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AUDIT SYSTEM INFORMATION ELECTRONIC MEDICAL RECORD AS STUDENT ONLINE LEARNING

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Abstract: In the current digital era, almost all health care sectors require fast, precise, detailed, and valid services. The results of observations show that during lectures, students still have difficulty understanding the flow of input, process, and output of a good application, and do not know and have an idea about Application Software in Health Care Facilities that are already running in health facilities because some students do Field Work Practices. placed in health care facilities institutions still use manual systems with paper and recording in ledgers, during the current pandemic. In this study, an electronic medical record information system was designed and built as a student learning application regarding health service applications, system accuracy test using ISO 9126, where ISO 9126 looks at Functionability, Reliability, usability, efficiency, maintainability, and portability of a good system and provides recommendations if there are findings that the system does not meet the needs. The results of this study obtained the value of the Information System that was built only 75,92593 % which is the result of quality measurement so that this application does not fall into the category of the ISO 9126 standard because there are Portability Characteristics, namely Adaptability and Installability elements are not met, for these finding recommendations for improvements are given so that the system can run perfectly. according to the need for use.

Keywords: Covid-19, Electronic Medical Records, Learning Media, ISO 9126

Abstrak: Pada era digital sekarang, hampir semua sektor pelayanan kesehatan membutuhkan pelayanan yang cepat, tepat, detail, dan valid. Hasil observasi menunjukkan bahwa selama perkuliahan mahasiswa masih kesulitan memahami alur input, proses, dan output dari suatu aplikasi yang baik, serta belum mengetahui dan mempunyai gambaran tentang Software Aplikasi di Fasilitas Pelayanan Kesehatan yang sudah berjalan di fasilitas kesehatan dikarenakan beberapa mahasiswa yang melakukan Praktek Kerja Lapangan ditempatkan di institusi fasilitas pelayanan kesehatan masih menggunakan sistem manual dengan kertas dan pencatatan di buku. Pada penelitian ini dirancang dan dibangun sebuah sistem informasi rekam medis elektronik sebagai aplikasi pembelajaran mahasiswa mengenai aplikasi pelayanan kesehatan, uji akurasi sistem menggunakan ISO 9126, dimana ISO 9126 menilik *Functionability, Reliability, usability, efesiency, maintainability* dan *portability* sistem yang baik serta memberi rekomendasi apabila ada temuan sistem yang belum sesuai kebutuhan. Hasil dari penelitian ini diperoleh nilai Sistem Informasi yang dibangun hanya 75,92593 % yang merupakan hasil pengukuran kualitas sehingga aplikasi ini tidak masuk kategori standar ISO 9126 karena ada Karakteristik Portability yaitu unsur Adaptability, dan Installability tidak terpenuhi, untuk temuan ini diberikan rekomendasi perbaikan agar sistem dapat berjalan sempurna sesuai kebutuhan penggunaannya.

Kata kunci: Covid-19, Media Pembelajaran, Rekam Medis Elektronik, ISO 9126

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INTRODUCTION

Covid-19 is a new type of disease that has never been identified by humans, on January 30, 2020, WHO has designated Covid-19 as Global virus [1]. The decline in the quality of learning for students due to changes in learning media from offline to online is a multidimensional problem faced due to Covid-19[2], there is no other choice if the learning system is replaced with online learning so that the learning process continues to be carried out during the Covid-19 emergency[3], this changes the pattern of learning that requires educators and education developers to provide teaching and learning materials for students directly through remote digital tools[4]. Online learning is a distance education system in which there are educators' activities that are carried out separately from students[5]. Online learning is organized through the internet and websites[6][7]. It is evident from several studies that explain that online learning has been widely carried out in the context of universities [8][9]online learning provides benefits in helping provide access to learning for everyone, thereby eliminating physical barriers as a learning factor in scope classes[10], even seen as something that is effective to be applied, especially in higher education[11]. Online learning allows students to have the flexibility of learning time so they can study anytime and anywhere. The success of a model or learning media depends on the characteristics of students. Based on the article from Nakayama[12] that all literature shows that not all students will succeed in online learning, this is due to differences in learning environment factors and student characteristics. Motivation can influence what is learned, how it is learned, and when to choose to learn. One of the successes in learning is related to student motivation. Motivation provides the impetus for the desired directed action in the direction both physically and mentally, so that activity becomes a very important part[9]. One of the services in health care facilities that can be integrated with information technology is Electronic Medical Record (RME). Health care facilities implement RME as an effort to improve service quality, increase patient satisfaction, increase documentation accuracy, reduce clinical errors, and accelerate patient data access[13]. The RME application is an alternative to encourage students' enthusiasm for understanding medical records. Utilization of RME learning media applications in the learning process will shift boring learning into fun learning. Students' interest in learning media will also increase student learning motivation, enabling students to explore data and information more broadly and practically[14].

