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The User Experience Analysis of Digital Health Tracking Application in Indonesia

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Abstract: Indonesia has an application for health tracking called SATUSEHAT. This application is used to search for hospitals, record vaccine data, and all functions related to public health. This application was first used since the COVID-19 pandemic in mid-2020. The problem is that people are starting to be reluctant to use the application. Initially, this application had 105 million users. Currently, the number of users is just around 1 million. People's intention to use the application is decreasing. This research will focus on analyzing the user experience of the application and its impact on user interest. The research uses the TAM2 model intending to understand the variables that influence users' interest in using the SATUSEHAT application, through the research methodology of Partial Least Squares Structural Equation Modeling (PLS-SEM). The sample size used in this research is 98 respondents (Indonesian students who use the SATUSEHAT application). This research used a non-probability sampling method. The research employs the Importance Performance Analysis (IPA) method to measure the satisfaction level of the SATUSEHAT application. The results indicate that attitude towards apps has the most significant influence on behavioral intention to use. The user satisfaction level with the SATUSEHAT application is 96.9%. The features that need to be improved based on IPA are the search for hospital feature, the deep link between WhatsApp and Google Maps application, and hospital review features. These features can be suggestions for improvement and novelty for the SATUSEHAT application.

Keywords: User Experience, Analysis, User Interest, Digital Health Tracking Application

Introduction

The pandemic has caused an unprecedented global crisis resulting in numerous casualties, economic losses, and disruption of daily activities (Chinazzi *et al*., 2020; Velicia-Martin *et al*., 2021). SATUSEHAT is a platform that connects health facilities and integrates individual health data in the form of Electronic Health Records (EHR) to support health data interoperability through standardization and digitization (Kemenkes, 2023). Despite a significant increase in the usage of the SATUSEHAT application, it still faces problems and challenges despite the benefits it has provided. Some of the challenges include uneven technological development in Indonesia, leading to some individuals still being unfamiliar with technology. According to data from the Ministry of communication and Informatics in 2012, only 20% of Indonesia's population was internet literate (Kominfo, 2012). When this application was first used in mid-2020, users of this application reached 105 million users. However, currently, this application only has 1 million users (based on Katadata.co.id). The recent updates and new features of the SATUSEHAT application also require input from the community to maximize its usage. Innovative solutions, such as using applications or information technology to improve health

quality, have been acknowledged (Mattheos *et al*., 2008; Buntin *et al*., 2011), but most IT-based health systems face user resistance and decreased interest in using them as perceived benefits are only realized when people start using them proactively (Kamal *et al*., 2020). Thus, this research addresses issues aligned with the objectives, which are to identify variables that can enhance users' intention to use the SATUSEHAT application and provide proposals for user experience on features that can boost users' intention to use the SATUSEHAT application. A previous study like this research is titled 'Researching COVID-19 tracing app acceptance: Incorporating theory from the technological acceptance model.' This study was conducted by Felix Velicia-Martin, Juan-Pedro Cabrera-Sanchez, Eloy Gil-Cordero, and Pedro r. Palos-Sanchez in 2021 using the Extended TAM analysis method (Velicia-Martin *et al*., 2021). The study concluded that users' intention to use a COVID-19 tracking application is influenced by the perceived usefulness of the application. Another previous study titled 'Exploring factors influencing the User's intention to use Aarogya Setu contact tracing mobile health application during the COVID-19 pandemic' was conducted by Rout *et al*. (2020) using the same analysis method as the previous study. The study concluded that perceived usefulness, perceived ease of use, and perceived privacy risk are determining factors for user interest in using the Aarogya Setu application. This study adds value compared to previous research by focusing not only on user satisfaction with each feature of the SATUSEHAT application but also on the factors influencing users' intentions to use the application, especially from the perspective of user experience. This is because an individual's experience with technology usage has a positive influence on shaping the user's behavioral intentions (Rivera *et al*., 2015). The study also utilizes the extended TAM or TAM2 model, which has been tested in various studies on user acceptance of new applications, as well as Importance Performance Analysis (IPA), which can identify deficiencies in the SATUSEHAT application and propose solutions to address those shortcomings.

Materials and Methods

This research uses a quantitative method related to measuring and analyzing data. The extended Technology Acceptance Model (TAM2) is used with variables, namely Behavioral Intention To Use (BITU), Attitude To Apps (ATA), Perceived Risk of COVID-19 (PRC), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Privacy Concern (PC) and Trust (T). TAM is used to explain user behavior towards the new information system being used (Davis and Venkatesh, 1996). The sample for this research was determined using a nonprobability sampling method and calculated using the Slovin method with a percentage tolerance for sampling error (e) of 0.1 (10%). This tolerance for error is expressed in percentage form, where a smaller tolerance leads to more accurate sample data (Firdaus, 2021). Before distributing the questionnaire, a readability test was conducted with 34 respondents. Readability is related to whether the reading material can be read by the readers (Nurhidayah *et al*., 2021). The research distributed questionnaires to students from one of the universities in Jakarta.

