KLIK: Kajian Ilmiah Informatika dan Komputer
ISSN 2723-3898 (Media Online)
Vol 4, No 3, December 2023, Hal 1869-1879
DOI 10.30865/klik.v4i3.1544
https://djournals.com/klik

Empowering Public Opinion through Android Applications for Community Participation and Complaint Management

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Abstract−Various government institutions endeavored to transition towards a e-government system. This initiative aimed to enhance public services, rendering them transparent, effective, and efficient. It enabled citizens to participate in developing and improving public services in Yogyakarta, regardless of time and place. As part of the broader strategy to transition to a e-government system, one practical approach involved leveraging mobile computing devices, such as Android-based mobile applications. Android-based mobile application was used to capture the public's aspirations, thereby fostering the creation of a public opinion that could serve as a benchmark for relevant authorities. This study used an ethnographic approach to identify the features within social media that facilitated the formation of online public opinion. Furthermore, the application utilized GPS technology to pinpoint the locations associated with each aspiration and complaint. All data was securely stored in the Firebase Database, ensuring accessibility and data integrity. Based on the outcomes of this system, this Android application played a pivotal role in categorizing aspirations and complaints based on multiple factors, including user engagement metrics such as comments, likes, and shares, as well as user interactions and content relevance. Notably, content garnered higher engagement levels was more likely to reach a broader and more diverse audience. This research will produce an application that provides insights into recognizing the diverse preferences and affiliations of the community. By doing so, the system can help local government to make informed decisions that align more closely with the needs and desires of their community, thereby contributing to an enhanced and responsive governance framework.

Keywords: E-government; Mobile Applications; Public Opinion Formation; User-centered design (UCD); Online Complaints

1. INTRODUCTION

Indonesia's administrative landscape is marked by a decentralized government structure, encompassing around 416 regional government units, with the more extensive administrative divisions comprising 98 cities [1]. Within this intricate framework of villages, districts, and urban neighborhoods, decentralization has empowered local communities to manage their affairs autonomously [2]. This decentralization has simultaneously posed the challenge of ensuring effective communication between citizens and their local government, given the diverse preferences of the people [2]. The transition towards e-government system has emerged as a strategic solution in response to this challenge [3]. Towards achieving the goal of e-government, the Indonesian government, spearheaded by the Ministry of Communication and Informatics and other ministries, initiated a transformative endeavor. This movement, titled the "Movement Towards 100 Smart Cities," was inaugurated in 2017. The overarching objective of this movement is to equip 100 cities/regencies across Indonesia with the necessary infrastructure and capabilities to transition into smart cities by the year 2019 [4]. This transition acknowledges the importance of public sentiment, which plays a central role in shaping various aspects of community life, including the delivery of public services [5], [6]. People's preferences collectively contribute to the formation of public opinion, influencing decisions and services at the local level [5], [6]. Understanding the diverse nature of community interests within this context is complex as individuals often have multiple preferences and affiliations [5], [6].

Through the implementation of the Smart City concept, Yogyakarta Government is committed to enhancing the quality of governance by leveraging technology and information. One of its focal points is the provision of public services. The Yogyakarta government recognizes that in the era of globalization, technology can assist in facilitating governmental processes, particularly in the domain of public services at both the central and local levels [7]. Despite the identified shortcomings in public services, encompassing both the types of services and the entities delivering them, the Yogyakarta government is cognizant that the reputation of government institutions can be jeopardized if these issues are not addressed [7]. To address these challenges, the Yogyakarta government proposes the development of an Electronic-Based Community Complaint Application (E-Service). This application aims to serve as a platform for the collection of community aspirations and as a means to submit electronic complaints related to public services in the city of Yogyakarta [8].

Previous research in the field of e-government has extensively examined the implementation and evaluation of e-government initiatives at the local, district, or city government levels [9], [10]. These studies have delved into crucial aspects, including infrastructure, public service processes, internet network support, software and hardware advancements, human resource development, interaction, transactions, and connectivity among various government components [11], [12]. Such research has emphasized the importance of these elements in achieving a cohesive and effective e-government system. Notably, previous literature has underscored the significance of e-government in enhancing communication-based information services throughout various sectors of government operations [13], [14].

Some of this research identified weaknesses prior to the implementation of e-government, including limited citizen engagement, a lack of customization, technological barriers, and inadequate feedback mechanisms [15]. To address these issues, this research incorporates public opinion-forming processes as a vital solution. By integrating public sentiment

into decision-making and service delivery, e-government systems can become more responsive. This solution places public opinion at the core of decision-making [16], [17]. Through continuous citizen engagement, local government units can gain valuable insights into their communities, leading to more informed and citizen-centric governance [16], [17].