From the results of software quality measurements carried out using the ISO 9126-1 standard through the percentage of feasibility and practical tests, it can be concluded that the event management information system software has met the ISO 9126-1 standard with an average criterion of "good". With each percentage result as follows: (1) the aspect of functionality is 89% (good) with the level of system vulnerability classified in the Low category so that the level of system security can be declared good, (2) the aspect of reliability is 85% (good) with an average percentage WAPT 9.3 practical test average is 96.25% (very good), (3) usability aspect is 86% (good), (4) efficiency aspect is 82% (good) with an average percentage of YSlow practical test of 85.67% (good), (5) maintenance aspect of 83% (good), (6) portability as-

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pect of 91% with an average percentage of practical test using a web browser of 100% (very good)[15].

To provide an easy and fast information and communication platform and support organizational innovation to thrive in today's competitive era of globalization, information system (IS) investment in information technology (IT) is very much needed by organizations. Investment in an organization provides strategic opportunities in improving the organization's business processes. This business process is ultimately used as capital that will generate a flow of new IT projects in a fast time [15]. Therefore, the world of commercial information technology today is very aggressively offering IT investment products in an organization. IT investment also has an important role in helping organizations to successfully implement information systems in the form of effective and efficient IT governance. IT governance is expected to be able to monitor the performance of the stakeholders of an organization effectively following the goals of the organization itself. When implementing IT in the organization, there is still the IT Productivity Paradox, namely IT does not provide benefits to the organization. In addition, the conclusion of the Nobel laureate in Economics-Robert Solow (1987) who wrote "IT is everywhere, except in productivity statistics" is the result of research on the Productivity Paradox which was popular at that time. This picture casts doubt on the benefits derived from such a large IT investment and IT becomes a constraint. For this reason, to avoid the IT Productivity Paradox, organizations must measure success in implementing IS, so that organizations know how successful they are in implementing existing IS and know at what level the company is testing the system used by several methods, one of which is ISO 9126 which has been identified by [16] in WebQEM includes functionality, efficiency, reliability, and usability. ISO 9126 was chosen because it is an international quality standard that has been tested for validity and reliability.

In this case study, we will discuss measuring the success of an electronic medical record information system built as a media for student literacy in online learning based on the ISO 9126 standard.

METHOD

The research method that the author uses is to develop a medical record information system program using the waterfall model development method and test the accuracy of the system formed based on the ISO 9126 reference. For more details, the research flow is shown in Image 1:

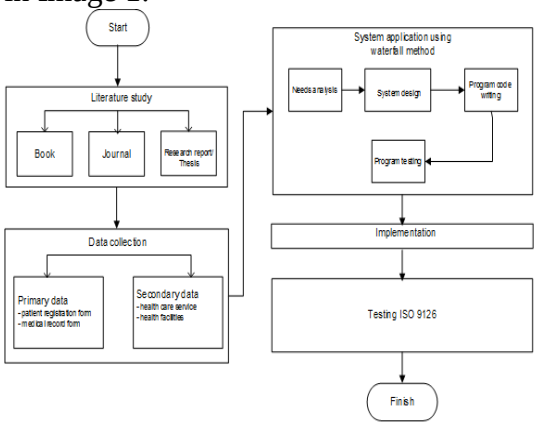

Image 1. Flow Of the Research Framework

Based on Figure 1, the flow of research carried out is:

1. This stage is the initial stage in the research where the background of the problem can help in determining the goals and objectives to be achieved from the research conducted. This research starts from the literature study after finding the problems obtained to

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strengthen the research based on determining the background of the problem;
2. This stage is a data collection stage which is divided into primary data collection and secondary data collection after obtaining several references as literature studies, then collecting data for application in research.
3. From the data collected, the next step is to design/develop a medical record information system using the waterfall method.
4. Program implementation is the stage of delivering the results of program development for testing.
5. Testing is the last step of this flow, this test/test uses ISO 9126 which is carried out by experts, the experts in question are the users themselves consisting of students, lecturers, and health workers.