Structural Equation Modeling (SEM) as the data analysis model and Partial Least Square (PLS) as the data analysis method were used in the research to test the relationships between variables. These methods allow for the use of complex models with many constructs (Hair *et al*., 2019). The PLS-SEM testing includes testing the outer model, inner model, and hypothesis testing. The outer model is used to measure validity and reliability (Abdillah and Hartono, 2015). Validity testing includes convergent validity assessment, which consists of loading factor and Average Variance Extracted (AVE). Generally, indicators with loading factor values between 0.40 and 0.708 will be retained (Hair Jr *et al*., 2021), while values below 0.40 should be eliminated from the measurement model or outer model (Hair *et al*., 2011). As for the AVE value, it should be above 0.5, so that each construct can explain 50% of the variance in the indicators forming those constructs (Hair *et al*., 2011). The second part of validity testing is discriminant validity assessment, which includes cross-loading evaluation. This study used cross-loading assessment as it is more flexible in demonstrating discriminant validity (Hair *et al*., 2012). Reliability testing includes three assessments, The first is composite reliability, which is rated as 0.60-0.70 (acceptable in exploratory research), 0.70-0.90 (satisfactory to good), and above 0.90 is considered problematic (Diamantopoulos *et al*., 2012). Second is Cronbach's alpha, which is rated as 0.70-0.80 (moderate) and 0.80-0.90 (very good) (Mohamed Sultan, 2023). Third is rho A, which is rated as above 0.70. The inner model testing includes five assessments, first is Variance Inflation Factor (VIF) testing, where values above 3 or 5 indicate collinearity and bias issues (Ringle *et al*., 2015; Kock, 2017) Second is path coefficient testing, where coefficients closer to -1 indicate a strong negative relationship and coefficients closer to +1 indicate a strong positive relationship (Hair *et al*., 2019). Third is coefficients of determination ( ), where values of 0.25, 0.50, and 0.70 indicate weak, moderate, and significant relationships respectively (Hair Jr *et al*., 2014). Fourth is effect size ( ) testing, where values of 0.02, 0.15, and 0.35 indicate small, moderate, and large effects on variables respectively (Cohen, 1988). Fifth is cross-validated redundancy ( ) testing, where >0 indicates accurate predictive relevance (Sarstedt *et al*., 2017). Hypothesis testing using PLS-SEM is essentially conducted within the inner model evaluation, specifically in assessing path coefficients involving T-statistics and p-values. In hypothesis testing, a value can be considered

significant if the T-statistics value is greater than 1.96, while if the T-statistics value is less than 1.96, it is considered not significant. As for the p-value, if the p-value ≥0.05, then H_0 (null hypothesis) is rejected, and if the p-value ≤0.05, then H_0 is accepted (Ghozali, 2016).

In addition to PLS-SEM testing, Importance Performance Analysis (IPA) is also used to measure the connection between consumer perceptions and priorities for improving the quality of products or services (Martilla and James, 1977). IPA involves calculating the level of respondent congruence to measure user satisfaction in terms of percentage and calculating the average ratings of importance and performance to map each indicator in a Cartesian diagram (Lalala *et al*., 2017).

Behavioral intention to us` 10e is a term for the strength of the user's intention to carry out the desired action. Behavioral intention to use is an individual's desire to act. Attitude to apps is how users feel about using the technology being studied (Bagozzi *et al*., 1992). Perceived risk is defined as how uncertain a person feels when deciding whether to do something or not (Nicolaou and McKnight, 2006). Perceived risk is an important variable for evaluating user acceptance of an application in this research. The literature suggests that perceived risk contributes to expectations of negative consequences, which negatively impact the intention to use. According to Cudjoe *et al*. (2015), perceived ease of use is the level to which a person believes that using a particular technology or system will be effortless. The TAM model states that attitudes towards the use of each technological system are determined by two variables, namely perceived usefulness and perceived ease of use of the system. Perceived usefulness is defined as the extent to which a person believes that using a system will help improve performance. The TAM model states that attitudes toward the use of each technological system are determined by two variables, namely perceived usefulness and perceived ease of use of the system (Sanchez-Franco *et al*., 2009). Trust is defined as the user's belief that the services provided by technology will provide positive results (Kamal *et al*., 2020).

