

## Research Article

# THE DEVELOPMENT OF POLYSYNCHRONOUS-BASED E-LEARNING FOR EFL CLASS

Naajihah Mafruudloh, Fais Wahidatul Arifatin

Universitas Muhammadiyah Lamongan, Indonesia

**Abstract.**

As a result of the effects of COVID-19 spread, the Indonesian government issued a new policy in the educational sector instructing all educational units and institutions to carry out an online learning activity that can be held virtually and accessed everywhere and every time. To support online learning either in real-time or at different times, it usually uses a learning management system (LMS) in which students have more than sufficient time to read and understand the material and discuss it based on their availability. The LMS or e-learning currently implemented at UM Lamongan has several obstacles, such as an unsupported system to do the learning process and less than optimal bandwidth or limited access, so the users prefer to use other platforms. This study aims to develop e-learning media and adapt the system to the needs of learning English. In addition, e-learning media which can be used as asynchronous learning media can be integrated into learning media which are also commonly used for synchronous learning so that all learning processes can be monitored and disciplined. Moreover, the achievement of competence in learning English can be exceeded maximally. This research employed the research and development (R&D) method with the ADDIE model. The researcher used a descriptive quantitative approach. The assessment instruments used were test scores, interviews, observations, and interviews. The parties involved in this research were English lecturers, students, online learning media experts, and English learning material experts.

**Keywords:** *online learning, LMS, Polysynchronous, EFL*

## 1. INTRODUCTION

At the end of January 2020, the World Health Organization (WHO) declared *COVID-19* outbreak as a global pandemic. This pandemic condition forced all activities that tend to cause crowds in the public places to be stopped, including teaching and learning activities at schools and universities. This is according to the evidence and assumptions that this outbreak can be halted by reducing physical and social contacts among students. As a result, the learning process in many countries is carried out virtually. In delivering the teaching and learning virtually, technology is often considered as the delivery method which requires constricted coordination across instructional, content, and technology teams (Mundir et al., 2022). Thus, the development of digital technology

Corresponding Author: Naajihah Mafruudloh; email: lchastudy07@gmail.com

Published 27 April 2023

Publishing services provided by Knowledge E

© Mafruudloh, Arifatin. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the IICB Conference Committee.



is noteworthy in the scope of education in the world, including in Indonesia, one of which is the e-learning-based method (Rahmawati et al., 2021).

Learning is a process that is carried out by students to achieve their goals (Darmika et al., 2019). In teaching and learning process, there are various methods and media that can be used to help the students in achieving learning goals optimally. Specifically, every policy in Indonesian curriculum will certainly bring up and recommend various kinds of learning methods that are considered more encouraging in improving students' competence. In this pandemic, for example, the government instructed all level of education to conduct online learning which brought the changes and the challenges for every party in the education. Moreover, the media will also be improved due to the shift of the conventional classroom setting into the technological-driven class. In terms of students, they will automatically experience the changes and challenges in the way they learn. Students are more required to learn independently, to be more self-regulated and to be more autonomous as online learning offers more flexibility (Hermanto & Srimulyani, 2021).

Online learning is transforming the face of traditional classrooms and making education more available than ever before, something more than just a modern take on distance learning. Online education is a type of education where students use the internet to use their home computers (Saminathan, 2021). Online education, or the so-called computer-based training, web-based training, internet-based training, online training, e-learning, m-learning, distance-based computer-aided education, goes by many names and comes in a number of forms. In general, online education is digitally supported learning that relies on the Internet to interact with teachers/students and to execute teaching and learning. Simply put, a course taught over the Internet is an online class. In most cases, it is normally carried out through a system of learning management in which students can view their course syllabus and academic progress, as well as engaging with fellow students and their teachers of the courses.

However, the implementation of online learning is not without the problems. Some previous research stated that both teachers and students encounter such problems. Some students will have the challenges in adapting to online courses such as lack of direct contact with the faculty, lack of motivation to attend the classes, lack of awareness of independent learning, inactivity in following learning, and time management (Almahasees et al., 2021; Efriana, 2021). Technologically, students face with unfamiliarity on the use of applications during online learning, limited supporting facilities, and internet network access, so it may disrupt their learning (Azhari & Fajri, 2022; Efriana, 2021).