Using an ethnographic approach to identify the features within social media that facilitate the formation of online public opinion is a valuable method for gaining insights into how communities and individuals interact and express their preferences in the digital age [18], [19]. This comprehensive approach involves actively observing and participating on Twitter, conducting interviews and content analysis to understand user motivations, behaviors, and content themes, and analyzing social networks to identify key influencers and opinion hubs. Additionally, it seeks to pinpoint the crucial platform features, such as hashtags and user engagement that empower the expression of public opinion [20], [21]. By adopting this method, the study aimed to shed light on the dynamics of online public opinion formation in the digital age.

To navigate the intricacies of public sentiment effectively, the study employs the User-Centered Design (UCD) methodology, a cornerstone in the realm of software development. UCD places the user at the epicenter of the design and development process, ensuring that the resulting application aligns seamlessly with user needs, preferences, and expectations [22]. This method unfolds in distinct phases, beginning with the analyzing requirements stage, where a comprehensive understanding of user contexts and needs is garnered. Through this UCD lens, the study identifies actors within the e-government system, from engaged citizens to responsive government authorities [23].

This research aims to develop an Android-based mobile application as a vital component of the Movement Towards 100 Smart Cities initiative. By leveraging public sentiment and employing UCD principles, this transition to e-government system relies on harnessing the power of public opinion, with Android-based mobile application playing a pivotal role as a solution [24], [25]. This application empowers citizens to voice their aspirations and complaints, providing relevant details and location information. By recognizing the diverse preferences and affiliations of the community, this system can help make informed decisions that align more closely with the needs and desires of their local government [25].

2. RESEARCH METHODOLOGY

2.1 Research Method

The research method of this study begins with conducting an ethnographic approach. This method allows us to actively engage with digital communities and individuals to gain a profound understanding of their online interactions and expression of preferences in the digital age. Through observations, content analysis, and network analysis, the study delves into the intricate dynamics of online public opinion formation. The insights derived from this ethnographic exploration serve as the foundation for developing an Android application designed to harness the power of public sentiment as a benchmark for local government decision-making.

2.2 Virtual Ethnography

Digital or virtual ethnography is the practice of studying online communities or groups over an extended duration [26]. Traditional ethnographic research focuses on confined social spaces, but platforms like Twitter present unique challenges due to their vast and public nature. In response to these challenges, a networked field site approach reframes Twitter as one element within a broader network of field sites, including various online platforms, physical locations, and objects.

Determining the boundaries of Twitter as a field site can be approached in several ways. For instance, 'follow' specific subjects, like 'environmental activists' or 'healthcare professionals'. Analyzing interactions, including conversations among Twitter users, and reconstructing past messages. Another approach involves tracking hashtags, although not all hashtags represent coherent communities, and not all Twitter users use them.

2.3 Research Analysis Unit

Twitter is a popular communication medium for government and public organizations, as it allows users to share concise opinions and quickly digest information. One of the key features of Twitter is the use of hashtags, which enable users to connect and discuss trending topics, even if they do not know each other. To conduct research and analyze Twitter data, researchers often use the Twitter API (Application Programming Interface), which provides a direct connection to access Twitter data. In the case of analyzing Twitter API data using Python, researchers can utilize the Tweepy library, which is a Python package specifically designed for accessing the Twitter API.

Tweepy provides an easy and accessible way for researchers and practitioners to scrape tweet data from Twitter. It is a free and open-source library that offers various functionalities for interacting with the Twitter API, such as searching for tweets, retrieving user information, and collecting tweet data for analysis. By using Tweepy, research explores content associated with the hashtag #UNICEF. The object of investigation comprises Twitter accounts that engage in discussions and interactions using the hashtag #UNICEF while also mentioning the Twitter account @UNICEF. For this analysis, the unit of study primarily encompasses verified or blueticked Twitter accounts across diverse classifications, including but not limited to state leaders, academics, politicians, celebrities, writers, and other prominent figures.

2.4 Research Stages

The research employs the User-Centered Design (UCD) methodology for software development, aiming to create applications that meet user requirements [22]. The term 'User-Centered Design' was coined at the University of California San Diego (UCSD) laboratory in 1980 under the guidance of Donald Norman. It gained widespread recognition after the release of the book 'User-Centered System Design: New Insights into Human-Computer Interaction.' The fundamental principle of this methodology is to prioritize the user in the system development process. The objectives, features, context, and system environment derive from the user's experience [23]. The UCD methodology follows a series of four iterative steps, as explained in Figure 1.

