Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT

ISSN 2723-4509 (Online)

USABILITY TESTING ON THE ASAHAN COVID-19 WEB PORTAL USING SYSTEM USABILITY SCALE (SUS)

Edi Kurniawan[1*], Abdul Karim Syahputra [2]
[1] Information System, Sekolah Tinggi Manajemen Informatika dan Komputer Royal, Indonesia
[2] Computer System, Sekolah Tinggi Manajemen Informatika dan Komputer Royal, Indonesia

***Corresponding author*:**
edikurniawan@royal.ac.id

Keywords:
COVID-19
System Usability Scale (SUS)
Usability
Website

ABSTRACT

COVID-19 (*Coronavirus Disease* 2019 is a pandemic that is sweeping the world today. From the WHO data, the number of confirmed cases increases every day, including in Indonesia. Misinformation is commonplace as people are active in seeking information about COVID-19. Valid information and real are needed to be a trusted source of knowledge. In this case, Indonesia ranging from the central government to local governments provide a web-based information portal to make a trusted information center to the community, including in Asahan Regency. Usability is one of the factors in the success of a government website. minimum to find out how easy it is to use and the purpose of its use achieved according to end-users. Usability testing in this study uses the System Usability Scale (SUS) method because SUS is a valid and reliable usability testing tool even with a small sample. The SUS Score results made on the web portal COVID-19 Asahan Regency amounted to 70.19 which shows that the website is acceptable but still not usable as a whole because of grade-scale=C and adjective-rating=ok category. From these results, it can be seen that this portal website still needs to be developed back to a better stage.

INTRODUCTION

Beginning in 2020 the world is busy with a pandemic that has a very rapid distribution, Indonesia is no exception. This problem is caused by a virus that triggers the flu, cough, and pneumonia. This virus is called Corona, precisely COVID-19 (Coronavirus Disease 2019). Coronavirus epidemic that is sweeping the world today is causing anxiety for the community.

The virus which was first discovered in Wuhan city has claimed thousands of Chinese lives in a row. The government then isolated Wuhan City for 3 months so that other residents could not enter it. Wuhan residents were also forbidden to leave their homes until the disease disappeared permanently [1], [2]. Based on data obtained from the official website of the World Health Organization (WHO), namely https://covid19.who.int the number of cases worldwide at the end of May was recorded:

Proceeding
ISSN 2723-4509 (Online)
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT

5,840,804 confirmed cases, 116834 cases of death, in 216 countries, including Indonesia.

Specifically in Indonesia, the Government has issued an emergency status from 29 February 2020 to 29 May 2020 related to this pandemic virus with a total time of 91 days [3]. And according to data from the Task Force for the Acceleration of COVID-19 Handling through the website https://covid19.go.id, which accessed on May 30 Reported 25,773 confirmed cases, 17,185 were treated, 7015 recovered and 1,573 dead in Indonesia. With a growing number and Relentless reporting, coupled with mixed information has raised thousands of writings on COVID-19 on the internet adding to concerns about the truth of the contents of the information. Concerns in the community are exacerbated by the rise of unclear information on social media and internet sites.

Internet as a primary need has increased for most peoples, especially in finding information. Unclear information becomes commonplace when people are increasingly active in searching for information. Valid data and real information are needed to be a trusted source of knowledge. The World Health Organization (WHO) states the outbreak of COVID-19 also causes "infodemic". According to WHO, infodemic is "a flood of information, both accurate and inaccurate, which makes it difficult for people to find reliable sources and guidance when they need it [4]. This is where the role of information and information technology institutions becomes a bridge between the need for knowledge about COVID-19 and the distribution of information Countless [5].

In this case in Indonesia ranging from the central government to local governments provide a web-based information portal to check the corona spreading COVID-19 virus [5]. On the COVID-19 web portal, there is data relating to the monitoring of COVID-19 positive coronavirus patients, Insider Monitoring or ODP, and Patients in Oversight or PDP. In addition, the website also provides important steps and educational material for the Indonesian people to avoid the epidemic of the COVID-19 coronavirus and the public can also check the distribution of COVID-19 virus throughout Indonesia and the world.