Meanwhile, online learning could also provide new experiences as well as challenges for teachers. Teachers also encounter problems regarding the unpreparedness in implementing online learning. Such obstacles include lack of knowledge in language teaching tools, lack of necessary skills for conducting online learning, inappropriate ICTs tools to be applied in learning during pandemic, large classroom size, heterogeneous classes and limited learning aids (Azhari & Fajri, 2022; Mafruudloh & Fitriati, 2020). Therefore, the teachers should integrate ICT tools, methods, and media properly to facilitate the teaching and learning process.

A wide variety of instructional media are offered at this time, one of which is modern technology-based media. Technology-based media often use computer and modern media information such as social media which are more efficient and effective. The revolution of computer technology which is followed by the change in information and communication technology has brought many impacts in the world of education (Mangesaa & Andayani, 2015). Computer became a powerful tool that can be used to access information through its internet network. Nowadays, the Internet has evolved from being almost non-existent in the last 20 years into the largest, most open knowledge database ever developed to support an online learning. Therefore, the integration of computer and the Internet for teaching becomes inseparable.

Implementing teaching strategies, technique, and media in online classroom setting was different from face-to-face setting (Mafruudloh et al., 2021). In online setting, the teachers could not have direct meeting and instructions, meaning that online learning setting needs proper media and tool. Based on the short and virtual interview in the study, some of the teachers faced crucial same problems such as they feel challenged to apply technology while hoping the learning process could run effectively. Therefore, there is an urgent need to conduct the research which focuses on the use of technology-based media to support EFL class and to obtain the solutions of similar aforementioned problems.

Based on the preliminary study that held by the researchers on 2 March 2022, there were some important cases that should be solved. First, this research concerns on the utilization of institution's e-learning. It is found that there was only one teacher who was active in using e-learning.

In addition, lecturers and students were not familiar with e-learning itself, because there was limited training. Surprisingly, the lecturers felt better and more convenient to use other platforms for teaching such as Edmodo, google classroom, and others than the e-learning platform itself. Moreover, some of them preferred to use other platforms as they are used to the layout of menus, items, and logos as well as the easiness to

navigate the platforms. Then, the reliability of the media, especially when accessed by a large number of users, did not work well. Along with this research, the researchers tried to encourage the lecturers in using the e-learning platform itself and develop an easy and effective e-learning platform for online teaching and learning. This research aimed at (1) knowing how the implementation of e-learning media Polysynchronous-based Learning in EFL class, (2) analyzing the factors that support the success of the media, and (3) identifying the obstacles faced when developing media in EFL class.

## 2. METHOD

This research used Research and Development (R&D) design. Research and development is a process or step to develop a new product or improve an existing product, which can be accounted for (D'Angelo et al., 2018). Broadly, the entire research development process includes a preliminary study of the product based on the results of planning, field testing of products that have been developed, and product refinement based on the results of field tests. Thus, development is more directed at efforts to produce products that are ready to be used in a real and comprehensive manner. This study aims to improve a Learning Management System (LMS) that already exists at UM Lamongan, the name of the LMS is UMLA e-learning. The online learning media will be adjusted to the needs of learning English, so the achievements and targets of competence can run optimally.

## 3. FINDINGS AND DISCUSSION

### 3.1. The Implementation of LMS

This study used the ADDIE model with the stages of Analysis, Design, Development, Implementation, and Evaluation. The product of this research is e-learning media which contains English course material, namely the Intensive English Class (IEC) program in the 6th semester of Hospital Administration (ARS) study program with Reading Comprehension Material.

#### 1. Analysis (Analysis)

The study began with a needs analysis conducted by direct observation in the field, interviewing and observing the students regarding to the underutilization of e-learning. This is evidenced by the number of uses of e-learning platform, especially in English courses that did not exist yet.

