

Google Sites-Based Educational Web Development in Ecosystem Learning Materials for Grade V Elementary Schools in Winong District, Pati Regency

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Abstract: The aim of this research is to develop educational web designs based on Google Sites in ecosystem learning materials for fifth grade elementary school students in Winong District, Pati Regency. This type of research is RnD (Research and Development) with the ADDIE model. Research on the development of the ADDIE model was carried out only up to the development stage, because the purpose of this research was only limited to developing and producing a valid google sites-based educational web to be implemented based on the validator's assessment. Data collection techniques by means of interviews, observation or observations, and validation questionnaires. The results of research and development of educational web based on Google Sites are that it is known that student responses to educational web based on Google Sites show that 100% of the responses agree with the very feasible category. The results of content validation obtained an average acquisition score of 98.2%, practicality validation obtained an average acquisition score of 93%, and validation of educational web media based on Google Sites obtained an average acquisition score of 85.2%. So that educational web media based on Google Sites can be used in science learning on ecosystem material for class V SD

Keywords: Educational Web, Google Sites, Ecosystem

1. Introduction

Education is an important part of every person's process of gaining knowledge. Education is an individual stage in various stages of life that has the goal of being able to develop optimally in each process which includes knowledge and skills passed down from all generations through teaching (Azizatul'Uula et al., 2022; W. N. Sari & Faizin, 2023). The purpose of education is the learning process for a person so that he can adapt well when he is in his environment (Astalini et al., 2018). Through education, it is hoped that someone will be able to provide benefits to all people. One of the educational processes is learning activities in schools. The learning process in this education is realized through the existence of a curriculum. This curriculum has a dynamic nature which means it can experience changes to adapt to the times (Mulyasa, 2014). One component that plays an important role in education is the teacher.

The teacher's role in the learning process is as a student facilitator in order to achieve the expected learning objectives (Mardiana & Musadad, 2019). The teacher conveys learning by preparing a lesson plan in advance. One of the lessons found at the elementary school level is the subject of Natural Sciences (IPA). Natural Science is learning content that includes natural events and learns how to find out about nature systematically (Sobron & Bayu, 2019). In the science learning process, of course, requires various supporting media, one of which is the media in the surrounding environment. One of the science materials found at the basic education level is ecosystem material. An ecosystem is an interaction between living things or non-living things in the environment (Nurdyansyah, 2018). Ecosystems are divided into two, namely natural and artificial ecosystems. This natural ecosystem includes ecosystems that are in the air and ecosystems that are on land. While artificial ecosystems are ecosystems created by humans to fulfill their needs. Ecosystems consist of individuals, populations and communities. In this ecosystem learning, the media used tends to be an exploration of the surrounding environment, where learning is usually done outside the classroom. Ecosystem learning can use the surrounding environment as a medium during learning activities (Hasnunidah, 2012; Karitas, 2017). But in fact the use

of the surrounding environment has not been able to optimize the learning of ecosystem material. This is because the existence of media exploring the surrounding environment outside the classroom can require a relatively longer time.

Along with the rapid development of technology, teachers need to improve their competence in using digital media in learning activities. In addition to this, students can also study independently by accessing learning information through digital media. Development of learning resources is needed by adjusting the learning objectives to be achieved. The use of learning media has the potential to improve the quality of learning (Budiningtyas et al., 2022). Teachers must be able to innovate learning media with information technology (Nikmah et al., 2020). However, there are still teachers who do not use technology-based media. There are teachers who are unfamiliar with using the internet and have not used laptops or computers. Teachers' limitations in using digital media make students less interested in participating in learning activities. This is because the teacher uses media images that are less interactive in ecosystem material. Learning is still underdeveloped in the use of learning media (Surachmi & Utaminingsih, 2022; Tridiana & Rizal, 2020).

Regarding digital learning media, teachers can take advantage of internet technology, one of which is through educational websites (Marjuni et al., 2022). Web education is designed as the manufacture of teaching materials that can contain various materials, images, videos, and so on (Nalasari et al., 2021; Purbasari et al., 2023). One of the educational web support platforms is Google Sites. Google Sites is an online platform found on the Google site as a website creation by combining a lot of information in one place that can be shared according to user needs (Mardin & Nane, 2020). The advantages of Google Sites are sites that are free and easy to make which can be accessed via Google, and can be accessed at any time (Waryana, 2021).

