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Mobile Application Design for Parenting Education Using User-Centered Design Method

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Abstract

The development of digital technology has created opportunities for the use of mobile applications as accessible and flexible media for parenting education. However, many parents still experience difficulties in obtaining structured parenting information that meets their specific needs. This study aims to design a mobile parenting education application using the User-Centered Design (UCD) method with a qualitative descriptive approach. The research was conducted in Depok City and involved 25 respondents, consisting of parents, couples preparing for marriage, and child caregivers. Primary data were collected through interviews, field observations, questionnaires, and application prototype testing using Figma. The results indicate that the implementation of the UCD method successfully produced an application design that aligns with user needs, with a high level of acceptance in terms of attractiveness, perspicuity, efficiency, and dependability. The designed application is considered capable of improving access to digital parenting education. This study is expected to serve as a reference for the development of user-based mobile applications in the field of family education.

Keywords: User-Centered Design; Mobile Application; Parenting Education; User Experience; Digital Platform

1. INTRODUCTION

The development of digital technology has driven significant changes in various aspects of life, including family education and child-rearing practices (Sari et al., n.d.). The role of parents in shaping children's character, behavior, and emotional and social development has become increasingly complex due to changes in the social environment, technological advancements, and the demands of modern life (Rusdiana et al., 2025). This condition requires parents to possess adequate knowledge and understanding of appropriate parenting practices that align with children's developmental needs (Penelitian et al., 2021).

However, in practice, many parents still face limited access to valid, practical, and easily understandable parenting information (Hadi Guawan et al., 2026). Available information is often scattered across various media, lacks structure, and is not supported by guidance from professionals (Ramadani & Firdaus, 2024). Limited time, experience, and knowledge further contribute to parents' difficulties in obtaining comprehensive parenting education (Pebrianti, 2025). This situation may lead to inappropriate parenting practices, one of which is excessive control over children, commonly referred to as *hyper parenting*, which can negatively affect children's psychological development and independence (Aurel Salbila Putri et al., 2025).

On the other hand, the high penetration of smartphone usage presents significant opportunities for providing digital-based parenting education services (Zaenab et al., 2025). Mobile applications are considered capable of offering flexible and easily accessible solutions that can be used anytime according to users' needs (Aliyah et al., 2024). Through mobile applications, parents can access educational materials, articles, instructional videos, and expert consultation services more efficiently and in an integrated manner (Fadhilah & Subkhi, 2024).

To ensure that parenting applications can be used optimally, system design must focus on users' needs, characteristics, and experiences (Palado et al., 2020). The User-Centered Design (UCD) approach is a relevant method in application development, as it places users at the center of all design stages (Natsir & Sihombing, 2022). This method enables developers to understand real user problems, design solutions that meet user expectations, and continuously evaluate the usability and comfort of the application (Zazhemi et al., 2025).

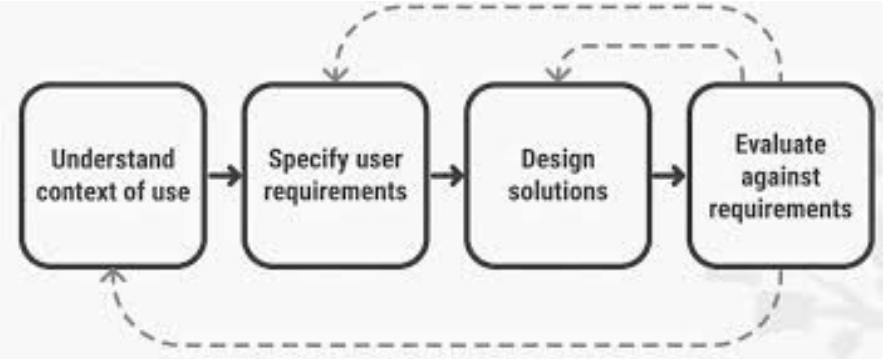
Based on these issues, this study focuses on designing a mobile application for parenting education by applying the User-Centered Design method. The resulting application is expected to provide a positive user experience, enhance parents' understanding of appropriate parenting practices, and serve as an effective digital solution to support family education and child well-being.

