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Evaluating the Usability of the *TrackMyStaff* Mobile Application for Efficient Staff Movement Tracking

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ABSTRACT

This study evaluated the usability of TrackMyStaff, a mobile application developed on the Google Appsheet platform for digitizing staff movement tracking within the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar. Aiming to replace a manual, paper-based system, the application was deployed on users' mobile devices. Usability assessment was conducted through a comprehensive questionnaire administered to all department members, focusing on identifying the application's strengths and weaknesses across key usability dimensions: Layout, Functionality, Ease of Use, Learnability, and Satisfaction. Analysis of the questionnaire data revealed positive findings across all dimensions. Users generally reported satisfaction with the application's layout, finding it intuitive and well-organized. The application's functionality was deemed appropriate and effective for tracking staff movements, and users found it easy to use and learn. High levels of user satisfaction indicate that the application meets user needs and preferences. However, areas requiring improvement were also identified, such as limited feedback mechanisms. These findings provide valuable insights for informing design refinements and future iterations of the application. The study concludes that TrackMyStaff demonstrates strong potential for improving staff movement tracking processes within the department. It offers a more efficient and convenient alternative to traditional methods. However, further testing and development are recommended to address identified usability issues and ensure scalability and robustness for wider deployment across the institution.

1.0 Introduction

In today's dynamic workplace, efficient staff movement tracking is crucial for various reasons, such as ensuring accountability, optimizing resource allocation, and enhancing security (Ali Saare et al., 2020; Chin et al., 2021). Traditionally, staff movement tracking has relied heavily on manual methods, such as paper-based logbooks and sign-in sheets. However, these manual systems are often cumbersome, time-consuming, and prone to errors, leading to inefficiencies and potential inaccuracies in tracking staff movements.

To address the limitations of manual tracking systems, organizations are increasingly adopting digital solutions, such as mobile applications, for efficient and accurate staff movement tracking. Mobile applications offer several advantages over traditional methods, including real-time data capture, automated reporting, and improved accessibility (Mohd Rusli, 2023). The

TrackMyStaff mobile application, developed on the Google Appsheet platform, is one such solution designed to digitize staff movement tracking within the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar.

The TrackMyStaff application aims to replace the existing, paper-based manual system by providing a user-friendly platform for staff members to log their movements using their mobile devices. This transition to a digital system is expected to streamline the tracking process, reduce administrative overhead, and improve the accuracy and reliability of staff movement data. However, the successful implementation and adoption of the TrackMyStaff application depend largely on its usability and effectiveness in meeting the specific needs of the department's staff.

Usability, defined as the ease with which users can learn and use a system to achieve their goals, is a critical factor in determining the success of any mobile application (Almeida et al., 2020). A usable application is characterized by its intuitiveness, efficiency, and user satisfaction (Ali Saare et al., 2020; Chin et al., 2021). In the context of TrackMyStaff, usability refers to how easily staff members can navigate the application, log their movements, and access relevant information. A comprehensive evaluation of the application's usability is therefore essential to ensure that it meets the user needs, promotes efficient tracking processes, and encourages continued use.

This study aims to conduct a thorough usability evaluation of the TrackMyStaff mobile application, focusing on key dimensions such as layout, functionality, ease of use, learnability, and satisfaction. By assessing user perceptions and experiences across these dimensions, the study seeks to identify the application's strengths and weaknesses, highlight areas for improvement, and inform design refinements for future iterations. The findings of this evaluation will provide valuable insights for enhancing the usability of the TrackMyStaff application, ultimately contributing to its successful implementation and adoption within the department.

2.0 Literature review

2.1 Usability in Mobile Applications

Usability is a critical factor in the success of any mobile application, especially in a workplace setting where efficiency and user satisfaction are paramount (Ali Saare et al., 2020; Burden et al., 2024). In the context of mobile applications, usability refers to the ease with which users can learn, operate, and achieve their desired tasks using the application (Byun et al., 2020). It encompasses several key aspects, including the intuitiveness of the interface, the efficiency of use, the effectiveness in accomplishing tasks, the learnability of the application, and the overall satisfaction of the users.

