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USER EXPERIENCE OF E-PPGBM APPLICATION ON USERS OF PUBLIC HEALTH CENTER IN KUTACANE CITY USING THE UTAUT METHOD

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Abstract
In order to support the National Stunting Reduction Movement, the Ministry of Health of the Republic of Indonesian creates an application to record and report the nutritional status of the community, namely e-PPGBM or Electronic Community-Based Nutrition Recording and Reporting. Furthermore, in an effort to improve the services which are provided by users, this study was conducted by measuring user acceptance and improving service design so that it will help improve e-PPGBM functions, user experience, and ultimately generate value by helping nutritionists, health workers and policy makers in their work. The user acceptance method used in this study was the UTAUT model. The samples in this study were 35 respondents. Moreover, data collection was conducted by distributing questionnaires via Google Form and the results would be analyzed by using SmartPLS. Based on the results of data processing on SmartPLS, the f-square value on the relationship between effort expectancy variables and behavioral intention has a value of 0.118 which means that the UX improvement will be conducted. The suggestion for improving the new design are focused on adding features to the dashboard that is button as a new data input function and graphics as a function of displaying data from recording and reporting results through the e-PPGBM application.

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Key Words
User Experience, e-PPGBM, UTAUT, SMART PLS

Introduction

The development of information and communication technology causes changes in human life. This technology can be used anytime and anywhere; such as, the use of information technology in the health sector, for example the use of mobile health applications. Globally, in 2018, around 50% of mobile users had at least one mobile health application on their phone.

The use of health application can speed up the appointment and registration process. Furthermore, health applications help patients in finding information regards to doctors' schedules, nearby hospitals, and services available at the hospital. Moreover, health applications provide services; such as, reminders and diagnostics to improve the patient experience in using these services. With the easy use of technology, a perception will be created that this technology helps their daily activities so that it will provide benefits. Therefore, it can be said that the use of information technology in the health sector is very important.

Hospital as one of the facilities which provides health services are currently facing increasingly fierce competition so that hospitals should continue to strive in order to improve their service quality (Chrisyanti dan Suryono, 2018). Hospital competition conditions have a positive impact that is providing more choices for the community. These efforts are conducted in all fields including the procurement of the Hospital Management Information System (SIMRS) (Peraturan Menteri Kesehatan Nomor 82 Tahun 2013). Furthermore, SIMRS as a support for management activities is a formal method which can provide information to management in an accurate, timely manner, as well as automate various administrative processes needed for planning, controlling, decision-making processes as well as operational functions effectively. In an effort to increase

value in society can be conducted by using fast and good quality health services. One of the health fields that adopts information technology in it is E-Health (Pagliari et al., 2005).

One of the existing problems is that its use which is not optimal that is conducted by the district and provincial health offices. Some of the issues encountered include the lack of clarity in the follow-up mechanism for nutrition data recorded and reported through e-PPGBM. In addition, there is inefficient use of data where the data recorded in the system has not been used optimally to make effective policies or intervention steps in order to reduce stunting. Therefore, the formulation of the right problems in the use of e-PPGBM is the key in optimizing the services provided to users in order to achieve organizational goals in reducing stunting.

Our study refers to several previous studies related to technology adoption in the health sector; such as, studies which had been conducted by (Venkatesh et al., 2012), (Woldeyohannes dan Ngwenyama, 2017), and (Samoggia dan Riedel, 2020) who used the UTAUT framework in order to measure technology adoption in the health industry. One of the studies showed the results of the implementation of SIMRS at the Budi Kemuliaan Hospital Batam which indicates that the implementation has not been optimal (Ratnasari dan Majorsy, 2022). The UTAUT model describes the factors that influence user acceptance of Information Technology (IT), including user experience, perceptions, and user acceptance of the products offered.