In addition, the government at the provincial and district levels also participated in providing a similar portal. Likewise, with Asahan Regency, this portal can be accessed through the domain https://corona.asahankab.go.id/. In Asahan District the number of confirmed cases on May 31 2020 recorded 5 positive people, 3 recovered and 1 person died, this amount of data is increasing every month. There are currently no specific reviews and evaluations in the web portal. At a minimum to further analyze where the application is easy to use and the purpose of its use can be agreed to the end-user ie residents an Asahan Regency.

The success of the Government website can be support by one factor, namely the usability factor [6]. E-government websites with high usability will be increasingly accepted by users [7], whereas lower usability becomes an option that is rarely used e-government websites [8].

Usability is a quality attribute that can make it easier for users to use a well-designed interface to increase user convenience with the system [9]. In addition, usability is a parameter that is quite successful in an application. Three things according to the International Standards Organization as an aspect of usability measurement,

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

namely: (1) Effective is the user's determination in a particular environment to achieve certain goals. (2) Efficient is the ability used by users in achieving goals. (3) Satisfaction is freedom from discomfort and positive protection of a product [10].

Based on the author's background and discussion, it is necessary to conduct a study related to the use of the Asahan COVID-19 web portal so that the use of this web portal can be optimized and in accordance with user needs. This usability test is carried out to find out how effective, efficient, and satisfying a COVID-19 web portal is in the Asahan district according to end-users who are residents of the Asahan Regency. And in evaluating the usability used in this study using a questionnaire based on the usability scale system (SUS).

Based on the results of previous studies, the System Usability Scale (SUS) is a valid and reliable usability testing tool after testing [11], [12], [13], [14]. Therefore, the author agrees to use SUS for use on the COVID-19 web portal in the Asahan regency environment.

METHOD

In this study, an initial determination of the testing instrument will be carried out using the SUS-based questionnaire. After that, the next step is to choose the respondents. The number and source of respondents can determine the validity of the data that will be collected later. Furthermore, the data that has been collected will be calculated based on calculations that will be used at the time of testing. From the results of the calculation of this data will be concluded that the research conducted can be seen in Figure 1.

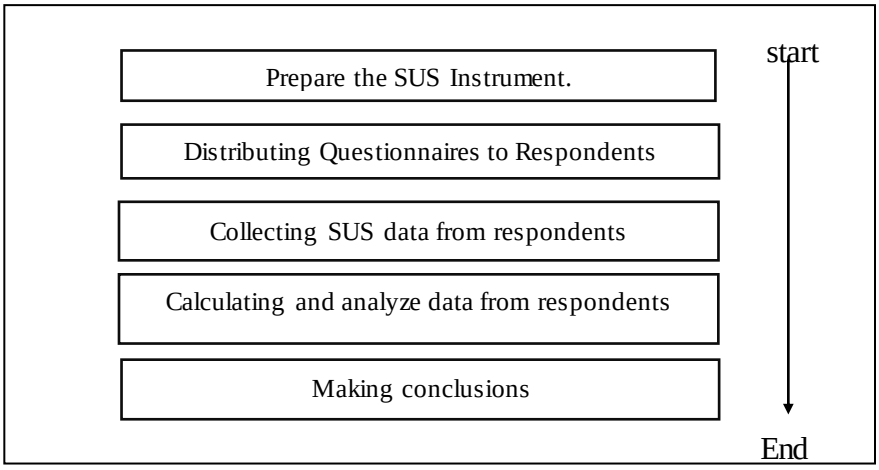

Image 1. Research Steps

According to previous studies, the System Usability Scale (SUS) is a questionnaire that can be used to measure the usefulness of a computer system according to the user's subjective perspective [15]. SUS was developed by John Brooke since 1986. Until now, SUS has been widely used to measure the usefulness and determine several advantages, including: SUS can be used easily because it produces a

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

score of 0-100. SUS is very easy to use, no complicated calculations are needed. SUS is available free of charge, no additional costs are needed, and SUS is proven to be valid and reliable, even with small sample sizes [10], [12], [15], [16].

