

Interactive Learning Media Based on Website in Vocational School

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Article Info

Abstract

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This study aims to develop website-based interactive learning media in the vocational school. This research is a type of R and D research using the Four-D model, namely: define, design, develop, and dissemination. The data used are primary, namely data directly from the source, including experts as validators, educators, and students. Data collection was carried out through tests, questionnaires, and interviews. The data analysis used was referential statistical analysis to test the validity of the data, practicality, and effectiveness. This study indicates that this website-based interactive learning media is valid, practical, and effectively used as a learning media. Based on the validity, practicality, and effectiveness of test results, website-based interactive learning media can be developed, which can be a renewal in overcoming learning difficulties of students of SMKN 2 Padang on computer and basic network subjects. Therefore, it can be concluded that the learning process and outcomes can be improved through website-based interactive learning media.

Kata kunci:
Media Pembelajaran
Interaktif
Website

Abstrak

Penelitian ini bertujuan untuk mengembangkan media pembelajaran interaktif berbasis website di SMK. Penelitian ini merupakan jenis penelitian R & D dengan menggunakan model four-D yaitu: define, design, develop, dan dissemination. Data yang digunakan adalah data primer yaitu data langsung dari sumbernya meliputi: ahli sebagai validator, pendidik dan peserta didik. Pengumpulan data dilakukan melalui tes, angket, dan wawancara. Analisis data yang digunakan adalah analisis statistik referensial untuk menguji keabsahan data, kepraktisan, dan keefektifan. Hasil penelitian ini menunjukkan bahwa media pembelajaran interaktif berbasis website ini valid, praktis dan efektif digunakan sebagai media pembelajaran. Berdasarkan hasil uji validitas, kepraktisan, dan keefektifan dapat dikembangkan media pembelajaran interaktif berbasis website yang dapat menjadi pembaharuan dalam mengatasi kesulitan belajar siswa SMKN 2 Padang pada mata pelajaran komputer dan jaringan dasar. Dengan demikian dapat disimpulkan bahwa proses dan hasil pembelajaran dapat ditingkatkan melalui media pembelajaran interaktif berbasis website.

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INTRODUCTION

The development of learning media is an integrated activity to prepare learning documents, such as curriculum, syllabus and lesson plans (RPP), and others (Asyhar, 2012). With integrated learning media in each lesson, it will be easier for teachers to convey learning to students more clearly, effectively, and efficiently. According to Asyhar (2012:93), messages transmitted through a medium by the source/sender of the message will be communicated to the target recipient of the message or receiver if there is a similar area of experience between the message source (source) and the message recipient (receiver).

The learning process integrated through the internet network can make it easier for teachers to deliver learning materials. The internet is a computer network intended for corporate or individual institutional environments in obtaining valuable and valuable information to provide convenience in the teaching and learning process in schools (Kuswayatno et al., 2007:2). In the current era, the internet can be used by educational institutions or other institutions both in groups and individually openly. Nevertheless, many lessons have not used the internet (website-based) as a good learning medium in reality. They can even support success in providing learning materials in schools' teaching and learning process.

Initial observations show that computers and essential networks at SMK Negeri 2 Padang are still low. This factor was allegedly caused by: (1) there is still limited learning process in schools, which the teacher conveys to students, only three hours per week, the time provided by the teacher, (2) the lack of supporting facilities for learning media so that students are less two focused in the learning process, (3) computer-based learning media used by teachers have not been maximized, such as the internet and computer-based media supported by software applications, (4) students have not maximized in completing or applying knowledge, skills that have mastered predetermined competency standards.

One of the computer-based media that can be developed into learning media in schools is website-based learning media. A website is a living and growing document (Attamimy, 2007:26). Websites also can develop documents with attractive appearances on the required data in the given information. The website is a tool for service management in organizations to make it more accurate, effective, and efficient (Huda et al., 2017). Organizational services are essential in conveying information from collections of pages on a website to recipients.

A website or site is a collection of pages that display some information in the form of text, still or moving image data, animation data, sound, video, or a combination of all of these with various kinds of visuals, both static and dynamic. These data form a series of interconnected building systems, each of which is linked by networks to other networks on the page. The website used for the media can accommodate text, images, animation, and sound data, which can be displayed on the internet. This information can be accessed by other computers connected to the internet with one another. The web consists of pages or pages and a collection of pages called the homepage. The homepage is in the top position, with related pages at the bottom. Usually, each page under the homepage is called a chill page, which contains hyperlinks to other pages on the web (Gregorius, 2000:30).

