or ethnic cultures. Defined is the concept and practice of child-rearing grounded in local culture, traditions, values, philosophies, and customs of indigenous or ethnic communities (Rachmawati, 2020).

Prawening and Zuhri (2021) state that ethnoparenting relates to the concept and practices of child-rearing based on the cultural value systems of a particular community. The ethnoparenting model is rooted in the cultural values and child-rearing practices derived from seven cultural elements: religious systems, knowledge systems, language, arts, life systems, social organization, and subsistence systems. These elements form the value system in child-rearing, which includes beliefs, religion, parental perspectives, norms, lifestyles, traditions, customs, and experiences (Rachmawati, 2020). Rachmawati (2020) developed the Indonesian core values model of ethnoparenting based on four key elements: spiritual values, human identity, connection with nature, and communal cooperation in child-rearing. The Malay culture of Riau,

well-preserved by the community, is reflected in oral traditions, cultural expressions, and traditional games.

### **Digital**

It is crucial to continuously innovate in delivering information in education, especially using technology (Suarman et al., 2018). Technology offers significant opportunities to penetrate new values and, based on understanding family development science, its use can enhance parental understanding. Some parenting interventions aim to optimize parent-child relationships (Mihelic et al., 2017), and technology-assisted interventions provide potential avenues to increase accessibility and engagement in parenting programs (Hall & Bierman, 2015). Existing models include computer programs, smartphone applications, video conferencing, and DVDs (Jones et al., 2014). Ramaekers and Hodgson (2020) further

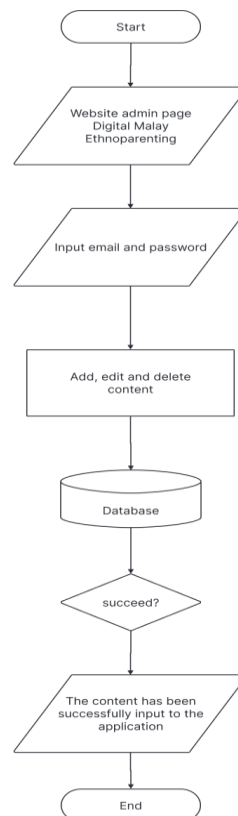
state that parenting applications represent an extension of skill-based, instrumental, and scientific parenting approaches, drawing on psychology and neuroscience to provide digitized information, guidance, and activity options for parents and children. Digital media for parents encompasses all forms of electronic technology used to access, consume, and share information, including the Internet, social media, applications, and devices like smartphones and tablets. Digital media enables easy access to educational and entertainment content and serves as a resource for information and support in child-rearing.

## **3. Method**

### **Malay Ethnoparenting Application Development**

Based on a given model, this study aims to create a Digital Malay Ethnoparenting application and analyze the prototype to ensure it is entirely functional before an actual test. As per the guidelines, the ADDIE model's five (5) phases—Analysis, Design, Development, Implementation, and Evaluation—assist instructional designers in creating successful support systems. It enables feedback based on ongoing evaluation as materials are being made (Nadiyah & Faaizah, 2015). In the first phase, the analysis phase, researchers conduct preliminary research to find the performance gap in the parenting profile of parents so that an overview of the parenting practices of parents from the Malay Tribe is obtained, most of which belong to the millennial generation. This phase also determines the need for analysis to develop a digital Malay ethnoparenting intervention, ensuring that the digital Malay ethnoparenting application will address real, identified gaps in parenting practices. The research findings from this phase are critical, as they guide the subsequent stages of the ADDIE model, ensuring that the design and development of the application align with the needs and expectations of the target audience. Ultimately, this phase ensures that the digital intervention is grounded in the cultural context of Malay parenting practices, making it relevant, meaningful, and effective for the intended users.