2. RESEARCH METHODOLOGY

This study employs a qualitative descriptive approach using the User-Centered Design (UCD) method. This approach was chosen to obtain an in-depth understanding of users' needs, experiences, and challenges in accessing parenting education through mobile applications. The UCD method

places users at the center of the entire application design process, from requirements elicitation to design evaluation.

Picture 1. User-Centered Design (UCD) Method



2.1 User-Centered Design Stages

The research process followed the stages of User-Centered Design (UCD), which consist of four main phases as follows:

a) Understanding the Context of Use

At this stage, the context of application use was identified, including user characteristics, usage objectives, and the environment in which the application would be used. Data collection was carried out through:

- Observation of potential users,
- Informal interviews with parents,
- Distribution of an initial questionnaire to identify users' problems and needs related to parenting education.

b) Specifying User Requirements

This stage aimed to formulate user requirements based on the analysis of the context of use. User requirements were classified into:

- Functional requirements**,** such as article and parenting video search features, expert consultation features, and content-saving features.
- Non-functional requirements, such as ease of use, clarity of interface, access efficiency, and user comfort.

c) Producing Design Solutions

At this stage, application design solutions were developed based on user requirements. The

activities included:

- Creating user flows to illustrate user interaction processes,
- Designing application interface wireframes and mockups,
- Developing application prototypes using interface design tools (Figma).

d) Evaluating the Design

The evaluation stage was conducted to measure usability and user satisfaction with the designed application prototype. Evaluation activities included:

- User testing with target users,
- Distribution of evaluation questionnaires covering usability aspects such as attractiveness, perspicuity, efficiency, dependability, stimulation, and innovation,
- Analysis of testing results to identify strengths and weaknesses of the application design.

2.2 Primary Data Collection Method

1) Type of Data

The type of data used in this study was primary data, obtained directly from potential users of the *Life Live Love* digital parenting application through direct interaction during the application design and evaluation process.

2) Primary Data Sources

Primary data were collected from:

- Parents with children aged 0–6 years,
- Couples preparing for marriage,
- Child caregivers, who reside and carry out activities in Depok City, West Java.

3) Data Collection Platforms

Primary data collection was conducted both online and offline using the following platforms:

- Google Forms, used to distribute questionnaires for user needs analysis and user experience evaluation,
- WhatsApp, used as a communication medium for semi-structured interviews with respondents,
- Figma Prototype, used as the platform for application prototype testing (user testing) during the design evaluation stage.

4) Research Location

This study was conducted in Depok City, West Java, based on the following considerations:

- The high level of smartphone and internet usage in urban areas,
- The characteristics of urban communities with diverse parenting education needs,
- The researcher's accessibility to research respondents.

5) Business Scale

The *Life Live Love* application is categorized as a micro-scale digital business, which is currently at the stages of:

- Prototype development,
- User needs validation,
- User experience testing (usability testing).

This micro-scale classification is based on the limited number of users, an exploratory business model, and the absence of widespread commercial implementation.

2.3 Primary Data Collection Techniques

a) Questionnaire

Questionnaires were distributed to respondents using Google Forms to explore:

- Problems faced by users in obtaining parenting education,
- Required features for parenting applications,
- Initial perceptions of application ease of use and usefulness.

b) Interview

Semi-structured interviews were conducted via WhatsApp with selected respondents to obtain more in-depth qualitative data regarding:

- Users' experiences in seeking parenting information,
- Expectations for mobile-based parenting education applications,
- Challenges in using existing parenting applications.

c) User Testing

User testing was conducted by involving respondents in testing the *Life Live Love* application prototype through the Figma Prototype. Respondents were then asked to provide feedback regarding:

- Ease of use,
- Interface clarity,

- Navigation efficiency,
- Overall user experience comfort.