To get a good quality in website development, it must be supported by the software used by users, even for other users, as a necessity in website development. One of the software used in website development is MySQL which stands for Structured Query Language. MySQL is a very popular database processing software, especially among users of the Unix-based operating system. For MySQL Administration, the `mysqladmin` command is used as follows: `mysql> mysqladmin [command]` Information for running MySQL database applications can be seen through the documentation provided using the syntax. There are several syntaxes in using the MySQL language: Create Database, Drop Database, Create Table, Drop Table, Insert, Update, Delete, and Select (Query).

Several studies have revealed that the use of website learning media can create a pleasant learning atmosphere. Research conducted by Khaidir in 2016 showed that learning media using website-based media was about increasing student interaction with their interest in learning and increased student learning outcomes. Website-based learning also makes it easy to help students understand lessons easily. Furthermore, research conducted by Meta (2017) concerning the development of learning which is website-based on KKPI subjects at SMKN 3 Padang, shows that the learning tools have been said to be valid in the aspects of lesson plans learning media. Teacher responses obtained practical practicality of lesson plans and learning media and the effectiveness of learning devices that are said to be effective in improving student learning outcomes. Nugroho et al. (2013) developed a website-based learning media for the Programmable Logic Controller subject. In this development, the researcher conducted a feasibility test on learning media which material experts and media experts covered. The results in this study indicate that the success of learning media developed with the planning and development stages, the increasing validity of learning media, and increasing student learning values is an alternative solution to overcome the problem of effectiveness in learning. The research was also done by Agung (2016), who developed web-based learning media on productive subjects in computer and network engineering in vocational high schools. The study results indicate that the learning process in Computer and Network Engineering at SMK using web-based learning media. The student's learning achievement is increasing and interesting. It is seen from the learning outcomes that meet the requirements of valid, practical, and effective learning completeness criteria. The validity was tested or validated the instrument and validated the product by two media experts.

According to the studies mentioned earlier, establishing website-based learning media is a media tool that can be utilized in the teaching and learning process to boost student motivation and interest in developing independent behaviour to optimize their knowledge. However, there remains one remaining impediment to building a website-based learning media. These limits apply to the presentation of the website's content. Typically, content is displayed in one way on a website-based learning three media to accommodate students' ability. The website consists solely of a series of assignments that students must complete and read on their own. As a result, this study attempts at reform, which is fundamentally different from past studies. Researchers employ interactive website-based learning media to demonstrate that it can maximize students' capacity for overcoming learning challenges. This study focuses on designing an alternate website-based learning medium employed in the SMK learning process but has not been widely established.

METHODS

The research method employed is that of Research and Development (R&D). The approach for producing web-based learning media for use in this learning process is based on Sivasailan Thiagarajan's, Dorothy S. Samuel's, and Melvyn I. Semmel's Four-D model (1974). This model is divided into four stages: Define, Design, Develop, and Disseminate, or it can be modified into a four-dimensional model. The trial involved XTKJ Class students enrolled in Computer and Basic Network studies at SMK Negeri 2 Padang. Primary data were used, which means they came straight from the source, including professionals serving as validators, educators, and students. This study collected data using three instruments: tests, questionnaires, and interviews. Additionally, the data analysis technique employed in this study is a referential statistical analysis to characterize the validity, practicability, and efficacy of employing website-based learning media.

FINDINGS AND DISCUSSION

It is critical to design a learning media platform built around a website and backed by media development applications in light of the issues mentioned above. The development of website-based learning media can make learning more active, practical, and interactive. It is filled with exciting stuff that can help pupils grow in their knowledge. Delivering material using established website-based media will aid students in comprehending the material. In conjunction with previous research, this work provides an update by developing a website learning model at the SMK level. Three tests were

used to determine the findings of this development research: (1) the validation test analysis, (2) the practicality test analysis, and (3) the effectiveness test analysis. The three test analysis results are discussed in detail in the explanation below.

The Result of the Media Analysis and Material Validation Test

The validator, as an expert in their field, determined the findings of this validation test, namely that the created media trial had a validity score of 0.88, which was categorized as valid, and that the material validation test had a validity score of 0.88, which was categorized as valid. Teachers and students can use media based on the results of the Media and Material validators that professionals have validated.