The problems expressed are not far from the results of researchers' observations during the KKG (Teacher Working Group) activities of the Husni Tamrin group, which obtained data that ecosystem learning was carried out using books, learning videos, and occasionally using the media of the surrounding environment. However, the use of this media makes students feel bored and less active in learning. Some of the fifth grade teachers as well as Husni Tamrin revealed that there were limitations to the learning media available at school on natural science content on ecosystem material. Apart from that, teachers have not made new innovations by using technology through educational websites. The existence of an educational web based on Google Sites as a learning medium has not been developed by elementary school teachers as well as Husni Tamrin.

Regarding the use of educational websites based on Google Sites, Adzkiya & Suryaman (2021) in their research obtained results that the use of Google Sites learning media in learning English is easy to use. Meanwhile, in a study conducted by Ismawati et al. (2021) in research on the development of web-based physics media using Google Sites on sound wave material, the results obtained an average validation score of 50.50% by media experts, and 63.50% by material experts. Both of these scores fall into the proper category to be used in learning. Likewise research by Sulistyawati et al. (2022) with the results of developing a Google Sites-based website media on statistics material for class IV SD with very good validation qualifications. Therefore,

2. Conceptual Framework

E-learning learning is a learning activity that uses the network as a medium of delivery, interaction, and facilities supported by various learning services. Sari (2017) revealed that e-learning is an alternative in learning that can be used anywhere and anytime by using the internet. Likewise, Elyas (2018) argues that e-learning is learning using internet media which can be done formally or informally. Based on some of these opinions, it can be concluded by researchers that e-learning learning is learning by utilizing internet-based information technology to facilitate the delivery of learning material.

Web education is a collection of various pages that contain various educational or learning information that can be accessed online. This educational website can be accessed by students anywhere and anytime, provided that the laptop or cellphone is connected to the internet. The function of this educational web is of course to support teachers in learning activities. Andani et al., (2020) argues that the web as a learning medium serves to make it easier for students to understand the material. In line with Violeta (2017) that the function of using an educational website is to facilitate learning activities with fun and interesting media. One of the Google platforms that can be used in education is Google Sites. Google Sites is an educational web platform that can be used to create learning media. Rivai & Purnama (2013) revealed that Google Sites is a product created by Google as a tool for creating sites. Google Sites is very easy to use so it can support teachers in the learning process.

3. Methodology

3.1 Research Design

This type of research is research and development with the ADDIE model. Research on the development of the ADDIE model was carried out only up to the development stage, because the purpose of this research was only limited to developing and producing a valid google sites- based educational web to be implemented based on the validator's assessment.

3.2 Respondent of the Study

The primary data sources in this study were interviews with 5 grade V SD teachers from a group of Husni Tamrin and media development experts as validators. In addition, data was obtained from student interviews, student response questionnaires to Google Sites-based educational websites and pretest-posttest fifth grade elementary school students whose schools are members of the Tamrin husni cluster. While the secondary data sources in this study are all data obtained by researchers from research documentation, research notes, and other supporting data used by researchers as a reference. Data analysis techniques in this study include qualitative data analysis and quantitative data analysis.

Table1. Validity Criteria.

Score in percent (%)	Criteria
0-20%	Very Unworthy
21-40%	Not feasible
41-60%	Decent Enough
61-80%	Worthy
81-100%	Very Worthy

4. Findings and Discussion

The following is the result of Google Sites-based educational web development in class V ecosystem learning materials.

4.1 Analysis Stages

In the early stages of this study, researchers collected data through interviews, observation of learning activities, analysis of needs, and characteristics of teachers and students. At this stage, data was obtained that the fifth grade teacher at SDN Segugus Husni Tamrin had not used educational web-based media and there was no plan to innovate the media due to limited time. Teachers do not experience problems in providing and using learning media. This is because the media used can be taken from the pictures in the book or the media he has mastered. In line with Khoiron (2021) that professional teachers must be able to master learning media.