This happened for several reasons. Observation results showed that the socialization of the use of e-learning was still not optimal. This is evidenced by the ignorance of students about e-learning facilities which are very useful for asynchronous online teaching needs. Another reason is the limitations of using e-learning media. Some students experienced problems in using it because they were not familiar with the features in e-learning.

## *2. Design (Design)*

The design of e-learning media development consists of 5 stages, namely: compiling the characteristics of the media, compiling an outline of the content material in the media, designing the media, making assessment instruments, and compiling learning activities. The results of this activity are as follows:

### *a. Composing Characteristics*

This e-learning media can be used without being limited by time, so the students can use it outside the classroom independently. It can be accessed on a Notebook or Netbook and Android equipped with software on a PC. E-learning has the characteristics of interactivity where there are accessible materials, communication forums, quizzes, and chat dialogue/discussions that allows

students to interact with lecturers and friends. Users are students and lecturers who are registered in the database. Students need to log in by using the NIM (student identification number) as the username and password given by the researchers.

### *b. Composing Material*

The outline of the material contains the initial plan of the material or topic that will be presented in e-learning. The focus of the material in this study is Reading Comprehension, consisting of understanding long functional text, short functional text, and understanding the content of reading on the TOEFL or English Proficiency Test (EPT).

### *c. Designing Media*

The media used is a Learning Management System (LMS) which can be accessed online anywhere and anytime. This also uses online file storage, so that the materials can be accessed by students. The participants involved are students who already have a username and password to access the media.

### *d. Creating Media Assessment Instruments*

This stage is the preparation of assessment instruments for media experts, material experts, and user response questionnaires. This instrument used a Likert scale. The questionnaire used four answer choices, namely not feasible (1), quite feasible (2),

appropriate (3), and very feasible (4) with 16 questions covering aspects of interactivity and media usefulness. The material expert instrument consists of 17 assessment items covering aspects of content and language. The users respond to 19 questions in the questionnaire covering aspects of learning media, materials, and benefits. The instruments that have been compiled were then validated by the experts. Validation was carried out by 2 expert lecturers.

3. *Development (Development)*

This stage consists of three steps. First, it is setting up the software. The main software prepared is the Moodle 1.9 and XAMMP software. Moodle 1.9 is to create a screen display of e-learning and its facilities. Xampp-win 32-1.7.3 is used to put the database offline. The process of installing the Moodle software on a computer is as follows.

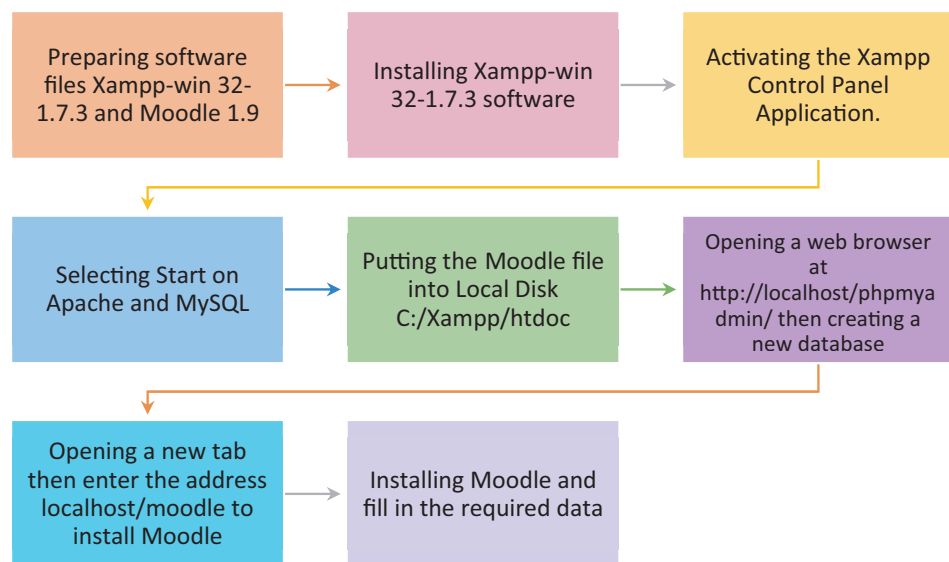


Figure 1: The Flow Chart of Installing Moodle Software.

