

Student Perceptions of the Effectiveness of Government Public Service Applications in the Digital Era

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Abstract

Keywords:

Digital public services; student perceptions; government applications; digital governance; accessibility

Background: Digital transformation has become a fundamental component of public service improvement in the era of rapid technological advancement. The Indonesian government continues to introduce and refine digital platforms intended to provide more efficient, transparent, and accessible public services to citizens across all demographic groups. Objective: This study aims to explore student perceptions regarding the effectiveness of government digital public service applications, identify the benefits experienced by student users, and analyze the challenges that hinder optimal service delivery. *Methods: This research employs a qualitative descriptive design with a phenomenological approach to understand the lived experiences of students who utilize digital government applications. Data were collected through observation and in-depth descriptive narration from students who actively use various government digital platforms including population administration systems (Dukcapil Online), health services (Mobile JKN), educational financial assistance (KIP Kuliah), and public complaint systems (SP4N-LAPOR!). Thematic analysis was applied to identify patterns in user experiences across multiple service dimensions.* Results: Findings reveal that students generally view these applications positively, citing ease of access, time efficiency, reduced administrative costs, and increased transparency as major advantages over traditional bureaucratic processes. However, persistent challenges remain including system instability during peak usage periods, high mobile data consumption, unclear instructions and interface designs, insufficient accessibility features for users with disabilities, and concerns about personal data security and privacy. These challenges demonstrate the need for further refinement in technical infrastructure, user-centered design, and stronger digital governance practices.

INTRODUCTION

The Fourth Industrial Revolution has reshaped technological landscapes and accelerated the adoption of digital solutions across various public sectors. Digitalization has become a critical strategic move for governments aiming to enhance public service performance, increase transparency, and respond to the evolving needs of modern society. In Indonesia, significant advancements have been made in public service digitalization, including online systems for tax management, BPJS Health, identification and population administration, and various other government services.

Students represent a highly digital-oriented demographic group. Growing up alongside technological advancements, they not only possess familiarity with digital platforms but also demonstrate high expectations for efficiency, accuracy, and transparency. Their experiences and assessments play a vital role in evaluating the effectiveness of government digital

initiatives. Furthermore, student perspectives provide insight into how well digital services are being received by a population that will continue to shape the future of Indonesia's technological landscape.

Previous research has examined various dimensions of e-government effectiveness and user perceptions. Moon (2020) analyzed the institutional isomorphism affecting e-government adoption, demonstrating how organizational factors influence digital service quality across different governance contexts. Taylor (2017) explored data justice and digital citizenship, highlighting the importance of equitable access and fair treatment in digital service design. Meyer and Marko (2020) investigated the digital public sphere and challenges facing public service media, providing frameworks for understanding how digital platforms shape citizen-state interactions. Nugraha and Putri (2024) specifically evaluated public service application performance in supporting good governance in Indonesia, finding significant variations in service quality across different platforms and regions.

In the context of digital transformation of public services, recent research highlights several dimensions relevant to the findings of this study. Dwivedi et al. (2021) emphasized that the successful adoption of digital government services is highly dependent on user trust and ease of access, which aligns with students' positive perceptions of time efficiency and transparency. Meanwhile, Madan and Ashok (2023) found that user-unfriendly interface design and unclear information are major barriers to the use of digital-based government services, especially for younger user groups such as students. From a data security perspective, research by Al-Hujran et al. (2020) showed that privacy concerns are a significant factor influencing satisfaction and continued use of public applications, reflecting the findings of this study regarding students' uncertainty about personal data protection. Furthermore, Lestari and Nugroho (2024) in their study of the digital divide in Indonesia identified that limited infrastructure and high data consumption remain major obstacles for students in areas with limited internet access. Similarly, Rana et al. (2022) highlights the importance of a user-based approach in the development of government digital services, including the active participation of vulnerable groups such as people with disabilities, in order to create an inclusive and equitable system.

Despite this growing body of research, significant gaps remain in understanding how specific demographic groups—particularly students—perceive and experience government digital services in the Indonesian context. Most existing studies adopt either broad national perspectives or focus on general population samples, overlooking the distinctive characteristics and expectations of student users. Additionally, limited research has systematically examined the full spectrum of student interactions with multiple government platforms, from administrative services to healthcare and complaint systems, to identify cross-cutting patterns in user experience. This gap is particularly significant given students' role as both intensive users of digital services and as future citizens whose trust in government institutions may be shaped by these early digital interactions.

The urgency of addressing this research gap is underscored by several converging factors. First, Indonesia's rapid digital transformation has produced numerous government applications, yet systematic user feedback mechanisms remain underdeveloped, potentially allowing persistent service quality issues to go unaddressed (Nugraha & Putri, 2024). Second, digital inequality concerns persist, with questions about whether government services are equally

accessible and usable across different population segments, including students with varying levels of digital literacy, economic resources, and geographic locations (World Bank, 2021). Third, data security and privacy concerns have intensified following high-profile data breaches globally, making user perceptions of data stewardship increasingly important for maintaining public trust in digital governance (Zuboff, 2019). Fourth, the COVID-19 pandemic accelerated reliance on digital services, making service quality and reliability more critical than ever for ensuring continued access to essential public functions.