Numerous studies have emphasized the importance of usability in mobile applications across various domains, including education, healthcare, and business (Byun et al., 2020; Dahri et al., 2022; Mubeen et al., 2021; Rocque, 2022). Poor usability can lead to user frustration, errors, and even abandonment of the application, whereas good usability can enhance user engagement, productivity, and satisfaction (Chin et al., 2021; Wohlgemut et al., 2023). Therefore, evaluating and improving the usability of mobile applications is crucial for ensuring their successful adoption and effective utilization.

Various methods and frameworks have been developed to assess and enhance the usability of mobile applications. These include heuristic evaluation, cognitive walkthroughs, and user testing, each with its strengths and limitations (Almeida et al., 2020; Chin et al., 2021; Nik Ahmad & Hussaini, 2021). Choosing the appropriate method depends on factors such as the stage of development, the resources available, and the specific goals of the evaluation. The findings of usability evaluations can provide valuable insights for designers and developers to refine the application's interface, functionality, and overall user experience.

2.2 Staff Movement Tracking Systems

Traditional methods of staff movement tracking, often relying on manual logs and paper-based systems, have several limitations. They can be time-consuming, prone to errors, and lack real-time data updates, hindering efficient monitoring and analysis of staff movements. In contrast, digital staff movement tracking systems offer numerous advantages, including improved accuracy, automated data collection, and real-time tracking capabilities.

Mobile applications have emerged as a popular solution for staff movement tracking due to their accessibility, convenience, and cost-effectiveness (Al-Razgan et al., 2021). These applications leverage the capabilities of mobile devices, such as GPS and location services, to track staff movements in real time. They can also provide features such as automated reporting, data visualization, and alerts, enabling supervisors to monitor staff movements effectively and make informed decisions (Alzahrani et al., 2021). The use of mobile applications for staff movement tracking has been shown to improve efficiency, reduce administrative burden, and enhance security in various settings, including healthcare, education, and field services.

2.3 The Google Appsheet Platform

Google Appsheet is a no-code application development platform that allows users to create mobile and web applications without extensive coding knowledge (Mohd Rusli, 2023). It provides a user-friendly interface and a drag-and-drop environment for building applications, making it accessible to a wide range of users, including those with limited technical expertise. Appsheet offers various features and functionalities, including data integration, workflow automation, and user interface customization, enabling users to create applications tailored to their specific needs.

The platform's ease of use, flexibility, and affordability have made it a popular choice for developing applications across various domains, including business, education, and healthcare. Appsheet has been used to create applications for tasks such as data collection, project management, and inventory tracking, demonstrating its versatility and potential for addressing diverse business needs (Hon & Feng, 2023). However, like any platform, Appsheet has its limitations, such as limited customization options for complex applications and potential performance issues with large datasets (Mohd Rusli, 2023). Understanding these limitations is crucial for developers to make informed decisions when choosing Appsheet for application development.

In this study, the TrackMyStaff application was developed using the Google Appsheet platform. The choice of Appsheet was likely motivated by its ease of use, affordability, and suitability for rapid application development. However, it is important to evaluate the application's performance and usability to ensure that it meets the specific requirements of staff movement tracking within the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar. The findings of this evaluation will provide insights into the effectiveness of using Appsheet for developing staff tracking applications and inform future development decisions.

3.0 Methodology

This study adopts a quantitative research approach to evaluate the usability of the TrackMyStaff mobile application. Quantitative research methods gather and analyze numerical data to measure and quantify the application's usability aspects. This approach allows for objective measurement and statistical analysis of user perceptions and experiences, providing insights into the application's overall usability.

The study focuses specifically on the intended users of the TrackMyStaff application: the staff members of the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar. The study population consists of 44 staff members, all of whom will be included in the study

sample. This approach ensures that the findings of the study are representative of the experiences and perceptions of the entire user group.

To assess the usability of the TrackMyStaff application, an adapted Usability Test Questionnaire will be used as the primary data collection instrument. This questionnaire is designed to measure user perceptions across five key usability dimensions: layout, functionality, ease of use, learnability, and satisfaction. Each dimension is assessed through a series of Likert scale questions, allowing participants to rate their level of agreement or disagreement with specific statements related to the application's usability. The Likert scale typically ranges from 1 to 5, with 1 representing "strongly disagree" and 5 representing "strongly agree."

The adapted Usability Test Questionnaire will be distributed to all 44 staff members in the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar. Participants will complete the questionnaire based on their experiences using the TrackMyStaff application. The questionnaire will be administered electronically, allowing for efficient data collection and analysis.

