Trigger factors of using Moodle or e-learning by faculty of Medicine and health Sciences College and Education College

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A R T I C L E   I N F O

A B S T R A K

*Terdapat beberapa kendala dalam menerapkan e-learning. Penelitian ini bertujuan untuk mengidentifikasi hambatan dan fasilitator dalam penggunaan Moodle atau e-learning oleh Fakultas Kedokteran dan Ilmu Kesehatan Sekolah Tinggi Ilmu Kesehatan dan Sekolah Tinggi Pendidikan. Jenis penelitian ini yaitu penelitian kualitatif. Pelaporan penelitian ini berpedoman pada pedoman SRQR. Sampel yang digunakan dalam penelitian ini berjumlah tujuh Fakultas Kedokteran dan Ilmu Kesehatan Sekolah Tinggi dan Sekolah Pendidikan. Metode yang digunakan dalam mengumpulkan data yaitu wawancara. Instrumen yang digunakan dalam pengumpulan data yaitu lembar wawancara. Teknik yang digunakan dalam menganalisis data yaitu analisis deskriptif kualitatif. Hasil penelitian yaitu penelitian ini mengungkapkan tiga faktor kunci yang mewakili hambatan untuk menggunakan Moodle atau e-learning dari persepsi peserta. Pertama, hambatan individu (pendidik & siswa). Kedua, hambatan kelembagaan atau hambatan tempat kerja. Ketiga, penggunaan media sosial (Facebook) dalam proses pengajaran, yang dianggap oleh peserta sebagai tidak profesional di tingkat akademik. Kompetensi bahasa Inggris mahasiswa Kedokteran dan Ilmu Kesehatan dianggap sebagai faktor pendukung utama dalam menggunakan e-learning dibandingkan dengan mahasiswa pendidikan. Penggunaan Facebook dianggap oleh peserta sebagai tidak profesional dalam komunikasi tingkat akademik.*

A B S T R A C T

There are several obstacles to implementing e-learning. This study aims to identify barriers and facilitators in using Moodle or e-learning by the Faculty of Medicine and Health Sciences, the College of Health Sciences, and the College of Education. This type of research is qualitative research. This research report is based on the SRQR guidelines. The sample used in this study amounted to seven Faculties of Medicine and Health Sciences, Colleges, and Schools of Education. The method used in collecting data interviews. The instrument used in data collection is an interview sheet. The technique used in analyzing the data is descriptive qualitative analysis. The result of this research is that the study reveals three key factors that represent barriers to using Moodle or e-learning from the participants' perceptions. First, individual barriers (educators & students). Second, institutional barriers or workplace barriers. Third, the participants considered the use of social media (Facebook) in the teaching process unprofessional at the academic level. The English competence of Medical and Health Science students is considered the central supporting factor in using e-learning compared to education students. Participants considered the use of Facebook as unprofessional in academic level communication.
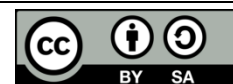
1. INTRODUCTION

Learning is an activity programmed by the teacher in designing the classroom, creating a process of interaction between peers, teachers, and students with learning resources. Learning aims to bring about continuous changes in students' behavior and thinking in the learning environment (Lestari et al., 2021; Rubini et al., 2018; Vonti & Rahmah, 2019). The learning process cannot be separated from teaching and learning activities. A behavior change is a sign that someone has learned something (Rahayu et al., 2020; Rubini et al., 2018). These behavioral changes include changes in knowledge (cognition), skills (psychomotor), values , and attitudes (emotions) (Ferreira et al., 2018; Khiat, 2017; Rahayu et al., 2020). Learning is a process of interaction between students and their environment, which leads to changes in behavior for the better. The main task of a teacher during the learning process is to adjust the learning environment in a way that supports changes in student behavior (Chen & Mensah, 2018; Derrington & Campbell, 2018; Yulando et al., 2019). Learning activities are carried out through a two-way communication process. Teaching is carried out by teachers as students or students carry out educators and learning. Learning can be interpreted as a series of external events that support the internal learning process (Ferreira et al., 2018; Khiat, 2017). The learning components include

students, teachers, learning objectives, material/content, methods, media, and assessment (Agustini et al., 2020; Robertson-Kraft & Zhang, 2018). Learning activities are now carried out through an online or e-learning approach.