It is known that it is known that students in grade 5 at Segugus Husni Tamrin Public Elementary School have never used educational web media based on Google Sites. They only use media images, videos, and are occasionally invited by the teacher to study outside the room. Students feel more happy when learning uses media. However, there are students who still have difficulty understanding the material even though there is already the use of media. All students argue that they prefer technology-based media using cellphones. Likewise Dewantara et al., (2021) argues that teachers must be able to carry out learning by utilizing technology that has developed as a learning medium.

4.2 Design Stages

The second stage in this research and development is the product design or planning stage. This stage starts from the content of the material, preparation of evaluation questions and supporting images, layout concepts, designing educational web designs based on Google Sites using supporting applications. The design of this material is guided by basic competencies and the teacher's book. The material was prepared in advance through Microsoft Word 2019. Researchers used the Canva application as a medium for editing material. As for the attendance section, it is made through the Google Form website. In the matter of evaluating the researcher using the Educaplay application. Both of these applications are accessed online through Google.

4.3 Development Stages

The development stage is an activity in realizing design specifications into physical form, resulting in product development. This stage includes combining the results of material editing, attendance, questions, and other supporting images so as to produce an output in the form of an educational web link based on Google Sites that can be accessed using a cellphone or laptop. The following are the stages of developing a Google Sites design into a Google Sites-based educational web feature. The following are the results of educational web products based on Google Sites presented in the image below.

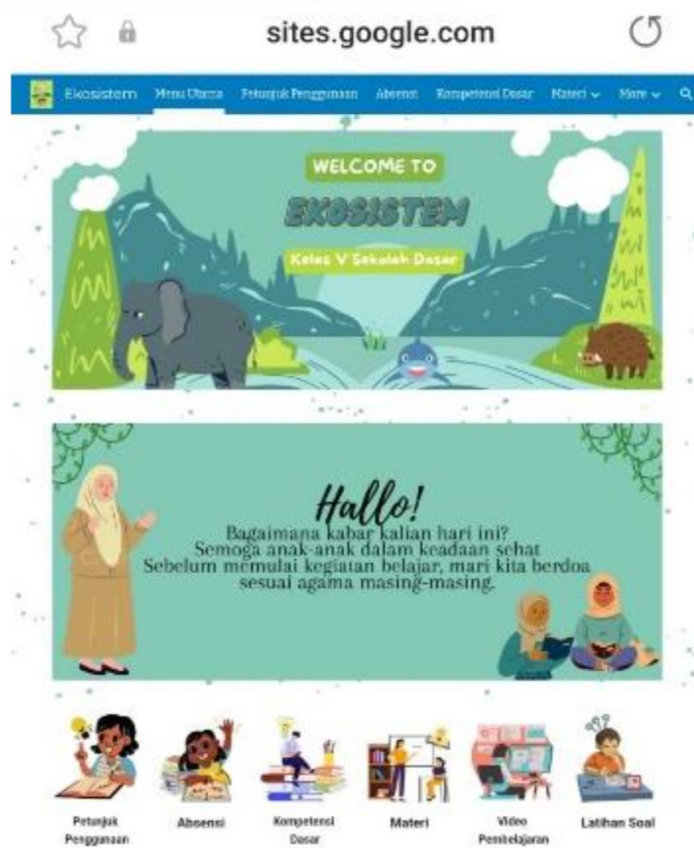


Figure 1. Educational Web Based on Google Sites

This Google Sites-based educational web can be visited via the following link, namely <https://sites.google.com/view/ekosistem22/menu-utama>

Educational web media based on Google Sites is equipped with an online attendance menu. In addition to the attendance menu, there is also a core menu, namely learning materials and videos. On the material menu, apart from containing text regarding ecosystem material, it is also equipped with images. Having pictures about ecosystems makes it easier for students to understand them. In line with the opinion of Danaswari et al., (2013) that attractive images make it easier for students to understand the material. In addition to images, in educational web media based on Google Sites there are also videos regarding ecosystem material which are of the audiovisual type. Audiovisual also makes it easier for teachers to present material and of course it is more efficient. In line with the opinion of Zulifah & Masfuah (2021) that the presentation of material using audiovisual media creates interaction between teachers and students, so as to make students more interested in learning.

