

# Performance Evaluation of WhatsApp and Telegram

Wong Jia Xuan

A23CS0197

Software Engineering Year 1

Faculty of Computing

[wongjia.xuan@graduate.utm.my](mailto:wongjia.xuan@graduate.utm.my)

## ABSTRACT

In an era of fast-paced digital communication, usability and performance are critical factors in the success of mobile messaging applications. This report investigates the performance evaluation of two widely used messaging applications which are WhatsApp and Telegram by applying the System Usability Scale (SUS) as the measurement framework. By analyzing the user responses, this study seeks to discover the usability strengths and areas for improvement within two mobile messaging applications, focusing on aspects such as ease of use, interface design, functionality and overall user satisfaction. The evaluation results aim to highlight which mobile application better supports user needs in everyday messaging, offering valuable insights for developers in order to improve the messaging applications, ensuring they meet diverse user expectations and enhance daily communication experiences.

## Keywords

Mobile application, WhatsApp, Telegram, System Usability Scale (SUS), usability evaluation, user experience.

## 1. INTRODUCTION

In the rapidly evolving landscape of digital communication, mobile applications have transformed the way people interact, facilitating real-time interactions and seamless information exchange. Among the most popular platforms, WhatsApp and Telegram lead the market with distinct features, each tailored to cater diverse users' needs. As technology advances and user expectations grow, both mobile applications are continuously refined to enhance user experience, streamline interface design and expand functionality. For developers and designers, understanding the usability of these mobile applications is essential to sustaining user engagement and satisfaction in an increasingly competitive market.

### 1.1 Messaging Application Benefits

Before delving into the usability evaluation, it is essential to highlight the transformative role that messaging applications play in daily life. These platforms offer fast, reliable and cost-effective methods for communication, enabling users to stay connected across vast distances and multiple time zones in an easier way. From personal conversations to professional exchanges, messaging apps have become indispensable tools that support a wide array of social and functional needs. Our primary investigation is focused on identifying which application achieves the ideal balance of usability and

features, essentially aiming to identify which platform stands out as the true "all-rounder" app in the messaging landscape, capable of fulfilling the diverse needs of a broad user base while maintaining high standards of satisfaction and ease of use.

#### 1.1.1 General community

Messaging applications have revolutionized the way for people to connect with each other by offering instant, global communication that transcends physical distance. WhatsApp and Telegram, two of the most widely used messaging platforms, enable users to send messages, share multimedia content and participate in group chats in a matter of seconds. Both platforms support voice and video calls, allowing seamless real-time interaction, whether users are keeping up with family, collaborating with colleagues or sharing updates with friends. These mobile applications are widely accessible, requiring only an Internet connection and a mobile device which makes them a convenient choice for users. Additionally, security and privacy are central to the appeal of messaging apps by utilizing end-to-end encryption to safeguard user communications, ensuring that personal information remains private and secure. This focus on security builds trust with users, especially when they share sensitive information or coordinate on critical matters. Both applications continuously evolve to meet the growing demands for enhanced security and privacy. Apart from that, both platforms have expanded their capabilities to include a variety of tools and integrations. Users can share files, locations, contacts and so on, adapting the apps for both personal and professional use. Ultimately, these messaging applications empower users with flexible and efficient communication options, accommodating various needs from casual chatting to organized community engagement.

#### 1.1.2 Benefits towards Malaysian

In Malaysia, messaging applications such as WhatsApp and Telegram have become essential tools for staying connected with friends, family and colleagues anytime, anywhere. For communities in rural areas where travel may be challenging, these mobile applications serve as a significant connection point, bridging gaps in accessibility and ensuring continuous communication among users. By overcoming geographical limitations, messaging applications empower users to maintain relationships, coordinate community activities and even

support local businesses remotely, ultimately enhancing connectivity and productivity across diverse regions. Additionally, messaging apps significantly enhance education and professional collaboration by providing tools for information sharing and project coordination. In education, they enable seamless communication between teachers and students, fostering collaboration on assignments and facilitating resource sharing. In professional settings, these platforms streamline team communication, allowing quick updates and coordination, which boosts productivity and efficiency.

## **1.2 Strategies to Enhance Messaging Applications Usage**

With the growth of technological innovation, the rise in the number of users utilizing messaging applications has become increasingly apparent. Nowadays, the promotion of these apps for instant communication is ubiquitous with almost every mobile device owner having one or more messaging applications installed. Messaging platforms consistently roll out new features and enhancements to attract a broader audience and strengthen their status as the preferred communication tool. These vital advancements include user-friendly interfaces, enhanced security features such as end-to-end encryption and multimedia sharing capabilities. By evolving their functionalities, these applications strive to create a seamless user experience, fostering loyalty among existing users and attracting new users at the same time.