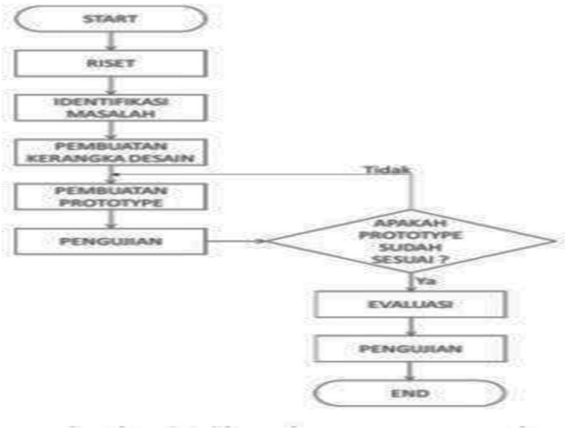
2.4 Data Analysis Technique

Primary data were analyzed using qualitative descriptive analysis, with the following stages:

1) Data reduction from questionnaires and interviews,
2) Data presentation in narrative form and simple percentages,
3) Drawing conclusions to determine the level of alignment between the application design and user needs.

The following figure shows the system development flowchart.

Picture 2. Flowchart



3. RESULTS AND DISCUSSION

3.1 Research Informant Information

Research informants were selected using a purposive sampling technique based on the following criteria:

1) Residing in Depok City,
2) Actively using a smartphone,
3) Having needs or experience related to child parenting.

This study involved 25 respondents who reside in Depok City and meet the criteria as potential users of a parenting education application.

Table 1. Interview Informant Profile

Informant Code	Age	Status	Parenting Experience
I1	27	Parent	2 years
I2	30	Parent	4 years
I3	25	Engaged couple	–
I4	33	Child caregiver	6 years
I5	29	Parent	1 year

3.2 Interview Results

Semi-structured interviews were conducted via WhatsApp to explore users' needs and challenges related to digital parenting education. Main Findings from the Interviews:

1) Limited Access to Reliable Information

   Most informants stated that parenting information obtained from social media tends to be unstructured and often causes confusion.

2) Need for Expert Consultation

   Informants expressed the need for direct consultation features with experts such as psychologists or child counselors to address specific parenting issues.

3) Preference for Easy-to-Use Applications

   The majority of informants preferred applications with simple interfaces, clear navigation, and easily understandable content.

Example of Informant Statement:

"I often feel confused when looking for accurate parenting information. Having an application with clear content and the ability to consult directly with experts would be very helpful." (I2)

3.3 Field Observation Results

Observations were conducted by the researcher through direct observation of respondents during the following activities:

1) Searching for parenting information via smartphones,
2) Using the *Life Live Love* application prototype on the Figma platform.

Observation Findings:

1) Respondents were more interested in visual content such as videos than in lengthy text.
2) Simple navigation accelerated users' understanding of application features.
3) Some respondents experienced difficulties when overly technical terms were used.

These observation results were used as a basis for improving the interface design and user flow of the application.

3.4 User Testing Results (Design Evaluation)

After respondents tested the application prototype, a user experience evaluation was conducted.

Table 2. User Experience Evaluation Results

Evaluation Aspect	Agreement Level (%)
Attractiveness	89%
Perspicuity	88%
Efficiency	87%
Dependability	85%
Stimulation	90%
Innovation	78%