Therefore, even the several studies come up to help writer to understand the utility of UTAUT in different contexts such as variety of variables, in this paper, writer would apply salient factors to measure consumer technology use context by systematic investigation and theorizing. This paper presents UTAUT constructs with six variables to measure user experience of e-PPGBM application on users of public health center in Kutacane city.

Factors; such as, user experience, perception, and user acceptance of a product or technology system influence the successful use of information technology in healthcare (Venkatesh, 2012). Therefore, it is necessary to have a good understanding of the factors of user acceptance of information technology in the context of using e-PPGBM. In addition, the Unified Theory of Acceptance and Use of Technology (UTAUT) model can be used as a frame of reference in understanding the factors which influence user acceptance of e-PPGBM.

The research approach used mixed methods that were combining online quantitative surveys with qualitative research by using service design principles. By utilizing a service design approach, the objectives of this study are as follows:

1. To Analyze user experience of the e-PPBGM application in health center of Kutacane City by using the UTAUT method.
2. To identify improvements and to recommend user interface improvements in order to improve e-PPGBM application performance.

This approach allowed for a holistic assessment involving all service components, from the architecture and supporting infrastructure, to the stakeholders involved, which are essential in order to ensure the service continues to serve the needs of its users. Thus, the understanding captured may help organizations with the similar issue on the consumer technology industry could apply this knowledge especially for the e-PPGBM application self to optimizing the application and reduce stunting issue in Indonesia. Accessibility

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Theoretical Framework

A. User Experience

User Experience (UX) is the experience felt by users when using a product or service; besides, it is a crucial factor in evaluating the product's performance. There are five basic elements in the UX concept, which are described by (Garret, 2011) namely:

1. Strategy Plane
   Strategy Plane refers to the lowest layer in defining the function or purpose of the product, which is the fundamental business strategy
2. Scope Plane
   The Scope Plane involves limiting the strategy for meeting product requirements through creating functional specifications for the product.
3. Structure Plane
   The Structure Plan focuses on establishing product usability which facilitates user understanding through the information architecture.
4. Skeleton Plane
   The Skeleton Plane consists of three parts, namely:
   a. Information Design, which is the representation of information to facilitate user understanding.
   b. Interface Design, which involves defining the items or interface elements that the user will interact with.
   c. Navigation Design, which involves elements that function as a bridge for users in looking for information regards to architecture.
5. Surface Plane
   Surface Plane refers to the state of the product which is seen and experienced by the user, including the images, colors, and icons used in the operation of the product.

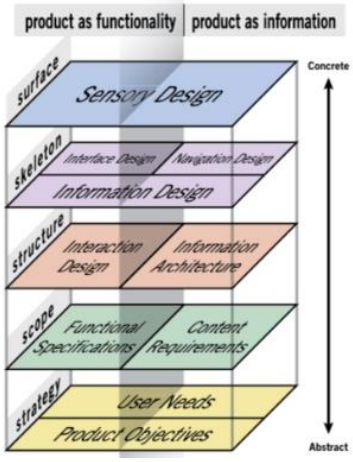

Figure 1. Five Basic Elements of UX [5]

B. UTAUT

Figures In the journal (Venkatesh, 2003) it is explained that a new integrated model, called the Unified Theory of Acceptance and Use of Technology (UTAUT), has been developed from eight previously existing theories of information technology acceptance. The eight theories include: (Fishbein, & Ajzen, 1975), (Davis, (1989), (Ajzen, 1991), (Taylor and Todd, P. A), (Davis et al., 1992), (Moore and Benbasat), (Compeau & Higgins, 1991), (Thompson et al., 1991).

UTAUT has proven successful in explaining up to 70 percent of user variation, compared to the other eight theories. In addition, UTAUT has four main constructs which influence user acceptance and behavior that are performance expectancy, effort expectancy, social influence, and facilitating conditions.

