



The Development of E-Learning Media by Using Eduflow Application Spermatophyta Material

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Abstract:

Along with the development of science and technology, the use of ICT is also carried out in Biology learning. This ICT utilization can be in the form of eduflow-based learning media. This study aims to know validity of eduflow based learning media, understanding and media feasibility from student responses. The development model used was the Sugiyono development model with several stages in research and development. The data collection technique used was a questionnaire with descriptive quantitative data analysis. Before being mass-produced, validation of the feasibility of the media was carried out by the material experts with the percentage at 92% (very good) and learning media with the percentage 88% (very good). After revision, the media was tested in a small group of 16 students of the 10th science grade. The result of the analysis showed that the eduflow-based learning media is classified as very good so this media is suitable for use in the Biology Spermatophyta material.

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Introduction

The utilization of Information and Communication Technology (ICT) that is developing in various field also encourages an innovation in its use in the learning process and management, along with the development of Science and Technology (IPTEK - *Ilmu Pengetahuan dan Teknologi*) (Sawitri, et al., 2019; Riwayadi, 2013). A teacher should be able to use ICT in learning so that can improve a students' motivation and interest to follow the learning activity (Arsyad, 2011; Abdullah, 2017).

The utilization of ICT in education field can be done by using an ICT-based learning media. The utilization and the development of ICT ad a learning media is widely developed in the form of various innovation application (Haryati, 2012). The learning media can be developed by the teacher himself, as the class manager. Asyhar (2012) stated that the development of media that is done by the teacher himself will be more effective and avoid a mismatch because it is arranged with the students' needs and characteristics also the condition around.

According to Wibawanto (2017), the learning media that developed is a right step tp help the teacher gives the appropriate material with the students' needs and characteristics. It is also supported by Asyhar (2012) that the learning media development which be done by the teacher can avoid the using media that is not appropriate with the students' needs and materials. With the hope, it can make a positive interaction among the teacher, the students and the learning media. The learning media is a mediator to ease the teacher to deliver the material well to the students so that the learning purpose can be fully reach (Nurrita, 2018).

A good technology development is also followed with the variety and innovative learning media development. One of the technology utilizations in the learning media is the use of Learning Management System (LMS) (Alami, 2020; Hardinata et.al, 2018). LMS is a web-based software that help a teacher to manage the learning process and result such as deliver the learning material, giving the assignment, collecting and giving a score to the assignment also make assignment result score (Hernawati & Aji, 2016). The use of LMS such as Google Classroom, Edmodo, Moodle, and LMS owned by a university or a school in the learning has been developed.

One of the LMS that still rare used is Eduflow, which is the web-based application that can be accessed by handphone or PC which has a tagline platform that is easier and stronger to manage a social learning in a big scale. The application that can be accessed through <https://app.edufLOW.com/> website may allow the learning to be more effective with the active participant and the students cooperation (Bhati & Kumar, 2020). One of this platform's characteristics is the peer review facility that allows the students to share their arguments and evaluate their friend's argument through the friends' evaluation activity.

The use of LMS in the learning is a part of e-learning. E-learning is an online learning system or in network, without meeting and time bound, so it can be done whenever and wherever (Sukanto, 2020). In the e-learning, the material can be given by the teacher to the students with the upload file system, so that the students can download the material in form of PDF, document or multimedia.

Beside of that, the students also can interact with their classmate, checking the subjects and do the assignment or quiz so that the interaction is still formed in the class. The material, assignment and quiz that are arranged by the teacher can be customized with the students' characteristic and the taught class (Sihotang, 2017).

At first, the purpose of e-learning was to complete the face-to-face class or offline class, not to change the face-to-face class. However, in its development, it can be reliable to manage a full online learning (Saifuddin, 2017; Lutfiyah & Sulisawati, 2019; Elizah, et al., 2022). This use of e-learning can develop the students' interaction and activity also the efficiency in the learning implementation because it gives students a chance to communicate more with their teacher and friends, also can explore more learning sources (Endawan & Yati, 2021; Sagita & Nisa, 2019). The use of Eduflow LMS to Biology subject virtual learning (e-learning) also can be developed, as in the topic of Spermatophyta.

Spermatophyta is one of Biology's materials that taught at the 10th grade of Senior High School in the second semester. In the spermatophyta material, it is also discussed a classification which are Gymnospermae and Angiospermae. This material is also discussed a classification and example of the plants that include in the two categories (Suwarno, 2007). The characteristic of material that quite a lot and need a high memory, make the students have a difficulty in understanding the concept well. Therefore, the eduflow learning media that can support the online learning and help the students to understand the material well is needed.