After the product has been developed, media validation tests, practicality validation, and content validation are then carried out. Validation was carried out by media expert validators and material experts. Testing is carried out using a validation instrument sheet in the form of a questionnaire with a rating scale along with the developed media product given to the validator. The following is a recapitulation of the validation results obtained based on the average final validation score obtained from all validators. The recapitulation includes content validation, practicality validation of the Google Sites-based educational web, and validation of Google Sites-based educational web media as can be seen in the table 2.

Table 2. Recapitulation of Validation Results

Validation	Average Gain Score (%)	Criteria
Content Validation	98,2%	Very Worthy
Practicality Validation of Google Sites-Based Educational Web	93%	Very Worthy
Google Sites Based Educational Web Media Validation	85,2%	Very Worthy

Based on the results of the validation recapitulation above, it can be seen that the results of the content validation obtained an average score of 98.2%, including the very feasible category. Meanwhile, the practicality validation of educational websites based on Google Sites obtained an average score of 93% in the very feasible category. Google Sites-

based educational web media validation obtained an average acquisition score of 85.2% with a very decent category. So that the conclusion of the evaluation of the validation results by experts states that this Google Sites-based educational web learning media is feasible to try out.

Educational web media based on Google Sites was validated by an expert validator and received a very decent category. The visual design in this Google Sites-based educational web includes the appearance design of the Google Sites-based educational web, the regularity of media design, the attractiveness of color combinations, and the accuracy of the menu layout. Accuracy describes a synergistic relationship and complements each other between the elements in the visual (Lusiana, 2020). All visual elements when observed will function and must be related to material, so that they are able to convey the purpose of the goals to be achieved (Pebrianti, 2019).

The use of interesting media can make it easier for students to understand the material and be more interested in learning. In line with the research by Sari et al. (2021) that learning media as a learning resource is able to make students easily understand material that can attract student interest in learning. Students are able to imagine directly and are more interested in learning while using learning media (Satria & Basir, 2020).

Educational web media based on Google Sites which is accessed through online links shared by teachers can make it easier for students to use. This is because students can access it without having to install the application first. The use of educational web based on Google Sites can be accessed anywhere and anytime, but the device must be connected to an internet network. An easy-to-use online platform will encourage students to learn and do more digital literacy activities (Hapsari & Pamungkas, 2019).

5. Conclusions

Based on the results of the research and development that has been carried out, it can be concluded by researchers that learning on ecosystem material for class V SD Segugus Husni Tamrin requires media that can be accessed via cellphones/laptops. Google Sites-based educational web development contains several menus, namely the main menu, instructions for use, attendance, materials, learning videos, and practice questions. The development was carried out using the ADDIE model which was tested and validated with a very feasible category. The results of the content validation test were obtained with an average score of 98.2% with a very feasible category. The results of the practicality test for educational web based on Google Sites get an average score of 93% in the very feasible category. While the validation results of educational web media based on Google Sites get an average score of 85.2% with a very decent category. So that educational web media based on Google Sites in ecosystem learning materials can be used.

Schools need to improve the provision of facilities and infrastructure that can support the learning process on natural science content ecosystem material as a solution in realizing interesting and of course effective learning activities. Teachers are expected to be able to be more creative, innovative and able to utilize internet-based technology-based learning media. Students are expected to be able to play an active role in participating in learning by using the media provided by the teacher to the fullest.

