


Development Of Smartphone Based Physiotherapy Service Applications

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Article Info	ABSTRACT
Keywords: Application, Physiotherapy Services, Smartphone Technology.	The role of communication technology between individuals is increasingly developing and has various ways and methods. One of the health services is physiotherapy which provides the latest innovations such as the emergence of the term telephysio. Telephysio is the development of a remote monitoring system to facilitate independent rehabilitation of patients in their own homes. The large number of people using smartphones has made the development of applications increasingly sophisticated, especially applications in the health sector. Objective of this research is to make physiotherapy services easier for users with applications on smartphones. This research model was carried out using the R&D (Research and Development) method which was carried out up to the trial and application function testing stages. the application was assessed by two experts in the field of technology and physiotherapy services. Test results show that the existing features and menus provide ease of use and effectiveness in helping patients find and obtain physiotherapy services. Based on the results that have been carried out by expert judgment and trials of smartphone-based physiotherapy service applications, it has been found that the application can be used and is quite suitable for use according to its function, although there are still many shortcomings and things that need to be considered for further development and research
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INTRODUCTION

In the era of the Industrial Revolution 4.0, the role of communication technology between individuals is increasingly developing and has various ways and methods. The development of this technology is not only used for information purposes, but has been applied to certain fields, such as health services, where digital communication technology influences the communication methods carried out between the provision of physiotherapy services and services (patients) (Sutandra, 2020). Along with the development of the computer world and the easier it is to access the internet in Indonesia, all these difficulties can be reduced with the existence of a digital application (Hidayat, 2011). Information technology is considered important because humans are able to compete globally. Indirectly, humans will receive the

impact of globalization on advances in information and communication technology (Eka & Wuryanta, 2013).

Currently technology has been widely used in medical field (Widianto *et al.*, 2018). Technological advances are very necessary during the Covid-19 pandemic. Professionally, this is a challenge for physiotherapists where physical and social distancing is recommended so that physiotherapists develop long-distance service innovations for carrying out assessments, interventions, rehabilitation and monitoring of patients or clients (Haines & Berney, 2020). Physiotherapy services have also been included in several smartphone applications such as online motorcycle taxis and other health service applications. However, not all physiotherapy registered in the application have official certificates to provide physiotherapy services and there is also a lack of features such as detecting directions to the physiotherapy clinic.

According to (APJII 2018), the number of smartphone users globally is increasing from year to year, predicted to reach 3.9 billion users. With the increase in smartphone users, there are many applications that can be used in everyday life, such as in the fields of education, technology, transportation, health services and others (Putra & Rizqi, 2020). One of the health services is physiotherapy services which provide the latest innovations such as the emergence of the term telephysio according to (Odole *et al.* 2015), who say that telephysio is the development of a remote monitoring system to facilitate independent rehabilitation of patients in their own homes. Apart from that, the telephysio method is also suitable for patients whose residence is quite far from health services which makes it difficult to visit the clinic regularly due to time and cost factors. Physiotherapy services using applications have been implemented in several independent practices, by using the communication service application patients can consult with a physiotherapist (Mohebi *et al.*, 2018).

To facilitate access to physiotherapy services in the community, of course we need media that can be easily accessed. Therefore, there is a need for media that is easy to use, can help find physiotherapy services according to location and competency, and provides services related to features related to physiotherapy. Seeing the large number of Indonesian people who use smartphones from various circles, in the end it is hoped that this application will be the answer to developments in an increasingly sophisticated and digitalized era and can be utilized by patients or people who are active smartphone users. Next, the application will be tested by several physiotherapy students to be assessed using a questionnaire via the Google form provided.

METHODS

The research design used in this research is Research and Development (R&D). (Sugiyono (2013) explains that development research (R&D) is a research method used to produce certain designs, products and also the validity of the designs that have been created so that the product can be tested. (Hanafi 2017) said that this research is development research used to produce certain products and test application methods and carry out assessments so that the application can be used optimally.

The findings from this research are used to design applications and procedures by producing prototypes which are then systematically tested, evaluated and refined. This

application prototype was assessed by two experts. One person is an expert in the field of physiotherapy services and the other is an expert in the field of media and technology. These two experts were selected based on the criteria of educational qualifications, work experience, and willingness to become expert judgment. Media and application experts are graduates of at least a Masters in Information Technology and have experience in the field of smartphone applications. Experts in physiotherapy services are graduates of at least a Masters in Physiotherapy/physiotherapy profession and have experience in the field of physiotherapy. Researchers have only reached the development stage, namely creating an application in prototype form and testing the function of the features contained in the application whether it can be used or not. Next, the application will be tested by several physiotherapy students to be assessed using a questionnaire via the Google form provided.