The eduflow learning media as the part of e-learning can be used in the

spermatophyta material. This media can be developed with upload a picture or video that related to the spermatophyta material so it helps the students understand the concept well. With learning the picture or video in eduflow, the students can learn the spermatophyta material virtually. The development of eduflow learning media in the spermatophyta material can foster students' interest to follow a lesson eventhough it is done by online.

The learning media that will be used in the spermatophyta material can help the students to learn indepently; foster the students' interest; and increase the concept understanding in that material (Irawati & Sofianti, 2019; Fitriani, 2020). Beside of that, with the peer review activity in the eduflow media can make the students keep the interaction with their friends like what happen in the offline class. It really shows that the eduflow learning media in the spermatophyta material is needed to be developed.

Based on the explanation above, then this research aims to know the students understanding and the eduflow media feasibility in Biology learning Spermatophyta material.

Research Method

The method that was used in this research was Research & Development (R&D) that adopted from Sugiyono (2010), with the purpose to produce a product and test the effectiveness of that product. The steps of the research and development consist of several steps, as follows: (1) Analyzing the potential and the problem, (2) Collecting the data, (3) Designing the product, (4) Validating the design, (5) Fixing the product, (6) Doing the product trial, (7) Revising the product, (8) Doing a trial use, (9) Re-revising the

product, and (10) Mass production. Because the lack of time and cost, this media development was only be done until the sixth step, which is doing the product trial. The research subject were

the 16 students of 10th grade, to know the understanding and the feasibility of this media. The step of the research and development on Figure 1.

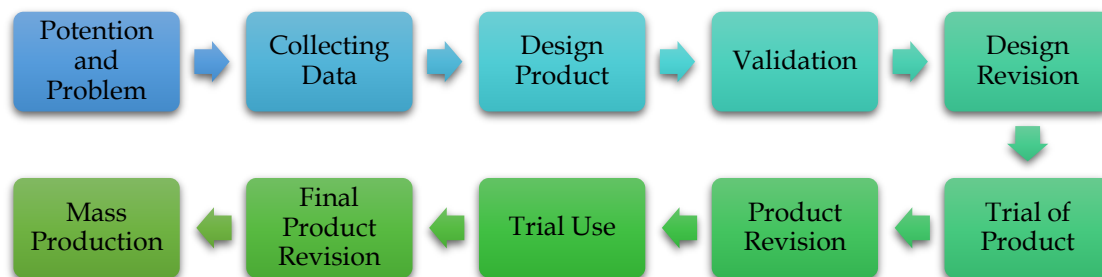


Figure 1. The Steps of Research and Development (R&D)

Here is the detail explanation on each development steps:

1) Potential and Problem

This step was digging a potential and problem that occur in the sample class by doing an interview to the chemistry teacher also doing an observation to the learning.

2) Collecting the data

The collecting data was done by a documentation method. In this step, the researcher collected the syllabus, lesson plan, also the students' assignments that related to the spermatophyta material. Beside of that, collecting a related literature is also done.

3) Designing the product

In this step, the product design that will be developed in the form of the eduflow learning media was done. In it is also determined the learning indicator and purpose in spermatophyta that will be reached. After that, the learning media is developed appropriate to the arranged design.

4) Validating the design

The product that had been developed, validated by the material and media experts. In this case, the one who validate was material and media expert.

5) Revising the design

The revision was done to the eduflow learning media based on the suggestion from the material and media experts as the validator.

6) The product's trial

To know the understanding and the feasibility from the developed media, then the product's trial to the 16 students of 10th science grade was done.

The research instrument that was used on the step 4 and 6 was questionnaire. The questionnaire was used to collect the data of validation result, understanding and feasibility of media to the students through a small group test by using *likert* scale. This scale was used to measure an attitude, opinion or perception of a sample related to the social symptom (Riduwan, 2011).

The obtained data was analyzed with using a formula as follows (Riduwan, 2011):

$$\rho = \frac{\sum F}{\sum N} \times 100\%$$

Description:

p = percentage;

ΣF = answer score;

ΣN = total score

Table 1. The Overall Scale of Product Rating

No	Rating Scale	Percentage	Category/Quality Aspect
1.	4	76 – 100	Very Good
2.	3	51 – 75	Good
3.	2	26 – 50	Not Good
4.	1	0 – 25	Very Not Good

Finding and Discussion

The resulted product was the e-learning media in the form of LMS with the eduflow application that can be used in Biology learning Spermatophyta material for the 10th science grade of Senior High School. The development of eduflow media was done through several steps which were the needs and potentials analysis, the media design in the form of storyboard designing, making an developing the media, media validating to the material and media experts, doing a revision, product trial in the form of feasibility test. Here is the research result of every development step that had been done.