### *1.2.1 Promoting unique features*

Messaging applications promote their unique features by highlighting their advantages to attract users. By clearly communicating these benefits, each platform reinforces its unique value to users, encouraging users to explore the app's features.

### *1.2.2 Strengthening security measures*

Security and privacy are major considerations for messaging app users, especially for those who often share personal and sensitive information. Many messaging platforms address these concerns by implementing robust encryption, including end-to-end encryption to ensure data remains private. Some applications also offer additional privacy features such as self-destructing messages and private chat modes that cater to privacy-focused users. By regularly updating security protocols and implementing features such as multi-factor authentication, these apps are able to boost user confidence in data protection, making them especially appealing to the users who prioritize secure communication channels.

### *1.2.3 Offering more incentives*

Messaging platforms can offer high storage limits, large group capacities, extensive customization options and automation tools like bots. By frequently updating these features, platforms respond to user demand, adapting to changing preferences and delivering a more tailored communication experience that supports myriad user's needs.

### *1.2.4 Streamlining account setup*

Messaging platforms can prioritize a smooth onboarding experience in order to retain new users quickly. Those

platforms need to ensure an easy setup by minimizing the steps required to create an account, fostering initial engagement and supporting long-term use. As a result, it can reduce entry barriers, allowing users to start communicating with minimal effort and immediately experience the platform's benefits, boosting user satisfaction from the outset.

## **2. METHODOLOGY**

To evaluate the usability of WhatsApp and Telegram, this research employed the System Usability Scale (SUS) to gather data on various aspects of each application's performance. Key usability metrics such as ease of navigation, efficiency and user satisfaction were assessed, providing a comprehensive view of each platform's strengths and areas for improvement. We aim to provide insights into how these applications meet the communication needs of users in the digital age via this analysis.

### **2.1 Mobile Applications researched**

This analysis focuses on the mobile messaging applications which are WhatsApp and Telegram. These applications are the main messaging websites for Malaysian users. Below are some key features and advantages of each application that attract users.

#### *2.1.1 WhatsApp*

WhatsApp is a leading messaging application known for its user-friendly interface and broad user base. It offers a variety of services, including text messaging, voice and video calls, multimedia sharing and group chats. WhatsApp employs end-to-end encryption to enhance security, ensuring that messages remain private and secure.

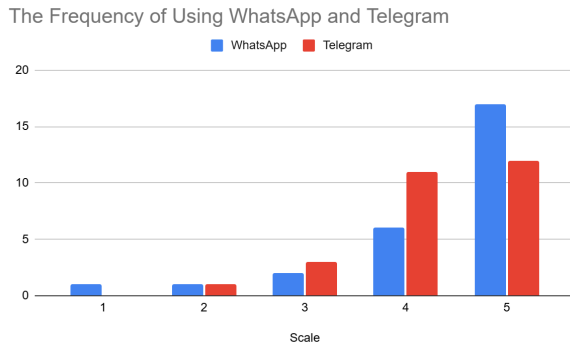
#### *2.1.2 Telegram*

Telegram is a popular messaging application that emphasizes privacy and customization. It provides features such as channels, bots and large group capacities in order to cater to diverse communication needs. Apart from that, security features, such as self-destructing messages and Secret Chats, appeal to users who are concerned about privacy. Telegram also supports extensive multimedia sharing and allows users to create customizable themes, enhancing the overall user experience.

## **3. RESULT AND DISCUSSION**

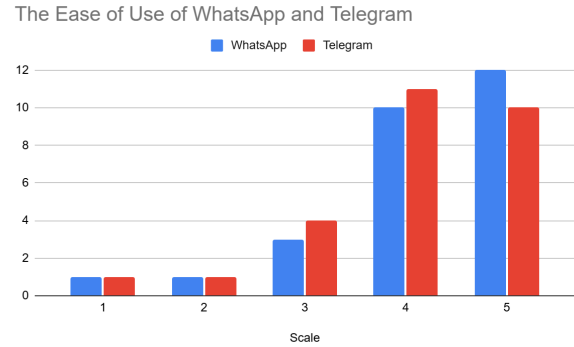
### **3.1 Results of System Usability Scale (SUS) for WhatsApp and Telegram**

This section shows the System Usability Scale (SUS) evaluation results for WhatsApp and Telegram. These SUS scores reflect users feedback on each mobile application's usability, covering aspects such as ease of use, perceived complexity and satisfaction. The data collected from user responses are represented in Charts 1 through 10, detailing the comparative performance of WhatsApp and Telegram across various usability metrics, with a rating scale where 1 means "Strongly Disagree" and 5 means "Strongly Agree."