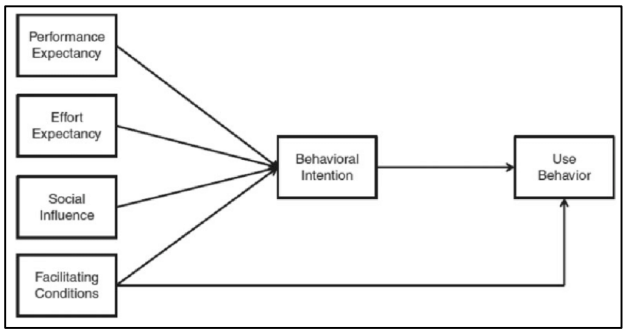

Figure 2. UTAUT Model

1. Performance Expectancy

Figure According to (Venkatesh et al., 2003), the performance expectancy construct in UTAUT is used to measure a person's level of belief that the use of system will help them achieve better work performance.

2. Effort Expectancy

According to. (Venkatesh et al., 2003), effort expectancy is a UTAUT construct which aimed at measuring a person's level of effort in using a system in order to assist that person in doing his job.

3. Social Influence

According to (Venkatesh et al., 2003), performance expectancy and social influence are two related constructs in UTAUT. Performance expectancy measures the level of a person's belief that the use of system will help in achieving work performance. Meanwhile, social influence measures how important the influence of other people is in convincing someone to use the new system.

4. Facilitating Condition

According to (Venkatesh et al., 2003), performance expectancy is a construct in UTAUT that measures a person's level of confidence that the company infrastructure and existing corporate and existing technical is sufficient to support the use of the new system. In other words, performance expectancy describes how confident a person is that the system can be used with adequate support from the technical aspects and company infrastructure.

5. Smart PLS

According to (Hair et al., 2017), Structural Equation Modeling (SEM) is a statistical method that allows researchers to include unmeasured variables that are measured indirectly through indicator variables. In social science research, SEM can identify relationships that may be difficult to find with other statistical methods. There are two types of SEM that are commonly used, namely covariance based (CB-SEM) and variance based (Smart PLS). CB-SEM is usually used to test and confirm existing theories. Meanwhile, Smart PLS is more often used for exploratory research and new theory development.

Research Methodology

The initial stage in this study was the observation of the e-PPGBM application. The observation results were then processed into 60 questionnaire questions which were divided into 6 variables. This questionnaire was prepared by using a Google Form with a 5-point Likert scale question and answer format. Furthermore, the questionnaire was distributed to 60 employees of the Public Health Center of Kutacane City. The numbers of respondents were obtained by using the Slovin formula calculation which would be explained more fully in the next chapter.

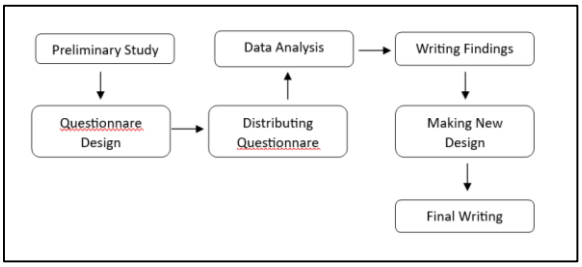

Figure 3. Research Model

The results of the questionnaire were then extracted to Google Spreadsheet to be processed. Moreover, data processing was conducted by using the usability testing method with the SmartPLS 3 application. The findings obtained from the data processing would be reviewed in the next chapter.

In this study the sampling of respondents was taken from the Slovin formula which is attached to (1) with an e value of 5%.

$$n = \frac{N}{1+N\,e^2} \qquad (1)$$

n = sample size
N = population size
e = margin of error

With a total population of 60 employees and it used a margin of error of 5%, the minimum number of samples which can be taken is 35. In order to make the research more fit, this study took a minimum sample of 35 people. The number of respondents as many as 35 people were considered to be representative since it is the same as the minimum sample limit.

Result and Discussion

A. Result

This study used SmartPLS 3.0 software in order to test the validity of the questionnaire reliability test through convergent validity, discriminant validity, Cronbach's alpha and composite reliability as well as testing the research hypothesis. The following is a schematic model tested through the Smart PLS application.