The Results of the Teacher and Student Practicality Analysis

The results of this analysis were used to decide the learning media-generated; therefore, teachers as practitioners and students as consumers of media for the teaching and learning process must complete a questionnaire. According to the findings of a questionnaire distributed to practitioners or teachers for whom the media were designed, it was 0.95, which was categorized as valid. In contrast, the student questionnaire resulted in 0.83, which was also categorized as valid.

The Results of the Effectiveness Analysis

According to the learning outcomes, before using media in the pre-test, 31% of participants used media in the pre-test, while 81% used media. Enhancing students' efficacy in this produced learning media has increased student learning outcomes relative to student learning outcomes.

Website-based student development media is also a form of media that positively affects the teaching and learning process. Teachers and students will be more attractive in providing the information to students. These research' findings imply that website-based learning media are more legitimate, practical, and effective for usage as instructional media. The following illustrates a development product in the form of interactive learning media on a website. It is a rejuvenation effort that departs significantly from earlier research. This is consistent with the findings of Yusuf and Afolabi (2010), who found that students who use CAI "Computer Assisted Learning" individually and jointly do better than their classmates who use traditional classroom instruction methods.

The Initial Display of Educational Media

The display of Learning Media is a space for teaching and learning activities that utilize online media and provide students and teachers with effective, efficient, interactive, and engaging media capabilities. This is demonstrated in the display below:

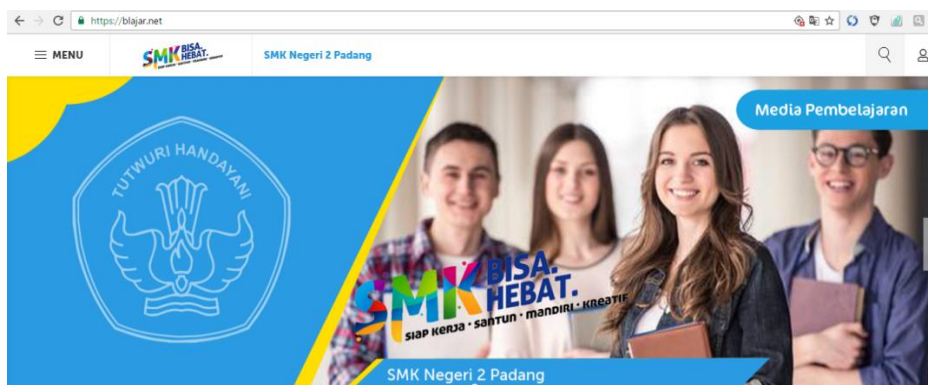


Figure 1. Initial Display of Learning Media

The picture above shows online learning media as a facility for learning media activities developed effectively, efficiently, interactive, and exciting.

Application Login Display

This perspective is the right to access and utilize these materials for educational purposes. The students and teachers will be utilizing this online learning medium. Students and teachers must first create an account by providing a username and password, as evidence is displayed below.

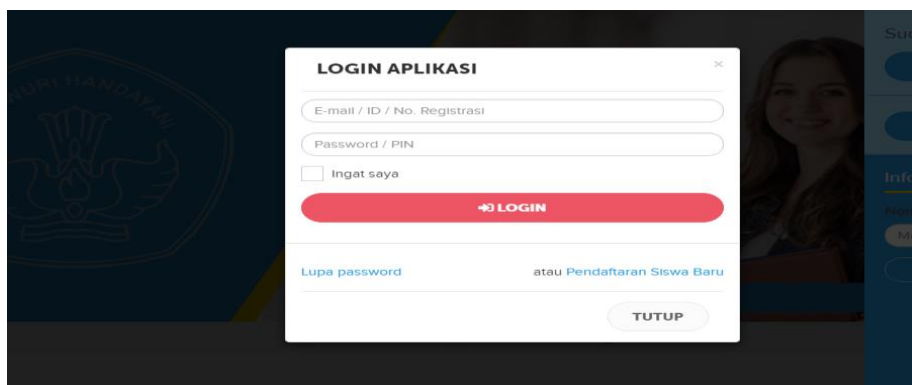


Figure 2. Application Login Display

The Instructions for Using Learning Display

The display of instructions for using learning is a guide for students who will start learning on the learning media that has been provided. It can be seen from the display below.