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References

- Adzkiya, D. S., & Suryaman, M. (2021). Penggunaan Media Pembelajaran Google Site dalam Pembelajaran Bahasa Inggris Kelas V SD (Use of Google Site Learning Media in English Class V Elementary School). *Educate: Jurnal Teknologi Pendidikan*, 6(2), 1–7.
- Andani, T., Mawaddah, I. Z. , & Yuliani, H. (2020). Analisis kebutuhan pengembangan media pembelajaran komik berbasis web pada pokok bahasan efek Doppler di SMA 9 Analysis of the needs of developing web-based comic learning media on the subject of the Doppler effect in high school). *In Prosiding Seminar Nasional Fisika (SNF)*, 4, 26–32.
- Astalini, A., Kurniawan, D. A., & Putri, A. D. (2018). Identifikasi Sikap Implikasi Sosial dari IPA, Ketertarikan Menambah Waktu Belajar IPA, dan Ketertarikan Berkarir Dibidang IPA Siswa SMP Se-Kabupaten Muaro Jambi (Identification of Attitudes, Social Implications of Science, Interest in Increasing Science Learning Time, and Interest in a Career in Science for Middle School Students in Muaro Jambi Regency). *Jurnal Tarbiyah : Jurnal Ilmiah Kependidikan*, 7(2), 93–108.
- Azizatul'Uula, L., Surachmi, S., & Utaminingsih, S. (2022). Nilai-Nilai Kearifan Lokal Dalam Pendidikan Multikultural di SDN Tambakromo 01 (Local Wisdom Values in Multicultural Education at SDN Tambakromo 01). *Jurnal Ilmiah Wahana Pendidikan*, 8(18), 262–268.