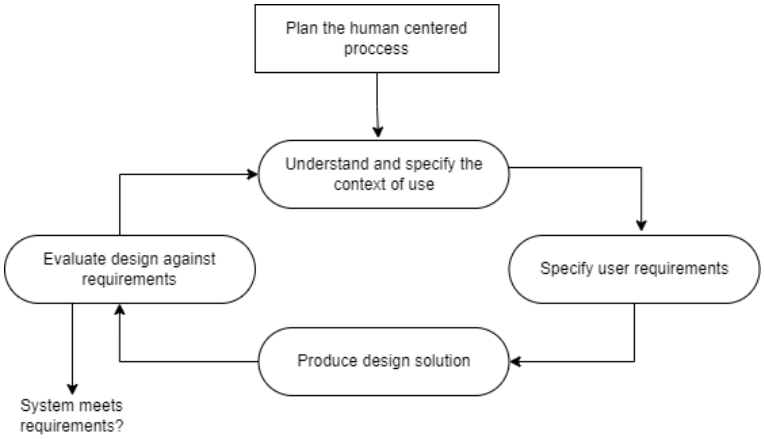

Figure 1. User-Centered Design Process

In this study, the UCD methodology as depicted in Figure 1 involves the following key components:

a. Understand and specify the context of use. This initial stage entails identifying the system's intended users, elucidating the product's purpose, and describing the conditions under which they will interact with the product.
b. Specifying user requirements. During this phase, user needs are identified. Interviews can be conducted to gather functional and non-functional requirement information that will be applied to the application.
c. Produce design solutions. The process begins with creating designs and prototypes based on the functional and non-functional requirements, serving as the solutions for the developed system.
d. Evaluating design against requirements: In the final step, the design created in the preceding phase is assessed to determine whether it aligns with the goals and requirements of potential users.

The system development encompasses various tasks, such as requirements gathering, analysing requirements, designing, implementing systems, conducting testing, and drawing conclusions. The UCD methodology is employed in the phases of requirement analysis and system design. Figure 2 offers a comprehensive illustration of the research framework that was carried out.

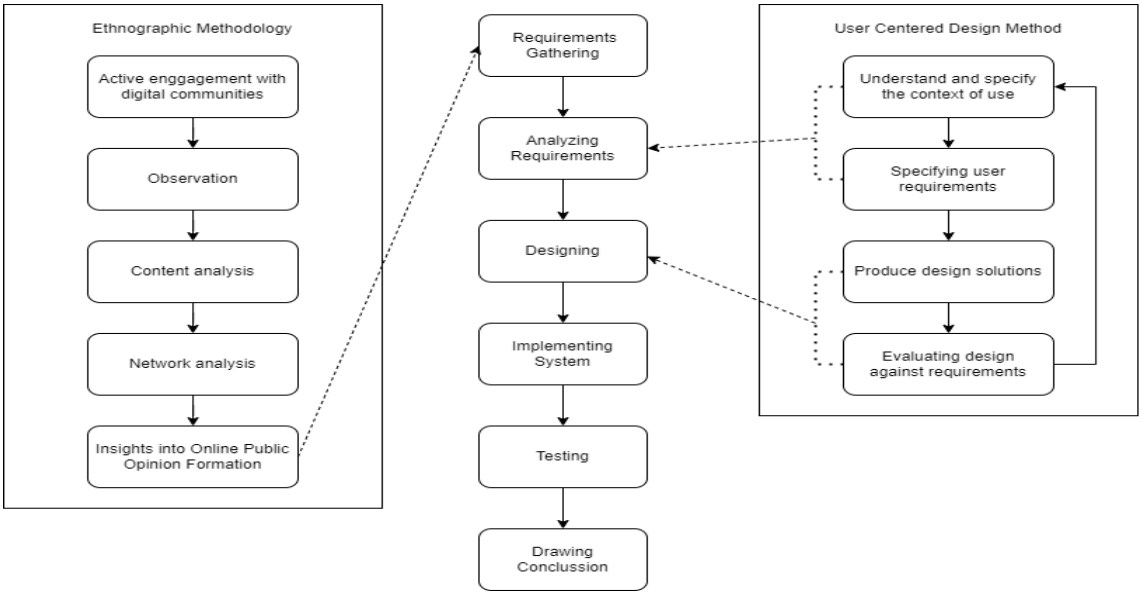

Figure 2. Research Framework Uses UCD

The Analyzing requirements phase involves identifying the needs of the information system. The User-Centered Design (UCD) methodology, comprising understanding and specifying the user context and specifying user requirements is employed in this section. In the 'specify the context of use' section, the potential users who will interact with this

application are pinpointed. Following the actor identification process, the study proceeds to the 'specify user requirements' stage, delving into the needs of users prospective.

Moving on to the design phase, two processes are executed: product design solution and design evaluation against user requirements. In the product design solution phase, the interface design is developed based on insights from the needs analysis. This stage holds significant importance as it greatly impacts usability. The interface design leverages wireframes, which provide a visual representation of the system's appearance and core functionalities. Subsequently, the product design solution is presented to potential users for an evaluation of its appearance and features. The results from this evaluation drive improvements to the system through iterative cycles, beginning with an analysis of user needs.

