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## Analysis of Mobile Based Activity Reporting Systems Using Usability Testing Methods and Use Questioners

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### ABSTRACT

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Reporting is a part that must be prepared, monitored and evaluated by the leader in this case the director, organizational activities often overlap with each other and reporting activities are not well documented. The purpose of this study is to analyze the usability of the Activity Reporting System application. In this study the authors used the Usability Testing and USE Questioner methods. The level of usability can determine the extent to which an application or product can be used by users to achieve their goals and how easy it is to use the application interface. Applications with a high level of usability will usually be liked by many users. Vice versa, if the usability level of an application is low it will eventually be left by the user. This study also uses a USE Questioner that includes four parameters namely usefulness, ease of use, ease of learning and satisfaction. Each parameter has several statements that will be given to the user to assess the usability level of the spkditdpontren application. The results of this study note that the usability value before the recommendation for improvement is 47.58% with sufficient predicate and the usability value after the display improvement recommendation is 78.27% with a good predicate. The general conclusion is that the activity reporting system can make it easy for users to find information related to activities and evaluation and financial management of reporting transparency and accountability.

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### 1. Introduction

With the rapid development of technology web-based and mobile-based information systems are often used as a means of increasing information. The information system will be used to facilitate a job such as data processing so quickly, making the right decisions, saving time and costs. Most of the organization's information today still uses paper media. This section is part of an office that never changes. Document paper still filled the storage drawers and document safe. Finding documents from the repository can be a tiring activity. Documents can be misplaced or even lost. Very rarely there are back-ups for documents like this. Currently the problem faced by the Directorate of Diniyah Education and Islamic Boarding School (Ditdpontren) is that all data processing, especially in the reporting section is still done manually where in processing data reporting and performance is still using paper as a medium, so it often faces problems in activities operational. Because of this we need a system that can help record every report on the activities it does. To be able to simplify the inspection process and obtain information relating to absorption of the budget in a complete and detailed manner.

Basically online services such as mobile applications are used to facilitate the service process. But not all users who operate a mobile application get it easy. The thing that influences the mobile application is the user friendly aspect. Users will feel the ease and satisfaction when these aspects are in an application. Problems that often occur felt by users are the lack of information provided by applications, difficulties in using applications and so on[11,12].





Usability is an important aspect in making an application. Usability is a quality level of a system that is easy to learn, easy to use and encourages users to use the system as a positive tool in completing tasks. In this context, what is meant by the system is software. Usability is a measure, where users can access the functionality of a system effectively, efficiently, and satisfactorily in achieving certain goals[1,2]

Application of Activity Reporting System (spkditdpontren) is used to facilitate the process of reporting activities carried out within the scope of the Directorate of Diniyah Education and Islamic Boarding Schools of the Indonesian Ministry of Religion. To measure the level of convenience in the application required testing by means of usability testing etc. USE Questioner. Therefore the importance of research is done to increase the usability value of an application. Application testing uses the usability testing method and USE Questionnaire. Usability testing is an effective method for observing prospective users of services to find out what works and what needs to be redeveloped[13].

## 2. Research Methods

### A. Research Object

The method used to compare the performance of the reporting system of the activities of the Directorate of Diniyah Education and Islamic Boarding School (Ditdpontren) based on mobile is using a usability testing method that will see the level of usability in terms of learnability, effectiveness, efficiency, memorability, error, and satisfaction. The number of respondents who participated in this study amounted to 15 people where each respondent was asked to fill out a questionnaire given through Google.

### B. Respondents

Respondents in this study were employees at the Directorate of Diniyah Education and Islamic Boarding School (Ditdpontren) Director General of Islamic Education Ministry of Religion of the Republic of Indonesia. The total number of respondents in this study were 15 people (10 men, 5 women)..

### C. Tools and Materials

The main equipment is divided into 2 categories namely hardware and software. The hardware used is a laptop with the following specifications:

Table 1  
System Development Environment

No	Device	Specifications	Usefulness
1	Laptop	Intel Core I5-4210U RAM 4 GB	Device creation and application testing
2	Handphone	Samsung Note 5	Gadgets used
3	Spk web based application	Web base	Activity reporting system
4	SPK-based mobile application	apk	Activity reporting system
5	Google Form	Google docs	Online questionnaire
6	Stopwatch	Time counter	To calculate the time

### D. Results and Discussion

Usability testing used 10 participants who tested using a desktop device and using a mobile device. Usability testing uses task scenarios to users to find information in applications such as counterparts. The task scenario as seen in Table 2.

Table. 2  
Task Scenarios

No	Duty
1	See Activity Information
2	Completing the General Information Report
3	Completing the Resource Report
4	Completing the Financial Statements
5	View activity report information

Analysis of test data is done by calculating the time needed by participants to complete all the tasks contained in the task scenario. Analysis of the time is needed to assess the effectiveness of applications such as in the propren. The





results of the usability testing of the application like the counterparts are shown in Table 3 and Table 4.