The objects in this study are the Asahan regency COVID-19 site portal at the top having of logo Task Force for the Acceleration of COVID-19 Handling and navigation menu, Details and contact us, a link to connect to social media and button Call to Action (CTA) to see report data in Asahan, then displays information related to the COVID-19 virus and the number of related current statistics by COVID-19 and the number of confirmed problems. and infographics used to provide instructions on how to prevent and protect themselves from the COVID-19 virus and so on, to social media and button Call to Action (CTA) to see report data in Asahan, then displays information related to the COVID-19 virus and the number of related current statistics by COVID-19 and the number of confirmed problems. and infographics used to provide instructions on how to prevent and protect themselves from the COVID-19 virus and so on, as shown in Figure.

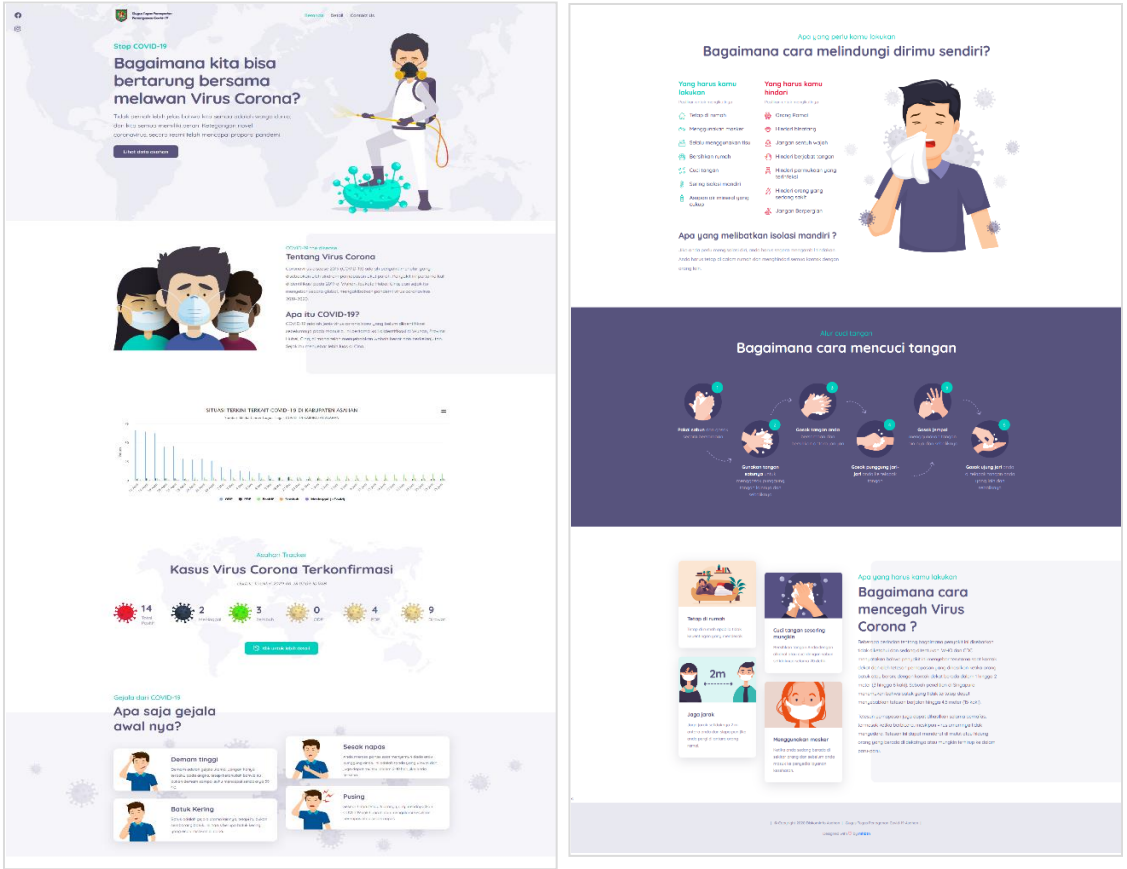

Image 2. Website Display of COVID-19 Portal Asahan Regency

In calculating SUS using a Likert scale of 5 points namely "strongly Disagree = 1", "Disagree = 2", "Neutral = 3", "Agree = 4", "Strogly Agree = 5". Respond must provide responses to 10 items approved by SUS in accordance with their subjective

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

assessment [15], as shown in Figure 3.

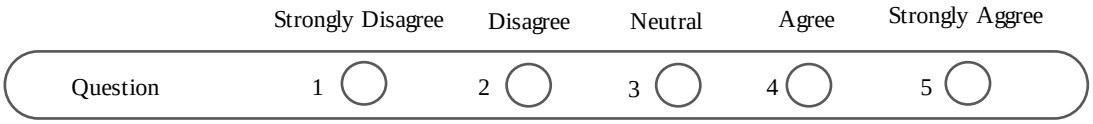

Image 3. 5 Points Likert Scale

The instrument used in this study was a questionnaire distributed to 40 respondents. Odd number questions are positive question and questions even number are negative tone questions. The list of questions from SUS that will be used and distributed to respondents is suggested by instruments from Brooke [17] that have been adapted to Indonesian [14], which are discussed in table 1 and table 2.