Figure 3. Instructions for Using Learning Display

Learning Material Display

The display of learning material is that students begin to carry out learning online. The teacher uploaded the learning materials into this media to enjoy the excellent learning provided by the teacher. This material is under the curriculum and basic competency in this subject. At the same time, this research is only discussed in KD 3.2 and KD 4.2 in this subject.

No.	Pertemuan	Kompetensi Dasar	Bahan
1.	Pertemuan 1	KD 3.1 dan 4.1	B
2.	Pertemuan 2, 3 dan 4	KD 3.2 dan 4.2	B
3.	Pertemuan 5 dan 6	KD 3.3 dan 4.3	B
4.	Pertemuan 7	KD 3.4 dan 4.4	B
5.	Pertemuan 8, 9 dan 10	KD 3.5 dan 4.5	B
6.	Pertemuan 11	KD 3.6 dan 4.6	B
7.	Pertemuan 12	KD 3.7 dan 4.7	B
8.	Pertemuan 14 dan 15	KD 3.8 dan 4.8	B
9.	Pertemuan 16	KD 3.8 dan 3.8	B

Figure 4. Learning Material Display

The Online Exam Display

The online exam display is where students will evaluate the material or learning provided by the teacher. It can be seen from the display below.

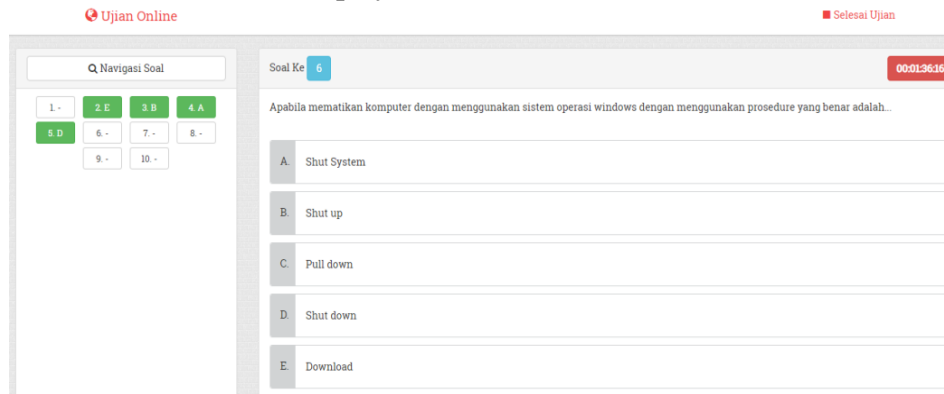


Figure 5. Online Exam Display

Figure 5 is a form of the online exam given by the teacher to students. This online question can be done anywhere and anytime, either at school or outside of school. Questions are in the form of multiple-choice and can be done directly by students. Students can find out whether or not the students have done the problems they. That is, students know the level of ability in understanding the subject matter.

The Discussion Display

This discussion display is a container provided by the media on any given material under KD in the subject. The discussion display is a student discussion forum to discuss learning material and discussion on the material provided by the teacher in learning so that students can interact, ask questions and even provide accurate solutions for the students themselves. The role of this discussion is significant for teachers and students and even students and students because teachers can find out which students are active and which students are not active in carrying out the learning process on the media that has been developed.

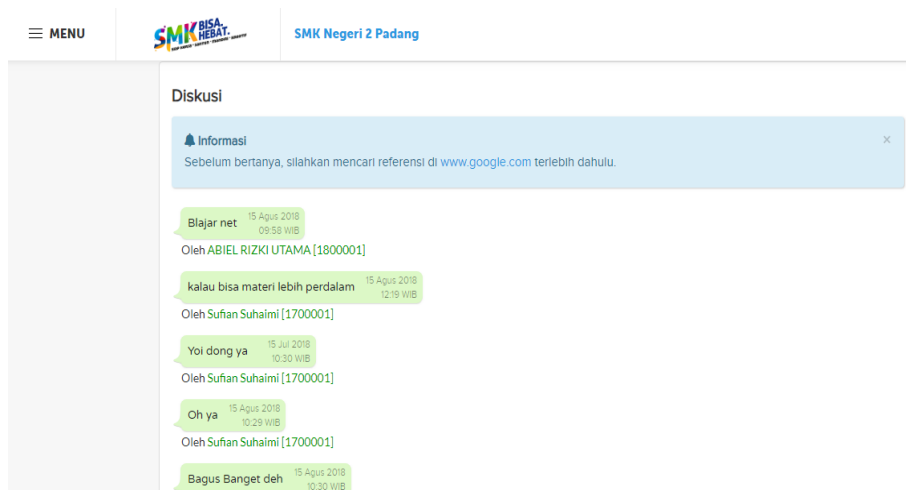


Figure 5. Discussion Display

Based on the results of this study, it can be understood that website-based interactive learning media can be developed, which can be a renewal in overcoming learning difficulties of students of