1) Potential and Problem

Through the interview and observation to the teacher at the school, it was obtained that the students had a difficulty in learning spermatophyta during online learning. In line with the statement by Rahma and Ristiono (2021) that the online learning process has many obstacles so that the learning is not maximal. One of the obstacles is the utilization of ICT-based learning media is still less. The use of learning media that underutilized the ICT caused the

students were less interest and enthusiastic to learn spermatophyta. The students need to be helped by the media of picture, video or summary that ICT-based to ease them learning the spermatophyta material by online.

2) Collecting the data

The next step was collecting the data to determine the indicator, purpose and material that would be used. The material determination was done by studying the science curriculum, syllabus, and text book that the students used first so that it was obtained the appropriate material theme to be presented in the web-based e-learning media. In this case, the chosen material was spermatophyta, which is the material in Biology subject at the 10th grade of senior high school, and appropriate to the curriculum 2013. The characteristic of this material was quite a lot and need a high memory so that it needed an interesting and easy learning media for the students. One of the media that can be used is eduflow. Here are the students learning process that became a reference in the learning using the eduflow media.

Table 2. The Spermatophyta Material Learning Purpose

No	Learning Purpose
1	By the literature review activity, the students can classify the spermatophyta by giving a chance to other people to express their opinion
2	By the literature review and discussion, the students can collect information about the role of spermatophyte

No	Learning Purpose
3	By the learning video, the students can identify the features and characteristics of Angiospermae and Gymnospermae
4	By the video observation and discussion, the students can differentiate the characteristics of dicot and monocot plants
5	By the observation of picture and video, the students can explain the role of Angiospermae and Gymnospermae

3) Designing the product

Designing the product was done by arranged the storyboard and developed the spermatophyta material including the needed media such as picture, video, and power point. This development was customized with the learning purpose that had been

determined. The material, picture and video which would be used were uploaded on the edufLOW so that the learning activity that ready to be utilized by the students was obtained. Here is the result of Biology learning media development, it showed on the Figure 2, 3, 4, and 5.

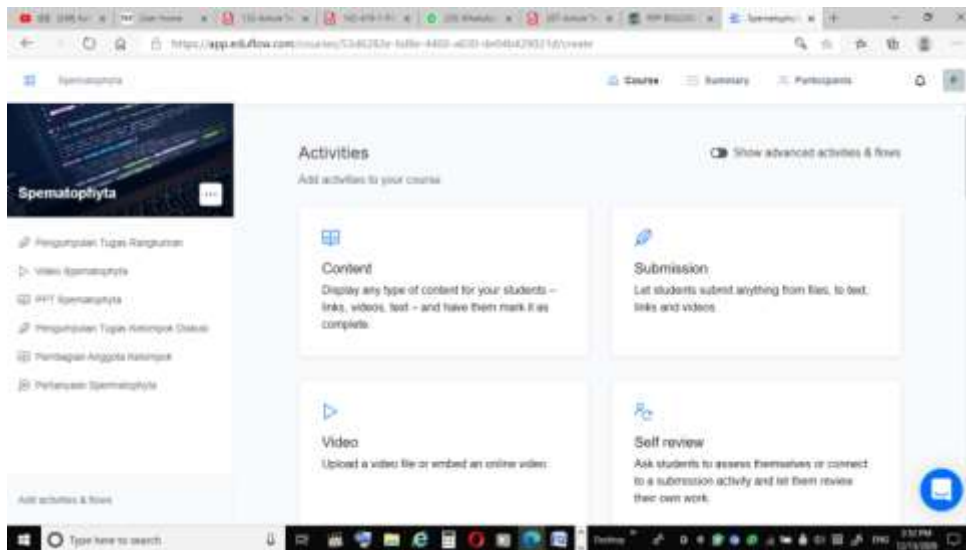


Figure 2. Main Page Menu (Home)



Figure 3. Material Page (Video)



Figure 4. Material Page (Power Point)