Each agreed item has an agreed score. Each agreed score item will be calculated between 0 to 4. For items 1, 3, 5, 7, and 9 the contribution score is a rating scale 1. For items 2,4,6,8 and 10, the contribution score is 5 considering the scale position. Use a score of 2.5 to get the overall value of the system's use. SUS scores range from 0 to 100 [17]. The following formula for calculating SUS scores [18]:

$$\text{SUS Score}=\{(S_1-1)+(5-S_2)+(S_3-1)+(5-S_4)+(S_5-1)+(5-S_6)+(S_7-1)+(5-S_8)+(S_9-1)+(5-S_{10})\}*2.5 \quad (1)$$

Note: Si = the-i item statement

Table 1. The original SUS [17]

No	Original Item
1	I think that I would like to use this system.
2	I found the system unnecessarily complex.
3	I thought the system was easy to use.
4	I think that I would need the support of a technical person to be able to use this system.
5	I found the various functions in the system were well integrated.
6	I thought there was too much inconsistency in this system.
7	I would imagine that most people would learn to use this system very quickly.
8	I found the system very cumbersome to use.
9	I felt very confident using the system.
10	I needed to learn a lot of things before I could get going with this system

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

Table 2. The Indonesian Versin of SUS [14]

No	Item in Indonesian
1	Saya berpikir akan menggunakan sistem ini lagi.
2	Saya merasa sistem ini rumit untuk digunakan.
3	Saya merasa sistem ini mudah untuk digunakan.
4	Saya membutuhkan bantuan dari orang lain atau teknisi dalam menggunakan sistem ini.
5	Saya merasa fitur-fitur sistem ini berjalan dengan semestinya.
6	Saya merasa ada banyak hal yang tidak konsisten (tidak serasi) pada sistem ini.
7	Saya merasa orang lain akan memahami cara menggunakan sistem ini dengan cepat.
8	Saya merasa sistem ini membingungkan.
9	Saya merasa tidak ada hambatan dalam menggunakan sistem ini.
10	Saya perlu membiasakan diri terlebih dahulu sebelum menggunakan sistem ini.

RESULT AND DISCUSSION

Responses obtained from 40 respondents based on 3 characteristics. which consists of 3 student respondents, 30 student respondents, and 7 respondents who are already working, see table 3.