RESULTS AND DISCUSSION

The development of this physiotherapy health service application was carried out by researchers assisted by developers or application makers from informatics engineering students at Muhammadiyah University of Surakarta. The implementation time and work on making the application is two months starting from November to December 2021. An application is a program that contains commands for processing data by creating a system or program so that data can be processed (Julianto *et al.*, 2021).

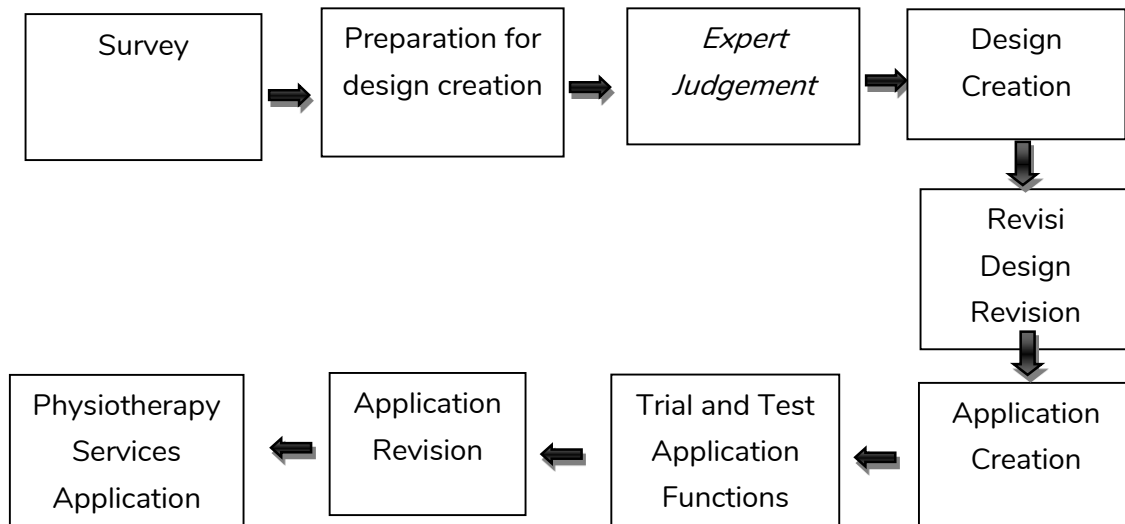


Figure 1. Flow of Application Creation Stages

This type of application is an application in prototype form which contains several commands that can make it easier for users to use the physiotherapy service application, such as a chat page with physiotherapists which functions for consultation. Here are some of the functions in the application:

Table 1. Application Features and Functions

Image Components	Explanations
Sign in Page	The Sign in page functions for application security, each user is required to have an account to be registered on this physiotherapy service application, then you can register on this page, below are the functions on the sign in page.
Profile Page	The user profile page functions to display user information, apart from that the user can update the user profile.
Login Page	The user login page functions for application security, each user has an account to log in. The following are the functions on the login page.
Main Page	The user's main page functions to navigate to smartphone application-based physiotherapy service pages
Update profile data page	The Update profile data page functions to change personal data such as name, email address or profile picture
Physiotherapy Search Page	This physiotherapy search page functions to search for physiotherapy that patients have contacted for consultation
Chatting Page	This page contains chats with physiotherapists, application users can consult with physiotherapists on this page.

Assessments need to be carried out to test how feasible a product is being developed so that the product can continue to be improved (Arikunto, 2015). The assessment by media experts is first carried out on aspects of function and appearance suitability including the user interface and also the functions carried out by the application, the suitability of the use of colors and fonts, buttons, page layout and also the suitability of function buttons. The assessment and also things that need to be paid attention to given by the material expert are the language used in the application. There is a suggestion to use Indonesian. Meanwhile, the evaluation aspect includes criteria for the relevance of the evaluation to the application objectives and the suitability of the application features to the application function.

This evaluation is very important and needs to be carried out in development, whether learning or other development. Evaluation of the efforts made to ensure that the media being developed is guaranteed to be of good quality (Warsita, 2013). According to (Rifqi (2021), there are several features that can be used, but there are still many shortcomings in the function, such as a lack of physiotherapy data included in the application because the data is personal and the application is still in the testing phase, there is still a very high risk of data leakage, requiring several stages. to synchronize data to minimize data leaks.

Application trials that have been carried out by media experts and also several physiotherapy students have resulted in that the application can be used well, especially the chat feature, but the search feature is still general, such as when a user uses the search feature, users who are already registered in the service application will be displayed. physiotherapy, not only therapists will appear on the search page, but application registrants will also appear.

The assessment obtained from distributing questionnaires to several physiotherapy students showed that they were satisfied with the components contained in the application.