Improving the quality of education services is important (Yudhiantara & Saehu, 2017; Yulando et al., 2019). Lecturers must demonstrate best practices and embrace strategies to promote teaching efficiency and effectiveness (Brockfeld et al., 2018; Nyatanga & Mukorera, 2019). A systematic review study concluded that e-learning is superior to traditional learning (George et al., 2014; Maulana & Padang, 2021). A policy maker makes the pressure to incorporate e-learning into higher education which pressures and drivers have influenced; e-learning has many challenges (Maudiarti, 2018), and dropout rates using e-learning are usually higher than in traditional classroom teaching. The main drivers for using e-learning today can be categorized into: first, the national need to improve people's skills to meet the information and knowledge challenges (Maulana & Padang, 2021; Samba et al., 2020). The other is the need to implement a lifelong learning agenda and have flexible access to education.

E-learning is a modern way of learning. *E-learning* is the electronic delivery of learning content or learning experiences using computers and computer-assisted media (Ahdan et al., 2020; Ellianawati et al., 2021). E-learning can be said as an education system (an educational and learning process) that uses internet media and computer networks to provide teaching materials to students and improve their knowledge and skills (Alqahtani & Rajkhan, 2020; Napitupulu et al., 2019; Samba et al., 2020). Several factors influence the success or failure of eLearning. First, technology is influenced by people's ability to access computers and the internet and their willingness to use technology (Ariesta, 2019; Elyas, 2018; Noer et al., 2021). Second, innovation is a determinant of user capacity and openness to innovation (Cloonan et al., 2020; Timbi-Sisalima et al., 2022). Third, society is influenced by the willingness of users to learn with technology (Karwati, 2014; Ran & Jinglu, 2020). Fourth self-development. It is influenced by the user's ability to manage time and attitude towards self-development. The ease of use of eLearning also affects the use of eLearning. Interface design and easy accessibility are the success factors of online learning. There are various obstacles to introducing e-learning systems into applications (Alshammari, 2020; Rafiee & Abbasian-Naghneh, 2021; Yaniawati, 2013). Supporting facilities such as laboratories, additional internet, and training for educators are required. Due to these high costs, management may not support educators in implementing e-learning.

The problem that occurs today is that there are still some obstacles to the application of online learning (Erawati et al., 2021; Hutauruk & Sidabutar, 2020). The EU Commission has criticized the University for presenting 'the same course to the same group of young students with the best academic qualifications and failing to open themselves up to this type of learning and learner. Their method has 'slowed innovation in curriculum and teaching methods so that universities are encouraged to understand more directly the challenges and opportunities presented by the lifelong learning agenda. It is relevant to examine the difficulties that exist in e-learning. The findings of previous research also revealed that if e-learning is not packaged correctly, it will impact student learning outcomes. Other research findings also reveal that there are still some obstacles when applying online learning to students. Therefore, this study aims to identify barriers and facilitators to using Moodle by the Faculty of Medicine and Health Sciences and the College of Education. This study contributes to understanding faculty perceptions of barriers, different types of barriers, and the facilitators who help them use Moodle fluently. It will help academic administrators unify their agenda, overcome these barriers, and increase facilitation factors that will help improve the quality of learning.

2. METHOD

Researcher based this article on qualitative research focusing on the experiences of faculty of Medicine and health Sciences College and Education College in using of e-learning (Moodle). Reporting of this research adheres to the SRQR guidelines (O'Brien et al., 2014). A qualitative methodology, in-depth, face-to-face interview were conducted using interview guide and purposive sample with seven faculty of Medicine and health Sciences College and Education College. Interviews were conducted using a semi-structured approach (Bowling & Ebrahim, 2005). The interview is considered the gold standard of qualitative research (Silverman, 2000). The advantages of this approach include that: participants can provide historical information; it provides the closest engagement possible when participants cannot be directly observed and it allows the researcher to control the line of questioning (Holloway, 2005). In this study, the semi-structured interviews used an interview schedule and open-ended questions that lasted between 60 and 90 minutes. The interviews provide an in-depth understanding of the interviewees' personal opinions and expectations.