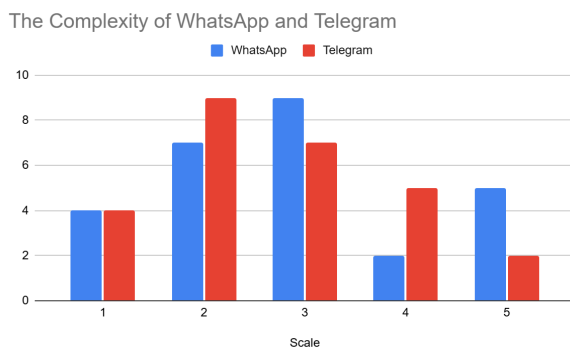
**Figure 3.1.1 The frequency of Using WhatsApp and Telegram**

According to the graph above, the majority of users rated their usage level of 5, showing that they use WhatsApp very frequently. A similar trend is observed with Telegram although there are slightly fewer users rated their usage at the maximum level. However, Telegram has a higher concentration of users at level 4 compared to WhatsApp. Lower frequency ratings were relatively minimal for both applications, underscoring the overall high engagement with each platform. This distribution of rating suggests that both WhatsApp and Telegram are essential communication tools with a slightly higher peak in WhatsApp usage may indicate that it is preferred for more consistent, daily interactions.



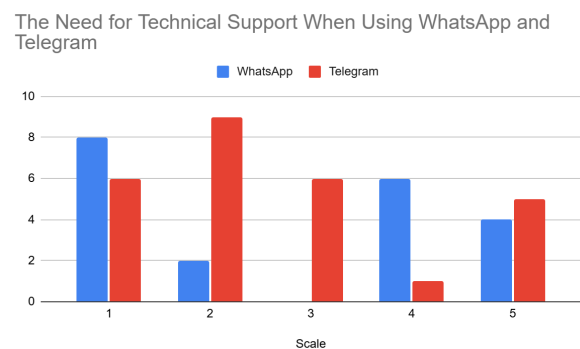
**Figure 3.1.3 The Ease of Use of WhatsApp and Telegram**

From the graph above, it highlights user perceptions regarding how easy it is to use each messaging application. According to the data, both apps received low ratings at the lower end of scale, indicating that very few users found them difficult to use. WhatsApp received 12 ratings at the highest level, showing that a majority of users find it very easy to use. Telegram received 10 ratings at the highest level, reflecting a similarly positive perception among its users. Additionally, the similar number of ratings at level 4 shows that users find both platforms are easy to navigate. Overall, these findings suggest that both WhatsApp and Telegram are user-friendly, with WhatsApp being slightly easier to use compared to Telegram.



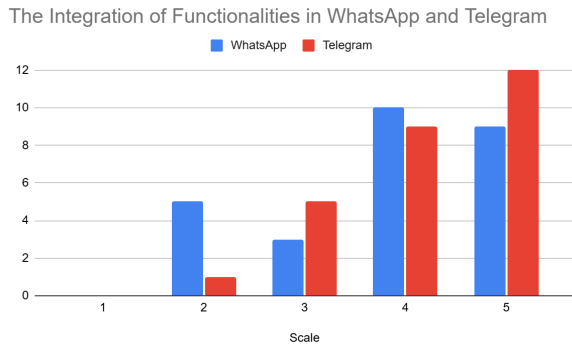
**Figure 3.1.2 The Complexity of WhatsApp and Telegram**

The graph above illustrates the user perception of the complexity associated with each messaging application. According to the data, both WhatsApp and Telegram received notable responses at the lower end of the scale, suggesting that most users find it user-friendly. WhatsApp received 7 ratings at level 2, while Telegram rating is 9, suggesting that Telegram is slightly simpler for users. At level 3, WhatsApp had a higher rating than Telegram, reflecting WhatsApp has a moderate perception of complexity. However, WhatsApp also had a significantly higher number of users rating it as very complex compared to Telegram, indicating that some of the WhatsApp features might feel overwhelming. In contrast, Telegram is generally seen as easier to use. As a result, the data shows that WhatsApp is often viewed as more complicated while Telegram is more user-friendly.