Tabel 3. Characteristics of Respondents

No	Status	Number of Respondents
1	High school student	3
2	College student	30
3	Working	7

The results of the questionnaire were then calculated using a predetermined formula to get the SUS Score. The results of the SUS score assessment are shown in Table 4.Table ,..

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

Table 4. SUS Score Calculation Results

Repondent	*Q1*	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*	*Score SUS*
Respondent 1	3	3	3	2	2	3	3	2	1	2	60
Respondent 2	3	3	3	4	3	3	3	4	3	4	82,5
Respondent 3	4	2	4	2	4	3	4	0	4	0	67,5
Respondent 4	1	4	3	3	2	3	2	3	1	3	62,5
Respondent 5	3	3	4	1	3	3	2	1	4	3	67,5
Respondent 6	2	2	2	4	3	3	3	4	3	4	75
Respondent 7	3	3	3	3	3	3	3	3	2	3	72,5
Respondent 8	2	3	4	3	3	2	4	3	2	2	70
Respondent 9	3	3	3	3	4	3	3	3	3	3	77,5
Respondent 10	3	2	2	2	2	3	2	2	2	2	55
Respondent 11	3	3	3	3	3	2	3	3	3	3	72,5
Respondent 12	3	3	3	3	3	2	2	3	3	3	70
Respondent 13	3	2	3	2	4	4	3	4	2	3	75
Respondent 14	3	3	3	3	2	2	4	3	3	3	72,5
Respondent 15	3	3	3	3	3	3	3	3	2	3	72,5
Respondent 16	3	2	3	4	3	3	2	4	3	4	77,5
Respondent 17	3	3	3	3	2	3	4	3	3	3	75
Respondent 18	4	3	4	3	4	3	3	3	3	3	82,5
Respondent 19	2	2	2	2	3	2	3	2	3	2	57,5
Respondent 20	4	3	3	3	3	3	3	3	3	3	77,5
Respondent 21	2	3	3	3	3	2	3	2	3	4	70
Respondent 22	4	2	2	2	4	2	4	2	2	2	65
Respondent 23	2	3	3	3	2	3	2	3	3	3	67,5
Respondent 24	4	2	3	2	4	3	3	2	4	2	72,5
Respondent 25	3	3	3	3	2	3	3	3	3	3	72,5
Respondent 26	3	2	3	3	3	3	3	2	4	3	72,5
Respondent 27	3	3	3	3	3	3	2	3	2	3	70
Respondent 28	2	2	3	3	3	4	3	3	2	3	70
Respondent 29	3	3	3	3	4	2	3	3	3	3	75
Respondent 30	2	2	2	2	2	3	2	2	2	2	52,5
Respondent 31	3	3	3	3	3	2	3	3	2	3	70
Respondent 32	3	3	3	2	3	2	2	3	3	3	67,5
Respondent 33	2	2	2	3	3	3	3	4	2	4	70
Respondent 34	3	3	2	3	4	3	2	3	3	3	72,5
Respondent 35	2	3	3	3	3	3	3	3	3	3	72,5
Respondent 36	3	2	2	3	3	4	2	4	2	4	72,5
Respondent 37	3	3	3	3	4	3	2	3	3	3	75
Respondent 38	3	2	2	3	4	4	3	3	2	3	72,5
Respondent 39	2	2	2	2	3	3	3	2	3	2	60
Respondent 40	2	3	3	2	2	3	3	3	2	3	65
Mean Score (Final result)											**70,19**

Proceeding
International Conference
on Social, Sciences and Information Technology
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT
ISSN 2723-4509 (Online)

SUS is a global assessment that can be used by users. The SUS score can indicate the level of user acceptance, the SUS score must be more than 70 to be included in the Acceptable category [15]. And to get Grade A, the SUS score must get a value of 90 [19]. While the SUS score in the adjective assessment is considered good valued more than 70.4 [12]. The results of the SUS value of 40 respondents were 70.19. The process of knowing the results of the evaluation consists of the level of user acceptance based on the category of acceptance-range, value scale, and adjective ranking determined by the provisions of in Figure 4 [17].