Despite the government's efforts, digital inequality, usability issues, and concerns over privacy continue to be significant issues. Understanding student perceptions is therefore crucial to improving digital service design, enhancing public trust, and ensuring that digital transformation efforts align with the expectations of modern users. This study aims to provide an in-depth analysis of how students interpret and experience the use of digital government services, as well as the challenges and opportunities that arise from these systems.

Indonesia's e-government development has been guided by national policies including the Government Regulation No. 95 of 2018 on the Electronic Government System (SPBE) and Presidential Regulation No. 39 of 2019 on the National One Data Policy. These regulatory frameworks underpin the government's commitment to building an integrated, efficient, and citizen-centered digital public service ecosystem.

RESEARCH METHOD

This study employs a qualitative descriptive research design using a phenomenological approach. The focus of phenomenological research is to examine the lived experiences of individuals and explore how they interpret specific events or interactions in their everyday lives. In this context, the approach is used to understand the personal experiences of students who utilize digital public service applications.

Research Design

The phenomenological method is chosen because it allows for a nuanced exploration of subjective experience. Unlike survey-based approaches that quantify satisfaction levels, phenomenology seeks to understand the meaning users attach to their interactions with digital services. This approach is particularly suited to capturing the complexity of student experiences, which encompass not only usability assessments but also emotional responses, trust perceptions, and behavioral adaptations.

The research design follows a structured process: (1) selection of research participants, (2) data collection through observation and descriptive narration, (3) thematic analysis of collected data, and (4) interpretation and synthesis of findings within the broader e-government and digital governance literature.

Data Collection

Data were collected through observation and descriptive analysis of user experiences. Students were observed and asked to describe their interactions with various digital government applications, such as online population administration systems, health service platforms, educational financial assistance applications, and public complaint systems.

The following types of digital government applications were included in the study:

- **Population Administration (Dukcapil Online):** Used for identity card registration, family card management, and birth certificate requests.

- **Health Services (Mobile JKN / BPJS Kesehatan):** Used for health insurance registration, appointment booking, and claim submission.
- **Educational Financial Assistance (PIP / KIP Kuliah):** Used for scholarship and financial aid applications.
- **Public Complaint System (SP4N-LAPOR!):** Used for submitting complaints and reports to government agencies.

Data Analysis

Data analysis follows a thematic coding approach within the phenomenological framework. Themes are identified through repeated reading of observation notes and narrative descriptions, followed by categorization into key domains: accessibility, usability, reliability, data security, and digital literacy. These domains correspond to established dimensions of e-government service quality identified in the literature.

Triangulation is applied by cross-referencing student narratives with published studies, government reports, and system documentation to enhance the validity and reliability of findings.

RESULTS AND DISCUSSION

Findings reveal that students generally appreciate the convenience offered by digital public service applications. Many highlight the ease of accessing services without having to visit government offices physically. Digital services are perceived as reducing processing time, simplifying administrative procedures, and providing faster access to essential information.

Positive Perceptions

The majority of students report a broadly positive attitude toward digital public service applications, particularly regarding time efficiency and convenience. Key positive themes identified include:

1. **Ease of Access:** Students appreciate the ability to access government services from smartphones or laptops without the need to travel to government offices. This is particularly significant for students living in dormitories or areas far from administrative centers.
2. **Time Efficiency:** Digital services reduce the time required to complete administrative tasks. Processes that previously required full-day visits to government offices can now be completed within minutes through mobile applications.
3. **Transparency:** Applications such as SP4N-LAPOR! and KIP Kuliah provide real-time status updates, which students value as evidence of government accountability and openness.
4. **Cost Reduction:** Digital services eliminate travel costs and reduce the need to take time off from academic activities for administrative purposes.

Negative Perceptions and Challenges

Despite these positive aspects, several recurring problems affect user experience. System errors, sudden crashes during peak usage periods, and server overloads remain common issues.

Students also note that some applications consume excessive mobile data, making them costly to use for individuals with limited financial resources.

Concerns about data privacy and security remain prevalent, with many students expressing uncertainty about how personal information is stored and protected. Additionally, students report that many government applications lack accessibility features for users with disabilities. Interface designs are often inconsistent and instructions unclear, leading to confusion, especially for first-time users.

Table 1. Summary of Challenges in Digital Public Service Applications

Challenge	Description	Affected User Group
System Instability	Crashes and server overload during peak periods	All users
High Data Consumption	Applications require significant mobile data usage	Low-income students
Data Security Concerns	Uncertainty about personal data storage and usage	All users
Poor Accessibility	Lack of features for users with disabilities	Students with disabilities
Unclear Instructions	Confusing interface and insufficient guidance	First-time users
Limited Connectivity	Rural areas with poor internet access excluded	Students in remote areas

Discussion

Government digital applications such as SP4N-LAPOR!, PeduliLindungi, MyPertamina, and online population administration platforms represent major steps toward Indonesia's digital governance transformation. Students, as digitally literate users, play a critical role in assessing the effectiveness of these platforms.