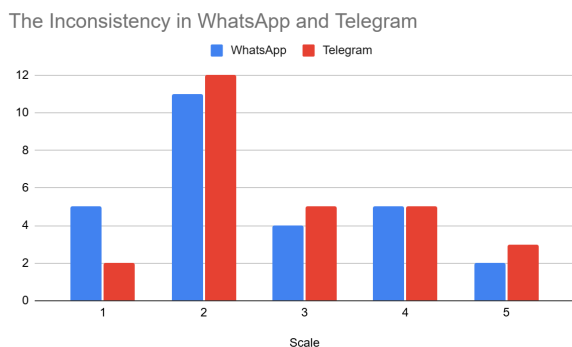
**Figure 3.1.4 The Need for Technical Support When Using WhatsApp and Telegram**

The graph titled “The Need for Technical Support When Using WhatsApp and Telegram” shows user perceptions regarding the necessity of technical assistance for each messaging application. A significant number of users rated their need for technical support at the lowest level, with WhatsApp receiving 8 ratings and Telegram receiving 6 ratings, indicating that many users feel confident in using both platforms without assistance. Telegram users expressed a slightly higher need for support at level 2 compared to WhatsApp. For level 5, where users feel they need significant technical support, both applications have similar ratings but ratings for Telegram is slightly higher, showing that WhatsApps shows a strong trend towards users feeling comfortable while Telegram users perceive a slightly greater need for support.



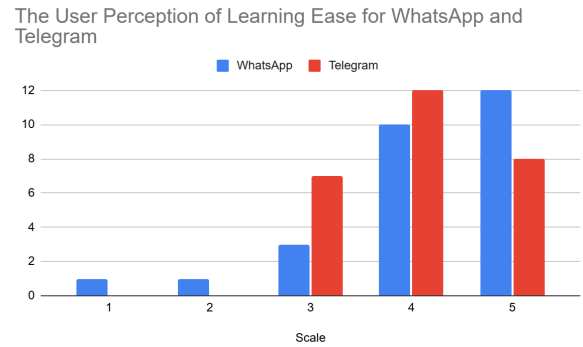
**Figure 3.1.5 The Integration of Functionalities in WhatsApp and Telegram**

According to the graph above, both applications received no ratings at the lowest scale, suggesting that users generally do not find them poorly integrated. WhatsApp and Telegram have similar ratings at level 4, showing that many users feel the functionalities are well integrated. However, WhatsApp received fewer ratings at the highest level compared to Telegram. This highlights that Telegram users are more likely to feel that the functionalities work together seamlessly, indicating a slightly strong user satisfaction with the integration of features in Telegram. In a nutshell, the data reflects that both applications are viewed positively in terms of functionality.



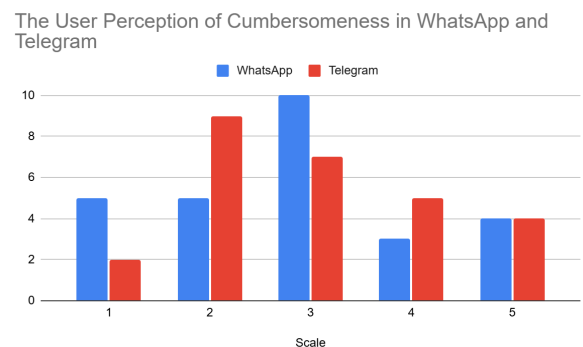
**Figure 3.1.6 The Inconsistency In WhatsApp and Telegram**

The graph above shows that both WhatsApp and Telegram received notably lower ratings regarding the consistency of each messaging application. This shows that many users do not find significant inconsistencies in both applications. Both applications received similar fewer ratings at levels 4 and 5, indicating that although some users notice inconsistencies, users generally express satisfaction with the overall consistency of features on both platforms. In summary, while WhatsApp may be seen as slightly more inconsistent, both apps are largely viewed positively by users.



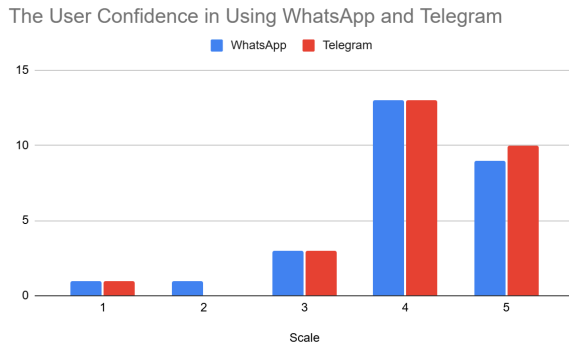
**Figure 3.1.7 The User Perception of Learning Ease for WhatsApp and Telegram**

According to the data from the graph above, very few users rated at the lower end of the scale, suggesting that most users do not find them difficult to learn. WhatsApp received 12 ratings at the highest level, indicating that a majority of users believe it is very easy to learn. Although Telegram also shows favorable ratings, it received slightly fewer responses at level 5 and more at level 3. This shows that although it is generally easy to learn, some users may find it a bit more challenging compared to WhatsApp. In summary, both platforms are easy for users to learn.