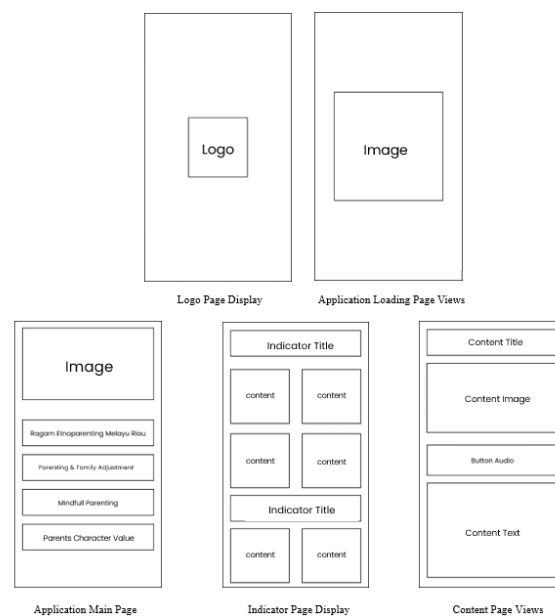
The earlier study identified the need for developing digital Malay ethnoparenting applications (Novianti et al., 2023). Given their internet-centric lifestyle, parents require parenting material that is easily accessible through technology. As a result, the parenting program being created will be accessible on Android platforms, and knowledge will be disseminated via text, sounds, and visual displays. The program will include thorough details of Parenting in Riau Malay culture. The formative evaluation was done with three subject matter experts (SME) to ensure the analytical data matches Riau Malay teaching.



**Figure 1.** Digital Malay ethnoparenting application flowchart

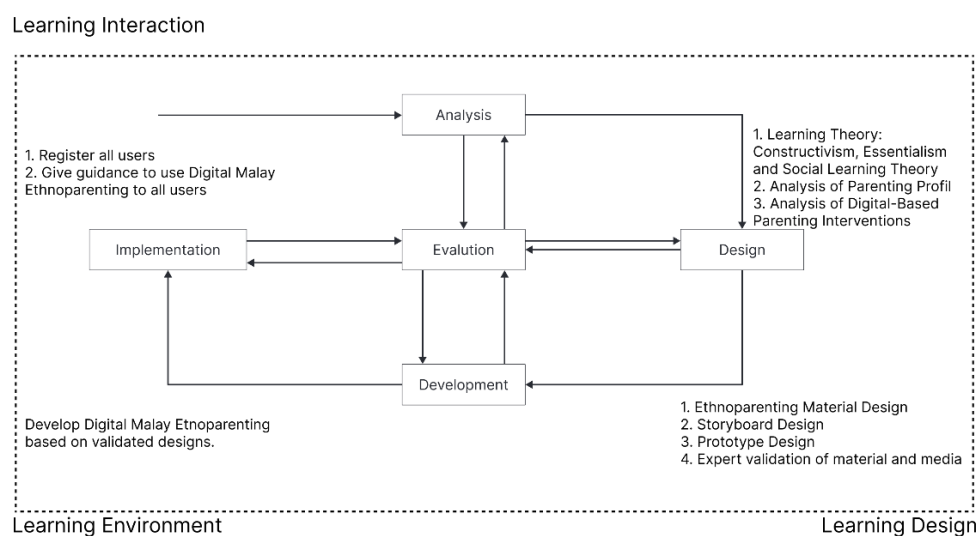
In the design phase, the ethnoparenting content was designed based on three parenting variables: Parenting and family adjustment, mindfulness in parenting, and parents' character. A prototype has been created based on data from the analysis phase to provide an overview of the application development process; then, a flowchart design is created to describe the flow of work and process of a program. After that, the design is re-evaluated by five subject matter experts (SME) and five System Design Expert (SDE). The design will either need to be altered or can keep ensuring the validity of the data based on the evaluation's findings, in the researcher's opinion. At this stage, a flowchart and storyboard were designed to describe the workflow of the Digital Malay Ethnoparenting application, as seen in **Figure 1** and **Figure 2**.