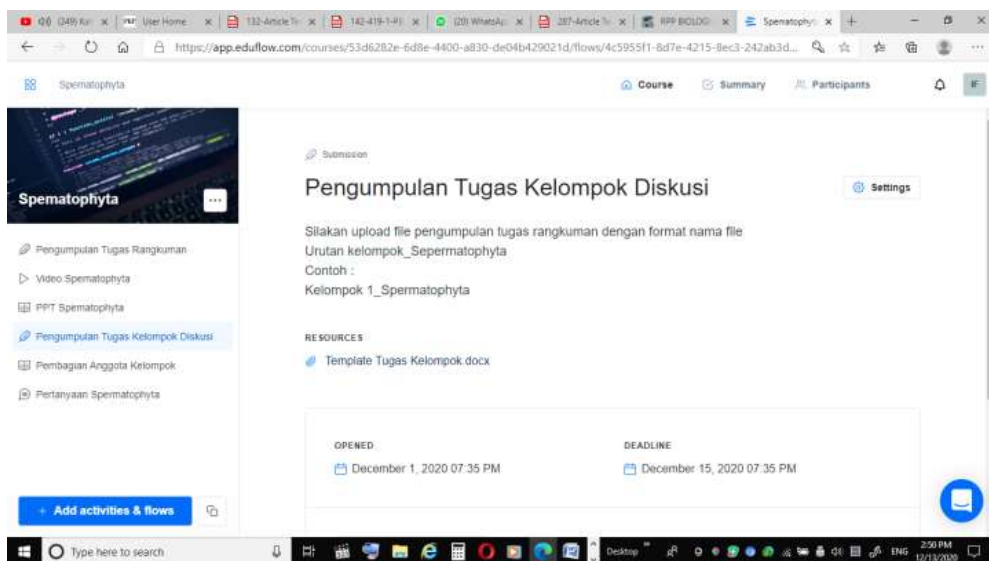


Figure 5. Evaluation Page

1) Validating the design

The result of validation of the learning media with the eduflow application was done by 1 material expert and 1 media expert. The result of this step showed that the eduflow media was very good and could be used in the spermatohyta material learning. The detail of the media validation result is showed on the Table 2.

Table 2. The Eduflow Media Validation Result

No	Validation	%	Criteria
1	The material expert	92	Very Good
2	The media expert	88	Very Good

The material and media expert test were to give validation and approval to the media feasibility that had been developed. Based on the expert test that was done, the eduflow learning media was very good and feasible to be used in the learning. Eventhough there were

some revisions that need to be done on the media.

2) Revising the product

Revising the product was done appropriate with a suggestion from the validators, both the material expert and the media expert. Generally, the material whether in the form of summary, picture, or video had been appropriate. However, the used picture was still unclear/blur so it needed to be changed. Beside of that, the revision was done to the typo words.

3) The product's trial

Then the learning media that had been validated was tested to the students of 10th grade with a small sample.

The learning media understanding and feasibility was analyzed from the students' response to the eduflow media. Here is showed on the Figure 6 about the material understanding aspect analysis result.

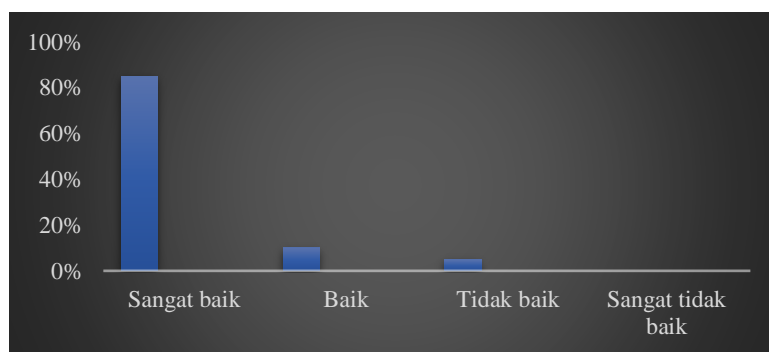


Figure 6. The Students' Response about the Media Understanding Aspect

The feasibility of the learning media through the eduflow application in Biology learning Spermatophyta

material from the students' response is showed on the Figure 7.

