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Abstract. The Central Java region is the highest disaster-prone region in Indonesia in the period January - May 2019. The disasters occurred, in total of 554 times, with a total of 14 fatalities, 7 injured, 98,208 affected and displaced. Natural disasters cannot be avoided, but their impact can be minimized with good management. Disaster management and anticipation include utilizing information systems. A good information system is a system that makes it easy for users. The level of usefulness of this system, must be measured whether this system will be useful or not. This research is focused on testing the interface of the Disaster Information System belongs to BNPB Magelang. The method used is Planning and Analysis, Usability Evaluation, Data Analysis and Data Presentation. This measurement is done by the usability testing method. Based on the measurement results of the usability level of the Disaster Information System, a value of 3.35 was obtained. Based on the Linkert Scale, this system is said to be Usable. The results of the research can describe the reusability level of disaster information systems and to recommend in improving aspects of reusability.

1. Introduction

Indonesia is a disaster-prone area. According to the data of BNPB DIBI, in 2013 there were 1,813 catastrophic events during January 2019-31 May 2019. Total of 408 dead and missing, 1,423 injuries, 855,921 affected and displaced. Material losses in the form of damaged houses 3,442 were severely damaged, 3,322 were moderately damaged by 15,814, while 88 public facilities were health facilities, 250 worship facilities and 384 educational facilities. The highest catastrophic events were 692 tornadoes, 514 landslides and 503 floods. Central Java region, is the highest sequence of disaster events, which is a number of 554 times. With a total of 14 fatalities, 79 injured and 98,208 affected and displaced.

Natural disasters cannot be avoided, but their impact can be minimized with good management. The information needs of disaster managers fall into two distinct, but closely related, categories of activities [1]. Disaster management and anticipation including utilizing information systems. A good information system is a system that makes it easy for users. If users cannot find information and/or do so with difficulty, they will certainly go elsewhere for such information [2]. BNPB Magelang Regency already has a disaster information system, which is web-based and Android-based under the name Magelang SIKK, which can be downloaded from the play store. As a disaster information system, this system must of course be managed properly and the user interface must be attractive and measurable both in terms

of appearance and in terms of its usefulness. The purpose of this study is to measure the usability of the web https://sikk-bpbdmagelang.info measurements to provide recommendations for improvements in detail following the usability aspects which can later satisfy website visitors so that information received from the web is useful. The measurement method uses usability testing.

Some related studies that have been carried out are: Azzam Hussain et al, measuring the utilization of mobile devices for learning. This paper reviews previous research that has been carried out to evaluate the usability of m-learning applications and how this approach could be integrated into the Agile development process in a bid to make a more effective and usable m-learning application [3]. Ali Sajedi took measurements on software applications. In this paper, we focus on improving both learnability and usability by making new suggestions. In the next sections, we study important aspects of software applications' UI regarding these two issues [4][5]. Other research on usability was conducted by Ricardo F. Ramos. This study aims to unveil within current academic literature, the fields where usability research has been focusing their efforts in the dimensions institutional websites , social media and mobile application usability, and to suggest possible paths for future studies [6]. Usability has emerged as a key domain in information systems (IS) and has developed efforts to understand the influence of several characteristics that influence usability of technology and design [7].

2. Methods

Stages of research conducted are: Planning & Analysis, Usability Evaluation and Data analysis. There are three main phases involved in conducting the research as:

Figure 1. Research Methodology

Adapted from Noraziah ChePa [8] and added by Data Presentation [9] as shown Figure 2.

Figure 2. Developed Research Methodology

The first stage of research is Planning & Analysis. This activity is carried out by studying literature, conducting interviews with the Magelang District Disaster Management Agency and conducting an ongoing system study by observing the research object. The next stage is Usability evaluation: This activity is carried out by preparing research instruments and data collection. His evaluation points include Learnability, memorability, Efficiency, Error and Satisfaction as adapted from Jakob Nielsen.[10] The test was carried out using a questionnaire, using 18 questions. The questionnaire was distributed to respondents of users of disaster information systems https://sikk-bpbdmagelang.info. The last step is data analysis. This stage is the stage of analysing data from questionnaires that have been distributed, using SPSS 16.0. Data Presentation Phase, is the stage of presenting the results of the measurement of SIK BPBD Magelang Regency. Each indicator of the Usability aspect is displayed based on its average value.

3. Result and Discussion

3.1. Validity and Reliability test

Based on the results of testing the validity and reliability, it appears that the r count > r table, then the Valid and Reliable instruments to be used to measure usability. The Cronbach's alpha obtained is equal to 0.968. Validity and reliability tests are seen in the following Table 1:

Table 1. Validity and reliability test

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.966	.968	18

3.2. Data Presentation

There were 99 respondents who filled out the questionnaire, obtained patterns of distribution for the eighteen questions as in table 2. The distribution of these questions was divided into five scales to determine the extent to which respondents agreed with the questions given. The five scales are strongly disagree - disagree – enough - agree - strongly agree, shown in table 2 below.