SMKN 2 Padang on the computer and basic network subjects. It is in line with research trends showing that ICT is an indisputable necessity in the learning process. First, Nyambane and Nzuki (2014) findings reveal that integrating technology into classroom practice is one of the challenges facing 21st-century teachers. Furthermore, the results of research by Amenyedzi, Lartey and Dzomeku (2011) also mention that the use of media and ICT / ICT helps students to achieve new things such as completing assignments, solving problems, studying the history of other countries, improving typing skills, and chatting with friends. Students' performance using CAI "Computer Assisted Learning" individually and cooperatively is better than their peers who use conventional classroom instruction methods (Yusuf and Afolabi, 2010; Siddiqui and Khatoon, 2013; Premalatha, 2012).

Karami and Attaran (2013) also concluded that teachers as training participants could integrate problem-based learning with Information Communication Technology (ICT) to solve these problems in developing more professional knowledge content and more skilled teachers. Mathew and Alidmat (2013) from Saudi Arabia revealed that it has become common to integrate language textbooks with audio and video as additional resources for language learning activities in the classroom. Then, Bello (2016) from Nigeria found a significant relationship between audio-visual media and environmental factors in students' academic performance.

In this study, there are advantages in the form of tools in the form of discussion display. The discussion display is a student discussion forum to discuss learning material and discussion on the material provided by the teacher in learning so that students can interact, ask questions and even provide accurate solutions for the students themselves. Shabiralyani, Hasan, Hamad, and Iqbal (2015) from Pakistan stated that the results of their research explored teachers' opinions about the use of visual aids (for example, pictures, animated videos, projectors, and films) as a motivating tool in increasing students' attention to reading literary texts. (Ulya et al. 2018; Ulya 2018. Furthermore, development research related to the use of animation media includes animation media developed by (Zainiah and Rijanto, 2016) in electricity lessons. The results showed that animation-based learning media could help the learning process and is feasible for learning. Learning geometry using interactive media that utilizes Macromedia flash, which uses visualization, animation, and illustrations in geometry, gives better results to the understanding and ability of students. Theoretical, practical, and visual (Milajić, 2013; Altiparmak, 2014).

CONCLUSION

The teaching and learning process is easier for educators and students through website-based interactive learning media in the vocational school. The development of website-based interactive learning media can improve student learning outcomes using technology in media development in vocational schools. Students are more active and independent in the learning process using this website-based media without being limited to space and time and whenever it is implemented. Furthermore, the suggestions for developing this website-based learning media are: (1) teachers in order to develop learning that is even more attractive to students by completing the learning content; (2) students in order to make the best use of the media in order to increase interest in learning, motivation to learn, develop knowledge and be independent in learning; and (3) other researchers need to research website-based media development more comprehensively, starting from elementary to tertiary education.

REFERENCES

- Agung Agustinus Permadi. (2016). *Pengembangan Media Pembelajaran Interaktif Berbasis Web dengan Pemanfaatan Video Conference Mata Pelajaran Produktif Teknik Komputer dan Jaringan di Sekolah Menengah Kejuruan*. Jurnal Pendidikan Teknologi dan Kejuruan, pp. 1-10.
- Altiparmak, K. (2014). Impact of Computer Animations in Cognitive Learning: Differentiation. International. *Journal of Mathematical Education in Science and Technology*, 45(8), 1146–1166.
- Amenyedzi, Frank W. K. Lartey, Mary N. & Dzomeku, Beloved M. (2011). The Use of Computers and Internet as Supplementary Source of Educational Material: a Case Study of the Senior High