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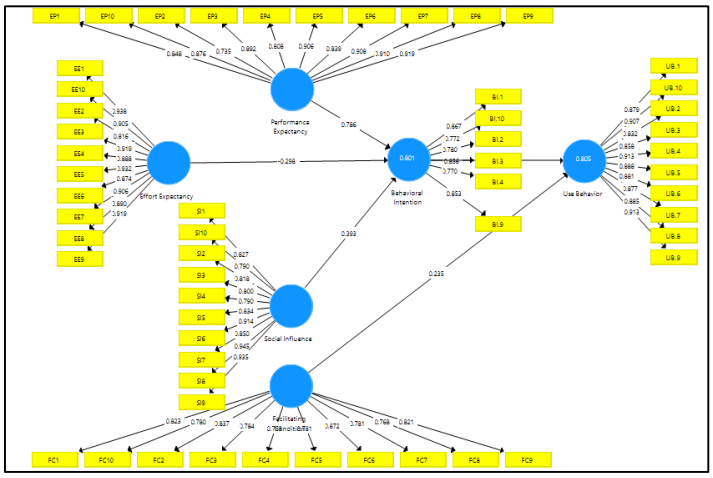

Figure 4. SmartPLS Path Model

Convergent validity is useful for knowing the manifest variable of a highly correlated construct. This model can be said to be valid since it meets the provisions of convergent validity. In this case several indicators on the behavioral intention variable that are BI5 of 0.441, B16 of 0.463, BI7 of 0.515, and BI8 of 0.409 have been eliminated since they have not yet reached a value of 0.7. Therefore, the results above have shown that the overall value of the indicator is greater than 0.7. The discriminant validity test aims to determine whether a different construct should not have a high correlation.

Table 1. Discriminant Validity Calculation

	Behavioral Intention	Effort Expectancy	Facilitating Condition	Performance Expectancy	Social Influence	Use Behavior
Behavioral Intention	0,817					
Effort Expectancy	0,645	0,899				
Facilitating Condition	0,694	0,697	0,805			
Performance Expectancy	0,750	0,857	0,755	0,866		
Social Influence	0,728	0,685	0,746	0,813	0,852	
Use Behavior	0,781	0,678	0,733	0,858	0,832	0,884

In Table. 1 shows the correlation between these variables and other variables. It can be seen that the correlation between each pair of variables does not exceed 0.9 which means that the discriminant validity between variables is met; for example, the correlation between behavioral intention and effort expectancy is 0.645 or 64.5%, the correlation between behavioral intention and facilitating condition is 0.694 or 69.4%, the correlation between behavioral intention and performance expectancy is 0.750 or 75%, the correlation between behavioral intention and social influence is 0.728 or 72.8%, and the correlation between behavioral intention and use behavior is 0.781 or 78.1%. Therefore, it can be concluded that the results of the discriminant validity test show that the variables used in the study have sufficient discriminant validity.

The reliability test was conducted by using Cronbach's Alpha and Composite Reliability values. Fig. 6 represents the results of Construct Reliability.

Table 2. Cronbach's Alpha, Composite Reliability and AVE Score

	Cronbach's Alpha	rho_A	Composite Reliability	Average Varians Extracted (AVE)
Performance Expectancy	0,962	0,966	0,968	0,750
Effort Expectancy	0,974	0,976	0,977	0,809
Social Influence	0,958	0,962	0,964	0,726
Facilitating Condition	0,939	0,942	0,948	0,648
Behavioral Intention	0,900	0,909	0,923	0,668
Use Behavior	0,969	0,970	0,973	0,781

In this study, the writer measures the use of UTAUT by using six variables that are performance expectancy, effort expectancy, social influence, facilitating conditions, behavior intention, and use of technology. Cronbach's alpha values obtained ranged from 0.900 or 90% to 0.974 or 97.4%. Meanwhile, composite reliability ranged from 0.923 or 92.3% to 0.977 or 97.7%.