Interview guild was built on literate review and experience of researchers (see supplementary File). Both researchers shared background of participants, one of them from Faculty of medicine and health Science College and other from Education College so pragmatic approach was followed. Participants were selected from both colleges based on their activities of using Moodle in learning, researchers were log in e-learning (Moodle)

site and selected the most active and non-active members. Then the researchers make a phone call to selected members to ask them to participate in current study with explanation of study, the total number of agreed participants and until data saturation were seven, three from Medical College and four from other. All of participants have experience in teaching at Universities for more than 7 years, all of them holding a PhD from different countries as USA, UK, Russia and Europe. Although, both researchers have their PhD from UK in Education and Nursing that help to understand the participants' experiences and perceptions in learning.

The quality of research is needed to assess the status of findings through carefully examining all the steps of the research. The rigor of the study is ensured by the discussions and debates of the differences between researchers until consensus is reached. Validity in qualitative research may be ensured by keeping personal biases to a minimum, so the data analyzed by two groups of researchers separately in the same way and period. Then the results compared until consensus be reached. Compressing the two mobiles voice records to each participant occurred to ensure the reliability that results in the consistence of results. Taped interviews were transcribed verbatim. Data analysis was done using thematic analysis, four themes emerged as presented in Table 1 (Braun & Clarke, 2006).

Table 1. Themes and Subthemes For Study Finding

Themes	Subthemes
Moodle vs Content Pot	• Advantages
	• Disadvantages
Individual barriers (educator & students)	Internal
	• Social interaction
	• Attitude
	• Time
	• workload
	• Technology competency
	• Internal motivation
	• Academic skills
	• Learning style
	• language
	External
	• Availability and accessibility of technology
	• Insufficient
	• The nature of course (Anatomy, clinical)
	• Potential interruptions
Institutional barrier or workplace barrier	• Organizational readiness- supervisor checking policy
	• Lack of training professional development for user (Training courses)
	• Lack of management support
	• Lack of Incentives to use – motivation
Professionality	• using Face Book vs Moddle in learning

(Braun & Clarke, 2006)

IRB approval was gained before conducted of study. The researchers followed the ethical principles embedded in the social sciences; particularly, the code of ethics from the American Sociological Association. Before the interview participants were familiarised with the focus of the research, researchers' institutional background and principles of anonymity of the obtained information. All informants gave verbal informal consent to the participation in the research. The option of withdraw with participation in the research or during the interview was granted. Researchers do not disclose any information which could lead to identification of informants.

3. RESULT AND DISCUSSION

Result

The themes emerged from the study were: Moodle vs Content Pot, individual barriers (educator & students), institutional barrier or workplace barrier and using of social media. First, Moodle vs Content Pot. Most of participants highlighted the different between on-line learning, e learning, blended learning and traditional way of teaching. All participants agreed that what followed at university is blended learning. They emphasized

that blended learning can overcome the disadvantages of both traditional way of teaching and on-line teaching. The results of the interviews are presented in Table 2.

Table 2. Results of Interviews with Participants

No	Subject	Interview result
1	Participant (2)	"I would like to highlight the different in concept between e-learning and blended learning. what I use is blended learning. I use both on line material and class lectures"
2	Participant (7)	"We design our courses as on-line course, but we deliver it as blended, we could not leave the traditional way of teaching, face to face at class".
3	Participant (1)	"I am so happy for using Moodle, e learning can save our time and our energy, I prepared my course in advance and I download the videos on line for my students, so this help students to prepare well for my lecture. And help me to use face to face lecture effectively for interaction with students"