After the design phase was finished, the development phase began. The data obtained from the design phase became the basis for developing Digital Malay Ethnoparenting in the Android platform. Once the prototype is completed and can be accessed on a smartphone, the next step is to ask for the willingness of five subject matter experts (SME), five System Design Experts (SDE), and five parents to evaluate the prototype and provide feedback that will be used as a basis for making improvements and revision to the Digital Malay Ethnoparenting application.



**Figure 2.** Digital Malay ethnoparenting application storyboard

Furthermore, in the implementation phase, users are ready to implement the completed Digital Malay Ethnoparenting application. At the initial stage, the users, namely parents, will register by entering general data about themselves and their children. Parents can use the Digital Malay Ethnoparenting application by selecting the desired menu. Then, parents were asked to fill in the usability questionnaire developed by (Lund, 2001) as a summative evaluation. The results of this summative evaluation are significant because they will determine the success and usability of the prototype following the goals to be achieved by this research. If the Digital Malay Ethnoparenting application prototype functions appropriately, it will be widely used in actual studies. The following is the development model of the Digital Malay Ethnoparenting application using the ADDIE development model, as seen in **Figure 3**:



**Figure 3.** Digital Malay ethnoparenting development model framework (modified after Morrison, 2010)



### **Participant**

The testers for alpha testing were five lecturers, including parenting and media experts. For beta testing, five lecturers and five parents were involved. At the same time, the trial subjects were 48 parents of early-age children in Pekanbaru City, Riau Province.

### **Data Collection**

Data from both the qualitative and quantitative varieties were collected. Qualitative data was gained from experts in parenting and the media expert feasibility assessment. At the same time, qualitative data was gained from the interviews of respondents and validators. Data collection instruments are interview guidelines, observation sheets, and questionnaires.

Usability acceptance testing is the process of gathering information about consumers by observing them use the product to achieve particular objectives that are important to them (Barnum, 2020) and to confirm that the user expectations and the developed prototype are consistent with the goals that the instructional designer had established (Melnik et al., 2004). Usability testing in this study consists of Alpha and Beta Testing. User acceptance testing, or alpha testing, is a special kind of testing done on a small scale. Only internal developers' staff members test products or applications during alpha testing. At the same time, beta testing included actual users. Several consumers will be asked to test the product or program after the developer has functionally tested it. Like alpha testing, beta testing aims to find issues that might only be discovered when many people use a product or application in a natural environment. Additionally, beta testing is carried out to gather user feedback and ensure it meets their needs (Mohd & Shahbodin, 2015; Werdiningsih et al., 2019).

In Alpha Testing, five lecturers from the University of Riau dan University of Education Indonesia were involved. They gave their opinions about the early version of the digital Malay ethnoparenting prototype. In the next step, beta testing involved five lecturers from the University of Riau and University of Education Indonesia and five parents of early-age children in Pekanbaru City, Riau Province. Meanwhile, 48 parents were involved in the validation stage, and the data obtained from the Usefulness, Satisfaction, and Ease of Use or USE questionnaire developed by Lund (2001) were examined using the statistical program SPSS. The methodology used in the questionnaire uses the 5-point Likert scale to produce comprehensive and precise results. The USE questionnaire used the lowest rating to 5, the highest rating (Strongly Disagree, Disagree, Cannot Decide, Agree, Strongly Agree).

## **4. Results**

### **Alpha Testing**

This research focuses on developing a digital Malay ethnoparenting application for the Android platform. Before advancing to the next level, the prototype's quality must be confirmed using the Alpha and Beta testing conducted during the development phase (Hai-Jew, 2019). The alpha test results involving content experts indicated that the prototype met parenting needs due to the digital age. The tester was asked about:

Q1: What is your overall impression of the Digital Malay Ethnoparenting application?

Q2: Did you find the integration of Malay Ethnoparenting content in the digital application to meet the needs of millennial parents?