Baek and Morimoto (2012) define privacy concern as the level when consumers begin to feel uneasy about the potential for interference with their right to protect their personal information.

Through the extended TAM model in Fig. 1, the research variables used in this research which are also limitations in this research are behavioral intention to use, attitude to apps, PR COVID-19, perceived ease of use, perceived usefulness, privacy concern, and trust. A person's experience of using technology (technology experience) has a positive influence on the formation of behavioral intentions. From this research, the experience in question is a measurement of the extent of a person's acceptance of technology. For example, when someone is still unable to adapt to the technology or service they are using, they will automatically assume that the service is difficult to use and choose not to use it and vice versa.

Prove that experience has a significant positive influence on a person's attitude, this attitude is a determining factor in behavioral intention to use a service. The current condition regarding user attitudes towards SATUSEHAT is still lacking, as the comment rating for this application in the app store is dominated by one star which represents the attitude of users who are still not satisfied.

User experience is influenced by several factors, one of which is usability which represents perceived usefulness, thus having an impact on user emotions (Grandzol, 2008). Describes the usability of a system can be fulfilled if the system can be used to achieve the user's goals and usability is an aspect of how users can operate the device for their purposes. The current condition of users' perceived usefulness of SATUSEHAT is still experiencing problems, according to an official statement from the Ministry of health, the SATUSEHAT application is in the process of migrating data, giving rise to various problems both during the login process and displaying tickets and vaccine certification (Antaranews.com, 2023).

There are several elements in trying to get a good user experience, one of which is the ease of use, especially the first time it is used so that it leaves a good impression and the capability of the product or service to help complete the job. Cohen (1988) added that this experience can be seen from the ease with which users can obtain what they need from the product more interestingly and enjoyably. The current condition regarding the convenience that users experience with SATUSEHAT is still experiencing problems, the vaccination feature is still difficult to understand, does not display accurate data and location, and is in real-time (Detik.com, 2021). Generation Z and millennial cellphone users may not find it difficult to use them, but many older or elderly people still have difficulty using them (Antaranews.com, 2021).

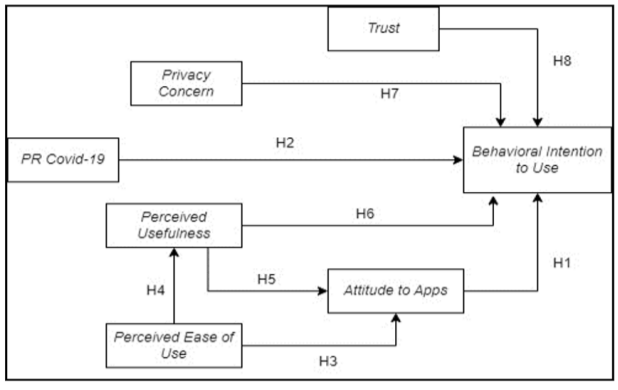

Fig. 1: Research model

The better the user experience, the better their level of trust in the company. On the other hand, if the user experience is less than satisfactory, their level of trust in the company will also decrease. The current condition of user trust in SATUSEHAT is still lacking, the Institute for Development of Economics and Finance (INDEF) Media Wahyudi Askar said that the level of public literacy of the SATUSEHAT application is still low, so this will affect public trust in the application of the application.

Results and Discussion

In previous research, no one has ever discussed the user experience at SATUSEHAT. This research will focus on User Experience research analysis as a solution to improve the SATUSEHAT application. The research results include sample calculations, readability test results, breakdown of respondent profiles, data analysis using PLS-SEM, including outer model and inner model tests, hypothesis testing results, discussion of hypothesis testing results, Importance Performance Analysis (IPA) test results and discussion of Importance Performance Analysis (IPA) test results.

Based on the data from the higher education database (PDDikti.kemdikbud.go.id), the number of students in program *I* of faculty *S* at University *X* is 4,659 students. From that data, the number of samples to be used in the research is determined using the Slovin formula:

$$n = \frac{4659}{1 + 4659(0,1)^2}$$

$$n = 97.89 = 98$$

Based on the calculations performed, the sample that will be used is a minimum of 98 samples.

Based on the results of data collection conducted through a questionnaire, 100 respondents who are users of the SATUSEHAT application from active undergraduate students in program *I* of faculty *S* at University *X*. These 100 respondents were grouped based on predetermined characteristics from the research. First, respondent profiles were based on gender, where the results showed that 62% were male and 38% were female. Second, the duration of SATUSEHAT application usage, where the results showed that 13% of users have been using the application for 0-6 months, 28% have been using it for 7 months to 1 year and 59% have been using it for more than 1 year. Third, the frequency of SATUSEHAT application usage, where the results showed that 42% of users use the application less than 3 times a week, 44% use it 3-5 times a week and 14% use it more than 10 times a week. Fourth, the main reasons for using the SATUSEHAT application, where the results showed that the main reason users use SATUSEHAT is to access public facilities, offices, schools, and others.

