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The Interpretable Machine Learning among Students and Lectures during the COVID-19 Pandemic

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ABSTRACT

This study explored the interpretable E-learning teachers of online learning in a program at Universitas Muhammadiyah Enrekang. The Data were collected through surveys and semi-structured interviews with 150 lectures at Universitas Muhammadiyah Enrekang. Data analysis used thematic analysis of qualitative data. The analysis results found four main themes, namely, instructional strategies, challenges, support, and motivation of lectures. E-learning used as solutions to refer specifically to full online learning between conventional campus education and online learning (e-learning) outside the campus facing covid-19. The virtual Learning management system (LMS) provided an opportunity to promote online learning (e-learning). This research contributes to the literature of online collaborative learning between teachers, parents, and schools that impact student success.

Keywords: *E-Learning, Machine Learning, Learning Management System*

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INTRODUCTION

Previously undiscovered coronavirus disease. In the past, this disease was referred to as '2019 novel coronavirus' or '2019 ncov.' In December 2019, COVID-19 was first detected in Wuhan , China. Worldwide statistics on people affected by COVID-19 was 11,32 million confirmed cases and 532 thousand deaths compared to 15,784 reported cases in Nepal and 34 deaths as of 7 July 2020. The aim of education is to shape a person to be perfect. Training is the road to their destiny. Training also tends to inculcate social responsibilities. The center of education is learning (Buendía, F., Gayoso-Cabada, J., & Sierra, J. L. , 2019). Learning is a process of gaining knowledge or skills through research in Learning management system, practice or teaching. Any freak accident that is going to happen in the world will still leave its mark on education (Regmi, K., & Jones, L., 2020). And so the outbreak of COVID 19 has an educational footprint.

The outbreak of this deadly virus around the globe has forced educational institutions to shut down to monitor the spread of the virus (Bucea-Manea-Ţoniş, R., Bucea-Manea-Ţoniş, R., Simion, V. E., Ilic, D., Braicu, C., & Manea , 2020). This has prompted teachers to learn about new ways of teaching during this lockdown. It paves

the way for web-based learning or e-learning or online learning. Training has penetrated the digital realm in today's scenario. In which teaching students and professionals are virtually related (Astafieva, M. M., Zhyltsov, O. B., Proshkin, V. V., & Lytvyn, O. S, 2020). The use of desktops, computers or smartphones and the Internet is a key component of this learning approach (Fandiño, F. G. E., & Velandia, A. J. S. , 2020). E-learning delivers rapid growth and has proven to be the best in all sectors , especially in education during the New Normal era. This research will help learn about students' attitudes towards e-learning during COVID – 19 Pandemic (Fandiño, F. G. E., & Velandia, A. J. S. , 2020). This study was planned to provide additional details on the contribution of e-learning during this pandemic to students who study at different colleges and universities and even schools.

The essential of this research give contribution for using of the Learning Management System in e-learning makes monitoring and documentation of student learning behaviour, easier for lectures. E-learning students' correct interpretation will help teachers understand the student background and the learning environments better adapted to e-learning students for the purpose of enhancing learning performance. E-learning teachers often find it difficult to evaluate student data since a large number of students need to be evaluated and minimal data are required. be used to improve student awareness and skills through digital technologies in Learning management system. The objective of the research knows the global trend of using full online e-learning tools among students, Identifying the curiosity and mindset of students in using full online e-learning tools around the world and suggest viewpoints on the use of e-learning tools by students.

METHODS

This research used the Systematic Review of Literature (SLR) method. SLR is considered a valuable type of study, and very closely follows the principles of scientific methods by "designed to identify, analyze and synthesize the best available data" in relation to the research goal, in order to be able to provide "informative and evidence-based" research.The researcher used the data result of the virtual Learning management system (LMS provides an opportunity to promote online larning (e-learning).to evaluate the advantages of online learning through N Vivo Plus 12 and SPSS 25 to study students' perceptions of e-learning during this ongoing pandemic. The research method will use mix method between qualitative research and quantitative research. The virtual Learning management system has the ability to change core aspects of classrooms by utilizing forms that can have a significant effect on teaching and learning. Technology shifts the perceptions of librarians on their careers, the needs of students and faculties that can contribute to improvement. Full e-learningneed to be involved in partnering with students to create a selection and inspire students to think about it. Even though full e-learning is becoming a feasible strategy for a number of institutions in the country, some universities, especially in developing countries, are resisting a full e-learning environment.