The feedback is summarised in **Table 1**:

**Table 1.** Feedback from alpha testing

Tester	Feedback
1	Q1: Easy to use and attractive
	Q2: Yes, so far, it is challenging to learn Malay ethnoparenting because the material is in a limited number of books
2	Q1: Innovative and easy to use
	Q2: Yes. Millennial parents quickly learn the cultural value of parenting because it is presented in the digital applications they usually use
3	Q1: Nicely done and very useful
	Q2: Yes. The right approach for millennial parents
4	Q1: Breakthrough in learning cultural values and easy-to-use
	Q2: Yes. There has been no parenting application that has raised Riau Malay's ethnoparenting before. It is also part of cultural preservation.
5	Q1: Easy to use
	Q2: Yes. It is right on target because it is appropriate; millennial parents can easily access it.

Alpha testing results show that the tester provides positive feedback and comments on developing the Digital Malay Ethnoparenting application. The general impression of this prototype is that it is easy to use and innovative. Tester also believes that the integration of Malay Ethnoparenting content in digital applications meets the needs of millennial parents because ethnoparenting information is presented in digital applications that they usually use, so it becomes an approach that suits the characteristics of millennial parents whose daily lives are inseparable from digital devices. In addition, there is input to add a sound button, which is a voice recording of ethnoparenting material; this is considered necessary so that parents who are reluctant or do not have enough time to read can use this voice feature and listen to ethnoparenting information that matches the text on the page.

**Figure 3.** Before and after modification based on feedback



**Beta testing**

Beta testing, as opposed to Alpha testing, is more concerned with the readiness of the prototype for usage in the real world as well as the quality of the prototype (Jones & Richey, 2000; Kocbek & Hericko, 2013). In this stage, there were five lecturers and five parents involved in answering questions:

Q1: Did you find the application easy to use?

Q2: Did you find the instructions to be helpful and clear?

Q3: Were there any doubts about using the application?

Q4: Do you have any suggestions for improving the application?

Q5: Please give feedback about the application interface based on layout, text, and color

**Table 2.** Feedback from beta testing

Respondent	Feedback
Lecturer 1	<ul style="list-style-type: none"> <li>a. It is easy to use the app</li> <li>b. Well, design interface</li> <li>c. The sound button is innovative; I can use the app while driving</li> <li>d. Add more general information about ethnoparenting; some people are still unfamiliar with the concept</li> <li>e. Text is well-read</li> </ul>
Lecturer 2	<ul style="list-style-type: none"> <li>a. The design interface is simple and effective</li> <li>b. The sound button is helpful</li> <li>c. The content perfectly matches Riau Malay's noble values and parenting material.</li> <li>d. Good in color and image</li> <li>e. Good in layout</li> </ul>
Lecturer 3	<ul style="list-style-type: none"> <li>a. User-friendly</li> <li>b. It looks nice and colorful, with clear and readable text. It is good in detail because it uses Malay figures in an image.</li> <li>c. The layout is good</li> <li>d. Good idea for preserving culture noble values through digital application</li> </ul>
Lecturer 4	<ul style="list-style-type: none"> <li>a. User-friendly</li> <li>b. The instruction is explicit and helpful</li> <li>c. The interfaces are attractive, with colors and images</li> <li>d. Add some general cultural content, such as traditional games and art</li> </ul>
Lecturer 5	<ul style="list-style-type: none"> <li>a. No problem using the app; it is simple and easy to use</li> <li>b. Well done with the sound button</li> <li>c. The layout, text, and color are just as expected</li> <li>d. More ethnoparenting videos will make it more interesting</li> </ul>
Parent 1	<ul style="list-style-type: none"> <li>a. I need parenting information in digital form like this</li> <li>b. Simple instruction and easy-to-use</li> </ul>
Parent 2	<ul style="list-style-type: none"> <li>a. I can use it quickly.</li> <li>b. Ethnoparenting gave me more guidance in raising my kids.</li> </ul>
Parent 3	<ul style="list-style-type: none"> <li>a. Highlight the keywords</li> <li>b. More videos would be nice</li> </ul>
Parent 4	<ul style="list-style-type: none"> <li>a. It should be a login step instruction to guide users on how to log in</li> <li>b. At first, I thought cultural values would be boring, but after reading the content, I love it because the cultural values are discussed with the latest issue in parenting</li> </ul>
Parent 5	<ul style="list-style-type: none"> <li>a. Need a good internet network to use it</li> <li>b. Attractive and easy to use</li> <li>a. It brings back the memories of my parents' teachings, and parents can still use them in a digital era like this.</li> </ul>