The results of the outer model testing consist of two stages, namely validity and reliability testing. Through these tests, it is determined which indicators are used to measure specific theoretical concepts and how they are utilized. Based on the PLS-SEM method, validity testing includes assessing convergent validity, which consists of evaluating loading factors and Average Variance Extracted (AVE), as well as discriminant validity, which involves evaluating cross-loadings. Meanwhile, reliability testing includes assessing composite reliability, Cronbach's alpha, and rho A.

Validity Test

The results of the loading factor assessment in the convergent validity evaluation show that each indicator has loadings above the recommended values, which are between 0.40 and 0.708. Generally, indicators with loadings between 0.40 and 0.708 are retained, while values below 0.40 should be eliminated from the measurement model or outer model. The results of the Average Variance Extracted (AVE) assessment in the convergent validity evaluation show that each variable has values above 0.5. This indicates that the constructs can explain 50% of the variance in the indicators that form those constructs. The results of the cross-loading assessment in the discriminant validity evaluation show that the values of each indicator's relationship with its construct are greater than the values with other constructs.

Reliability Test

The results of the composite reliability assessment show that each variable has values between 0.70 and 0.90, which represents that these values fall into the category of satisfactory good assessment. A variable meets the reliability test if the Cronbach's Alpha value is > = 0.7. The results of Cronbach’s alpha assessment indicate that three variables have values above 0.7, which is considered good and four variables have values above 0.8, which is considered very good. The results of the rho A assessment show that each variable has values above the recommended threshold of 0.7.

Therefore, it can be concluded that the results of validity and reliability testing in the outer model indicate that the data is valid and reliable after some improvements were made, with values meeting the recommended criteria.

The inner model testing involves several tests, including.

Variance Inflation Factor (VIF)

The Variance Inflation Factor (VIF) testing involves testing outer VIF values and inner VIF values. The results of the outer VIF values testing indicate that each indicator has values below 5, which means that the data is not

contaminated by Common Method Bias (CMB) and does not have collinearity issues. However, some indicators have values above 3.3, which are indicated as pathological collinearity or multicollinearity, but these values are still acceptable as they are below 5. The results of the inner VIF values testing show that there is one construct with a value above 5. As a result, the researchers examined the correlation between items and removed one indicator from the variable PRC, namely PRC3. After retesting, the data no longer has collinearity issues and is free from Common Method Bias (CMB) contamination.

Path Coefficient

The results of the path coefficient testing indicate that there is one hypothesized relationship with a negative association because it has a value close to -1, which is the relationship between Privacy Concern (PC) and Behavioral Intention to Use (BITU). On the other hand, the rest of the relationships have positive associations as they approach a value of +1. The negative association is not in line with the prescribed relationship criteria used in the study; thus, it can be concluded that this negative relationship cannot be accepted or supported by the data.

Coefficients of Determination ( )

The results of the coefficients of determination testing show that each independent variable used contributes to the dependent variable with moderate and significant values, as they fall between 0.50 and 0.70 for moderate values and >0.70 for significant values.

Effect Size ( )

The results of the effect size (testing show that each relationship between variables has varying effects, ranging from small, moderate, to large. Generally, the values of are 0.02, 0.15, and 0.35, which are considered to have small, moderate, and large effects on the variables, respectively.

Cross-Validated Redundancy ( )

The results of the cross-validated redundancy (testing show that the dependent variable has accurate predictive relevance to specific constructs. This is because the value of >0, indicates that the model has accurate predictive relevance to specific constructs.

Thus, overall, the results of the model testing indicate that the relationships between variables can provide answers to the posed questions with values that meet the recommended criteria.

Based on the conducted T-statistics test, significant and non-significant relationship values were obtained for hypothesis testing, as shown in the following Table 1.