The most advantages for traditional way or in class lecture was the present of interaction and immediate feedback. While, on line lectures allowed to download what ever the teacher wants from material and videos that included recorded lectures. The student able to listen to lecture what ever student wants without costing him/her any energy or transportation to university. As well as the advantages for teacher, the first time in constructing the course it takes a lot of time and energy but later the next year the lecturer just updating the material and assignments. This helped to save the energy and time of teacher, give him the space to self-development and saving the materials in safe available source. Participant compared between using Moodle which presented now a e-learning method vs Content Pot. Content Pot is the first electronic program run at university that help faculty members to communicate with student and presented the material electronic. It is obviously clear that Content Pot is used only to drop in the material and students download the material without any interaction or feedback. However, Moodle provide the space for interaction, assignment, recorded lectures, and videos. Some of participants agreed that using e learning is saving their time and contribute to their professionality. It takes a lite bit at beginning to design the course once it is ready then the next sequence, they just re develop the course material. Another advantage was the Moodle helps student to download the material of courses on line in advance. This can help students to prepare and read the material well, which lead to increase class interaction and involvement of students.

Second, Individual barriers (educator & students). Internal and external factors were the most common subthemes for individual barriers. Participants mentioned that most common causes for not using Moodle or e learning approach were categorized into the following: First, lecturers' preference to have full interaction with students. Second, inadequate of technology competency for some lecturers, but not for students. Students can use technology smartly. Third, using of Moodle or e- learning needs a lot of teachers' time and they considered it as over workload. Fourth, lack of motivation or incentives for lecturer. Fifth, culture resistant, attitude and preference of using traditional way of teaching as well as the learning style preferences. Finally, language competency, the English language is the main language at University. The language competency was the only item that has been raised from education faculty more than Medicine and health care faculty. This might due to naturality of college, Medicine and healthcare college students are usually the top 10th students mark and they can use English language fluently. However, some of participants highlighted the problem of having an adequate time for training. Others mentioned that using Moodle required them to be connected and available all the time. Hasil wawancara disajikan pada Table 3.

Table 3. Results of Interviews with Participants

No	Subject	Interview result
1	Participant (4)	"Using e learning means to be available as a teacher 24 hours and be able to connect with internet. While, traditional way of teaching requires you to work in class lecture and office hour"
2	participant (6)	"The nature of course plays a big role in decision to use Moodle or e-learning VS traditional way. For me in teaching my student anatomy of body I prefer to show them model of human parts and ask them to touch it physically by their hand to never forget the information"
3	Participant (5)	"Using Facebook considered as an ideal way of communicated and reaching the students. Because of advantages of Facebook as high spread of information and using tagging technique. Facebook considered as an easy way to tell my students the time of exam if it postpone"

The external barriers were considered from participants' perception as the availability and accessibility of technology for some lecturers and students. The numbers of computers at universities were considered as not sufficient and availability of internet access was a major concern especially for students whom live in far villages. The nature of course such as anatomy and clinical courses were not appropriate for using Moodle or e-learning approach, others mentioned the fair of potential interruptions. Third, Institutional barrier or workplace barrier. Half participants mentioned that most barriers from university were the organizational readiness. They do not consider that university facilities are ready for running e-learning especially the old campus. The available number of computers is not enough to meet the need of teachers as well as students. Their request was to supply each lecturer with laptop or have fixed computer and LCD in each class connected with internet. The second barrier from perception of participants was the supervisor checking policy that applied at university to check that every lecturer run his/her lecture on time without any delay or absent. In case of using e-learning, the responsibility of lecturer who use e-learning to report and justify his/her absent. In appropriate time of training courses, lack of management support and lack of incentives, present of technical problem (as internet connection) and updating staff with technology were another concern for participants.

Fourth, Professionality in using Face book vs Moodle or e-learning in learning. In current study half of participants were happy in using Face book in communication with their students. They delivered their lectures, videos and announcement for their courses. Considered that Face book has a wide spread, costly, available, simple, not complicated and present of tagging technique. Students can open it freely within few second from their smart phone, especially, no password required every time to log in. However, using apps for open Moodle through Zajel (which is the electronic page of university) needs a several steps, this process needs at least 2-3 minutes. Sometimes the connection is an available at home for some teachers and students. Another point that been highlighted the lack of skill of students in using Moodle, but they are skillful in using Facebook, especially they are youth and it is one requirement of this era.