RESULT AND DISCUSSION

Among 100 respondents, 50 respondents were lectures and 50 respondents were students in Muhammadiyah University, South Sulawesi Indonesia. Among 50 teachers around half (41.0 percent) of the respondents were of age group 30-40 years. In addition, the majority of respondents were female (77.2 per cent). More than half (59.7%) of the respondents had completed their Master's degree. At the time of COVID-

19, more than half (57.8%) of the respondents were from Metropolitan City between the lockdown and the new normal. And lastly, most of their (73.3%) family income per month was between Enrekang regency, Indonesia IDR. 500.000 – 1.000.000. Among students, majority (50.8%) of the respondents were of age group 20-24 years. All of the respondents were female (100%). Majority of the respondents (44.6%) were from education and science. Likewise, around half of the respondents (67.5%) were from Municipality at the time of COVID-19 between lockdown and new normal. And lastly, more than half of the respondent's (57.2%) family income per month was less than Enrekang regency IDR. 500-000-1.000.000.

Information Technology Information Technology showed that E-learning Outcomes, when viewed from the words composed of the words technology and information on WA and Zoomaplication and Learning Management System. Technology can be viewed as a tool used by individuals to accomplish their tasks through E-learning Outcomes. Technology can also be interpreted as computer systems (hardware, software, data) and services that support their users (training, help lines) and others provided to help users in their tasks. Whereas information is the result of processing, manipulation and organizing or structuring a group of data that has knowledge value for its users. In simple terms, information technology is the result of human engineering on the process of delivering information from the sender to the recipient so that the delivery of the information will be faster, more widely distributed, and longer storage. So, E-learning Outcomes can improve the students's achievement through WA and Zoomaplication and Learning Management System.

The learning process in Indonesia was later on suspended following the premature closure of all learning institutions of Machine Learning among Studenst and Lectures by the recommendation from the Ministry of Health until the global pandemic evolves. While the situation in Indonesia seems to be contained with just 13 active cases and 2 cumulative deaths at the time of writing, the Ministry of Health has highlighted that circumstances can change quickly. Thus, all higher learning institutions were advised to shift to online-learning.

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Table 1. Descriptive Statistics

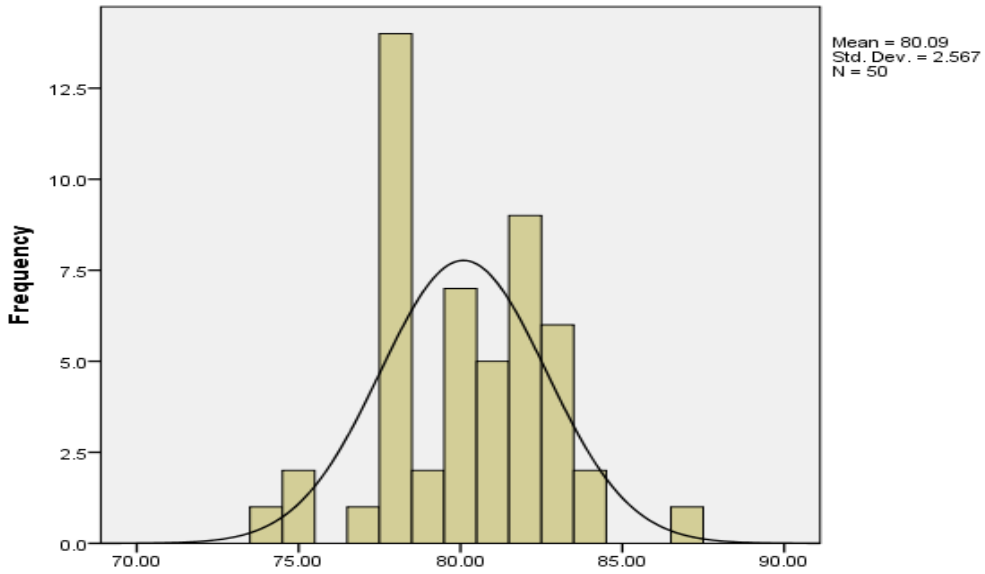
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Value of E-learning (WA, Zoom)	50	74.00	87.00	4004.50	80.0900	2.56684
Value of E-Leaning (LMS)	50	70.00	82.50	3843.00	76.8600	3.74035
Valid N (listwise) 50						