The quality factor according to ISO 9126 includes six characteristics quality [17]:
1. Functionality. Software capabilities for provide functions according to user requirements, when used in certain conditions.
2. Reliability. Software capabilities for maintain a certain level of performance, when used under conditions certain.
3. Usability. The ability of the software to understand, learned, used, and of interest to users, when used in certain conditions.
4. Efficiency. The ability of the software to provide appropriate performance and relative to the amount of resources used at the time of the situation.
5. Maintainability. Software capabilities for modified. Modification includes correction, improvement or adaptation to environmental changes, requirements, and functional specifications.
6. Portability. Ability of the software to be transferred from one environment to another.

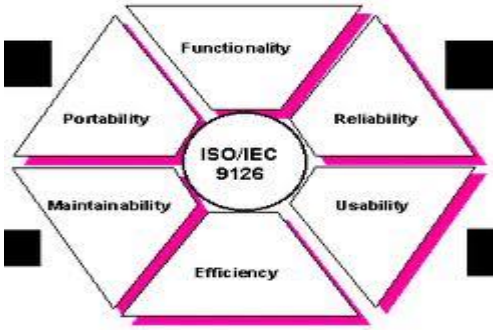

Image 2. Measurement Aspects of the Life Cycle of ISO/IEC 9126

Based on the image 2, the Measurement Aspects of the Life Cycle of ISO/IEC 9126, this research will produce output in the form of a list of sub-characteristics according to each characteristic of ISO/IEC 9126 to help evaluate gaps and design based on ISO/IEC 9126, as shown in the following table [18]:

Table 1. ISO 9126-Functionality

Sub-Characteristics	Parameter
Suitability	1. Data Input Function 2. Data Processing Function 3. Data Output Function
Accuracy	1. Data processing accuracy 2. Accuracy in displaying data
Security	Data save security
Interoperability	The ability of software components to interact with components or other systems.
Compliance	The software that has been created must be comply with laws and regulations applicable

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Table 2. ISO 9126-Reliability

Sub-Characteristics	Parameter
Maturity	Maturity model
Fault tolerance	Error in use
Recoverability	Data repair

Table 3. ISO 9126-Usability

Sub-Characteristics	Parameter
Understandibility	The features in this software are easy user understandable
Learnability	How to install and configure
Operability	Operation: Open Help Exit
Attractiveness	User interface forms display

Table 4. ISO 9126-Efficiency

Sub-Characteristics	Parameter
Time behavior	The length of the access/loading process
Resource behavior	Memory and data storage used is not large capacity

Table 5. ISO 9126-Maintainability

Sub-Characteristics	Parameter
Analyzability	Analyze the cause if something goes wrong
Changeability	Upgrade feature changes to the next version
Stability	Stability ability. Testability Verification capability

Table 6. ISO 9126-Portability

Sub-Characteristics	Parameter
Adaptability	Opportunity to adapt to a different system different
Instalability	Software capability to be installed in different environments
Coexistence	The ability of software to coexist with other software in one environment by sharing resources
Replaceability	The ability of the software to be used in place of other software

RESULT AND DISCUSSION

This study uses an experimental method, with the following stages: research design, analytical techniques. This study will assess the quality of the RME Information System application using the ISO 9126 standard.

This Software Assessment Research Methodology Using ISO 9126 can be seen in the image 3.

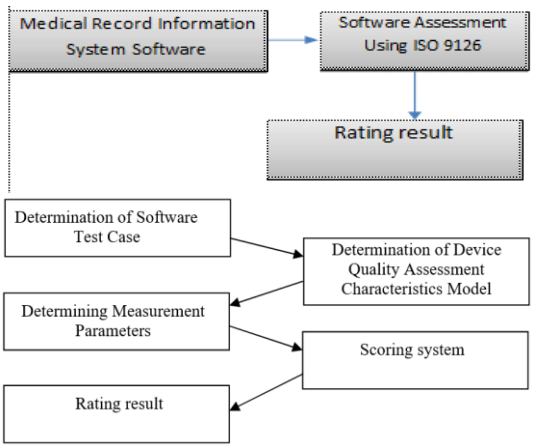

Image 3. Software Assessment Stages Using ISO 9126

The implementation of the electronic medical record system that has been built is illustrated in the context diagram in image 4, the context diagram is a diagram that describes the outline of the information system with the entities involved in the system. Context diagrams also describe incoming and outgoing data flows.