Discussion

This study found that participants who use e-learning are happy to be considered as part of improving their professionalism. The readiness of teachers to use technology, psychological readiness, sociological readiness, adoption of innovation, ability to create content, and organizational culture are things that can affect the success of e-learning implementation (Maulana & Padang, 2021; Napitupulu et al., 2019; Samba et al., 2020). In addition, the success of e-learning implementation is influenced by students' readiness to use technology, psychological readiness, and adoption of innovation (Alqahtani & Rajkhan, 2020; Ariesta, 2019). Other studies have also found positive effects in increasing teacher efficiency (Alqahtani & Rajkhan, 2020; Ibrahim & Suardiman, 2014). The current study emphasizes the importance of training staff and students for e-learning. It is in line with research that recommends job requirements in teacher training (Haddad, 2018). Although, research shows that e-learning is an important part of active learning, and this is in line with research that believes that students use their skills effectively in e-learning (Ariesta, 2019; Timbi-Sisalima et al., 2022).

One of the reasons for the increasing use of e-learning in both educational institutions and industry is the availability of various LMS (learning management system) software (Bervell & Arkorful, 2020; Dobre, 2015; Tere et al., 2020). One of the most commonly used e-learning platforms is Moodle (Febliza & Okatariani, 2020; Herayanti et al., 2017). The study revealed three key factors that represent barriers to using Moodle or e-learning, namely individual barriers (educators & students), institutional barriers or workplace barriers, and the use of social media (Facebook) in the teaching process, which may be considered unprofessional at an academic level. Therefore, the main hot issue highlighted in this research is the possibility of taking advantage of Facebook (i.e., accessibility, popularity, and the easiest way to connect with students) and connecting it with Moodle or vice versa to improve the educational learning process and maintain professionalism in communication. The study revealed that the English competence of Medical and Health Science students was considered a major contributing factor in using e-learning compared to students from Education College.

In order to improve the quality of education, the main recommendation is to encourage lecturers and students to use e-learning as part of every course. Other research findings also state that the correct use of e-learning can improve the quality of learning (Ariesta, 2019; Timbi-Sisalima et al., 2022; Yaniawati, 2013). Other studies have also revealed that e-learning positively impacts students' ease of learning (Kurtz et al., 2014; Rafiee & Abbasian-Naghneh, 2021; Supriyatno et al., 2020). Understanding the main barriers and facilitators that emerged in the current study will help institutions to formulate plans for their goals. The main idea that must be conveyed to students and lecturers is that Facebook is for informal communication, not learning. At any time, the information presented on Facebook may be lost due to copyright issues (Awidi et al., 2019; Moorthy et al., 2019). For formal learning and teaching, lecturers must rely on Moodle or e-learning using the University's website. The cultural issues illustrated in this study are mainly Palestinian culture which is considered a conservative culture to educate parents about the importance of having internet at home for education on crucial issues. This finding shows the importance of using professional communication tools in e-learning (Moodle) and

not relying on social media such as facebook. In order to improve the quality of education, academic administrators must be aware of the barriers to using e-learning that faculty and students face.

4. CONCLUSION

The main barriers of using e-learning (Moodle) were individual barriers, institutional barrier or workplace barrier and using of social media (Facebook) in teaching process. Using of Facebook is considered by participants as unprofessional in academic level communication.

5. REFERENCES

Agustini, D., Lian, B., & Sari, A. P. (2020). School'S Strategy for Teacher'S Professionalism Through Digital Literacy in the Industrial Revolution 4.0. *International Journal of Educational Review*, *2*(2), 160–173. https://doi.org/10.33369/ijer.v2i2.10967.

Ahdan, S., Putri, A. R., & Sucipto, A. (2020). Aplikasi M-Learning Sebagai Media Pembelajaran Conversation Pada Homey English. *Sistemasi*, *9*(3), 493. https://doi.org/10.32520/stmsi.v9i3.884.

Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education Sciences*, *10*(9), 1–16. https://doi.org/10.3390/educsci10090216.

Alshammari, M. T. (2020). Evaluation of gamification in e-learning systems for elementary school students. *TEM Journal*, *9*(2). https://doi.org/10.18421/TEM92-51.