Beta testing allows respondents to use prototypes. The comments and feedback are significant in determining the application's readiness before it is widely used. The results obtained from lecturers, in general, provide positive comments and constructive feedback so that it can be used to improve the prototype and indicate that the prototype is ready to be used because it meets users' needs. Parents can easily use the prototype and comment positively about ethnoparenting content that is considered helpful in their parenting activities. This beta testing provides the expected results that indicate the prototype is ready for use by real users on a wide scale.

### **User Acceptance Testing**

The beta testing results are used for prototype improvements and refinements. User acceptance tests are conducted to ensure user satisfaction and that the product or software meets the end user's expectations. This helps ensure that the product is well received by users and meets their needs (Ganesh et al., 2014). In addition, the user acceptance test identifies problems or gaps between the product and the user's needs. It allows for improvements to be made before the official launch of the product, thus preventing more significant problems in the future (Otađu & Díaz, 2017).

**Table 3.** Result of user acceptance testing

Indicators	Item	Mean	SD	Alpha
Usefulness	It helps me be more effective	4.23	0.751	0,793
	It helps me be more productive	3.94	0.836	
	It is useful	4.52	0.618	
	It makes the things I want to accomplish easier to get done	3.67	0.930	
	It meets my needs	4.25	0.565	
Ease of Use	It is simple to use	4.58	0.539	0.800
	It is user-friendly	4.33	0.595	
	It is flexible	4.63	0.531	
	Using it is effortless	4.58	0.498	
	I can use it without written instructions	4.04	0.683	
	I do not notice any inconsistencies as I use it	4.19	0.673	
	I can use it successfully every time	4.40	0.644	
Ease of Learning	I quickly remember how to use it.	4.00	0.799	0.791
	I learned to use it quickly	4.44	0.649	
	I quickly became skillful with it	3.90	0.660	
Satisfaction	I am satisfied with it	4.27	0.536	0.805
	I would recommend it to a friend	4.65	0.483	
	It is fun to use.	4.60	0.494	
	It works the way I want it to work.	4.38	0.531	
	I feel I need to have it	4.33	0.595	

The subjects of the user acceptance test were 48 parents of early-age children from Pekanbaru City, Riau Province, using a modified USE Questionnaire. Generally, a typical threshold value for adequate reliability is 0.70 (Nunnally & Bernstein, 1994; Panayides, 2013). Table 3 shows the results of user acceptance testing with reliability ranging from 0,791 to 0,805. The overall alpha value is 0.807, which means that the prototype of the Malay Ethnoparenting digital application is ready to be used by parents in the actual setting.

## 5. Discussion

In this digital era, childcare is oriented to education and child development and serves as a medium to transmit cultural values. In this context, The Development of Digital Malay Ethnoparenting: Preserving Culture for Parenting in the Digital Age aims to design and develop a digital application based on Riau Malay culture. This innovation is expected to support the quality of parental care while preserving the noble values of Riau Malay culture amid technological globalization.

This research uses research and development (R&D) methods with quantitative and qualitative approaches. The research stages follow the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. The analysis stage begins with initial research to understand the needs of parents in Riau Malay culture-based parenting. These observations show a gap between traditional parenting and the demands of modernization, especially among millennial parents. They need parenting content that is practical and relevant to their daily digital technology.