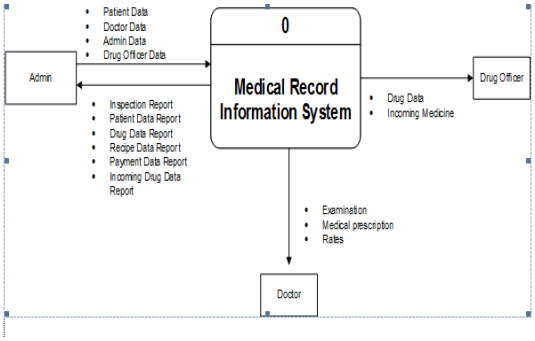

Image 4. Diagram Context

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The implementation of the Medical Record Management Information System is shown in Images 5, 6, 7, 8, 9 and 10:

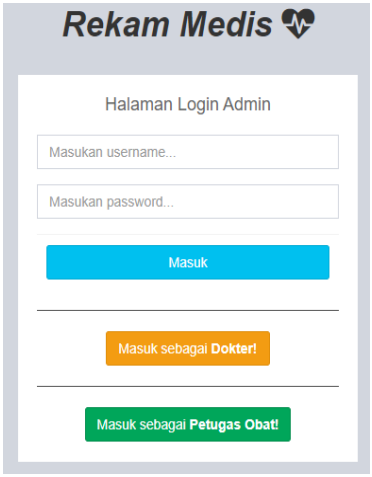

Image 5. Page Login

Image 6. Page Dashboard

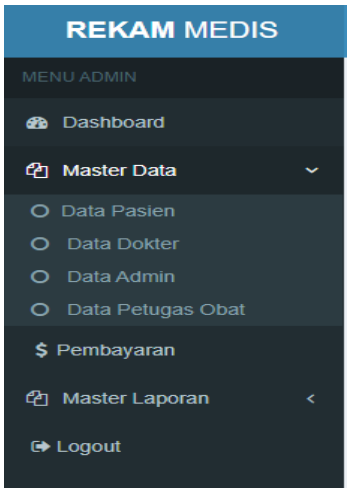

Image 7. Menu Master Data Page Admin

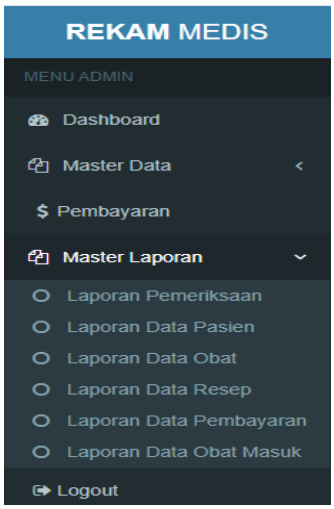

Image 8. Menu Report Page Admin

Image 9. Page Doctor

Image 10. Page Drug Officer

Based on the results of the system that was built, the success of the electronic medical record information system was measured. The measurement of the success of the medical record information system is based on findings during research in the field. To make it easier to measure the success of an electronic information system, first, measure the capability level of the system from the backend perspective and then measure the capability level from the frontend perspective. From this analysis, the overall success rate of the information system

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Table 7. Characteristics of Software Quality Assessment