Statistics table with a sample size (n) of 50 (WA, Zoom) and 50 (Learning Management System). The minimum values are 74.00 (WA, Zoom) and 70 (Learning Management System). For the mean data (average) the value of E-Learning learning outcomes is 80, 09 (WA, Zoom) and 76.86, namely 80.09 which is full day school and 76.86, while the Standard Deviation is 2, 57 (WA, Zoom) and 3. 74 which (Learning Management System).

Table 2: Value of E-Learning Test

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	74.00	1	2.0	2.0	2.0
	75.00	2	4.0	4.0	6.0
	77.00	1	2.0	2.0	8.0
	77.50	1	2.0	2.0	10.0
	78.00	13	26.0	26.0	36.0
	79.00	2	4.0	4.0	40.0
	79.50	1	2.0	2.0	42.0
	80.00	6	12.0	12.0	54.0
	81.00	5	10.0	10.0	64.0
	82.00	9	18.0	18.0	82.0
	82.50	3	6.0	6.0	88.0
	83.00	3	6.0	6.0	94.0
	84.00	2	4.0	4.0	98.0
	87.00	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

The table 2 indicated that the value of E-Learning learning outcomes is in the valid category, which means that the data analyzed is in good category.



The following Graph 1 shows that the frequency value of the results of the E-Learning scores through Zoom, WA and Learning Management System shows a curve with a normal category .

Table 3. Explore through Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
E-Learning (WA, Zoom)	50	100.0%	0	0.0%	50	100.0%
E-Learning (LMS)	50	100.0%	0	0.0%	50	100.0%