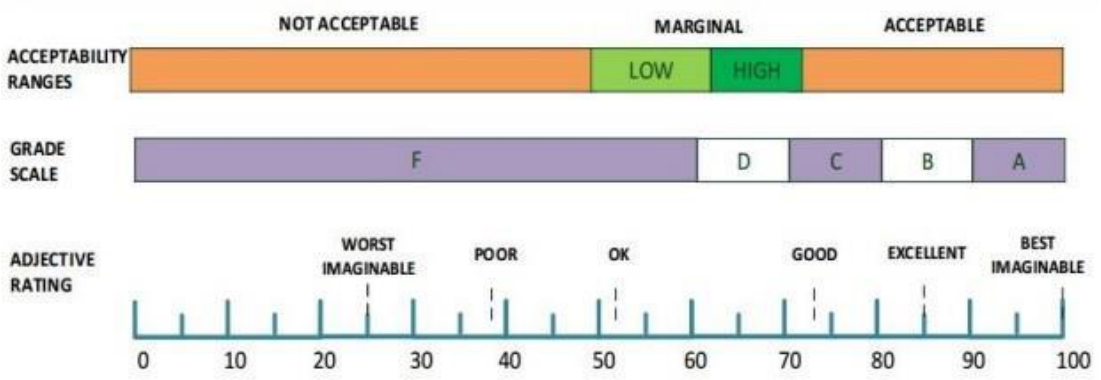

Image 4. Provisions for SUS Score Assessment

Based on the results of the assessment with a SUS value of 70.19, the level of acceptance is in the "acceptable" category, the grade level scale in the "C" category, and the adjective ranking in the category is "ok". Referring to the SUS score obtained from testing on the Asahan District COVID-19 website, this can be seen about user subjectivity. And shows that this web portal still needs to be evaluated and developed further.

CONCLUSION

The results of the SUS score carried out on the COVID-19 web portal in Asahan Regency were 70.19 which showed that the website was acceptable but still could not be used on a scale of scores only included in category C, whereas at the level of adjective assessment only included the ok category. From the results that can be known that this site portal still needs to be evaluated and developed back to a better one, The results of usability measurement can be an initial step in evaluating the website. From the results of this study, it is better developed by conducting further research to identify the problem in more detail. so the usability factor can be further optimized. This really needs to be done, because the System Usability Scale (SUS) has no diagnostic properties so it is very much needed and combined with other evaluation methods to identify the problem.

ISSN 2723-4509 (Online)
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT

BIBLIOGRAPHY

[1] Q. Lin *et al.*, "A conceptual model for the coronavirus disease 2019 (COVID-19) outbreak in Wuhan, China with individual reaction and governmental action," *Int. J. Infect. Dis.*, vol. 93, no. February, pp. 211–216, 2020, doi: 10.1016/j.ijid.2020.02.058.

[2] A. K. Sharma, "Novel Coronavirus Disease (COVID-19)," *Resonance*, vol. 25, no. 5, pp. 647–668, 2020, doi: 10.1007/s12045-020-0981-3.

[3] D. R. Buana, "Analisis Perilaku Masyarakat Indonesia dalam Menghadapi Pandemi Virus Corona (Covid-19) dan Kiat Menjaga Kesejahteraan Jiwa," *SALAM J. Sos. dan Budaya Syar-i*, vol. 7, no. 3, 2020, doi: 10.15408/sjsbs.v7i3.15082.

[4] World Healt Organization, "Novel Coronavirus(2019-nCov)," 2020. [Online]. Available: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200202-sitrep-13-ncov-v3.pdf.

[5] R. Nurislaminingsih, "Layanan Pengetahuan tentang COVID-19 di Lembaga Informasi," *Tik Ilmeu J. Ilmu Perpust. dan Inf.*, vol. 4, no. 1, p. 19, 2020, doi: 10.29240/tik.v4i1.1468.