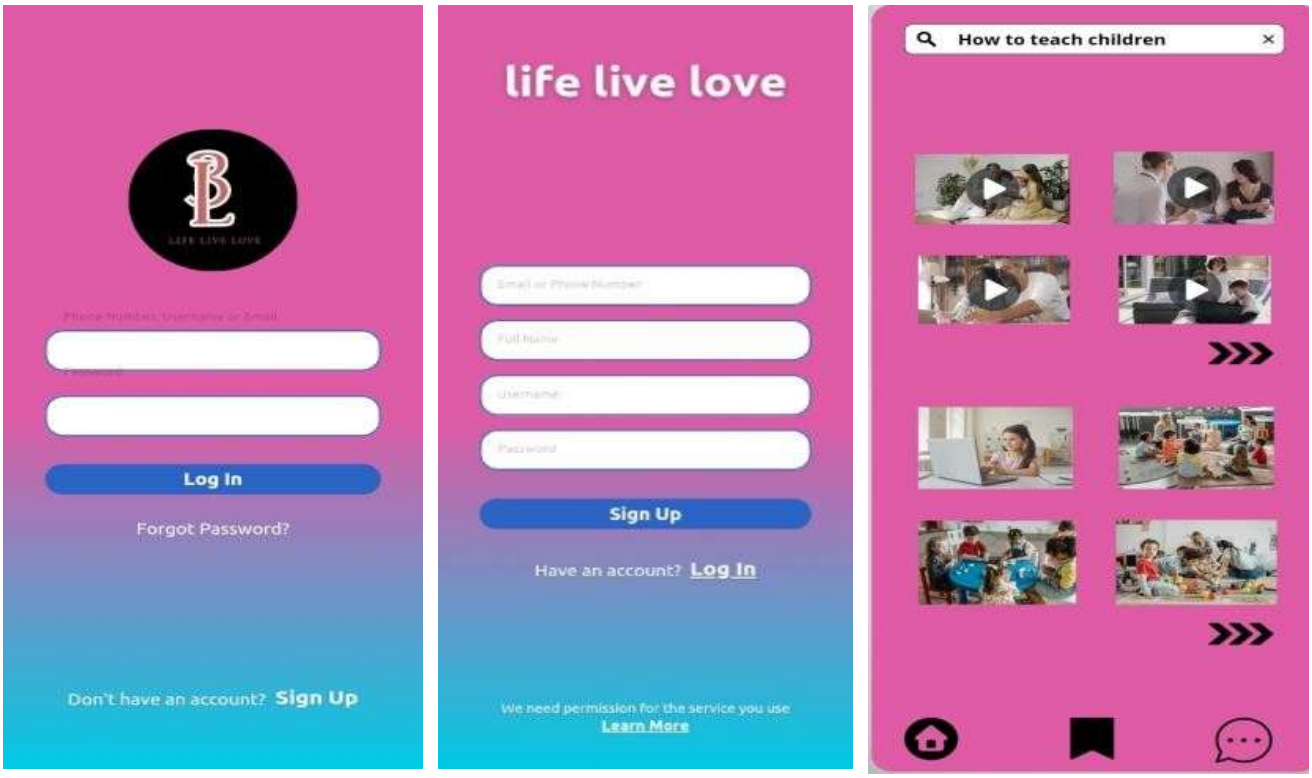
3.5 Discussion

The evaluation results indicate that the majority of respondents provided positive assessments of the application design. The *innovation* aspect received the lowest score, indicating the need for further feature development to enhance the application's competitiveness.

Based on the results of interviews, observations, and user testing, it can be concluded that the User-Centered Design approach is effective in identifying users' actual needs. User involvement from the early stages of the design process enabled the *Life Live Love* application to be developed in accordance with the usage context of the Depok City community.

This mobile parenting education application is considered capable of serving as an alternative solution for providing structured, easily accessible, and user-relevant parenting information, particularly for urban users. The findings of this study further reinforce the role of digital transformation in the field of family education and user-based information systems.

Picture 3 User Interface



4. CONCLUSION

This study concludes that the implementation of the **User-Centered Design (UCD) method** with a qualitative descriptive approach is effective in designing a parenting education mobile application. Direct user involvement through interviews, field observations, and prototype testing enables the development of an application that aligns with the needs and characteristics of users in Depok City.

The results indicate that the resulting application design demonstrates a good level of user acceptance in terms of usability and user experience, particularly regarding ease of use, clarity of information, and navigation efficiency. The designed parenting education mobile application is considered capable of providing an alternative solution for delivering structured parenting information that is easily accessible through digital platforms.

Therefore, this study contributes to the development of user-based information systems in the field of family education and can serve as a reference for future research in the development of mobile

applications using the User-Centered Design approach.

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The author also acknowledges those who offered valuable feedback and suggestions throughout the application design and evaluation process, which enabled the successful completion of this study. It is hoped that the results of this research will contribute to the development of mobile parenting education applications and serve as a reference for future studies.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest related to this research, either financial or non-financial, that could have influenced the research process or the reported results.

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