Second, when Moodle is ready, the new display, facilities, user database, and learning formats are carried out inside. Offline database storage is used to store e-learning data which is made to make it easier to develop the content and appearance of e-learning.

Third, the appearance and facilities of E-learning were made by using available facilities in Moodle. The facilities include material for each topic, tests, discussion forums, uploading assignments and chatting. The following is the display of e-learning.

The front-page display consists of the user’s username and password, the name of the institution, as well as several displays of the logo and image of the institution. After logging in, the following screen will appear.

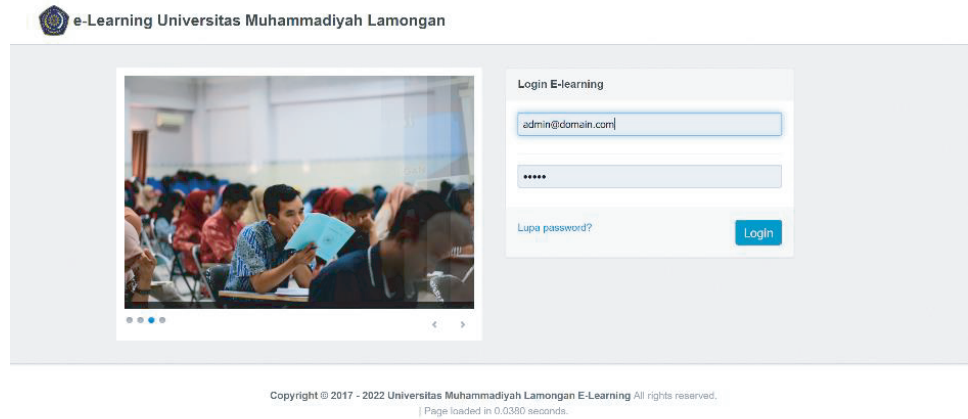


Figure 2: Front Page View.

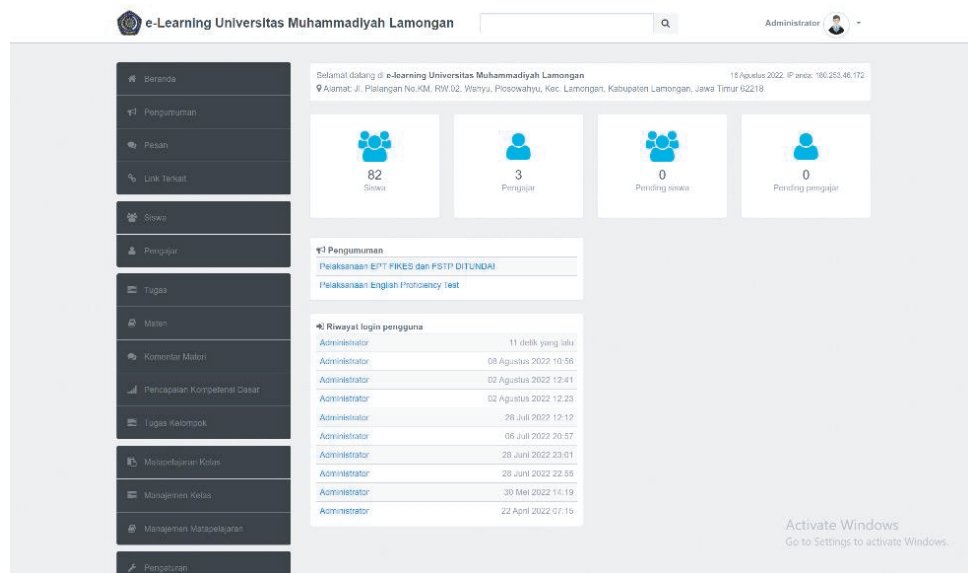


Figure 3: Dashboard Page View.