[6] R. A. Purnama, "Analisa faktor yang mempengaruhi tingkat keberhasilan website pemerintahan." Universitas Gadjah Mada, Yogyakarta, 2009, [Online]. Available: http://etd.repository.ugm.ac.id/home/detail_pencarian/42935.

[7] A. R. Al-Soud and K. Nakata, "Evaluating e-government websites in Jordan: Accessibility, usability, transparency and responsiveness," *Proc. 2010 IEEE Int. Conf. Prog. Informatics Comput. PIC 2010*, vol. 2, pp. 761–765, 2010, doi: 10.1109/PIC.2010.5688017.

[8] A. Sivaji, A. Abdullah, and A. G. Downe, "Usability testing methodology: Effectiveness of heuristic evaluation in E-government website development," *Proc. - AMS 2011 Asia Model. Symp. 2011 - 5th Asia Int. Conf. Math. Model. Comput. Simul.*, pp. 68–72, 2011, doi: 10.1109/AMS.2011.24.

[9] J. Nielsen, "Usability 101: Introduction to usability (2012)," *URL http//www. nngroup. com/articles/usability-101-introduction-to-usability/[Accessed Novemb. 2016]*, vol. 9, p. 35, 2012.

[10] I. H. N. Aprilia, P. I. Santoso, and R. Ferdiana, "Pengujian Usability Website Menggunakan System Usability Scale Website Usability Testing using System Usability Scale," *J. IPTEK-KOM*, vol. 17, no. 1, pp. 31–38, 2015, [Online]. Available: https://jurnal.kominfo.go.id/index.php/iptekkom/article/view/428.

[11] J. R. Lewis, "The System Usability Scale: Past, Present, and Future," *Int. J. Hum. Comput. Interact.*, vol. 34, no. 7, pp. 577–590, 2018, doi: 10.1080/10447318.2018.1455307.

[12] A. Bangor, T. Staff, P. Kortum, J. Miller, and T. Staff, "Determining what individual SUS scores mean: adding an adjective rating scale," *Determ. what Individ. SUS scores mean adding an adjective Rat. scale*, vol. 4, no. 3, pp. 114–123, 2009.

[13] J. R. Lewis and J. Sauro, "The factor structure of the system usability scale,"

ISSN 2723-4509 (Online)
Kisaran, August 19th, 2020, page. 131 - 140
DOI: https://doi.org/10.33330/icossit.v1i1.739
Available online at https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT

Lect. Notes Comput. Sci. (including Subser. Lect. Notes Artif. Intell. Lect. Notes Bioinformatics), vol. 5619 LNCS, pp. 94–103, 2009, doi: 10.1007/978-3-642-02806-9_12.

[14] Z. Sharfina and H. B. Santoso, "An Indonesian adaptation of the System Usability Scale (SUS)," *2016 Int. Conf. Adv. Comput. Sci. Inf. Syst. ICACSIS 2016*, pp. 145–148, 2017, doi: 10.1109/ICACSIS.2016.7872776.

[15] J. Brooke, "SUS : A Retrospective," *J. Usability Stud.*, vol. 8, no. 2, pp. 29–40, 2013.

[16] A. Garcia, "UX Research| Standardized Usability Questionnaire." Chaione, 2013, [Online]. Available: http://chaione.com/ux-research-standardizing-usability-questionnaires/.

[17] J. Brooke, "SUS: a "quick and dirty'usability," *Usability Eval. Ind.*, p. 189, 1996.

[18] K. Setemen, L. J. Erawati Dewi, and I. K. Purnamawan, "PAON usability testing using system usability scale," *J. Phys. Conf. Ser.*, vol. 1165, no. 1, 2019, doi: 10.1088/1742-6596/1165/1/012009.

[19] J. Sauro, "Measuring usability with the system usability scale (SUS). 2011," *URL http//www. Meas. com/sus. php [accessed 2014-05-16][WebCite Cache ID 6Pc86naGW]*, 2011.