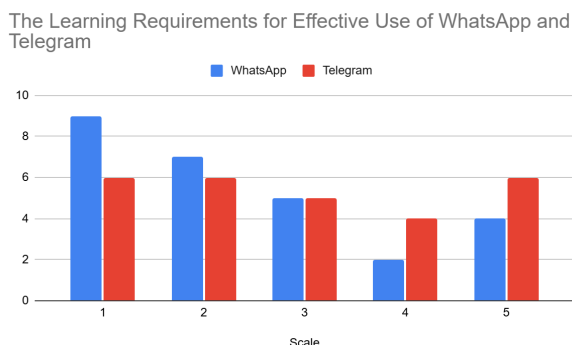
**Figure 3.1.8 The User Perception of Cumbersomeness in WhatsApp and Telegram**

The graph above indicates that users suggest that both WhatsApp and Telegram to be relatively user-friendly, as evidenced by the lower ratings at the higher levels of cumbersomeness. Both applications received moderate ratings at level 3, indicating that a portion of users consider them to have some cumbersome aspects. Apart from that, the ratings at levels 4 and 5 are similar for both applications, showing that there are users who feel both platforms can be cumbersome. In conclusion, WhatsApp is slightly less cumbersome than Telegram, but both apps are still viewed positively by users.



**Figure 3.1.9 The User Confidence in Using WhatsApp and Telegram**

The user confidence in using WhatsApp and Telegram appears to be relatively high shown in the graph above. Both applications received minimal ratings at the lower end of the scale. This shows that very few users feel insecure about using either application. The ratings indicate that both WhatsApp and Telegram received 13 ratings at level 4, showing that a significant number of users are quite confident in their abilities to navigate the apps. Furthermore, WhatsApp had 9 ratings at the highest level of confidence, while Telegram had slightly more at 10, suggesting that users of both platforms generally trust their functionality. In short, most of the users feel comfortable and confident when utilizing both platforms.



**Figure 3.1.10 The Learning Requirements for Effective Use of WhatsApp and Telegram**

The analysis of learning requirements for effective use of WhatsApp and Telegram shown in the graph above indicates that most users feel relatively confident about their ability to use both applications effectively. Majority of users rated their learning needs at level 1, suggesting that many users do not feel that they require significant training or resources to get started to use both of the messaging applications. WhatsApp has slightly fewer ratings at the higher levels, indicating that users generally have less need for extensive learning to use it effectively. In contrast, Telegram received a higher number of ratings at levels 4 and 5, indicating that some users believe they need additional support or resources to utilize its features fully. This suggests that, although both applications are user-friendly, Telegram might have a few more complexities that some users find challenging.

## 4. CONCLUSION

In conclusion, this research highlights the distinct user experiences associated with WhatsApp and Telegram, two leading messaging applications. Various dimensions such as user perception of complexity, ease of learning and the necessity for technical support were explored. Both applications demonstrate high engagement levels and user satisfaction, solidifying their positions as essential tools for communication. WhatsApp emerges as the preferred choice for users seeking a straightforward, user-friendly experience as many users find it easier to navigate and learn. On the other hand, Telegram stands out for its unique features and capabilities that attract a segment of users seeking enhanced functionality and integration. Although users suggested that Telegram was slightly more complex, it offers a robust suite of tools that can cater to specific needs, making it appealing for those who value customization and additional features. Overall, both messaging applications play vital roles in facilitating communication, but they cater to different user preferences. WhatsApp excels in simplicity and familiarity, while Telegram offers depth and versatility.

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## Author's Profile



Wong Jia Xuan is a second-year undergraduate student studying Software Engineering at the Faculty of Computing, Universiti Teknologi Malaysia. She is passionate about technology and is eager to learn and develop her skills in software development. Currently exploring various aspects of software engineering, she actively participates in university activities and collaborative projects, enhancing her creativity, problem-solving abilities, and teamwork skills. With a strong desire to contribute to the technology community, she is looking forward to the opportunities that lie ahead in her academic journey.