On that page, there is a description of the institution and several menus such as announcements, messages, discussion rooms, download materials, assignments, class management, etc. The menu and display columns are in accordance with the directions and suggestions of media expert validators.

Fourth, online e-learning network that has been created offline is made online. Domains and hosting are needed to make e-learning online. The process of making offline e-learning to online is (a) preparing a domain and hosting, (b) creating a database to put e-learning on *phpmyadmin*, (c) before making it online, change the e-learning in offline form in the form of a *.sql* file first, (d) import the e-learning file in the form of *.sql* into the prepared database.

Content or material is organized along with display and facility settings. Materials are included in e-learning while being online. Topics are presented as planned in the design section. Materials and assignments are presented in PDF, PPT, Doc, and MP3 formats.

Validation is carried out with the aim of asking for expert judgment about the product weaknesses. Media experts provide suggestions for improvement and assessment of e-learning. After that, improvements are made according to the suggestions that have been given.

#### *4. Implementation*

Products or media that are affirmed feasible by media and material experts are used as implementations for the users. The subjects of this study were 41 students in the Hospital Administration study program. The media were implemented in three meetings. In the first meeting, students were introduced to the web address, namely <http://umla-learning.online/>, students' account, and the media features. In the second meeting, the researcher got 2 x 50 time to carry out research with reading comprehension material. Students accessed e-learning in groups and individually. After discussing the topic, students were directed to do the test questions that have been provided in the e-learning media individually or in groups. Students also could access it by using smartphones. In the third meeting, the researchers conducted an evaluation of the students.

#### *5. Evaluation*

This stage is used to determine the revision of the e-learning media, students' responses to the product, and students' material mastery by grouping test results based on frequency distribution and calculating the average test score. As a result, students' response to the product was good. Other results can be seen in the data analysis below.

The data analysis was conducted to determine learning, the level of feasibility of e-learning and learning outcomes using e-learning. The initial activity was carried out by observing the learning process and consulting the initial product. Then, the product is consulted with media and material experts or validators. The inputs given by media and material experts are used as revisions. E-learning was improved and then tested on 40 students.

##### *a. Media Expert Data*

Media experts/validators provided suggestions for product revisions. Suggestions for product revision, namely learning objectives should be included in the description of each meeting. In addition, media experts recommended adjusting the location and



appearance of the LMS/ e-learning to make it more eye-catching and easier to use. The validation results are given to determine the feasibility of the media expert. The results of this validation were seen from the questionnaires filled out by media experts. The following are the validation results from media experts.

TABLE 1: Media Validation Score.

Aspect	Score	Classification
Material	3.16	Acceptable
Presentation	3.6	Excellent
Evaluation	4	Excellent

From Table 1, it can be concluded that material shown by the researchers obtain 3.16, meaning that it was acceptable. In other words, the materials were good enough to satisfy the need. It was also proper with the subject’s goal in teaching and learning process. It was also appropriate with the goal of polysynchronous learning. Then, other scores were the presentation (3.6) and Evaluation (4). They were classified as excellent aspect, because the point in each aspect was proper with the aims of polysynchronous learning. It seemed more simple, effective, and easy to use.

b. Material Expert Data

Materials expert provided suggestions for product revisions. Suggestions for revision are the material is better available in other types of documents, not only in PDF form. Regarding to the content, the topics should have topic description and learning goals should also be included in each meeting. This will give a chance for students to prepare necessary information related to the material. The validation results shown in Table 2 below.

TABLE 2: Material Validation Score.

Aspect	Score	Classification
Material/ content	3.1	Acceptable
Language	3	Acceptable

Based on the validation result, both content and language aspects belong to the acceptable classification. This means that some components in material were proper for EFL teaching. It is also related with the learning goal, basic competence, learning aid, learning evaluation, etc.

c. The Users Data (students)

Product feasibility test data for students was obtained from questionnaire, while the test result data was obtained from the assessment sheet.

TABLE 3: Implementation Results for Students.