Characteristics	Evaluation	Parameter	Question	Answer
Functionality	Suitability	1. Data Input Function 2. Data Processing Function 3. Data Output Function	Are the functions of the features that have been made in accordance with need for medical records?	1=Very Appropriate; 2=Appropriate; 3=Not Appropriate; 4=Not Appropriate
	Accurateness	1. Data processing accuracy 2. Accuracy in displaying data	Is the data input, process, and output accurate or integrated?	1=Very Accurate; 2=Accurate 3=Poor; 4=Poor
	Interoperability	The ability of software components to interact with other components or systems	How the application capabilities if it interacts with the components or any other system?	1=Very Good; 2=Good; 3=Medium; 4=Poor
	Compliance	The software that has been created must comply with applicable laws and regulations	Has the application program created complied with the applicable laws and regulations?	1=Highly satisfied; 2=Satisfied Less; 3=Satisfied; 4=Not satisfied
	Security	Data save security	How is the security of the data that has been processed?	1=Very safe; 2=Safe; 3=Not safe; 4=No safe
Reliability	Maturity	Maturity model	Does the application that has been made refer to existing maturity models?	1=Highly satisfied; 2=Satisfied; 3=Less Fulfil; 4=Does not meet
	Fault tolerance	Error in use	How is the ability of the application to resolve errors?	1=Very Able; 2=Able; 3=Poor Capable; 4=Unable
	Recoverability	Data repair	How to repair the system if an error occurs?	1=Very good; 2=good; 3=Poor good; 4=Bad
Usability	Understandability	The features in this software are easy for users to understand,	Is the Application made use understandable?	1=Understood; 2=understood; 3=Badly understood; 4=Difficult understood
	Learnability	how to install, how to configure	Are the menus easy to learn?	1=Very easy; 2=Easy; 3=Not easy to understand; 4.=Difficult
	Operability	Operation : Open Help Exit	How does the application operate?	1=Very easy; 2=Easy; 3=Not easy to understand; 4=Difficult
	Attractiveness	User interface Forms look	How's the user interface? How do the forms look?	1=Excellent; 2=Good; 3=Medium; 4=Bad
Efficiency	Time behavior	Transaction processing time	How long is the transaction processing time?	1=Very fast; 2=Quick; 3=Slightly Old; 4=Old
	Resource behavior	Memory and data storage used is not large in capacity	How are the application resources used?	1=Very small; 2=Small; 3=Large; 4.=Very big
Maintainability	Analysability	Cause Analysis if something goes wrong?	Is the application made capable of analyzing the cause of the error?	1=Very good; 2=Able; 3=Poor; 4.=No capable
	Changeability	Upgrade feature changes to the next version	How is the capability of the application made, if there are changes?	1=Very good; 2=Able; 3=Poor; 4=No Capable
	Stability	Stability ability	What is the ability of that application to remain stable, in case of changes?	1=Very good; 2=Able; 3=Poor Able; 4.=No Capable
	Testability	Verification Ability	What is the ability of the verification results?	1=Very Capable; 2=Able; 3=Poor; 4=No Capable
Portability	Adaptability	Opportunity to adapt to different systems	How is the ability to adapt in different environments?	1=Very Capable; 2=Able; 3=Poor Capable; 4= Unable
	Installability	Ease and speed when installed	How fast is the install time?	1=Very fast; 2=Fast; 3=Slightly Old 4=Old

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Table 8. Software Quality Measurement Assessment System

Characteristics	Module Set	Assessment Presentation	Weight
Functionality	Suitability	20%	1,2,3,4
	Accuracy	20%	1,2,3,4
	Interoperability	20%	1,2,3,4
	Obedience	20%	1,2,3,4
	Security	20%	1,2,3,4
	Total	100%	
Reliability	Maturity	35%	1,2,3,4
	Fault tolerance	30%	1,2,3,4
	Recoverability	35%	1,2,3,4
	Total	100%	
Usability	Understandability	25%	1,2,3,4
	Learnability	25%	1,2,3,4
	Operability	25%	1,2,3,4
	Attractiveness	25%	1,2,3,4
	Total	100%	
Efficiency	Time behavior	50%	1,2,3,4
	Resource behavior	50%	1,2,3,4
	Total	100%	1,2,3,4
Maintainability	Analysability	25%	1,2,3,4
	Changeability	25%	1,2,3,4
	Stability	25%	1,2,3,4
	Testability	25%	1,2,3,4
	Total	100%	
Portability	Adaptability	50%	1,2,3,4
	Installability	50%	1,2,3,4
	Total	100%	

In table 7, for the assessment criteria, if there are many answer choices, the score is 1 or 2, then the assessment of software quality according to the ISO 9126 standard, if there are many answer choices, the score is 3 or 4, then it is not appropriate. Furthermore, the Assessment system in measuring the quality of the software used is shown in table 2.

Tables 1 and 2 are reference tables in assessing software measurements based on the ISO 9126 standard, the dataset of measurement results for the ISO 9126 standard software based on the distribution of forms 1 to 9 from experts (students, lecturers, health workers) is shown in table 9:

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Table 9. Dataset of ISO 9126 standard software measurement results from 58 respondents

No	Form	Measurement	Results ISO 9126	Standard
1.	1	1	2	In accordance
2.	1	2	2	In accordance
3.	1	3	1,75	In accordance
4.	1	4	2,5	It is not in accordance with
5.	1	5	2	In accordance
6.	1	6	1	In accordance
7.	2	1	1,8	In accordance
8.	2	2	2	In accordance
9.	2	3	1,75	In accordance
10.	2	4	2,5	It is not in accordance with
11.	2	5	2	In accordance
12.	2	6	3	It is not in accordance with
13.	3	1	2	In accordance
14.	3	2	2	In accordance
15.	3	3	1,75	In accordance
16.	3	4	2,5	It is not in accordance with
17.	3	5	2	In accordance
18.	3	6	2	In accordance
19.	4	1	2	In accordance
20.	4	2	2	In accordance
21.	4	3	1,75	In accordance
22.	4	4	2	In accordance
23.	4	5	2	In accordance
24.	4	6	3	It is not in accordance with