Following the evaluation of the product design solution, the next stage is implementation. This phase involves translating the system design into a programming language to create a functional system. The implementation of the interface adheres to the design that has been assessed by potential users. Testing becomes crucial to ensure alignment with the design and the requirements analysis, as well as to identify any functional errors within the system. The testing process employs two methods: validation testing and usability testing.

3. RESULT AND DISCUSSION

3.1 Requirements Gathering and Analyzing Requirements

3.1.1 Dynamics of Online Public Opinion Formation

Drawing upon the conducted ethnographic research, it reveals several pivotal elements contributing to the shaping of public sentiment in the digital age.

a. Opinion Leader (OL)

Upon conducting an in-depth analysis of user interactions within the context of the #UNICEF hashtag, it became evident that some account in this digital ecosystem plays a pivotal role in orchestrating public communication campaigns. These campaigns employ diverse messaging strategies across social media platforms, encompassing various forms of message delivery. The analysis has revealed that some users within this digital environment assume the role of opinion leaders (OL). Opinion leaders wield substantial influence on social media platforms, and their impact is particularly pronounced. They possess the unique ability to effectively convey messages to their audience, thereby shaping the behaviors and opinions of others. This is a phenomenon that holds relevance in the context of online public opinion formation. Messages disseminated by opinion leaders are generally more readily accepted within a community, making them instrumental in shaping digital discourse. Opinion leaders leverage their positions within the digital community, often individuals well-known to the public, to amplify the reach and impact of their messages.

b. Key Metrics for Public Involvement

Within the realm of Twitter, key metrics such as the number of retweets and likes serve as a barometer of audience engagement with the content or message being shared. A high number of retweets and likes indicate the audience's appreciation for the type of content or message uploaded, also suggesting the potential popularity and resonance of the message. Identifying these high-engagement content pieces can inform the creation of future campaigns and messages, ensuring that they are more effective in mobilizing online communities and influencing public opinion.

c. The Role of Hashtags

Hashtags, is an essential feature of Twitter and other social media platforms, serve as connectors that group conversations and topics together. The analysis highlighted the significant role of hashtags in shaping the dynamics of online public opinion. Specific hashtags like #UNICEF acted as entry points for users to join relevant discussions and express their opinions. Furthermore, hashtags helped track the spread of conversations, allowing for real-time monitoring of trending topics and public sentiment. By analyzing the usage and popularity of hashtags, it was possible to identify key themes and discussions within the online community.

3.1.2 Context of Use

The initial phase of the User-Centered Design (UCD) method involves understanding and specifying the context of use. In the context of this research, this phase is informed by the findings of the ethnographic research, which involved actively engaging with digital communities and individuals to gain a profound understanding of their online interactions and preferences in the digital age. Table 1 displays the outcomes of the actor, features, and provides descriptions of these individuals.

Table 1. Actor Identification

Actor	Description
Citizens	Citizens use the Android application to submit their aspirations and complaints, providing relevant details and location information. They can also view and track the status of their submissions and any responses from government authorities. Additionally, citizens can access information from government and interact with content by commenting on other submissions, liking, and sharing posts.

Government Authorities	Government authorities use the application to respond to citizens' submissions and communicate updates on issue resolution. They also analyze user engagement metrics, such as comments, likes, and shares, to prioritize and address issues effectively.

Following the process of identifying actors, the next step involves outlining user needs by detailing functional and non-functional requirements. This results in six functional requirements and one non-functional requirement, which include Submit Aspiration or Complaints, Track Submission Status, View Trending, Responding to Complaints and Aspirations, Analyze User Engagement, Do Comment, Like, and Share. The non-functional requirement pertains to usability, emphasizing the importance of a user-friendly interface that can be easily understood by all users. Figure 3 illustrates a use case diagram developed based on the functional requirements established in the prior requirement analysis.