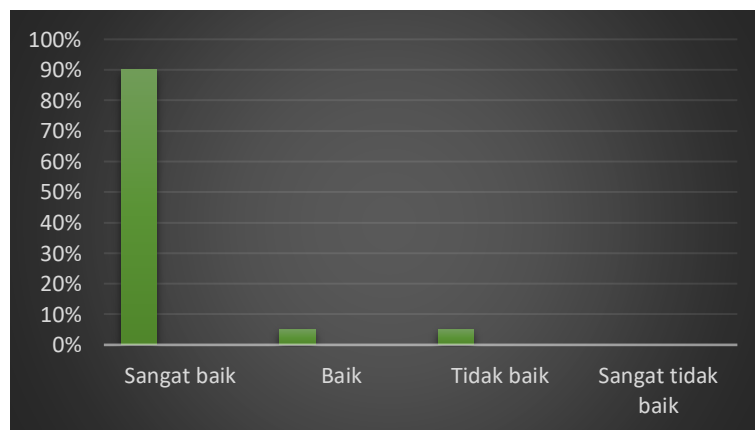


Figure 7. The Students' Response about the Media Feasibility Aspect

Based on the Figure 6, it showed that the students' response was very good to the spermatophyta material understanding on the used learning media with a percentage at 85%. It showed that the

eduflow media on the spermatophyta material feasible to be classified in the E-learning, and it supported with the right learning strategy and evaluation, it could help to reach the effective learning

purpose (Sadikin, 2018; Subekti, et al., 2018).

The result of the eduflow media in Biology learning spermatophyta material feasibility test from the students' response got a percentage at 90% and classified as very good. It showed that this application was categorized as feasible to be used in the learning. The eduflow media could be used well and had no crash/error when the application was running. The material, content and concept in the application were quite complete and appropriate, generally, the media display was already interesting also the students could use the application easily. It appropriates with Asyhar's opinion (2014) that a feasible media is the media that has a clear material and orderly arrangement so that classified as the quality media and can be utilized well in the learning.

Based on the research result, the students stated that the eduflow-based Spermatophyta learning is the application that is quite interesting and easy to use. This application is different from the previous application. The advantage of this application is it has many feature kinds such as peer review assignment submission form (evaluation) whether it is for the friends (classmate), teacher, or themselves. According to Hermawan and Hidayat (2016), the eduflow application has several advantages which is it can be used by the user with utilizing a web browser in the computer or smartphone.

The implication of this research for the students and teacher is the eduflow media can be used interactively in the Spermatophyta material. It is intended to increase the students' material understanding, also their motivation. Beside of that, the students will be easily accessed the media wherever and

whenever according to the students' need and chance.

Conclusion

Based on the research and discussion above, the conclusion is obtained as follows, the material and media expert result state that the learning media on the Spermatophyta material with the eduflow application is very good and deserve to be used in the learning. The result of the understanding and feasibility test from the students' response states that the eduflow learning media is very good and feasible to be used as the learning media in Biology learning Spermatophyta material.

References

- Abdullah, R. (2017). Pembelajaran dalam perspektif kreativitas guru dalam pemanfaatan media pembelajaran. *Lantanida Journal*, 4(1), 35-49.
- Alami, Y. (2020). Media pembelajaran daring pada masa covid-19. *Tarbiyatu wa Ta'lim: Jurnal Pendidikan Agama Islam*, 2(1), 49-56.
- Arsyad. (2011). *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada
- Asyhar. (2012). *Kreatif Mengembangkan Media Pembelajaran*. Jakarta: Referensi Jakarta Dimarzio, J F. *Android a Programmers Guide*. United Sates Of Amerika: MC GrawHill Companies
- Asyhar. (2014). *Kreatif Mengembangkan Media Pembelajaran*, ed.rev. Jakarta: Gaung Persada Press.
- Bhati, P., & Kumar, I. (2020). Role of library professionals in a pandemic situation like COVID-19. *International Journal of Library and Information Studies*, 10(2), 33-48.
- Elizah, F., Warsah, I., Warlizasusi, J., Faishol, R., & Asha, L. (2022).