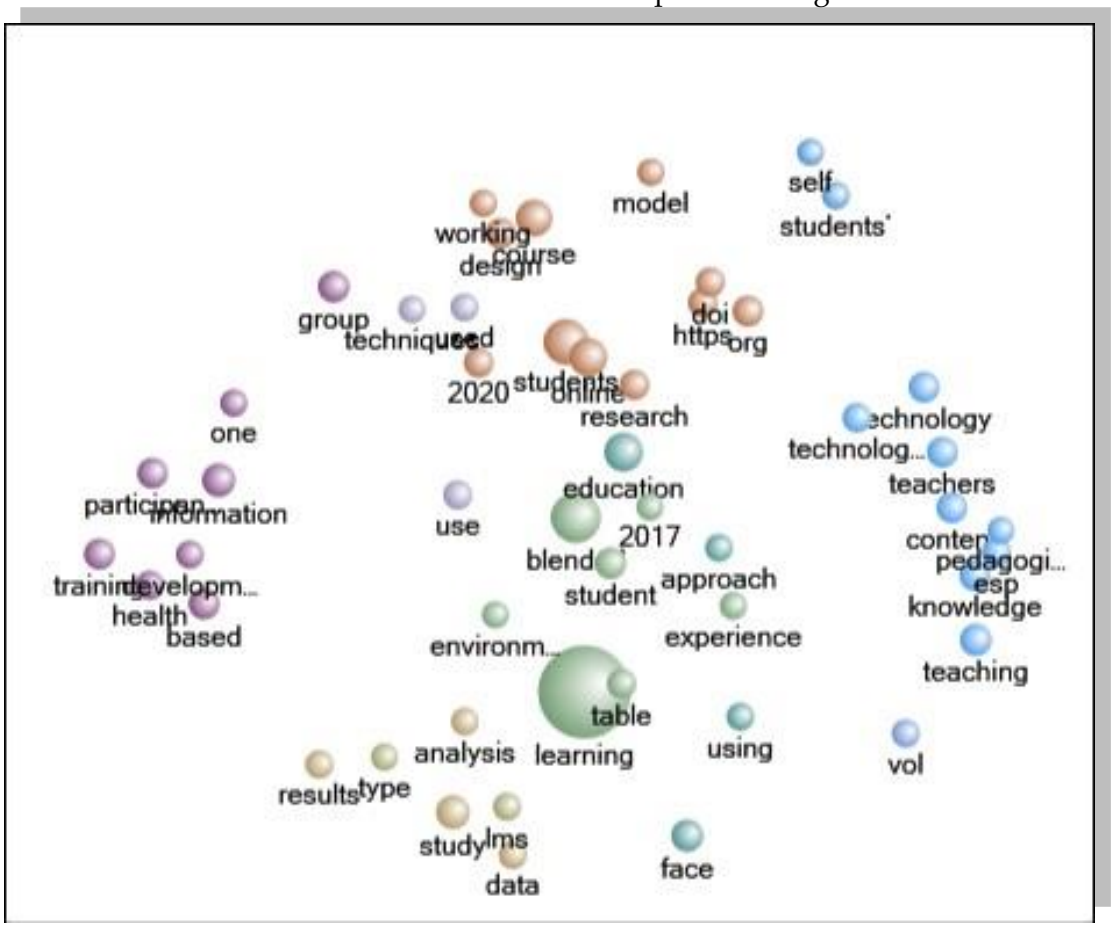
Table 3 shows that the results of E-Learning through WA, Zoom and LMS are concluded in the valid category of 100%, likewise the LMS data is concluded in the valid category of 100%. The missing data is in the zero categories, so it shows that table 3 of the results of the exploration proves that the data is in accordance with the existing N of 50.

Picture 1. Classification of the Word Chart about E-Learning

(Source: references by using NIVO Plus 12)

The picture 1 shows that the technological transition began with the widespread use of computers and innovations. Children and adults have become a critical part of technology by using more and more mobile devices in their normal efforts. In this case, LMS played an important catalyst by deviating from abuse of technology to a positive platform for learning and teaching E-Learning (EL) is explained as a network affinity community sharing content, expertise, skills and training to many learners geographically in the same or diversified was (Barteit, S., Jahn, A., Banda, S. S., Bärnighausen, T., Bowa, A., Chileshe, G., ... & Neuhann, F. , 2020)y. EL is online learning and teaching and electronic resource sharing. It is noted that education industries, such as schools or colleges using e-learning tools, are achieving student learning outcomes more efficiently than non-educational industries.

Picture 2. The Road Map of Learning



(Source: references about learning by using NIVO Plus 12)

The classification picture 2 shows that the duties of the literature E-Learning is to be preserved by blended learning: 1) human beings are the noblest beings, because they are the recipients and implementers of His teachings; 2) creatures of good and balanced form; 3) creatures of three dimensions: physical, intellectual and spiritual; 4) creatures that think that human beings accept and develop knowledge.

E-learning is learning enabled by electronic technology and requires access to educational curricula beyond conventional classrooms, often in the form of immersive multimedia, audiovisual clips and virtual models (Alturise, 2020). Current research indicates that e-learning incorporates a wide range of teaching methods, such as virtual patient cases, online tutorials, and e-learning models that incorporate conventional didactic lectures with online.The rapid implementation of the Learning Management System, LMS, is currently the subject of most of the education sectors.

The information on lectures 44 of respondents on the benefits of e-learning (lectures) n =44, namely 1. Statement (Yes, I like e-learning covid-19) (65 percent), (No, I don't like e-learning (35 percent), I don't know full leaning n (10 percent), I enjoy taking class from home than from school (52.1 per cent), it was hard to face many people in school, which is now easy for me because of the online class (55.4 per cent), I 'm glad to be updated with digital technology used to take class.