Aspect	Score	Classification
Display & language	2.8	Acceptable
Material/content	2.9	Acceptable
Evaluation	2.9	Acceptable

### 3.2. Factors Supporting Media in Polysynchronous Learning

There were three factors in implementing e-learning media for Polysynchronous Learning in EFL class. From observation and interview data, the first factor is the institution readiness in implementing e-learning. It is important for the institution to provide proper internet connection, teaching and learning aids, and the number of media. Institution should also provide a training in using e-learning both for lecturers and students. This is in accordance with Budhianto (2020), stating that institutions which will implement e-learning should consider the balanced preparation of those three groups of success factors of the implementation of e-learning. From those results, it can be concluded that it is necessary for institution to prepare the readiness of e-learning.

Second, the students' enthusiasm also affects the success of media implementation. Enthusiasm is considered as a key ingredient of effective teaching using e-learning. The students' enthusiasm can be identified in all aspects of the course, one of which is the interaction. In *polysynchronous* learning, a combination of asynchronous and synchronous learning, it would have different ways in interacting and communicating. For example, the students should be active in asking some questions or discussing certain topic in discussion column of e-learning. This is relevant with a study from Yulita (2014). Having curiosity, eagerness, and interest related to e-learning could offer students more easiness to understand the materials, improve capabilities, and expertise in the IT field independently. By doing so, it can promote students' participation and development in e-learning.

Third is the lecturers' willingness. The lecturers should provide interactive media and materials to attract the students' participation. In addition, lecturers also engage in the students' motivation in having *polysynchronous* learning by using e-learning media. In line with this, the implementation of e-learning should include teachers' competency in operating the media which will allow participants in discussing the given task even when they are in different places (Hakim et al., 2018). Therefore, the use of e-learning in teacher competency development needs to create a conducive learning environment.

### 3.3. The Obstacles That Were Faced in Implementing e-Learning

From interview results, most respondents complained about the quality of internet network. The students who accessed e-learning came from different area with different internet connection. Some of them lived in rural area which had limited and poor internet connection. One of the solutions is that they can access it from public places with reliable network quality. Related to this, online teaching and learning as a new program sent doctrine through the internet network (R. Feldman & Zucker, 2002). On the other hand, it is against the government's program who are required to as much as possible avoid crowds and out-door activities around the house, but with this obstacle, they were forced to leave the house to join online learning well without any limitations.

The next obstacle is that they complained about the problem of learning services provided by lecturers. Most lecturers only provide attendance lists to fill out, distribute teaching materials/modules, ask the respondents to study on their own, and assign to do given task. Learning materials by using technology in the high level complete extraordinary intuition about the causes which affect students' acknowledgment about online language learning (J. K. Macharia & Pelser, 2012).

Having insufficient content knowledge is another obstacle. The respondents considered that sometimes the lecturers did not provide sufficient explanation about certain topics. Teachers must know the subject they teach because teachers who do not have good comprehension in their subjects are not likely to have the knowledge they need to help students learn the content (Loewenberg Ball et al., 2008). Thus, in implementing online language learning, every teacher should have different skill, good ability, and background of knowledge (Mafruudloh et al., 2021). To deal with this, it was frequent that the students asked questions through the chat box or comments.

To overcome obstacles in understanding the lecture material, respondents opened the website or other sources which has necessary information and explanation related to their topic. Thus, they could understand the materials effectively and comprehensively.

## 4. CONCLUSION AND RECOMMENDATION

The purposes of this study were developing e-learning, investigating the factors that support e-learning, and investigating the obstacles that faced in implementing e-learning. This research used ADDIE model, which developed *polysynchronous* based e-learning for EFL class. Institution readiness, students' enthusiasm, and teachers' willingness supported e-learning implementation. Those factors reinforced participation

in teaching and learning process. In implementing e-learning, some obstacles might appear, such as teaching and learning aids, background of knowledge, and limited media. In the end, to overcome those challenges every aspect should improve their capability in comprehending the material, adding some teaching learning aids, and improving knowledge by looking for information in other sources.