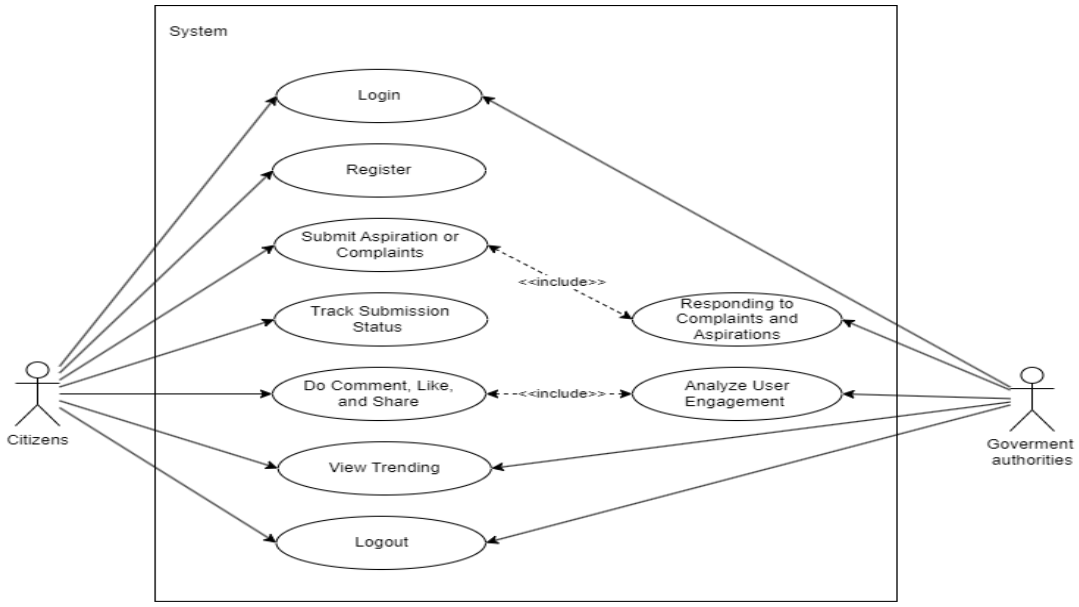

Figure 3. System Use Case Diagram

3.2 Application Design and Implementation

The design stage occurs once all user requirements have been met. It involves creating data and information designs, such as class diagrams, sequence diagrams, and user interfaces, based on the use case diagram. These design outcomes are then utilized for the implementation phase, which includes implementing the database, interface, and screen flow of the interface. Figure 4 provides an overview of the implemented main page of the application.

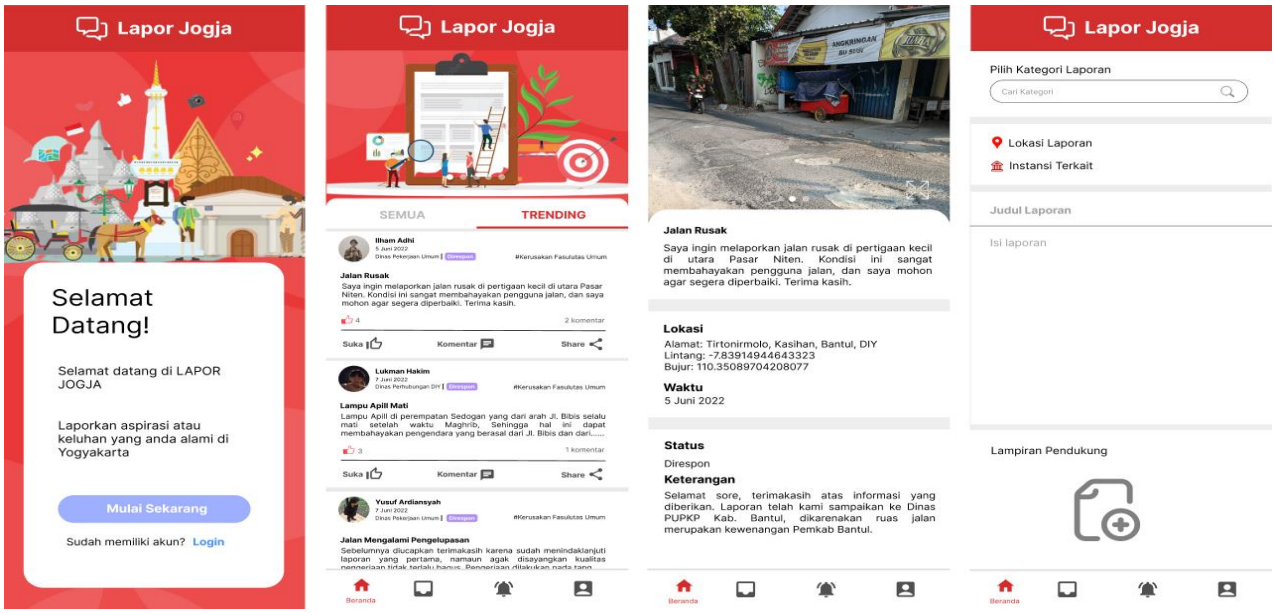

Figure 4. System Implementation

3.3 Testing and Analysis

Validation testing is carried out through the utilization of the black-box testing method, where the test results are compared to the existing requirements list [27]. If they align, the results are considered valid because they have effectively implemented the desired requirement design. The results from applying the black-box testing method for functional testing on the system achieved a 100% validity rate. Based on these findings, it can be concluded that the application's validation testing has satisfied the functional requirements. Table 2 provides an overview of the validation test results.