Highlights on the attitude of the respondents (teachers) towards the benefits of Elearning where almost half of the respondents (49.0%) did not agree to take the class

from home. Similarly, the majority of respondents (70.4%) did not find it difficult to face a lot of people in school. Most of the respondents (82.32 per cent) were pleased to be up-to - date with digital technology used in the classroom, and most of the respondents (61.1 per cent), (75.5 per cent), (58.8 per cent) and (78.9 per cent) thought that the online class would save time, involve themselves in the online class as well as take care of their families, save travel costs, reduce the risk of accident, respectively.This research studies the definition, scope and dimensions of the interoperability of e-learning in education, with special reference Muhamamdiyah University of Enrekang and Muhammadiyah University in Indonesia, and then the connection and interdependence between quality growth. In order to deliver learning and teaching through e-learning, LMS has implemented a Learning Management Framework (Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. , 2020). In assessing policies to address the risks of the pandemic in the school climate, the government will consider such results in considering education disadvantages (Arnadi , 2020). One of the critiques was that e-learning is mostly perceived as technology rather than pedagogy, as it often pushes learning by technology (Rouleau, at.all., 2020), undermining the needs and desires of learners (Marchisio, at.all., 2019). Another concern was that, while the efficacy of e-learning has been recorded in other research, it is still difficult to assess the impact due to the heterogeneity of educational designs.One of the greatest threats to improving e-learning is the effect of education and efficiency, especially in the sense of effective delivery of courses, many of which are challenges in LMS.

The conceptual framework the research further examined the value of using user-friendly LMS in online teaching and learning, as this can help to bring about improvements in competence, success and outcomes. However, this review identified a number of primary challenges. There are many factors in place, including appropriate policies and procedures, sufficient resources and qualified personnel, who can interact to make e-learning or online education successful (7. Koka, A., Suppan, L., Cottet, P., Carrera, E., Stuby, L., & Suppan, M, 2020). Character reinforcement Education in learning includes short- and long-term programs, the development of program metrics, program performance evaluation, comparison of performance outcomes, relation between programs, performance analysis and corrective measures.

The conceptual of Learning Management System in E-learning is teachers understand the context of online learning but numerous problems have been detected with its implementation, including 1) facility availability, 2) Internet and network use, 3) learning design, implementation and assessment and 4) parents' collaboration. In the COVID-19 pandemic, online learning supports teachers, but feels unaffective, 80% of teachers felt unhappy with thorough online learning. This research was intended as an evaluation material for different parties, including educational policymakers in the conduct of online learning, as well as other researchers, particularly in primary schools to improve online learning research, (Irfan Fauzi, 2020). Conducting activity programs such as training will enhance teachers' quality and professionalism. Coaching extracurricular activities can provide students with insight and soft skills, The program is designed to raise awareness and provide a place to learn. Interpersonal contact, two-way and suggestions is applied by the principal. And then, the study shows that the ILMIZI model enables e-learning to be used. The study concluded that the PEB-COVID-19 student score remained in the low category and that ILMIZI model was still a groundbreaking way of learning, (Ilyasa, et al., 2020). Efficiency, job, procedural and

changing agents exemplified the motivating motivation towards the people of Madrasa.

The most important aspect for assessing the first aspect is the students' ability to recognize problems and to differentiate between problems which are relevant to the subject. The findings of this study generate 98 percent knowledge with a reliable category on the implementation of learning. Therefore, MRSM teaching media will enhance student research. There are various meanings or perceptions of e-learning, but using technology to provide online access to learning opportunities to enhance learning is the key feature of e-learning (Imtiyaz, B. S., Garratt, E. A., Cox, J. H., & Keynejad, R. C, 2020). E-learning has been described as a "educational method that promotes learning through the use of information technology and communication and provides an opportunity for learners to have access to all of the education programs needed (Naim, A., & Alahmari, F , 2020). In some parts of the kandara, including a kandara handle or paws, head, body middle and kandara tail, first ethnomatomatics were found. Secondly, the kandara musical instrument can be used as a learning tool to illustrate the principles of geometry in elementary school in the form of angles, flat shapes and spaces (incised cones and tubes). Thirdly, ethnomathematics can be a teaching aid centered on local culture in primary schools, not only to assist the students in understanding mathematical concepts but also to preserve and value local community cultures, (Fredy Fredy, Lili Halimah, Yayuk Hidayah , 2020).