## References

- [1] Almahasees Z, Mohsen K, Amin MO. Faculty's and students' perceptions of online learning during COVID-19. *Front Educ (Lausanne)*. 2021;6:1–10.
- [2] Azhari B, Fajri I. Distance learning during the COVID-19 pandemic: school closure in Indonesia. *Int J Math Educ Sci Technol*. 2022;53(7):1934–54.
- [3] Budhianto B. Analisis perkembangan dan faktor yang mempengaruhi keberhasilan pembelajaran daring (e-learning). *Jurnal AgriWidya*. 2020;1(1):11–29.
- [4] D'Angelo T, Bunch JC, Thoron AC. Instructional design using the Dick & Carey systems approach. *Edis*. 2018;2018(2):1–5.
- [5] Darmika IP, Gunatama G, Sutama IM. Penggunaan E-learning dalam pembelajaran bahasa Indonesia di SMA Negeri Bali Mandara. *Jurnal Pendidikan Bahasa Dan Sastra Indonesia Undiksha*. 2019;8(2):260–72.
- [6] Efriana L. Problems of online learning during Covid-19 pandemic in EFL classroom and the solution. *JELITA*. 2021;2(1):38–47.
- [7] Feldman R, Zucker D. Teaching and learning online-communication, community, and assessment. Massachusetts: University of Massachusetts; 2002.
- [8] Hakim L, Sinaga P, Setiawan A. Tanggap guru terhadap penggunaan E-learning dalam pembelajaran fisika. *Jurnal Dosen Universitas PGRI Palembang*. 2018;1–8. Retrieved from <https://jurnal.univpgri-palembang.ac.id/index.php/prosiding/article/view/1543/1348>
- [9] Hermanto YB, Srimulyani VA. Challenges of learning during the Covid-19 pandemic. *Jurnal Pendidikan Dan Pengajaran*. 2021;54(1):46–57.
- [10] Loewenberg Ball D, Thames MH, Phelps G. Content knowledge for teaching: what makes it special? *J Teach Educ*. 2008;59(5):389–407.
- [11] Macharia JK, Pelsler TG. Key factors that influence the diffusion and infusion of information and communication technologies in Kenyan higher education. *Stud High Educ*. 2012;39(4):695–709.

- [12] Mafruudloh N, Arifatin FW, Chasanah U. The role of technology in online learning: an examination towards English teachers' perception and practices. *PROJECT*. 2021;4(2):267–77.
- [13] Mafruudloh N, Fitriati R. The effect of project based learning to the students' speaking ability. *Celtic: A Journal of Culture, English Language Teaching*. Lit Lingüíst. 2020;7(1):57–64.
- [14] Mangesaa RT, Andayani DD. The effectiveness of media implementation in competence-based learning integrated with character building in vocational high schools. *Proceedings of the 3rd UPI International Conference on Technical and Vocational Education and Training*, <https://doi.org/10.2991/ictvet-14.2015.37>.
- [15] Mundir A, Ahmed AA, Keezhatta MS, Khair Amal B, Sharma S, Shanan AJ, et al. A. A. A., Keezhatta, M. S., Khair Amal, B., Sharma, S., Shanan, A. J., ... & Farooq Haidari, M. M. (2022). The comparative effect of online instruction, flipped instruction, and traditional instruction on developing Iranian EFL learners' vocabulary knowledge. *Educ Res Int*. 2022;2022:1–9.
- [16] Rahmawati, Sihombing C, Ginting EKB, Arimonnaria E. The effect of E-learning on students speaking skill progress: A case of the seventh grade at SMP Pencawan Medan. *Indonesian EFL Journal*. 2021;7(1), 69–77. <https://doi.org/https://doi.org/10.25134/ieflj.v7i1.3995>.
- [17] Saminathan V. Problems of online classes. *International Journal of Academic Research Reflector*. 2021;9(6):1–3.
- [18] Yulita H, Sumber D, Manusia D. Faktor-faktor yang mempengaruhi efektivitas dan motivasi mahasiswa dalam menggunakan metode pembelajaran E-Learning. *Business & Management Journal Bunda Mulia*. 2014;10(1):1–15.