Ariesta, F. W. (2019). Effectiveness of E-Learning Media to Improve Learning Outcomes Natural Science in Primary Schools. *Journal of Education Research and Evaluation*, *3*(2), 88. https://doi.org/10.23887/jere.v3i2.17203.

Awidi, I. T., Paynter, M., & Vujosevic, T. (2019). Facebook group in the learning design of a higher education course: An analysis of factors influencing positive learning experience for students. *Computers & Education*, *129*. https://doi.org/10.1016/j.compedu.2018.10.018.

Bervell, B., & Arkorful, V. (2020). LMS-enabled blended learning utilization in distance tertiary education: establishing the relationships among facilitating conditions, voluntariness of use and use behaviour. *International Journal of Educational Technology in Higher Education*, *17*(1), 6. https://doi.org/10.1186/s41239-020-0183-9.

Bowling, A., & Ebrahim, S. (2005). *Handbook of health research methods: investigation, measurement and analysis*. Open University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Brockfeld, T., Müller, B., & de Laffolie, J. (2018). Video versus live lecture courses: a comparative evaluation of lecture types and results. *Medical Education Online*, *23*(1), 1555434. https://doi.org/10.1080/10872981.2018.1555434.

Chen, J. L., & Mensah, F. M. (2018). Teaching Contexts That Influence Elementary Preservice Teachers' Teacher and Science Teacher Identity Development. *Journal of Science Teacher Education*, *29*(5), 420–439. https://doi.org/10.1080/1046560X.2018.1469187.

Cloonan, M. R., Cloonan, D. J., Schlitzkus, L. L., & Fingeret, A. L. (2020). Learners with Experience in Surgical Scrub Benefit from Additional Education with an Interactive E-Learning Module. *Journal of the American College of Surgeons*, *4*(2). https://doi.org/10.1016/j.jamcollsurg.2020.08.521.

Derrington, M. L., & Campbell, J. W. (2018). High-stakes teacher evaluation policy: US principals' perspectives and variations in practice. *Teachers and Teaching*, *24*(3), 246–262. https://doi.org/10.1080/13540602.2017.1421164.

Dobre, I. (2015). Learning Management Systems for Higher Education - An Overview of Available Options for Higher Education Organizations. *Procedia - Social and Behavioral Sciences*, *180*(November 2014), 313–320. https://doi.org/10.1016/j.sbspro.2015.02.122.

Ellianawati, E., Subali, B., Khotimah, S. N., Cholila, M., & Darmahastuti, H. (2021). Face to Face Mode vs. Online Mode: A Discrepancy in Analogy-Based Learning During COVID-19 Pandemic. *Jurnal Pendidikan IPA Indonesia*, *10*(3), 368–377. https://doi.org/10.15294/jpii.v10i3.30037.

Elyas, A. H. (2018). Penggunaan model pembelajaran e-learning dalam meningkatkan kualitas pembelajaran. *Jurnal Warta*, *56*(04), 1–11. https://doi.org/10.46576/wdw.v0i56.4.

Erawati, G. A. P. S. A., Widiana, I. W., & Japa, I. G. N. (2021). Elementary School Teachers' Problems in Online Learning during the Pandemic. *International Journal of Elementary Education*, *5*(4), 562. https://doi.org/10.23887/ijee.v5i4.39233.

Febliza, A., & Okatariani, O. (2020). The development of online learning media by using moodle for general chemistry subject. *Journal of Educational Science and Technology (EST)*, *6*(1). https://doi.org/10.26858/est.v6i1.12339.

Ferreira, J., Behrens, M., Torres, P., & Marriott, R. (2018). The necessary knowledge for online education: Teaching and learning to produce knowledge. *Eurasia Journal of Mathematics, Science and Technology Education*, *14*(6). https://doi.org/10.29333/ejmste/86463.