In addition, all variables show good AVE values, which range from 0.648 or 64.8% to 0.809 or 80.9% in order to measure construct validity. Therefore, it shows that all the variables measured are reliable and valid enough to be used in research. In the context of e-PPGBM, these data show that the instruments used to measure performance expectancy, effort expectancy, social influence, facilitating conditions, behavior intention, and use of technology are reliable and valid for measuring user experience in using the e-PPGBM application.

The R-square value indicates how well the UTAUT model can explain the variation in the measured variable. The use behavior variable has a high value of 0.805 or 80.5%. In addition, the behavioral intention variable has a value of 0.801 or 80.1%. From these two data, it shows that UTAUT can explain the variation of the total value in the behavioral intention and use behavior variables. These result shows that UTAUT can increase the level of behavioral intention and use behavior in using the e-PPGBM application.

Table 3. R-Square Score

	R Square	Adjusted R Square
Behavioral Intention	0,801	0,781
Use Behavior	0,805	0,793

Although the behavioral intention variable in Table. 3 has a lower R-Square value, the result of this study still has important contribution to the development of e-PPGBM applications. In addition, both R-Square values have a high value since it is more than 0.5.

The F-square was used by the writer to evaluate the significance of the effect of each independent variable on the dependent variable so that it can help the writer in determining which variable has the greatest contribution; besides, it can help the writer to see which variables that we can develop for recommendations in explaining the dependent variable when studying.

Table 4. F-Square Score

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Condition	Behavioral Intention	Use Behavior
Performance Expectancy					0,524	
Effort Expectancy					0,118	
Social Influence					0,261	
Facilitating Condition						0,147
Behavioral Intention						1,370
Use Behavior						

Based on the picture in Table. 4, there are several significant F-Square values marked with green coloring on the numbers with details as follows;

1. Performance Expectancy: It has a value of 0.524, which means that this variable has a strong influence on the model.
2. Effort Expectancy: It has a value of 0.118, which means that this variable has a medium influence on the model.
3. Social Influence: It has a value of 0.261, which means that this variable has a medium influence on the model.
4. Facilitating Condition: It has a value of 0.147, which means that this variable has a medium influence on the model.
5. Behavioral Intention: It has a value of 1.370, which means that this variable has a strong influence on the model.

From these values, it can be concluded that the behavioral intention variable is the most significant variable in the model since it has the greatest influence, followed by the performance expectancy variable which has the second influence, and then the social influence variable which has the third influence, the facilitating condition variable has the fourth influence, and the last the effort expectancy variable which gives the fifth greatest influence. After that, the writer determines the variables which have a small influence to be repaired. When viewed from the F-Square value, the effort expectancy value is included in the variables which need to be repaired.

From the results of the analysis that has been conducted at the public health center in Kutacane City regards to the e-PPGBM application, the following are some suggestions that can be given as consideration for the further development of the e-PPGBM application.

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Figure 5. Dashboard Aplikasi Existing

From the appearance of the existing dashboard, the dashboard content is considered less informative so that it provides user experience which is less optimal.