Descriptive statistics will be used to analyze the quantitative data collected from the questionnaires. These statistics provide a summary of the data, including measures of central tendency, such as mean and median, and measures of variability, such as standard deviation. These statistics will be used to calculate the average scores for each usability dimension, providing an overall assessment of the application's usability.

In addition to descriptive statistics, inferential statistics may be used to explore relationships between different usability dimensions and identify any significant differences in perceptions among different groups of users. Inferential statistics allow for generalizations about the larger population based on sample data.

The data analysis findings will be presented clearly and concisely, using tables and charts to illustrate them. The results will be discussed in relation to the research objectives, highlighting the TrackMyStaff application's strengths and weaknesses in terms of usability. The study will also provide recommendations for improving the application's usability based on the evaluation findings.

4.0 Discussion of analysis and findings

This section delves into the analysis of the data collected through the adapted Usability Test Questionnaire and presents the study's key findings. The analysis will consider both quantitative and qualitative data to provide a comprehensive understanding of the TrackMyStaff mobile application's usability.

4.1 Reliability of the Instrument

Before delving into the specific findings, it's important to establish the reliability of the data collection instrument. Reliability refers to the consistency and stability of the measurement. In this study, the reliability of the adapted Usability Test Questionnaire was assessed using Cronbach's alpha, a commonly used measure of internal consistency.

Cronbach's alpha measures how closely related a set of items are as a group. A high Cronbach's alpha indicates that the items measure the same underlying construct, which in this case is the usability of the TrackMyStaff application. The Cronbach's alpha for the questionnaire that was adopted from Nik Ahmad & Hussaini (2021), was found to be 0.817, which is a high value, indicating good internal consistency and reliability of the instrument. This suggests that the items in the questionnaire are effectively measuring the same construction and that the data obtained from the questionnaire is reliable.

4.2 Quantitative Results

The quantitative data obtained from the Likert scale questions in the questionnaire were analyzed using descriptive statistics. This involved calculating the mean and standard deviation for each item to understand the central tendency and variability of the responses.

Table 1: Descriptive Statistics for Ease of Use

Item	Mean	Std. Deviation
This application is easy to use.	4.2	0.765
I feel comfortable using this application on my smartphone.	4.16	0.745
The steps to accomplish tasks in this application are simple.	4.23	0.711

Table 2: Descriptive Statistics for Learnability

Item	Mean	Std. Deviation
It is easy to find the information I need.	4.25	0.719
Navigating through the pages is easy.	4.34	0.68

Table 3: Descriptive Statistics for Satisfaction

Item	Mean	Std. Deviation
I intend to use this application in the future.	4.23	0.711
I would recommend this application to others.	4.27	0.817
Overall, I am satisfied using this application.	4.36	0.718

Table 4: Descriptive Statistics for Layout

Item	Mean	Std. Deviation
The information provided is clear and understandable.	4.34	0.713
The organisation of information in this application is clear.	4.34	0.745

Table 5: Descriptive Statistics for Functionality

Item	Mean	Std. Deviation
This application provides useful information to help me complete tasks.	4.23	0.743
The application provides clear and descriptive information/instructions.	4.27	0.758
This application speeds up my task completion.	4.36	0.75
This application provides all the functions I expected.	4.23	0.831
This application has no broken links/menus/pages.	4.23	0.831

Overall, the results indicate high levels of satisfaction with the TrackMyStaff application across all dimensions of usability. The mean scores for all items are above 4, with many exceeding 4.2, suggesting that users generally agree with the positive statements about the application's ease of use, learnability, satisfaction, layout, and functionality. The relatively low standard deviations indicate that there is a consensus among users regarding the application's usability.

4.3 Qualitative Results

In addition to the quantitative data, qualitative data was collected through open-ended questions in the questionnaire. These questions allowed participants to express their opinions and provide detailed feedback on their experiences with the TrackMyStaff application. The qualitative data was analyzed by identifying recurring themes and patterns in the responses.

One prominent theme that emerged from the qualitative data was the appreciation for the application's user-friendly interface. Many participants commented on the ease of navigation and

the clear presentation of information. They found the application intuitive to use and were able to quickly learn how to perform the necessary tasks.