- Budiningtyas, A. K., Utaminingsih, S., & Fajrie, N. (2022). Pengembangan Media “Pegalinu” Dalam Kemampuan Literasi Digital dan Numerasi Dasar Kelas III di SD Se-Gugus Wibisono Kecamatan Jati Kabupaten Kudus (Development of "Pegalinu" Media in Class III Digital Literacy and Basic Numeracy Skills at SD Se-Gugus Wibisono, Jati District, Kudus Regency). *Jurnal Ilmiah Wahana Pendidikan*, 8(18), 1–10.
- Danaswari, R. W., Roviati, E., & Kartimi, K. (2013). Pengembangan bahan ajar dalam bentuk media komik untuk meningkatkan hasil belajar siswa kelas X SMAN 9 Cirebon pada pokok bahasan ekosistem (Development of teaching materials in the form of comic media to improve student learning outcomes of class X SMAN 9 Cirebon on the subject of ecosystems). *Scientiae Educatia: Jurnal Pendidikan Sains*, 2(2), 93–110.
- Dewantara, A. H., Amir, B., & Harnida, H. (2021). Kreativitas Guru Dalam Memanfaatkan Media Berbasis It Ditinjau Dari Gaya Belajar Siswa (Teacher Creativity In Utilizing It- Based Media From the Viewpoint of Student Learning Styles). *AL-GURFAH: Journal of Primary Education*, 1(1), 15–28.
- Elyas, A. H. (2018). Penggunaan Model Pembelajaran E-Learning Dalam Meningkatkan Kualitas Pembelajaran (The Use of E-Learning Learning Models in Improving the Quality of Learning). *Warta Dharmawangsa*, 56.
- Hapsari, S. A., & Pamungkas, H. (2019). Pemanfaatan google classroom sebagai media pembelajaran online di universitas dian nuswantoro (Utilization of Google Classroom as an online learning medium at Dian Nuswantoro University). *WACANA: Jurnal Ilmiah Ilmu Komunikasi*, 18(2), 225–233.
- Hasnunidah, N. (2012). Keterampilan Berpikir Kritis Siswa SMP Pada Pembelajaran Ekosistem Berbasis Konstruktivisme Menggunakan Media Maket (Middle School Students' Critical Thinking Skills in Constructivism-Based Ecosystem Learning Using Mockup Media). *Jurnal Pendidikan MIPA (Old)*, 13(1).
- Ismawati, I., Mutia, N., Fitriani, N., & Masturoh, S. (2021). Pengembangan Media Pembelajaran Fisika Berbasis Web Menggunakan Google Sites Pada Materi Gelombang Bunyi (Development of Web-Based Physics Learning Media Using Google Sites on Sound Wave Material). *Jurnal Ilmiah Mahasiswa Pendidikan Fisika*, 2.
- Karitas, D. P. (2017). *Buku Siswa Tematik Terpadu Tema 5 Ekosistem untuk SD/MI Kelas V (Integrated Thematic Student Book Theme 5 Ecosystems for Class V SD/MI)*. Pusat Kurikulum dan Perbukuan, Balitbang, Kemendikbud.
- Khoiron, M. (2021). *Media Pembelajaran Untuk Generasi Milenial Tinjauan Teoritis dan Pedoman Praktis (Learning Media for the Millennial Generation Theoretical Review and Practical Guidelines)*. SCOPINDO MEDIA PUSTAKA.
- Lusiana, L. (2020). *Penggunaan Audio Visual Dalam Pembelajaran Keterampilan Menyimak Pada Siswa Kelas X di SMAN 5 Pamekasan (Doctoral dissertation, Institut Agama Islam Negeri Madura) (The Use of Audio Visual in Learning Listening Skills for Class X Students at SMAN 5 Pamekasan (Doctoral dissertation, Madura State Islamic Institute))*.
- Mardiana, A. M., & Musadad, M. M. (2019). Analisis Kebutuhan Siswa di SMA Negeri 3 Bolo Terhadap Bahan Ajar Bergambar pada Materi Plantae (Analysis of the Needs of Students at SMA Negeri 3 Bolo Against Pictorial Teaching Materials on Plantae Material). *In Prosiding of ICCERS*, 11–18.
- Mardin, H., & Nane, L. (2020). Pelatihan Pembuatan Dan Penggunaan Google Sites Sebagai Media Pembelajaran Kepada Guru Madrasah Aliyah Se-Kabupaten Boalemo (Training on Making and Using Google Sites as Learning Media for Madrasah Aliyah Teachers throughout Boalemo Regency). *Jurnal Abdimas Gorontalo (JAG)*, 3(2), 78–82.
- Marjuni, A., Azman, M. N. A., Mustofa, H. A. ., & Sukadari. (2022). Development of the Android-Based Mobile Application 'Mywheel Alignment' for Wheel Alignment Topics in Automotive Technology Courses at Vocational Colleges. *Asian Journal of Vocational Education And Humanities*, 3(2), 17-25. <https://doi.org/10.53797/ajvah.v3i2.3.2022>
- Mulyasa, E. (2014). *Pengembangan dan Implementasi Kurikulum 2013 (Development and Implementation of the 2013 Curriculum)*. PT Remaja Rosdakarya.
- Nalasari, K. A., Suarni, N. K., Studi, P., Dasar, P., & Ganesha, U. P. (2021). Pengembangan Bahan Ajar Berbasis Web Google Sites Pada Tema 9 Subtema Pemanfaatan Kekayaan Alam Di Indonesia Untuk Siswa Kelas Iv Sekolah Dasar Program Studi Pendidikan Dasar Universitas Pendidikan Ganesha (Development Of Web-Based Teaching Materials On Google Sites On Theme 9 Sub-Theme Utilization Of Natural Wealth In Indonesia For Class Iv Elementary School Students Basic Education Study Program, Ganesha University of Education). *Jurnal Teknologi Pembelajaran Indonesia*, 11(2), 135–146.
- Nikmah, N., Rahayu, R., & Fajrie, N. (2020). Penerapan Media Pembelajaran Math Mobile Learning Untuk Meningkatkan Kemampuan Pemecahan Masalah Siswa Kelas IV (Application of Math Mobile Learning Learning Media to Improve Problem Solving Ability of Grade IV Students). *WASIS: Jurnal Ilmiah Pendidikan*, 1(2), 44–52.