Students describe these applications as tools that significantly simplify administrative responsibilities. Tasks such as scholarship registration, health insurance services, financial aid applications, and document requests become more manageable through digital platforms. These conveniences are viewed as substantial improvements compared to traditional bureaucratic processes.

Structural Weaknesses and Governance Gaps

However, students also emphasize structural weaknesses in the system. Application errors disrupt workflow, especially during important deadlines. Server overload during peak periods leads to long waiting times, reducing user trust. Limited accessibility features restrict usability for individuals with disabilities. Excessive data usage poses a financial burden for students living on limited resources.

These structural weaknesses align with Scott's (1998) critique of top-down modernization projects that overlook social complexity. Indonesia's digital public services, while ambitious in scope, have in certain cases prioritized technical deployment over user-centered design. This results in systems that function well under ideal conditions but falter when confronted with the realities of diverse user needs and uneven infrastructure.

Concerns regarding the clarity of instructions and the transparency of data management also strongly influence student perceptions. Inadequate communication regarding service status, processing times, and troubleshooting guidelines increases confusion among users.

These challenges indicate the need for more user-centered design practices, better technical infrastructure, and stronger data governance policies.

Data Security and Privacy

The issue of data security warrants particular attention. Zuboff's (2019) framework of surveillance capitalism provides a critical lens through which to examine government data collection practices. Students who are unsure about how their personal data is used demonstrate a rational, if not fully informed, skepticism toward digital platforms.

Nugraha and Putri (2024) argue that public trust in digital government services is fundamentally linked to perceptions of data stewardship. Transparent privacy policies, clear opt-in/opt-out mechanisms, and independent data protection oversight are essential components of building user confidence. Indonesia's Personal Data Protection Law (UU PDP), enacted in 2022, represents a significant step forward, but its effective implementation in government applications remains an ongoing challenge.

Societal and Cultural Implications

Digital public service applications also have broader societal implications. For the general public, digital platforms enhance accessibility, reduce travel costs, and increase awareness of rights and government programs. For students, these applications offer valuable learning experiences related to governance, digital literacy, and data security. Students also gain a better understanding of how government systems operate, encouraging them to become responsible digital citizens.

The widespread use of these applications influences cultural and behavioral shifts. Users are becoming more independent and proactive in managing their administrative responsibilities. Expectations for real-time service, transparency, and accountability increase, pushing the government to maintain higher standards.

Table 2. Dimensions of Digital Public Service Quality and Recommended Improvements

Dimension	Current Status	Recommended Improvement
Technical Reliability	Frequent crashes at peak usage	Cloud scaling & load balancing
User Interface Design	Inconsistent and unclear navigation	UX research and iterative design
Data Security	Limited transparency to users	Clear privacy policy and audit trails
Accessibility	Minimal support for disabilities	WCAG 2.1 compliance implementation
Digital Literacy	Uneven across student populations	Targeted digital literacy programs
Connectivity	Urban-focused infrastructure	Expansion of rural broadband access

Policy Recommendations

Based on the findings and discussion, the following policy recommendations are proposed for improving the effectiveness of digital public service applications in Indonesia:

- Invest in Technical Infrastructure:** Government agencies should prioritize scalable cloud infrastructure capable of handling peak demand without service degradation. Regular stress testing and performance monitoring should be institutionalized.
- Adopt User-Centered Design (UCD) Principles:** Application development and improvement processes should actively involve end users, including students and persons with disabilities, through participatory design sessions and usability testing.

3. **Strengthen Data Governance:** Full implementation of the Personal Data Protection Law must be prioritized, with clear user notifications, data minimization practices, and independent oversight mechanisms.
4. **Enhance Accessibility Compliance:** All government digital applications should meet WCAG 2.1 Level AA standards to ensure equal access for users with disabilities.
5. **Integrate Digital Literacy into Education:** National curricula and campus programs should include digital literacy components that familiarize students with e-government services and responsible data use.

CONCLUSION

Government digital public service applications offer significant benefits, including improved efficiency, time savings, and enhanced access to public information. Students particularly value the convenience of conducting administrative tasks without visiting government offices. These applications contribute to greater transparency and help users become more informed and engaged citizens.

Despite these strengths, various challenges persist. System instability, slow performance during peak usage, concerns about data security, high data consumption, and limited accessibility features negatively affect user experience. Students also highlight the need for clearer instructions and more intuitive interface design.

To enhance the effectiveness of digital public services, improvements are needed in application reliability, user interface design, data security, and accessibility. Strengthening digital literacy programs for both students and the wider community is also essential. The findings of this study suggest that student perceptions, while predominantly positive, are tempered by legitimate concerns that, if unaddressed, risk eroding public trust in digital governance over time.

Digital public service applications have the potential not only to modernize bureaucracy but also to empower communities and foster trust in government institutions. Continued development and improvement will help ensure that digital transformation leads to a more transparent, efficient, and inclusive public service system. Future research should explore longitudinal changes in student perceptions as digital services evolve, as well as comparative studies across different regions of Indonesia to understand how local infrastructure and digital literacy levels shape user experiences.

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