The term e-learning has been used interchangeably with the terms web-based learning, online learning or schooling, computer-assisted or-assisted teaching, computer-based teaching, internet-based learning, digital learning, technology-enhanced learning and virtual learning (Hayashi, A., Chen, C., Ryan, T., & Wu, J. , 2020). Such a nomenclature has led to uncertainty as to whether e-learning is part of a medium (e.g. computer-aided instruction) or a distribution method (e.g. online learning).There are various models or prototypes of e-learning that have been used in practice, the most common of which are: (a) enhanced or ancillary model – functioning as a face-to - face classroom assistant, providing students with relative independence.Pure online or fully-on-line model – without classroom or conventional face-to - face instruction, to allow students maximum freedom (Valverde-Berrocoso, J., Garrido-Arroyo, M. D. C., Burgos-Videla, C., & Morales-Cevallos, M. B. , 2020). This model can be further divided into individual and collaborative learning, with the collaborative learning option subdivided into synchronous and asynchronous (text-based) learning. The majority of websites reported a lack of learning opportunities, such as internet and the willingness of parents to help their children learn from home, (Purniadi Putra, Fahrina Yustiasari Liriwati, Fahrina Yustiasari Liriwati, Syafrudin Syafrudin & Aslan Aslan, 2020). Therefore, provides important insights into further decision-making on neighborhood school engagement in government support to tackle the coronavirus outbreak, (Sarjdana Orba Manullang & Erwinsyah Satria, 2020).

The limit of research is digital learning, technology-enhanced learning and virtual learning as well as innovation in the sense of new ideas or ideas to solve problems or improve the school where the teacher or school principal works. Through extensive and complete insights about educational innovation, it is hoped that teachers can help the smooth process of educational innovation in the work environment. Even if possible, they can plan and implement their own educational innovations to improve the quality of their schools or solve the educational problems they faceof educational innovation.

CONCLUSIONS

This study is organized in separate sections; the Literature Review for a brief summary of the previous work examined. In Discussion, the causes and characteristics of QD and the quality enhancement of e-learning (QEL) are elaborated along with a description of the interoperability and the methods of its experiments. In higher education systems, e-learning faces two major challenges: first, ensuring the interoperability of e-learning and, secondly, improving quality learning through e-learning.

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This study acknowledges that online teaching method can deliver personalized education to all, optimizing the ability of each student, but can also feel some sense of independence during the COVID19 isolation phase and one of the main aspects of online learning. The study proposes that CBU management should implement a comprehensive and advanced pedagogical design to provide lessons in virtual classrooms during and beyond the age of COVID-19.

AUTHOR CONTRIBUTION STATEMENTS

The author's contribution has highlighted that the e-learning of Muhammadiyah's online. Learning instructor colleagues in the sense of online learning is the best response in the age of the global pandemic. Study conception and design: Hasan, S.Pd.,M.Pd., Lukman, Muhammad Said, Dr.Baharuddin, M.Pd., Alubedi, Avish Suvash Matius, Leos Van Jennifer. Data collection: Ismail, S.Pd., M.Pd., Mustakim, S.Pd., M.Pd, Musdalifah, S.Pd., M.Pd. Data analysis and interpretation: Prof. Dr. H. Muhammad Siri Dangnga, MS., Prof. Dr. Tawany Rahamma, Dr.Nurdin, M.Pd., Drs.Yunus Busa, M.Si. Drafting of the article: Mustakim, S.Pd., M.Pd, Musdalifah,S.Pd., M.Pd. Nayaju Critical revision of the article: Prof. Dr. H. Muhammad Siri Dangnga, MS., Prof. Dr. Tawany Rahamma, Dr. Nurdin, M.Pd., Dr.Mahsyar, M.Ag.

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