Another theme that emerged was the perceived efficiency gains from using the application. Participants reported that the TrackMyStaff application streamlined the process of tracking staff movements, saving them time and effort compared to the previous manual system. They also appreciated the real-time tracking capabilities, which allowed for better monitoring and coordination of staff activities.

However, the qualitative data also revealed some areas for improvement. Some participants suggested enhancing the application's feedback mechanisms by providing more detailed confirmation messages and progress updates. Others suggested incorporating additional features, such as the ability to track movements offline and integrate with other departmental systems.

4.4 Integration of Findings

The quantitative and qualitative findings were integrated to provide a holistic understanding of the TrackMyStaff application's usability. The high mean scores in the quantitative analysis, coupled with the positive comments in the qualitative data, suggest that the application is generally well-designed and effective in meeting its intended purpose. However, the qualitative data also highlighted specific areas where improvements could be made to further enhance the user's experience.

The findings of this study have important implications for the continued development and implementation of the TrackMyStaff application. The identified strengths of the application should be maintained and further enhanced, while the areas for improvement should be addressed in future iterations of the application. By incorporating user feedback and addressing usability issues, the application can be further refined to better meet the needs of its users and promote efficient staff movement tracking within the department.

5.0 Conclusion and Future Research

This study evaluated the usability of the TrackMyStaff mobile application, a digital solution designed to replace the traditional paper-based system for tracking staff movements within the Department of Mathematics, Sciences and Computer at Politeknik Ungku Omar. The evaluation focused on key usability dimensions, including layout, functionality, ease of use, learnability, and satisfaction. A quantitative research approach was employed, utilizing an adapted Usability Test Questionnaire to gather data from 44 staff members.

The study's findings revealed that the TrackMyStaff application exhibits strong usability characteristics. The quantitative analysis showed high mean scores across all usability dimensions, indicating positive user perceptions of the application's layout, functionality, ease of use, learnability, and overall satisfaction. The qualitative analysis further supported these findings, with users praising the application's intuitive interface, user-friendly design, and effective functionality.

Overall, the TrackMyStaff application demonstrates significant potential for improving staff movement tracking processes within the department. By offering a more efficient, convenient, and accurate alternative to traditional methods, the application can streamline workflows, reduce the administrative burden, and enhance data reliability. The positive usability findings suggest that the application is well received by staff members and is likely to be adopted successfully.

Despite the positive findings, some areas for improvement were identified. User feedback highlighted the need for enhanced feedback mechanisms, such as more detailed confirmation messages and progress updates. Additionally, suggestions were made for incorporating additional features, such as offline tracking capabilities and integration with other departmental systems.

These recommendations provide valuable insights for future development efforts aimed at further refining the application and maximizing its usability.

5.1 Future Research

This study provides a foundation for future research on the TrackMyStaff application and its impact on staff movement tracking practices. Several avenues for future research can be explored:

Longitudinal Studies: Conducting longitudinal studies to assess the long-term impact of the TrackMyStaff application on staff productivity, efficiency, and satisfaction. This will provide insights into the sustained benefits of the application and its effectiveness in achieving its intended goals.

Comparative Studies: The TrackMyStaff application should be compared with other staff movement tracking solutions, including traditional and digital methods. This will help identify the relative strengths and weaknesses of different approaches and inform decision-making regarding the most suitable solution for specific contexts.

Scalability Studies: Investigating the scalability of the TrackMyStaff application for wider deployment across the institution. This will involve assessing technical feasibility, user acceptance, and potential challenges associated with expanding the application's use to other departments and units.

User Experience Studies: Conducting in-depth user experience studies to gain a deeper understanding of how staff members interact with the TrackMyStaff application in their daily work routines. This will help to identify any usability issues that may not have been captured in the current study and inform further design refinements.

By pursuing these research directions, a more comprehensive understanding of the TrackMyStaff application and its potential for improving staff movement tracking practices can be achieved. Future research findings will contribute to the application's ongoing development and optimization, ensuring its continued effectiveness and relevance in the evolving workplace.

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Author Contributions

Hassan Z.: Conceptualization, Methodology, Software, Writing- Original Draft Preparation; **Abdul razak M. R.**: Application Development, Validation, Writing-Reviewing and Editing; **Mohamad A. R.**: Data Curation, Validation, Supervision;

Conflicts of Interest

The manuscript has not been published elsewhere and is not being considered by other journals. All authors have approved the review, agree with its Submission and declare no conflict of interest in the manuscript.

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