Creating user satisfaction will have a big influence on survival which can motivate to improve the products produced. Without user satisfaction with features or components, the hope for a product to survive, grow and develop will be very difficult to achieve (Wowor, 2015). The application developed in prototype form is ready to be used as a reference for application creation, provided that further development is needed regarding features and functions because the database is not in sync with VSCode, which is a complete cross-platform text editor. This text editor directly supports programming languages (Juansyah, 2015). Databases that are not in sync with VSCode will result in data leaks. The database used in this application is MYSQL, which functions to create and manage a database on the server side which contains various information using the SQL language (Yuliansyah, 2017).

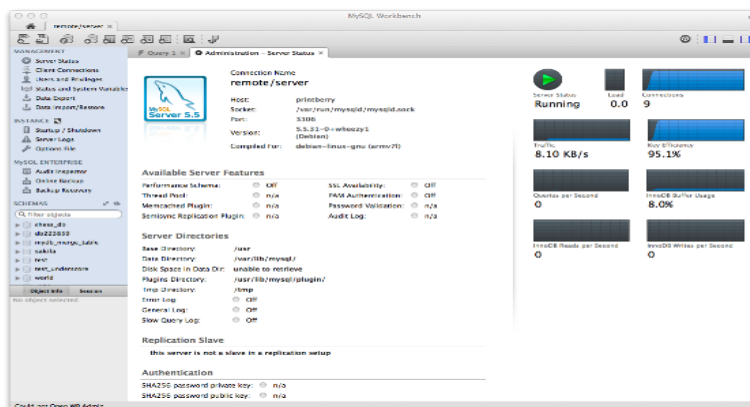


Figure 2. MySQL

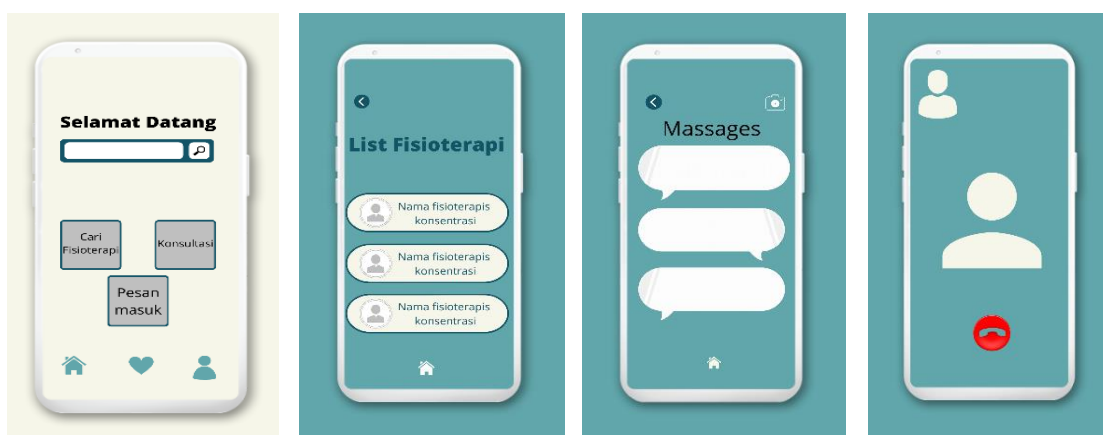


Figure 3. Display of Application Features

This application can be used to communicate or consult with a physiotherapist. Some of the suggestions and improvements given by media experts and material experts during application design activities include: improving the application interface which is not suitable and suggestions for choosing fonts and colors which are not appropriate because many color choices clash with the basic color, for example sky blue. with a bottle green color, then change the features and functions that burden the database so that the application can be light to use. Regarding the ease of use of the product, the advantage of this application lies in its ease of access on smartphones, this application does not require a good enough internet

connection. With the H+ internet, this application allows you to consult with a therapist. Another advantage is on mobile devices, this application can be used whenever and wherever the user wants. The use of technology in the form of applications has been proven to be able to improve services and meet life's needs, including health services. Technology in the form of applications or other forms such as VR can be used as a solution or alternative in providing interactive services and experiences (Sukirman *et al.*, 2019). To make it easier for Indonesians to use, this application is fully in Indonesian so that it can be used by ordinary people.

CONCLUSION

The feasibility of an application in the form of a prototype "Smartphone Application Based Physiotherapy Services" to support the provision of physiotherapy services is reviewed from the aspect of appearance quality and technical quality by media experts. The results of the media expert's assessment of this aspect stated that the assessment results were in the category "feasible enough" to be considered an application, but still required several updates and developments to reach the word "feasible" to be used and disseminated widely to the general public. The test subjects stated that using the application "smartphone application-based physiotherapy services" made it easier to provide physiotherapy services even though there were many shortcomings in the application.

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