Table 2. Validation Test Result

Features	Expected Result	Actual Result	Validation
Submit Aspirations and Complaints	Submit aspirations and complaints, providing relevant details and location information.	Submit aspirations and complaints, providing relevant details and location information.	Valid
Track Submission Status and Responses	View and track the status of their submissions and any responses from government authorities.	View and track the status of their submissions and any responses from government authorities.	Valid
Comment, Like, Share	Interact with content by commenting on others' submissions, liking, and sharing posts.	Interact with content by commenting on others' submissions, liking, and sharing posts.	Valid
Utilize Hashtags	Engage in discussions and express opinions using relevant hashtags.	Engage in discussions and express opinions using relevant hashtags.	Valid
Respond and Communicate	Respond to citizens' submissions and communicate updates on issue resolution.	Respond to citizens' submissions and communicate updates on issue resolution.	Valid
Analyze User Engagement Metrics	Analyze user engagement metrics, such as comments, likes, and shares, to prioritize and address issues effectively.	Analyze user engagement metrics, such as comments, likes, and shares, to prioritize and address issues effectively.	Valid

The second phase of testing involves assessing the system's usability. This assessment focuses on three key aspects: how well the system performs (effectiveness), how efficiently it operates (efficiency), and how satisfied users are with it [28]. To evaluate effectiveness and efficiency, user experience is gauged through post-task questionnaires. The levels of effectiveness and efficiency are measured by considering how successfully users complete the observation elements, calculated as follows:

$$\text{Effectiveness, Efficiency (\%)} = \frac{\Sigma_i^n =_1 xi}{n} x100\% \quad (1)$$

In this context, x_i represents the success rating of each participant, denoted as $x_i = \{0.1\}$. The usability testing was conducted with citizens who aimed to provide their aspirations to specific government units. The results of the usability test, measured in terms of user effectiveness, showed an impressive average score of 87,63%. It can be inferred that the application effectively caters to the needs of its users. The specific details of the usability test results based on user effectiveness are provided in Table 3.

Table 3. Effectiveness Test Result

Activity	Respondents						Effectiveness Result (%)
	R1	R2	R3	R4	R5	R6	
Submit Aspirations and Complaints Scenarois							
Citizens successfully find and select report categories	√	√	√	√	√	√	100%
Citizens successfully input location and related institution	√	√	√	-	-	√	66%
Citizens successfully input report title and report content	√	√	√	√	√	√	100%
Citizens successfully attach file	√	√	√	√	-	√	83%
Track Submission Status and Responses							
Citizens receive notifications of government responses to their submitted reports	√	√	√	√	√	√	100%
Citizens can filter reports based on their status	√	√	√	√	√	√	100%
Interact With Content by Comment, Like, Share							
Citizens successfully show their appreciation for a post by pressing the 'like' button	√	√	√	√	√	√	100%
Citizens successfully provide feedback on a post by leaving comments	√	√	√	√	√	√	100%
Citizens successfully share post to increase its reach and visibility.	√	√	√	√	-	√	83%

Engage in Discussions Using Relevant Hashtags							
Users successfully search for relevant hashtags related to topics they find interesting.	√	√	√	-	-	√	66%
Users successfully participate in discussions with relevant hashtags	√	√	√	-	-	√	66%
					Total Result		87,63 %

The usability testing results have revealed that the application has an impressive average score of 89.37% regarding user efficiency. This means the application is highly efficient in performing user actions according to their needs. The testing process involved observing users interacting with the application and measuring the time it took them to complete specific tasks. The results showed that users could complete tasks quickly and easily, indicating that the application's design and functionality are well-suited to their needs. The usability testing results in terms of user efficiency are described in Table 4.

Table 4. Efficiency Test Result

Efficiency	Respondents						Efficiency Result (%)
	R1	R2	R3	R4	R5	R6	
Submit Aspirations and Complaints Scenarois							
The frequency of users asking questions at a basic level	√	√	√	√	√	√	100%
The frequency of users receive support at a basic level	√	√	√	-	-	√	66%
Track Submission Status and Responses							
The frequency of users asking questions at a basic level	√	√	√	√	√	√	100%
The frequency of users receive support at a basic level	√	√	√	√	√	√	100%
Interact With Content by Comment, Like, Share							
The frequency of users asking questions at a basic level	√	√	√	√	√	√	100%
The frequency of users receive support at a basic level	√	√	√	√	-	√	83%
Engage in Discussions Using Relevant Hashtags							
The frequency of users asking questions at a basic level	√	√	√	√	√	√	100%
The frequency of users receive support at a basic level	√	√	√	-	-	√	66%
					Total Result		89,37%

The usability testing process involves evaluating user satisfaction, which is done using a Likert scale [28]. The Post-Study System Usability Questionnaire (PSSUQ) assesses user perception of the system or application [29]. The PSSUQ questionnaire has three versions with varying numbers of questions, and the latest version comprises 16 questions divided into four sub-scales. The Likert scale uses multiple statements to evaluate individual behavior, and users indicate their level of agreement on a 5-point scale, ranging from "strongly agree" to "strongly disagree." Once users have responded to the 16 questions, the values are calculated to determine the usability score of the system. Table 5 provides an overview of the rating intervals on the Likert scale.