George, P. P., Papachristou, N., Belisario, J. M., Wang, W., Wark, P. A., Cotic, Z., Rasmussen, K., Sluiter, R., Riboli-Sasco, E., Tudor Car, L., Musulanov, E. M., Molina, J. A., Heng, B. H., Zhang, Y., Wheeler, E. L., A., Shorbaji, N., Majeed, A., & Car, J. (2014). Online eLearning for undergraduates in health professions: A systematic review of the impact on knowledge, skills, attitudes and satisfaction. *Journal of global health*, *4*(1). https://doi.org/10.7189/jogh.04.010406.

Haddad, D. (2018). The Degree of Practicing the Principles of Active Learning in Teaching of English Language from the Perspective of Its Teachers in the Schools of Education Directorate of 'Bani Obaid' District in Jordan. *Journal of Education and Practice*, *9*(36).

Herayanti, L., Habibi, H., & Fuaddunazmi, M. (2017). Pengembangan Media Pembelajaran Berbasis Moodle pada Matakuliah Fisika Dasar. *Jurnal Cakrawala Pendidikan*, *36*(2), 210–219. https://doi.org/10.21831/cp.v36i2.13077.

Holloway, I. (2005). *Qualitative research in health care*. University Press.

Hutauruk, A., & Sidabutar, R. (2020). Kendala pembelajaran daring selama masa pandemi di kalangan mahasiswa pendidikan matematika: Kajian kualiatatif deskriptif. *Journal of Mathematics Education and Applied*, *02*(01), 45–51. https://doi.org/10.36655/sepren.v2i1.364.

Ibrahim, D. S., & Suardiman, S. P. (2014). Pengaruh Penggunaan E-Learning Terhadap Motivasi Dan Prestasi Belajar Matematika Siswa SD Negeri Tahunan Yogyakarta. *Jurnal Prima Edukasia*, *2*(1), 66–79. https://doi.org/10.21831/JPE.V2I1.2645.

Karwati, E. (2014). The Influence of E-Learning Based on Information Technology toward Students Quality of Learning. *Jurnal Penelitian Komunikasi*, *17*(1), 41–54. https://doi.org/10.20422/JPK.V17I1.5.

Khiat, H. (2017). Academic Performance and The Practice of Self-Directed Learning: The Adult Student Perspective. *Journal of Further and Higher Education*, *41*(1), 44–59. https://doi.org/10.1080/0309877X.2015.1062849.

Kurtz, G., Tsimerman, A., & Steiner, O. (2014). The Flipped Classroom Answer to Future Learning? *European Journal of Open, Distance and E-Learning*, *17*(2). https://doi.org/10.2478/eurodl-2014-0027.

Lestari, K. B., Dwi Lestari, I. F., & Santoso, I. (2021). The Impact of Health Education Using Online Learning on Adolescent Knowledge of Anaemia. *KnE Social Sciences*, *2021*, 209–220. https://doi.org/10.18502/kss.v5i3.8541.

Maudiarti, S. (2018). Penerapan E-Learning Di Perguruan Tinggi. *Perspektif Ilmu Pendidikan*, *32*(1), 51–66. https://doi.org/10.21009/pip.321.7.

Maulana, I. T., & Padang, S. I. (2021). E-Learning effective during the Covid-19 era. *İlköğretim Online*, *20*(2), 179–188. https://doi.org/10.17051/ilkonline.2021.02.20.

Moorthy, K., T'ing, L. C., Wei, K. M., Mei, P. T. Z., Yee, C. Y., & Wern, K. L. J. (2019). Is facebook useful for learning? A study in private universities in Malaysia. *Computers & Education*, *130*. https://doi.org/10.1016/j.compedu.2018.12.002.

Napitupulu, D., Adiyarta, K., Abdullah, D., & Murtiningsih, D. (2019). Proposed ELR Model for E-Learning Readiness Evaluation Based on McKensey 7S Framework. *ICASI*, *6*. https://doi.org/10.4108/eai.18-7-2019.2288544.

Noer, R. Z., Wahid, S. M. Al, & Febriyanti, R. (2021). Online lectures : An implementation of full e-learning action research. *Jurnal Prima Edukasia*, *9*(1), 65–74. https://doi.org/10.21831/jpe.v9i1.35030.