At the design stage, Riau Malay ethnoparenting content is designed based on three main variables: family and parenting adjustment, mindfulness in parenting, and parental character. This content involves cultural values such as Malay Tutoring, an ethical guide rich in moral and spiritual advice. Integrating these values into the app gives users an authentic and educational experience. The initial prototype was designed as a flowchart to ensure an efficient workflow. This design was then evaluated by five material experts and five systems experts to ensure the data was suitable for the values of Riau Malay culture.

The novelty of this research lies in its approach, which combines modern technology with local cultural values. Although parenting apps such as Chai's Play and The Asian Parent have been widely used, most adopt a common parenting approach and pay little attention to local wisdom. In Indonesia, where the influence of foreign cultures is getting stronger, this effort is an important step in preserving valuable local values.

The results showed that the application prototype received a positive response from alpha and beta testing. In alpha testing, experts provide feedback showing that the app is innovative and easy to use. In the beta testing stage involving 48 parents of early childhood parents in Pekanbaru, this application was tested using a modified USE questionnaire. Most respondents stated that this application meets their content and ease of use needs. The comments and feedback helped refine the prototype before the app was widely released.

In the cultural context, ethnoparenting, formulated by Rachmawati (2019), is a relevant approach. Ethnoparenting integrates traditional values into daily parenting practices, allowing for harmonious cultural acculturation. According to Schwartz et al. (2020), this process transmits cultural values and helps children adjust to their environment. In Riau Malay culture, this culture-based parenting includes the values contained in Malay Instruction, such as manners, cooperation, and wisdom.

The app is designed to be relevant to the digital lifestyle of millennial parents, who rely more on technology to get information. Using the Android platform, this application presents text, audio, and visual content, making it easier for users to understand and apply the concept of parenting based on Riau Malay culture. Parsons (2020) emphasized the importance of technology adaptation to improve efficiency and learning, including childcare. In this case, the Digital Malay Ethnoparenting application is a parenting tool and a medium to strengthen collaboration between parents and schools in supporting children's development.

During the development stage, the app is evaluated on an iterative basis to ensure its reliability and effectiveness. The formative evaluation involving three material experts showed

that the application's content was following the values of Riau Malay culture. Furthermore, the application's design is adjusted based on input from system experts to ensure optimal functionality. In the implementation phase, the app is tested on a small group of users to get initial feedback before the official launch. The final evaluation shows that the app is innovative and meets users' needs holistically.

As explained by Effendy (2004) and Sabakti (2018), Riau Malay culture has a wealth of customs loaded with moral and spiritual values. Thus, this application serves as a parenting tool and a means of cultural preservation. In the long term, developing the Digital Malay Ethnoparenting application is expected to have a sustainable positive impact. In addition to helping parents in childcare, this application is also a strategic step to preserve local culture amid globalization. Through a technology-based approach, this application can bridge the needs of modern parents with cultural values passed down from generation to generation.

This study confirms that technology can effectively preserve culture if designed with the right approach. Digital Malay Ethnoparenting is a vivid example of technological innovation supporting culture-based parenting, balancing modernization, and preserving noble values. With positive feedback from early adopters, the app shows excellent potential to be widely implemented and become a model for similar app development in other cultures.

## 6. Conclusion and Implications

Technology is becoming seamlessly incorporated into conventional educational settings as millennial parents' technological knowledge grows. Information conveyed through books and other print media began to be abandoned, and approaches based on digital technology and the Internet became the right choice. This circumstance presents a chance to offer parents parenting support through digital intervention. Because it was seamlessly integrated into the Android platform in their phone, the development of digital Malay ethnoparenting applications using the ADDIE model has created an effective and flexible learning environment for parents to dig into ethnoparenting information whenever and wherever they want.

Testers and respondents offer helpful criticism and comments during alpha and beta testing, as well as some input that has been applied to the enhancement of the prototype. Parents test the system functionalities during the user acceptability test to ensure the requirements are met, and the results reveal that the prototype is functional and prepared for use as a digital Malay ethnoparenting intervention for parents.

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