Table 2. Summary of questioner result

No		Aspect	Indicator	SD	D	NAND	A	SA
1	A1	Learnability	Ease of study	2	2	52	26	12
2	A2	Learnability	Presentation of specific information	2	3	51	26	12
3	A3	Learnability	Presentation of content is easy to understand	0	4	51	28	11
4	A4	Learnability	Easy Navigation Flow	2	5	51	25	10
5	A5	Learnability	Does not require special information	2	11	46	23	12
6	B1	Memorability	Easy-to-remember website	1	4	52	29	8
7	B2	Memorability	Navigation flow is easy to remember	2	10	48	28	6
8	B3	Memorability	Ease of use of the website at any time	2	3	53	26	10
9	C1	Efficiency	Menu access speed	2	2	50	30	10
10	C2	Efficiency	Speed of getting information	2	1	49	32	10
11	C3	Efficiency	The information sought appears at the beginning	2	5	53	27	7
12	D1	Errors	Errors discovered	6	22	48	12	6
13	D2	Errors	All menus work according to their functions	3	17	47	21	6
14	D3	Errors	The menu sought is always found	3	10	55	19	7
15	E1	Satisfaction	Convenience of display design in general	2	5	53	25	9
16	E2	Satisfaction	Convenience of using a web site	1	2	56	27	8
17	E3	Satisfaction	The colour and layout of the content is comfortable	2	4	50	30	8
18	E4	Satisfaction	Suitability of Title with contents	1	3	56	29	5

SD : Strongly Diagree
D : Disagree
NAND : Nearly Agree Nearly Disagree
A : Agree
SA : Strongly Agree

After getting the results of the questionnaire distribution, each group usability criteria, the average is calculated to find out how much the learnability, memorability, efficiency, errors, and satisfaction. The results of data processing, found that the average Learnability level of 3.42, Memorability 3.37, Efficiency 3.45, Errors 3.05 and Satisfaction 3.39. These five aspects show that the Disaster Information System is good enough to meet user needs related to efficiency as evidenced by the high results of data processing in the amount of 3.45, learnability of 3.42. This proves that the website is sufficient to provide ease of use both technically and user convenience in using the website. In addition to efficiency and learnability, the website has also been quite good in the aspect of satisfaction, and memorability with an average of 3.39 and 3.37. The weakness of this website is the discovery of an error that is equal to 3.05. This error must be fixed immediately because it will interfere with its use by the user. However, overall this website can be said to be quite good by having a total usability score of 3.35. The results of data processing are shown in Figure 3.

Table 3. Percentage of questionnaire results

No		Aspect	Indicator	Average	Average[1]
1	A1	Learnability	Ease of study	3.47	
2	A2	Learnability	Presentation of specific information	3.45	
3	A3	Learnability	Presentation of content is easy to understand	3.49	**3.42**
4	A4	Learnability	Easy Navigation Flow	3.37	
5	A5	Learnability	Does not require special information	3.33	
6	B1	Memorability	Easy-to-remember website	3.41	
7	B2	Memorability	Navigation flow is easy to remember	3.28	**3.37**
8	B3	Memorability	Ease of use of the website at any time	3.42	
9	C1	Efficiency	Menu access speed	3.48	
10	C2	Efficiency	Speed of getting information	3.51	**3.45**
11	C3	Efficiency	The information sought appears at the beginning	3.35	
12	D1	Errors	Errors discovered	2.90	
13	D2	Errors	All menus work according to their functions	3.09	**3.05**
14	D3	Errors	The menu sought is always found	3.16	
15	E1	Satisfaction	Convenience of display design in general	3.36	
16	E2	Satisfaction	Convenience of using a web site	3.41	
17	E3	Satisfaction	The colour and layout of the content is comfortable	3.41	**3.39**
18	E4	Satisfaction	Suitability of Title with contents	3.36	
Mean Total Usability Level					**3.35**

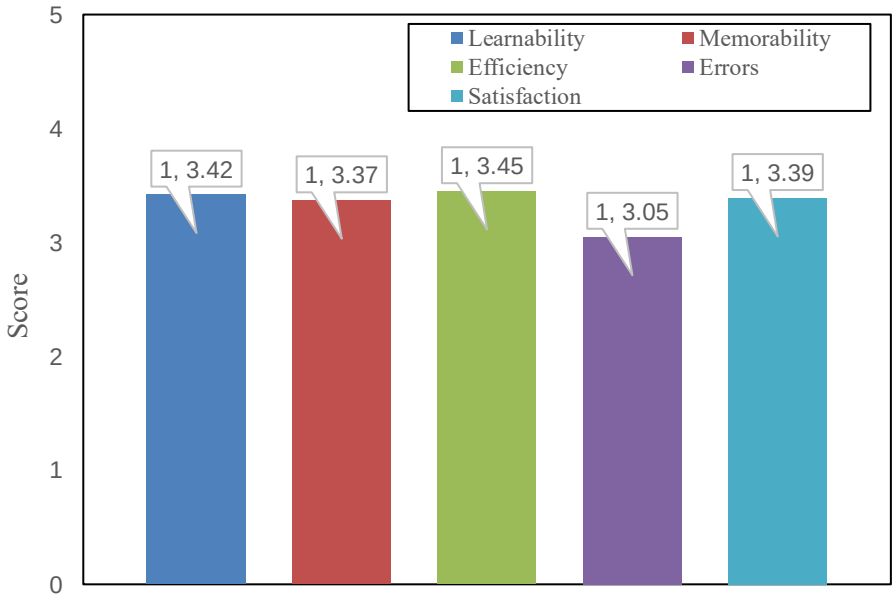

Figure 3. Percentage of Questioners Result

4. Conclusion

Based on the measurement results of the usability level of the Disaster Information System, a value of 3.35 was obtained. Based on the Linkert Scale, this system is said to be Usable. The highest value lies in efficiency, at 3.45 which means the system is very efficient.

Acknowledgment
Thank you to Mrs. Muflichah Roychani, ST., MM Kasubag Perencanaan dan Evaluasi BNPB Magelang District, Assoc. Prof. Dr. Muji Setiyo, MT, Mr. Rector of Muhammadiyah University and the respondents who helped with this research process.

Author Contributions
Conceptualization (R.A, A.S); Material research preparation (A.S); Methodology (A.S, T.A); Data collecting (R.A, A.S); Data analysis and visualization (A.S, T.A, P.S); Writing—original draft (R.A, P.H); Presentation (R.A).

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