Table 1: T statistics results

Hypothesis	Variable relations	T statistics	Description
Importance data			
Hypothesis 1 (H_1)	ATA -> BITU	2.452	Significant
Hypothesis 2 (H_2)	PRC -> BITU	2.386	Significant
Hypothesis 3 (H_3)	PEOU -> ATA	3.537	Significant
Hypothesis 4 (H_4)	PEOU -> PU	13.452	Significant
Hypothesis 5 (H_5)	PU -> ATA	3.745	Significant
Hypothesis 6 (H_6)	PU -> BITU	1.795	Not significant
Hypothesis 7 (H_7)	PC -> BITU	0.449	Not significant
Hypothesis 8 (H_8)	T -> BITU	0.714	Not significant
Performance data			
Hypothesis 1 (H_1)	ATA -> BITU	3.835	Significant
Hypothesis 2 (H_2)	PRC -> BITU	0.776	Not significant
Hypothesis 3 (H_3)	PEOU -> ATA	3.906	Significant
Hypothesis 4 (H_4)	PEOU -> PU	18.019	Significant
Hypothesis 5 (H_5)	PU -> ATA	3.063	Significant
Hypothesis 6 (H_6)	PU -> BITU	2.357	Significant
Hypothesis 7 (H_7)	PC -> BITU	0.030	Not significant
Hypothesis 8 (H_8)	T -> BITU	0.560	Not significant

From Table 1, there are 3 hypotheses not significant (hypothesis 6, 7, and 8) based on importance data and 3 hypotheses not significant (hypothesis 2, 7, and 8). After conducting T-statistic test, the next step was conducting p-value test.

Based on the conducted p-value test, the level of error for each hypothesis relationship was obtained, as shown in the following Table 2.

Therefore, based on the results of the hypothesis testing conducted, the importance assessment data indicates that attitude towards apps has a significant influence on behavioral intention to use with a T-statistics value of 2.452 and a low level of error with a p-value of 0.015. Perceived risk of COVID-19 has a significant influence on behavioral intention to use with a T-statistics value of 2.386 and a low level of error with a p-value of 0.017. Perceived ease of use has a significant influence on attitude towards apps with a T-statistics value of 3.537 and a low level of error with a p-value of 0.000. Perceived ease of use has a significant influence on perceived usefulness with a T-statistics value of 13.452 and a low level of error with a p-value of 0.000.

Table 2: P value results

Hypothesis	Variable relations	p-value	Description
Importance data			
Hypothesis 1 (H_1)	ATA -> BITU	0.015	H_0 rejected (hypothesis accepted)
Hypothesis 2 (H_2)	PRC -> BITU	0.017	H_0 rejected (hypothesis accepted)
Hypothesis 3 (H_3)	PEOU -> ATA	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 4 (H_4)	PEOU -> PU	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 5 (H_5)	PU -> ATA	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 6 (H_6)	PU -> BITU	0.073	H_0 accepted (hypothesis rejected)
Hypothesis 7 (H_7)	PC -> BITU	0.654	H_0 accepted (hypothesis rejected)
Hypothesis 8 (H_8)	T -> BITU	0.475	H_0 accepted (hypothesis rejected)
Performance data			
Hypothesis 1 (H_1)	ATA -> BITU	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 2 (H_2)	PRC -> BITU	0.438	H_0 accepted (hypothesis rejected)
Hypothesis 3 (H_3)	PEOU -> ATA	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 4 (H_4)	PEOU -> PU	0.000	H_0 rejected (hypothesis accepted)
Hypothesis 5 (H_5)	PU -> ATA	0.002	H_0 rejected (hypothesis accepted)
Hypothesis 6 (H_6)	PU -> BITU	0.019	H_0 rejected (hypothesis accepted)
Hypothesis 7 (H_7)	PC -> BITU	0.976	H_0 accepted (hypothesis rejected)
Hypothesis 8 (H_8)	T -> BITU	0.575	H_0 accepted (hypothesis rejected)

From Tables 1-2, Perceived usefulness has a significant influence on attitude towards apps with a T-statistics value of 3.745 and a low level of error with a p-value of 0.000. Perceived usefulness does not have a significant influence on behavioral intention to use with a T-statistics value of 1.795 and a high level of error with a p-value of 0.073. Privacy concern does not have a significant influence on behavioral intention to use with a T-statistics value of 0.449 and a high level of error with a p-value of 0.654. Trust does not have a significant influence on behavioral intention to use with a T-statistics value of 0.714 and a high level of error with a p-value of 0.475.