- Manajemen Pembelajaran Berbasis E-Learning di Masa Pandemic Covid 19. *Jurnal Ilmiah Ar-Risalah: Media Ke-Islaman, Pendidikan dan Hukum Islam*, 20(1), 051-072.
- Endawan, A. D., & Yati, D. D. (2021). Analisis Komunikasi Kegiatan Belajar Mengajar Berbasis Daring (E-Learning). *JIRA: Jurnal Inovasi dan Riset Akademik*, 2(10), 1407-1420.
- Fitriani, Y. (2020). Analisa pemanfaatan learning management system (LMS) sebagai media pembelajaran online selama pandemi covid-19. *Journal of Information System, Informatics and Computing*, 4(2), 1-8.
- Hardinata, R., Murwitaningsih, S., & Amirullah, G. (2018). Pengembangan Mobile Learning Sistem Koordinasi Berbasis Android. *BIOEDUSCIENCE: Jurnal Pendidikan Biologi dan Sains*, 2(1), 53-58.
- Haryati, S. (2012). Research and Development (R&D) se bagai salah satu model penelitian dalam bidang pendidikan. *Majalah Ilmiah Dinamika*, 37(1), 15.
- Hermawan, R., & Hidayat, A. (2016). Sistem Informasi Penjadwalan Kegiatan Belajar Mengajar Berbasis Web (Studi Kasus: Yayasan Ganesha Operation Semarang). *Evolusi: Jurnal Sains dan Manajemen*, 4(1). Kadir. (2008). Dasar Pemrograman Web Dinamis Menggunakan PHP, Andi Offset, Yogyakarta.
- Hernawati, E., & Aji, P. (2016). Perancangan dan penerapan konten e-learning melalui learning management system dalam meningkatkan motivasi belajar studi kasus pada mata kuliah Pemrograman Basis Data. *Journal of Information Systems Engineering and Business Intelligence*, 2(1), 23-32.
- Irawati, R.K. & Sofianto, E.W.N. (2019). Pengembangan Worksheet Materi Asam dan Basa Menggunakan Model POE berbasis Potensi Lokal Kalimantan Selatan. *Jurnal Inovasi Pendidikan Kimia*, 13(2), 2370-2382
- Lutfiyah, L., & Sulisawati, D. N. (2019). Efektivitas Pembelajaran Matematika Menggunakan Media Berbasis E-Learning. *Jurnal Pendidikan Matematika: Judika Education*, 2(1), 58-65.
- Nurrita, T. (2018). Pengembangan media pembelajaran untuk meningkatkan hasil belajar siswa. *MISYKAT: Jurnal Ilmu-ilmu Al-Quran, Hadist, Syari'ah dan Tarbiyah*, 3(1), 171.
- Rahma, M. & Ristiono. (2021). Tinjauan Hasil Belajar dalam Jaringan pada Mata Pelajaran Biologi di Beberapa SMA di Pesisir Selatan. *Journal for Lesson and Learning Studies*, 2(2), 224-229.
- Riduwan. (2011). *Dasar-dasar Statistika*. Bandung: Alfabeta.
- Riwayadi, P. (2013). Pemanfaatan Perkembangan Teknologi Informasi Dan Komunikasi Untuk Kemajuan Pendidikan Di Indonesia. *available at PLS-UM Database*.
- Sadikin, A. (2018). The Implementation of Learning Journal to Improve University Students' Motivation in Basic and Process of Learning Biology Subject. *Bioeducation Journal*, 2(1), 70-75.
- Sagita, M., & Nisa, K. (2019). Pemanfaatan e-Learning bagi para pendidik di era digital 4.0. *Jurnal Sosial Humaniora Sigli*, 2(2), 35-41.
- Saifuddin, M. F. (2018). E-learning dalam persepsi mahasiswa. *Jurnal Varidika*, 29(2), 102-109.

- Sawitri, E., Astiti, M. S., & Fitriani, Y. (2019, July). Hambatan dan tantangan pembelajaran berbasis teknologi informasi dan komunikasi. In *Prosiding Seminar Nasional Program Pascasarjana Universitas PGRI Palembang*.
- Sihotang, Hengki Tamando (2017). Pembuatan Aplikasi E-Learning Pada SMK Swasta Pariwisata Imelda Medan. *Jurnal Mantik Penusa*, Vol. 1, No. 2
- Subekti, Taufiq, Susilo, Ibrohim, & Suwono. (2018). Mengembangkan Literasi Informasi Melalui Belajar Berbasis Kehidupan Terintegrasi Stem Untuk Menyiapkan Calon Guru Sains Dalam Menghadapi Era Revolusi Industri 4.0: Review Literatur. *Education and Human Development Journal*, 3(1).
- Sukanto, D. (2020). Pembelajaran Jarak Jauh Dengan Media E-Learning Sebagai Solusi Pembelajaran Pada Masa Pandemi Corona Virus Disease 2019 (Covid-19). *Syntax*, 2(11), 835.
- Suwarno. (2007). *Panduan Pembelajaran Biologi Untuk SMA&MA Kelas X*, Jakarta : KaryaMandiri Nusantara.
- Sugiyono. (2010). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R & D)*. Bandung: Alfabeta.
- Wibawanto. (2017). *Desain dan Pemrograman Multimedia Pembelajaran Interaktif*. Jember : Cerdas Ulet Kreatif.