Table 5. Linkert Scale

Declaration	Likert Scale
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

There are four parameters assessed in user satisfaction: Usefulness, Ease of Use, Ease of Learning, and Satisfaction. Each parameter includes four questions. The calculation involves obtaining the average value for each parameter, dividing it by the maximum scale of assessment (which is 5), and then multiplying by 100%. This methodology provides a comprehensive evaluation of the application's usability in terms of user satisfaction.

a. Usefulness

The usefulness parameter has 6 questions as detailed in Table 6. Users provided their feedback on various aspects related to the application's usefulness, allowing for a nuanced understanding of how well it meets their needs and expectations.

Table 6. Usefulness Questionnaire Result

Parameter	Response					
	R1	R2	R3	R4	R5	R6
Lapor Jogja application helps me to me more effective in communicating with local government authorities.	5	5	5	4	4	5

The utility of Lapor Jogja application substantially improves my productivity in addressing local issues and concerns.	5	5	5	5	4	5
Lapor Jogja is very usefull in addressing local issues and concerns.	4	5	4	3	3	4
Lapor Jogja makes it easier to addressing local issues and concerns	5	5	4	5	5	5
Lapor Jogja makes save my time to addressing local issues and concerns	5	4	3	3	3	4
Lapor Jogja fulfills my needs to addressing local issues and concerns	3	4	3	4	4	3

The calculated average for this parameter reflects the overall usefulness of the application in delivering valuable and relevant features, contributing to a positive user experience. The calculating average value are presented Figure 5.

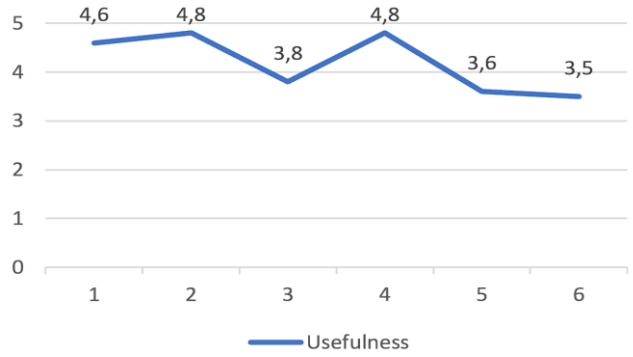

Figure 5. Average Value of Usefulness

The average score for the usefulness parameter is 4.10, equivalent to 82%, indicating a significantly high usability level, as it approaches the maximum achievable value. This outcome suggests that the Lapor Jogja application excels in usability within the usefulness parameter. All six statements in Figure 5 garner a score of 3.5 or higher, with statement 2 and 4 achieves the highest average score of 4.8.

b. Ease of Use

The ease of use parameter has 6 questions as detailed in Table 7. Users provided their feedback on various aspects related to the application's ease of use, allowing for a nuanced understanding of how well it meets their needs and expectations.

Table 7. Ease of Use Questionnaire Result

Parameter	Response					
	R1	R2	R3	R4	R5	R6
Lapor Jogja application is easy to use for addressing local issues and concerns.	5	5	5	4	5	5
Lapor Jogja application is practical for addressing local issues and concerns.	5	5	5	4	5	5
Lapor Jogja application only takes a few steps to archive what I want	4	3	4	4	3	4
I can use Lapor Jogja application without written instruction	5	5	5	4	4	5
I did not encounter any inconsistencies when using Lapor Jogja application	5	5	4	5	5	5
I can solve error in using Lapor Jogja application easily	3	4	4	3	4	5

The calculated average for this parameter reflects the overall ease of use of the application in delivering valuable and relevant features, contributing to a positive user experience. The calculating average value are presented Figure 6.

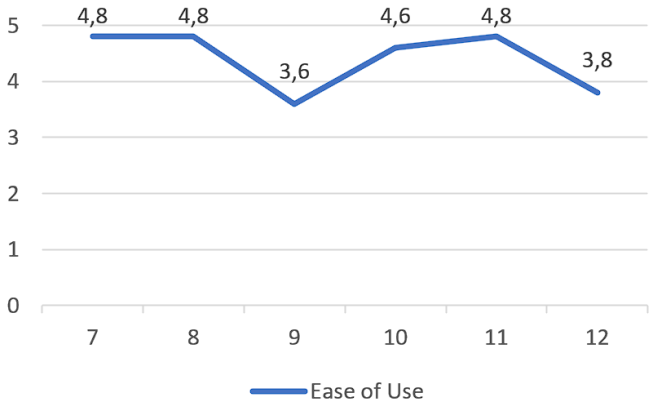

Figure 6. Average Value of Ease of Use

The average score for the ease of use parameter is 4.56, equivalent to 91%, indicating a significantly high usability level, as it approaches the maximum achievable value. This outcome suggests that the Lapor Jogja application excels in usability within the ease of use parameter. From Figure 6 there are 3 on a scale of 4.8.

c. Ease of Learning

The ease of learning parameter has 4 questions as detailed in Table 8. Users provided their feedback on various aspects related to the application's ease of learning, allowing for a nuanced understanding of how well it meets their needs and expectations.