On the other hand, the performance assessment data shows that attitude towards apps has a significant influence on behavioral intention to use with a T-statistics value of 3.835 and a low level of error with a p-value of 0.000. Perceived risk of COVID-19 does not have a significant influence on behavioral intention to use with a T-statistics value of 0.776 and a high level of error with a p-value of 0.438. Perceived ease of use has a significant influence on attitude towards apps with a T-statistics value of 3.906 and a low level of error with a p-value of 0.000. Perceived ease of use has a significant influence on perceived usefulness with a T-statistics value of 18.019 and a low level of error with a p-value of 0.000. Perceived usefulness has a significant influence on attitude towards apps with a T-statistics value of 3.063 and a low level of error with a p-value of 0.002. Perceived usefulness has a significant influence on behavioral intention to use with a T-statistics value of 2.357 and a low level of error with a p-value of 0.019. Privacy concern does not have a significant influence on behavioral intention to use with a T-statistics value of 0.030 and a high level of error with a p-value of 0.976. Trust does not have a significant influence on behavioral intention to use with a T-statistics value of 0.560 and a high level of error with a p-value of 0.575.

Based on the calculation of the level of respondent congruence, a value of 96.9% was obtained, indicating that the quality of service provided by the SATUSEHAT application is less satisfactory. Meanwhile, based on the calculation of the average ratings of importance and performance, coordinates were obtained to map each indicator in the Cartesian quadrant, as shown in the following image.

Based on the mapping of the cartesian diagram in Fig. 2, three indicators have been identified as top priorities for improvement, which are also part of the “search for hospital” feature of the SATUSEHAT application. These indicators are as follows:

1. ATA2 with the statement: "I am satisfied with using the “search for hospital” feature because it

provides comprehensive and up-to-date information about hospitals"

2. PRC2 with the statement: "The “search for hospital” feature reduces my worries about the difficulty of getting an inpatient room at the hospital"
3. PU2 with the statement: "The availability of the “search for hospital” feature makes it easier for me to obtain information about hospitals without having to visit the hospital directly, search on the internet, and others"

Of the three indicators that are the top priorities for improvement, the researcher has proposed several recommendations, which are provided in the following Table 3. Here is the user interface display of the given recommendations, along with their descriptions of recommendations from Table 3.

Table 3: Improvement recommendations

Indicator	Recommendations
ATA2	Display information such as price list, facilities and services provided for each room or service description Provide visual information in the form of photos and videos for each room Include reviews and user feedback Complete the hotline or hospital phone number if it is currently unavailable
PRC2	Provide first-response measures for COVID-19 cases and alternative options if inpatient rooms are unavailable Include options for inpatient clinics
PU2	Add interactive features such as deep links to Open Google Maps and WhatsApp applications Remove unnecessary pages, such as the the homepage that displays options for hospital room types, provinces and districts, or cities on the initial “search for hospital” feature view

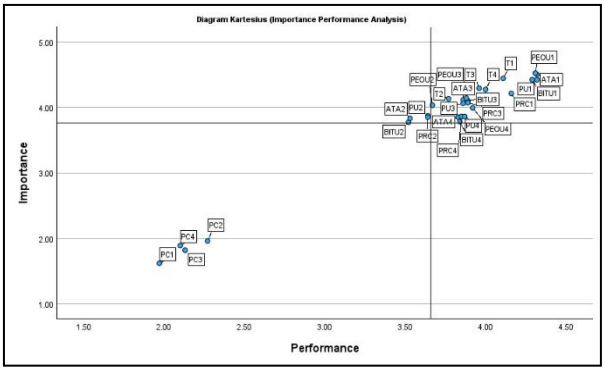

Fig. 2: Cartesian diagram

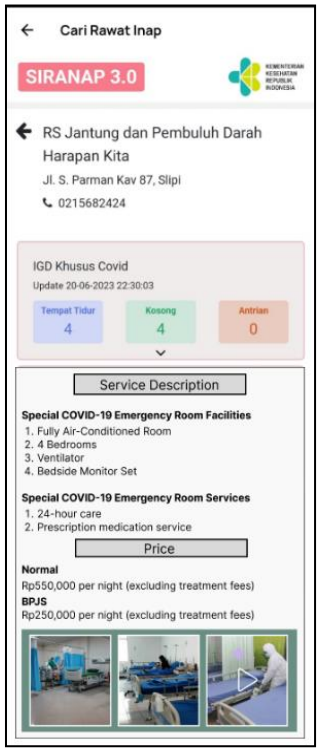

Fig. 3: The price list and service description

ATA2

Display information such as price list, facilities, and services provided for each room, or service description.

The price list is an addition to the “search for hospital” feature, where users can view the costs of each room and the service description is an addition where users can see the facilities and services provided for each room. When users access the bed detail page, they can view the price list and service description for each available room by clicking on the dropdown icon. After that, the system will display the service description and price list for each room. The recommendation in Fig. 3 relates to the ATA2 problem (up-to-date information about hospitals).

Provide visual information in the form of photos and videos for each room.