- Nurdyansyah, N. (2018). *Model Pembelajaran Berbasis Masalah Pada Pelajaran IPA Materi Komponen Ekosistem (Problem-Based Learning Models in Science Lessons on Ecosystem Component Materials)*. Universitas Muhammadiyah Sidoarjo.
- Pebrianti, F. (2019). Kemampuan guru dalam membuat media pembelajaran sederhana (The teacher's ability to create simple learning media). In *Seminar Nasional Pendidikan Bahasa Dan Sastra* (Pp. 93-98).
- Purbasari, I., Yusuf, M., Subagya, Marmoah, S., Fajrie, N., & Mustofa, H.A. (2023). Bamboo Woven Websites for Elementary School Students through Social Collaborative Learning Approach. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, 31(1), 315–325. <https://doi.org/10.37934/araset.31.1.315325>
- Rivai, D. A., & Purnama, B. E. (2013). Pembangunan sistem informasi pengolahan data nilai siswa berbasis web pada Sekolah Menengah Kejuruan (SMK) Miftahul Huda Ngadirojo (Development of a web-based student score data processing information system at Miftahul Huda Ngadirojo Vocational High School (SMK)). *Indonesian Journal of Networking and Security (IJNS)*, 3(2).
- Sari, I. P. (2017). Implementasi pembelajaran berbasis e-learning menggunakan claroline (Implementation of e-learning based learning using claroline). *Research and Development Journal of Education*, 4(1).
- Sari, W. N., & Faizin, A. (2023). Pendidikan Karakter dalam Pembelajaran IPS di Sekolah Dasar pada Kurikulum Merdeka (Character Education in Social Studies Learning in Elementary Schools in the Merdeka Curriculum). *ULIL ALBAB: Jurnal Ilmiah Multidisiplin*, 2(3), 954–960.
- Sari, W. N., Murtono, & Ismaya, E. A. (2021). Peran Guru Dalam Meningkatkan Motivasi Dan Minat Belajar Siswa Kelas V SDN Tambahmulyo 1 (The Role of the Teacher in Increasing the Learning Motivation and Interest of Class V Students at SDN Tambahmulyo 1). *Jurnal Inovasi Penelitian*, 1(2), 1.
- Satria, H., & Basir, A. (2020). Implementasi media interaktif berbasis macro mediaflash pada mata pelajaran sistem pengendali elektromagnetik (Implementation of macromedia flash-based interactive media on electromagnetic control system subjects). *JUPITER (Jurnal Pendidikan Teknik Elektro)*, 5(2), 16–23.
- Sobron, A. N., & Bayu, R. (2019). Persepsi siswa dalam studi pengaruh daring learning terhadap minat belajar IPA (Student perceptions in the study of the effect of online learning on interest in learning science). *SCAFFOLDING: Jurnal Pendidikan Islam Dan Multikulturalisme*, 1(2), 30–38.
- Sulistyawati, N. L. G., Suarjana, I. M., & Wibawa, I. M. C. (2022). Pengembangan Media Website Berbasis Google Sites pada Materi Statistika Kelas IV Sekolah Dasar (Development of Google Sites-Based Website Media in Class IV Elementary School Statistics Material). *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(4), 895–904.
- Surachmi, S., & Utaminingsih, S. (2022). Penerapan Media Kartun dalam Pembelajaran IPA Fisika (Application of Cartoon Media in Learning Science Physics). *Jurnal Ilmiah Wahana Pendidikan*, 8(18), 347–357.
- Tridiana, R., & Rizal, F. (2020). Keterampilan Guru Abad 21 Di Sekolah Menengah Kejuruan (SMK) (21st Century Teacher Skills in Vocational High Schools (SMK)). *Jurnal Imiah Pendidikan Dan Pembelajaran*, 4(4), 221–231.
- Violeta, N. (2017). *Perancangan website edukasi untuk remaja menggunakan pendekatan desain partisipatif (The design of an educational website for teenagers uses a participatory design approach)*. Universitas Katolik Parahyangan.
- Waryana, W. (2021). Penerapan Model Pembelajaran Flipped Classroom Berbantuan Google Sites Untuk Meningkatkan Keaktifan Dan Hasil Belajar Ips (Implementation Of The Google Site-Assisted Flipped Classroom Learning Model To Increasing Activities And Learning Outcomes In Social Studies). *EDUTECH: Jurnal Inovasi Pendidikan Berbantuan Teknologi*, 1(3), 259–267.
- Zulifah, S., & Masfuah, S. (2021). Content validity of android-assisted Problem Based Learning-oriented illustrated stories teaching materials. In *Journal of Physics: Conference Series (Vol. 1823, No. 1, p. 012094)*. IOP Publishing.