Tabel. 3  
Test results using the website

No	Participant	Time (minute)
1	Participant 1	10 minute
2	Participant 2	8 minute
3	Participant 3	15 minute
4	Participant 4	12 minute
5	Participant 5	20 minute
6	Participant 6	17 minute
7	Participant 7	9 minute
8	Participant 8	20 minute
9	Participant 9	18 minute
10	Participant 10	11 minute
MEAN		14

Tabel. 4 Hasil pengujian menggunakan smartphone

No	Participant	Time (minute)
1	Participant 1	18 minute
2	Participant 2	10 minute
3	Participant 3	19 minute
4	Participant 4	20 minute
5	Participant 5	15 minute
6	Participant 6	19 minute
7	Participant 7	12 minute
8	Participant	25 minute
9	Participant 9	20 minute
10	Participant 10	15 minute
MEAN		17,3

The results of the tests in Table 3 and Table 4 can be concluded that the average time (mean) required by participants who use desktop and mobile devices when completing the test scale given shows the difference in average time. The average time required by participants who use mobile devices is longer when compared to participants who use desktop devices.

Based on observations and interviews with participants when carrying out usability testing, the average time difference due to the inputted report must be scanned first becomes less effective due to the number of items entered, as shown in Figure 3 and Figure 4. Display menus and submenus desktop devices do not experience significant obstacles, but for mobile devices the displayed menu will look long stacked.

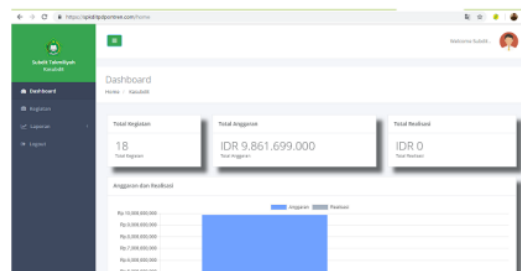


Fig.1 Appearance of the application as opposed to using the website

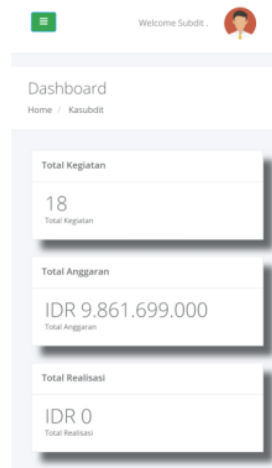


Fig.2 Display applications such as using a website

Questionnaire data analysis was carried out to determine the percentage categories of groups based on the answers given by participants in each question item. The results of questionnaire data processing as shown in Table 5.

Table. 5 Results of questionnaire data processing

No	Questions	Web-Based		Based on Mobile	
		Percentage	Criteria	Percentage	Criteria
1	I have difficulty in using the activity reporting system in the village counterparts	50 %	Enough	80%	Strong
2	Reporting problems that often occur in urgent circumstances	100 %	Very strong	100%	Very strong
3	I often use a smartphone	100 %	Very strong	100%	Very strong
4	I often use the application on a mobile basis	50%	Enough	70%	Strong
5	I prefer to use a computer rather than a smartphone for applications such as counterparts	90%	Very strong	50%	Enough
6	The application like dipdpontren is very helpful in the reporting process	80%	Very strong	60%	Enough
7	The need for additional features in applications such as counterparts	80%	Strong	80%	Strong

Table 5 shows the data processing of the results of the user questionnaire when accessing the application as opposed to the desktop using desktop and mobile devices. The results of the questionnaire in general showed that the application of the sample in the sample program was good, it was indicated by the majority of the questionnaire answers showing a value of more than 70% with strong to very strong criteria. Unsatisfactory results were found in questions relating to new or long time using applications such as dipdpontren. Data processing shows that the criteria are sufficient for mobile use, besides that for mobile device users the ease of accessing applications such as the dipdpontren according to the user only gets enough criteria. These results indicate that the use of applications such as web-based dipdpren is preferred by responders rather than based on mobile apps.

### 3. Result

The results of this study will be divided into usability attributes as follows:

- Learnability, the application of web-based dipdpontren is better than the mobile-based dipdpontren application.
- Efficiency, spk dipdpren applications that are tested to respondents who are proficient in





using smartphones, such as mobile-based applications dipdpontren are more efficient than web-based applications.

- c. Effectiveness, applications such as web-based dipdpren have 70% success rate.
- d. Memorability, Memorability can be measured by comparing the time needed by application users such as the counterparts in inputting report documents.
- e. Errors, Errors related to mistakes made or made by users during interacting with certain websites or applications (Handiwidjojo and Ernawati, 2016). While the Error Rate according to Nielsen (2012) is the level of errors made by users when completing "tasks" on the website.
- f. Satisfaction, the application of spdpontren for smartphone users is still below average (not satisfied) and for web-based it has been satisfied

#### 4. Conclusion

The conclusions of this study are;

- a. Using this Activity Reporting System application, it would be more appropriate to create a website version, because employees would definitely spend more time in front of a computer screen than in front of a smartphone screen. Conversely, if more users who are mobile, it will be more appropriate if a mobile application is made.
- b. That there are 15 responder distributed, 90% like the use of web-based activity reporting system applications, 10% like the mobile-based.
- c. Users of spk-based application dipdpontren based on mobile apps and users of application-based spk-propontren web-based have different goals. Smartphone users want to use the application like dipdpontren anywhere, get maximum productivity, while users of the application like dipdpontren web-based may spend more time and tools using web applications.
- d. The ultimate goal of choosing a web-based application or mobile app is a very real consideration for organizations that want to establish a mobile presence. All depends on the human resources that use the application.

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