Visual information is an addition to the “search for hospital” feature in the form of photos and videos of each available room, which can be added to the bed detail page. When users access the bed detail page, they can view visual information such as photos and videos for each room by clicking on the dropdown icon. Subsequently, the system will display photos and videos for each room and users can also swipe through them to see other photos and videos. The recommendation in Fig. 4 relates to the ATA2 problem (provide visual information) Include reviews and user feedback.

Reviews are an addition to the "search for hospital" feature, where users can provide reviews and ratings for hospitals on the hospital list page. When users access the "search for hospital" page, they can view reviews for each listed hospital by clicking on the review button. Subsequently, the system will drop down and display reviews from each user. Users can also provide reviews regarding the current condition of the hospital or their opinions about the services provided by the hospital, along with giving a rating for the hospital. The recommendation in Fig. 5 also relates to the ATA2 problem (reviews and user feedback)

Complete the hotline or hospital phone number if it is currently unavailable.

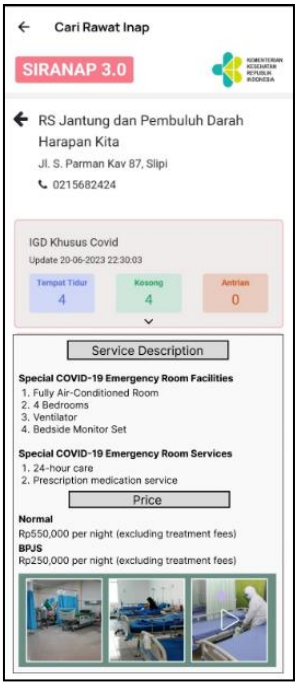

Fig. 4: Visual information

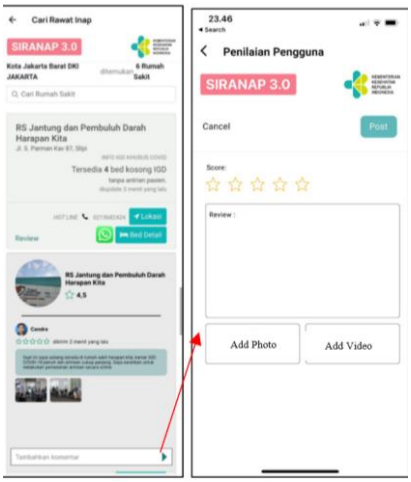

Fig. 5: Reviews

Some hospitals still do not have a hotline or contact number available. Therefore, hotlines or contact numbers for all hospitals in the "search for hospital" feature can be provided.

PRC 2

Provide first-response measures for COVID-19 cases and alternative options if inpatient rooms are unavailable.

Reviews are an addition to the "search for hospital" feature, where users can provide reviews and ratings for hospitals on the hospital list page. When users access the "search for hospital" page, they can view reviews for each listed hospital by clicking on the review button. Subsequently, the system will drop down and display reviews from each user. Users can also provide reviews regarding the current condition of the hospital or their opinions about the services provided by the hospital, along with giving a rating for the hospital. The recommendation in Fig. 6 relates to the PRC 2 problem (provide a first response) and includes options for inpatient clinics.

The "search for hospital" feature can add inpatient clinics as one of the solutions if inpatient services are not available or already full in hospitals. When users access the "Search for hospital" page, they can select healthcare facilities, including inpatient clinics and the system will display a list of nearby inpatient clinics. The recommendation in Fig. 7 also relates to the PRC2 problem (inpatient clinics).

PU 2

Add interactive features such as deep links to open Google Maps and WhatsApp applications.

Deep links for Google Maps can be added to the "search for hospital" page in the list of available hospitals, where users can select the location button and the system will directly redirect them to the respective application. When users press the WhatsApp icon or the location button, the SATUSEHAT application will redirect users to either WhatsApp or Google Maps.

Remove unnecessary pages, such as the homepage that displays options for hospital room types, provinces, and districts or cities on the initial "search for hospital" feature view. The recommendation in Fig. 7 relates to the PU2 problem (deep link WhatsApp and Google Maps).

When users access the "search for hospital" feature, they can directly choose the type of inpatient care, province, district, or city on the page without having to go through the less efficient homepage. Eliminating the homepage display is expected to reduce resource usage, thereby improving efficiency in the SATUSEHAT application. The recommendation in Fig. 8 relates to the PU2 problem (remove unnecessary pages).