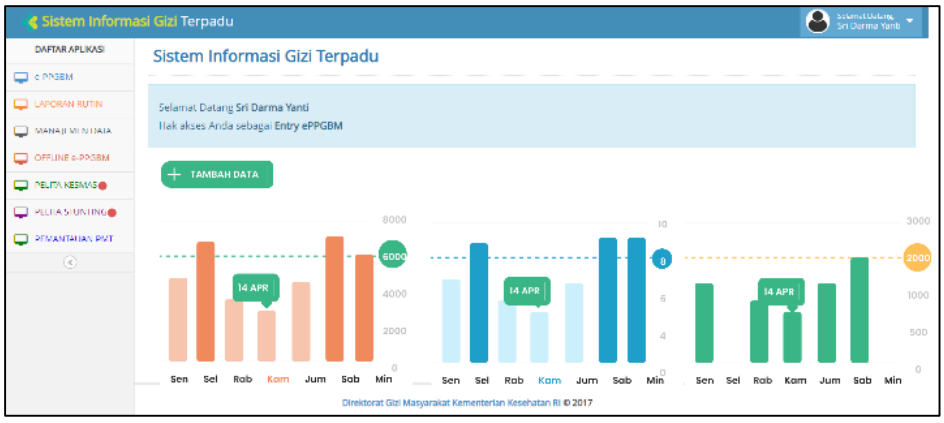

Figure 6. Suggestion Aplication Development

It is expected to provide additional features on the dashboard that are as follows:

- Button to input new data.
- Graphs which display data recorded and reported through the e-PPGBM application.

B. Discussion

In this study, the result of the discriminant validity test shows that the correlation between each pair of variables does not exceed 0.9 which means that the discriminant validity between variables is met; for example, the correlation between behavioral intention and effort expectancy is 0.645 or 64.5%, the correlation between behavioral intention and facilitating condition is 0.694 or 69.4%, the correlation between behavioral intention and performance expectancy is 0.850 or 85%, the correlation between behavioral intention and social influence is 0.828 or 82.8%, and the correlation between behavioral intention and use behavior is 0.881 or 88.1%. In addition, the reliability test shows good results with high Cronbach's alpha and composite reliability values, and all variables have good AVE values which means that the variables used in this study can be trusted and they are quite valid.

Furthermore, there is behavioral intention variable in Fig. 6 which has a lower R-Square value, but is already exceeded 0.5, which means that the UTAUT model in this study has been able to explain variations in these variables. The result of the F-Square test shows that the behavioral intention variable is the most significant variable in the model, followed by performance expectancy, social influence, facilitating condition, and effort expectancy.

These results show that social factors, business expectations, and behavioral intentions play an important role in influencing the variables studied. In addition, the facilitating condition variable is found to have a small influence on the model. However, the effort expectancy variable is found to have a small influence on the model so that it can be considered as a variable which needs to be improved in order to increase its influence on the model.

This result is in accordance with the theoretical basis used in the study. The theoretical basis may have suggested that factors; such as, social, effort expectations, behavioral intentions, and facilitating conditions can influence the variables studied. The research results which show a significant influence of these factors in the model, as well as a small influence of the effort expectancy variable, can be said to be in line with the theoretical expectations used as the research basis. Therefore, it can be said that the results of this study have answered the problems expressed in the research background and it is in accordance with the theoretical basis used.

Conclusion

The conclusions obtained from this study are as follows:

1. Addition of add data button on the dashboard in order to increase user effectiveness.
2. Addition of graphs on the dashboard in order to make it easier for users to see the combined data in an outline.
3. The results of the study provide recommendations for the development of user experience for the e-PPGBM application in the variable performance expectancy which has a value of 0.524 and behavioral intention which has a value of 1.370.

According to the research conclusion using UTAUT, it can be concluded that this research can be known. By the ease of understanding the user experience on the e-PPGBM application cause the user satisfaction index will also be improved. The convenience of users in using the e-PPGBM application will raise interest which has an impact on improving employee performance. Thus, ease of use and performance improvement through optimizing user experience will have a significant influence on government program in reducing the number of stunting in Indonesian society by create decision making.

Suggestion

In the study which uses data sourced from primary data through questionnaires, each variable should consist of several indicators and these indicators are developed into several statements. The initial stage in the data analysis process is to test the validity and reliability in order to obtain valid and reliable data. This study has the result that several indicators of behavioral intention variables are known not to meet the validity test and should be eliminated from the research construct. Future research is expected to focus on conducting pilot test analysis on several respondents at the beginning of the study in order to optimize the quality of the questionnaire arrangement and obtain statements that truly represent the variables studied.

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