Table 8. Ease of Learning Questionnaire Result

Parameter	Response					
	R1	R2	R3	R4	R5	R6
I quickly learned the Lapor Jogja application for addressing local issues and concerns.	5	5	5	5	5	5
I can remember how to use Lapor Jogja application for addressing local issues and concerns.	5	5	5	5	4	5
Lapor Jogja application is easy to learn	4	5	4	5	4	5
I quickly became proficient in using Lapor Jogja application	5	5	5	4	5	5

The calculated average for this parameter reflects the overall ease of learning of the application in delivering valuable and relevant features, contributing to a positive user experience. The calculating average value are presented Figure 7.

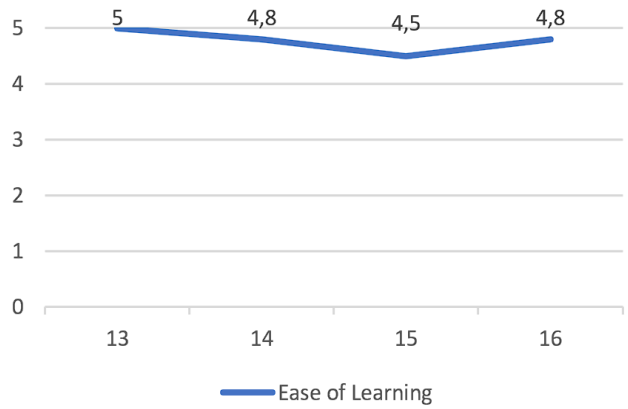

Figure 7. Average value of Ease of Learning

The average score for the ease of learning parameter is 4.7, equivalent to 94%, indicating a significantly high usability level, as it approaches the maximum achievable value. This outcome suggests that the Lapor Jogja application excels in usability within the ease of learning parameter. All four statements in Figure 7 garner a score of 4.5 or higher, with statement 2 achieves the highest average score of 5.

d. Satisfaction

The satisfaction parameter has 4 questions as detailed in Table 9. Users provided their feedback on various aspects related to the application's satisfaction, allowing for a nuanced understanding of how well it meets their needs and expectations.

Table 9. Satisfaction Questionnaire Result

Parameter	Response					
	R1	R2	R3	R4	R5	R6
I am satisfied with the Lapor Jogja application	5	5	5	4	4	5
I will recommend Lapor Jogja application to my friend	3	4	3	3	4	4
Lapor Jogja application is fun to use	4	5	4	4	3	4
Lapor Jogja application has an attractive appearance	5	4	5	5	5	4

The calculated average for this parameter reflects the overall satisfaction of the application in delivering valuable and relevant features, contributing to a positive user experience. The calculating average value are presented Figure 8.

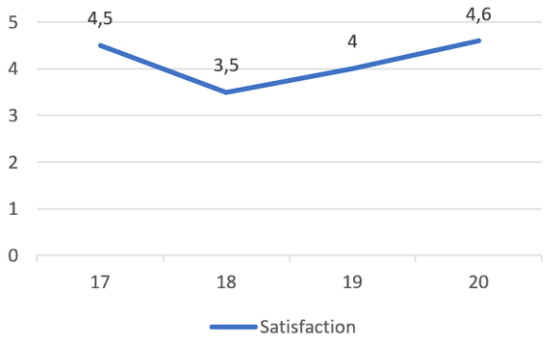

Figure 8. Average value of Satisfaction

The average score for the Satisfaction parameter is 4.15, equivalent to 82%, indicating a significantly high usability level, as it approaches the maximum achievable value. This outcome suggests that the Lapor Jogja application excels in usability within the satisfaction parameter. All four statements in Figure 8 garner a score of 3.5 or higher.

4. CONCLUSION

This research has made significant strides in creating a user-friendly Android application that empowers citizens to express their aspirations and complaints, engages government authorities in responding effectively, and provides a platform for online public opinion formation. The application's success in usability and functionality, along with the insights from ethnographic research, offers a promising path for the development of e-government systems and the enhancement of community-centric governance. For future studies, further exploration of social media dynamics and the development of similar applications for other regions can help refine and expand the use of technology to facilitate citizen-government interaction and improve public services.

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