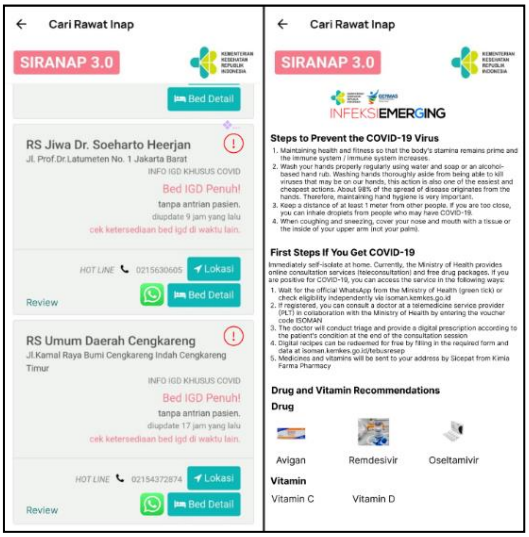

Fig. 6: The first step in the "search for hospital" feature

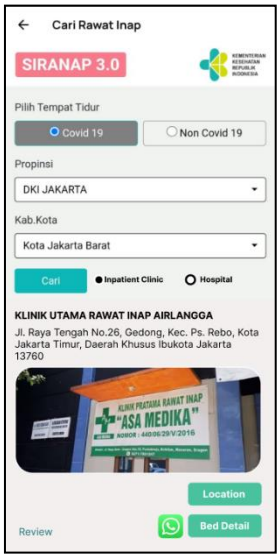

Fig. 7: Inpatient clinics in the "search for hospital" feature

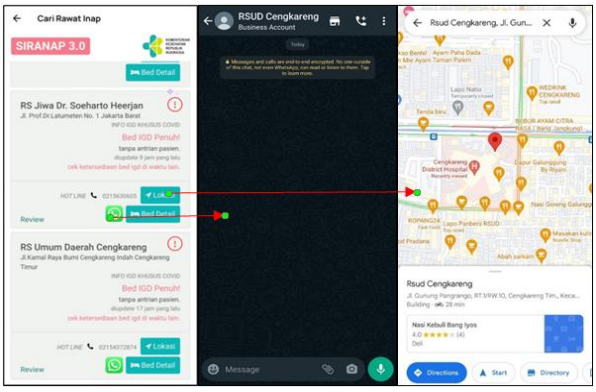

Fig. 8: Deep link WhatsApp and Google Maps application

Conclusion

Based on the results of the PLS-SEM testing with 100 respondents, this study has passed the validity and reliability tests with the outer and inner models. The results show that all indicators and constructs from the importance and performance assessment data are valid and reliable after some improvements and modifications and each relationship between variables can provide answers to the hypothesized questions. The discussion and hypothesis testing of the importance and performance assessment data reveal that the ATA variable, which stands for attitude to apps, has a higher influence on the BITU variable, which stands for behavioral intention to use, compared to other variables. This indicates that feelings of pleasure, happiness, and satisfaction when users utilize features such as vaccination or immunization, "search for hospital", healthcare services, and news have a significant influence in increasing users' intention to use the SATUSEHAT application. The results of the Importance Performance Analysis (IPA) indicate that the satisfaction level with the SATUSEHAT application is 96.9%. Additionally, there is one feature that quadrant 1 or becomes a top priority for improvement, which is the "search for hospital" feature, with indicators 6 (ATA2), 10 (PRC2), and 18 (PU2). This feature has high user expectations but lacks satisfactory performance. falls into Therefore, this feature becomes the primary priority for improvement. It can be developed from various aspects, starting from enhancing the quality of information and system provided, so that users feel happy and satisfied when using it. As a mobile health application, SATUSEHAT is the best option during the COVID-19 pandemic to reduce face-to-face communication and prevent the spread of COVID-19 or other infectious diseases. The "search for hospital" feature can be developed in terms of healthcare services that align with the assessment standards of good health applications or mobile health so that users are relieved of concerns regarding COVID-19 and their worries about not finding an inpatient room. Additionally, the functionality and performance efficiency of the "search for hospital" feature can be enhanced, allowing for more effective and efficient performance to assist users. We suggest the user interface design recommendation needs to be implemented for future improvement of the SATUSEHAT application.

Recommendation

The researcher acknowledges the limitations of this study. Therefore, the researcher hopes that there will be future studies that can discuss the SATUSEHAT application in a more comprehensive model. This study is expected to provide additional insights or references for other researchers from a user experience perspective/variable and can be extended into another perspective or variables.

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Author's Contributions

Sugiarto Hartono: Design research methodology and write the manuscript.

Henricus Bambang Triantono: Coordinate data collection and research.

Hendri Hartono: Make UX design of the proposed application.

Muhammad Henry Sulistyo: Collect and analyze the data.

Faizah Shahudin: Coordinate the data collection and research.

Ethics

This manuscript has not yet been already published before and there is no ethical issue arising during the research.

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