- Schools in the Tema Metropolis in Ghana. *Contemporary Educational Technology*, 2 (2), 151-162.
- Asyhar, Rayandra. (2012). *Kreatif Mengembangkan Media Pembelajaran*. Ciputat: Referensi Jakarta.
- Attamimy, M. Sulthon. (2007). *3 Langkah Membuat Website*. Bandung: CV. Yrama Widya.
- Bello, S. (2016). Relationship Between Audio-Visual Materials and Environmental Factors on Students Academic Performance in Senior Secondary Schools in Borno State: *Implications for Counselling*, 7 (24), 173-177.
- Gregorius, Agung. (2000). *Microsoft Frontpage 2000 Webbot*. Jakarta: PT. Elex.
- Huda, Asrul, Liansyahmora Nasution, Yulhefizar. (2017). *Perancangan Sistem Informasi Berbasis Web Pemesanan Barang pada Rumah Cetak Merdeka (RCM) Digital Printing Padang*. Prosiding Seminar Nasional Sisfotek Sistem Informasi dan Teknologi Informasi. ISBN: 2597-3584.
- Karami, M. Karami, Z. & Attaran, M. (2013). Integrating Problem-Based Learning with ICT for Developing Trainee Teachers' Content Knowledge and Teaching Skill. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT)*, 9,(1), 36-49.
- Khaidir Rahman N. (2016). *Pengembangan Media Pembelajaran Bernasis Website Untuk Mata Pelajaran Programmable Logic Controller (PLC) pada SMK Darussalam Makassar*. Jurnal Inspiration, pp. 105-117.
- Kuswayatno, Lia, Ema Andhajani, Sutarya dan Triyati. (2007). *Mahir Berkomputer*. Bandung. Grafindo Media Pratama.
- Mathew, N. G., & Alidmat, A. O. H. (2013). A Study on the Usefulness of Audio-Visual Aids in EFL Classroom: Implications for Effective Instruction. *International Journal of Higher Education*, 2 (2), 86-92.
- Meta, Monanda Rio. (2017). *Pengembangan Perangkat Pembelajaran Berbasis Web pada Mata Pelajaran KKPI SMKN 3 Padang*. Jurnal Sains dan Informatika, pp. 17-21.
- Milajic, A, Milovanovik, M., Obradovic, J. (2013). Application of Interactive Multimedia Tools in Teaching Mathematics – Examples of Lessons from Geometry. *The Turkish Online Journal of Educational Technology*, 12 (1), 12-31.
- Nugroho, Rinaldi Dwi, Muhammad Ali, Totok Heru, Herlambang. (2013). *Pengembangan Media Pembelajaran Berbasis Website pada Mata Pelajaran Programmable Logic Controller*. Jurnal Inspiration, pp. 1-8.
- Nyambane, C. & Nzuki, D. (2014). Factors influencing ICT Integration in Teaching- A Literature Review. *International Journal of Education and Research*, 2 (3), 245-261.
- Premalatha, U.M. (2012). An Empirical Study on the Attitude of High School Students Towards Computer-Assisted Instruction with Respect to Their Study Practices. *The IUP Journal of Soft Skills*, VI, (2), 34-44.
- Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of Visual Aids in Enhancing the Learning Process Case Research: District Dera Ghazi Khan. *Journal of Education and Practice*, 6 (19), 226-233.
- Siddiqui, U. & Khatoon, T. (2013). Teaching Physical Science: Should We Implement Teacher-Centered CAI or Student-Centered CAI At Secondary School Level in India? *European Scientific Journal*, 9 (10), 136-149.
- Ulya, Ridha Hasnul., Thahar, H.E., Asri, Y., & Agustina, A. (2018). *Cultural Manifestation in Superstition of Minangkabau Society*. Education, Social Sciences and Technology Application in Digital Era, pp. 422-429.
- Ulya, Ridha Hasnul. (2018). *Dimensi Keteraturan Sosial Wanita Hamil dalam Gamitan Superstisi Kubuang Tigo Baleh*. Jurnal Kafa'ah, (8), Pp. 183.
- Yusuf, M. O. & Afolabi A. O. (2010). Effects of Computer Assisted Instruction (CAI) on Secondary School Students' Performance in Biology. *TOJET: The Turkish Online Journal of Educational Technology*, 9 (1), 62-69.
- Zainiah, R., & Rijanto, T. (2016). Pengembangan Media Pembelajaran Berbasis Animasi dan Simulasi untuk Meningkatkan Hasil Belajar Siswa pada Mapel Instalasi Penerangan Listrik di SMKN 1 Sidoarjo. *Jurnal Unesa*, 05 (202), 515-522.