Nyatanga, P., & Mukorera, S. (2019). Effects of lecture attendance, aptitude, individual heterogeneity and pedagogic intervention on student performance: A probability model approach. *Innovations in Education and Teaching International*, *56*(2), 195–205. https://doi.org/10.1080/14703297.2017.1371626.

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for Reporting Qualitative Research. *Academic Medicine*, *89*(9). https://doi.org/10.1097/ACM.0000000000000388.

Rafiee, M., & Abbasian-Naghneh, S. (2021). E-learning: development of a model to assess the acceptance and readiness of technology among language learners. *Computer Assisted Language Learning*, *34*(5). https://doi.org/10.1080/09588221.2019.1640255.

Rahayu, W. P., Hidayatin, & Madziatul. (2020). Development of a Project-Based Learning Assessment System to Improve Students' Competence. *Jurnal Pendidikan Ekonomi & Bisnis*, *8*(2). https://doi.org/10.21009/JPEB.008.2.1.

Ran, W., & Jinglu, L. (2020). The Design and Development of Digital Books for E-learning. *2020 4th International Conference on Artificial Intelligence and Virtual Reality*, 51–55. https://doi.org/10.1145/3439133.3439140.

Robertson-Kraft, C., & Zhang, R. S. (2018). Keeping Great Teachers: A Case Study on the Impact and Implementation of a Pilot Teacher Evaluation System. *Educational Policy*, *32*(3), 363–394. https://doi.org/10.1177/0895904816637685.

Rubini, B., Permanasari, A., & Yuningsih, W. (2018). Learning Multimedia Based on Science Literacy on the Lightning Theme. *Jurnal Penelitian dan Pembelajaran IPA*, *4*(2), 89–104. https://doi.org/10.30870/jppi.v4i2.3926.

Samba, Odoh, & Egbodo, B. A. (2020). Effects of E-Learning on Students' Performance, Confidence Level and Science Process Skills Acquisition in Basic Science and Technology. *Internationan Journal of Science and Research Methodology*, *16*(1). https://doi.org/10.13140/RG.2.2.21002.29127.

Silverman, D. (2000). *Doing Qualitative Research: A Practical*. SAGE Publication Ltd.

Supriyatno, T., Susilawati, S., & Hassan, A. (2020). E-learning development in improving students' critical thinking ability. *Cypriot Journal of Educational Sciences*, *15*(5), 1117–1127. https://doi.org/10.18844/CJES.V15I5.5154.

Tere, T., Bayu Seta, H., Nizar Hidayanto, A., & Abidin, Z. (2020). Variables Affecting E-Learning Services Quality in Indonesian Higher Education: Students' Perspectives. *Journal of Information Technology Education: Research*, *19*, 259–286. https://doi.org/10.28945/4489.

Timbi-Sisalima, C., Sánchez-Gordón, M., Hilera-Gonzalez, J. R., & Otón-Tortosa, S. (2022). Quality Assurance in E-Learning: A Proposal from Accessibility to Sustainability. *Sustainability*, *14*(5), 3052. https://doi.org/10.3390/su14053052.

Vonti, L. H., & Rahmah, M. (2019). The use of Hybrid/Blended Learning in Understanding of English Structure Subject to Improve Students' Achievement and Their Digital Literacy. *JHSS (Journal of Humanities and Social Studies)*, *03*(02), 99–102. https://doi.org/10.33751/jhss.v3i2.1467.

Yaniawati, R. P. (2013). E-Learning to Improve Higher Order Thinking Skills (HOTS) of Students. *Journal of Education and Learning*, *7*(2), 109–120. https://doi.org/10.11591/edulearn.v7i2.225.

Yudhiantara, R. A., & Saehu, A. (2017). Mobile-Assisted Language Learning (MALL) in Indonesian Islamic Higher Education. *IJELTAL (Indonesian Journal of English Language Teaching and Applied Linguistics)*, *2*(1), 21–31. https://doi.org/10.21093/ijeltal.v2i1.52.

Yulando, S., Sutopo, S., & Franklin Chi, T. (2019). Electronic Module Design and Development: An Interactive Learning. *American Journal of Educational Research*, *7*(10), 694–698. https://doi.org/10.12691/education-7-10-4.