CONCLUSION

From the results of the accuracy measurement using ISO 9126 which was carried out from the initial stage to the measurement process, it was found that: Measurement of software quality standard ISO 9126 has a level of conformity with ISO 9126 standard of 75.93%; With these tools for software measurement, it can help those who want to know the quality of the software being developed or to get accurate measurement results, can take measurements repeatedly at each stage with a view to preventing it from being implemented in a company effectively; To validate the quality of the RME Information system using the ISO 9126 standard, it can be tested with 6 (six) characteristics, namely functionability, reliability, usability, efficiency, maintainability and portability; ISO 9126 Standard Software Quality Measurement, can be used as a measurement reference for software applications for data errors due to human error.

BIBLIOGRAPHY

[1] G. Zhou, S. Chen, and Z. Chen, “Back to the spring of 2020: facts

and hope of COVID-19 outbreak," *Front. Med.*, vol. 14, no. 2, pp. 113–116, 2020.

[2] P. Sahu, "Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff," *Cureus*, vol. 2019, no. 4, pp. 4–9, 2020.

[3] E. J. Sintema, "Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education," *Eurasia J. Math. Sci. Technol. Educ.*, vol. 16, no. 7, pp. 1–6, 2020.

[4] S. Gupta and M. K. Jawanda, "The impacts of COVID-19 on children," *Acta Paediatr. Int. J. Paediatr.*, 2020.

[5] M. I. Mustofa, M. Chodzirin, L. Sayekti, and R. Fauzan, "Formulasi Model Perkuliahan Daring Sebagai Upaya Menekan Disparitas Kualitas Perguruan Tinggi," *Walisongo J. Inf. Technol.*, vol. 1, no. 2, p. 151, 2019.

[6] B. Alessandro, "Digital skills and competence, and digital and online learning," *TurinEuropean Train. Found.*, p. 72, 2018.

[7] M. N. G. J. Y. Tika Purnamasari, "Analisis Minat Belajar Mahasiswa Pada Masa Perkuliahan Online Menggunakan Rougt Set," vol. VII, no. 3, pp. 251–258, 2021.

[8] J. Crews and J. Parker, "The Cambodian experience: exploring university students' perspectives for online learning," *Issues Educ. Res.*, vol. 27, no. 4, pp. 697–719, 2017.

[9] J. Lee and L. Martin, "Investigating students' perceptions of motivating factors of online class discussions," *Int. Rev. Res. Open Distance Learn.*, vol. 18, no. 5, pp. 148–172, 2017.

[10] R. Ahmed, "Effects of online education on encoding and decoding process of students and teachers," *MCCSIS 2018 - Multi Conf. Comput. Sci. Inf. Syst. Proc. Int. Conf. e-Learning 2018*, vol. 2018-July, pp. 42–48, 2018.

[11] O. A. Pilkington, "Active Learning for an Online Composition Classroom: Blogging As an Enhancement of Online Curriculum," *J. Educ. Technol. Syst.*, vol. 47, no. 2, pp. 213–226, 2018.

[12] M. Nakayama, K. Mutsuura, and H. Yamamoto, "Impact of learner's characteristics and learning behaviour on learning performance during a fully online course," *Electron. J. e-Learning*, vol. 12, no. 4, pp. 394–408, 2014.

[13] E. Susanto and Sugiharto, *Manajemen Informasi Kesehatan IV: Etika Profesi dan Hukum Kesehatan*. 2017.

[14] L. S. Helling, E. Wahyudi, and H. Hasanudin, "Siremis: Sistem Informasi Rekam Medis Puskesmas Kecamatan Matraman Jakarta," *INTENSIF J. Ilm. Penelit. dan Penerapan Teknol. Sist. Inf.*, vol. 3, no. 2, p. 116, 2019.

[15] D. Mining, "Pengujian Usabilitas Berdasarkan Panduan Iso 9126 Untuk Aplikasi E-Commerce," *עלון המוסע*, vol. 66, pp. 37–39, 2012.

[16] A. Abran, R. E. Al-Qutaish, J.-M. Desharnais, and N. Habra, "ISO-Based Models to Measure Software Product Quality," *Softw. Qual. Meas. - Concepts Approaches*, pp. 61–96, 2008.