

## Analysis of The Practicality of Google Sites-Based Teaching Materials to Improve Student Learning Outcomes

Hikmawati<sup>1\*</sup>, I Wayan Suastra<sup>2</sup>, Ketut Suma<sup>2</sup>, A. A. Istri Agung Rai Sudiatmika<sup>2</sup>, Dian Susanti<sup>3</sup>

<sup>1</sup>Department of Physics Education, University of Mataram, Mataram, Indonesia

<sup>2</sup>Department of Science Education, Universitas Pendidikan Ganesha, Singaraja, Indonesia

<sup>3</sup>SMP Negeri 18 Mataram, Mataram, Indonesia

\*Corresponding Author: [hikmawati@unram.ac.id](mailto:hikmawati@unram.ac.id)

### Article History

Received : March 06<sup>th</sup>, 2024

Revised : March 17<sup>th</sup>, 2024

Accepted : April 25<sup>th</sup>, 2024

**Abstract:** The aim of this research is to conduct an analysis of the practicality of Google Sites-based teaching materials to improve student learning outcomes. Testing the practicality of teaching materials is one of the stages of the teaching material development model that uses the 4D model. The research was conducted at SMP Negeri 8 Mataram in the 2022/2023 academic year. Data on the practicality of teaching materials was obtained by administering user response questionnaires, namely teachers (10 people) and students (34 people). The score weights use a Likert scale with four answer options, namely Strongly Agree (score 4), Agree (score 3), Disagree (score 2), or Strongly Disagree (score 1). The practicality criteria are divided into four criteria, namely: Very impractical (percentage 0-25); Not practical (percentage 26-50); Practical (Percentage 51-75); Very practical (Percentage 76-100). The research results show that the average teacher assessment of Google Sites-based teaching materials for improving student learning outcomes is 93.4 which is in the category: "Very Practical". Aspects of teacher assessment of teaching materials are reviewed from four aspects, namely: Content, Language, Presentation, Graphics. The average student assessment of Google Sites-based teaching materials to improve student learning outcomes is 95.5 which is in the category: "Very Practical". Aspects of student assessment of teaching materials are viewed from four aspects, namely: Perception of Convenience, Usefulness, Attractiveness, Actual Use of the Product.

**Keywords:** Google sites, learning outcomes, practical, teaching materials

## INTRODUCTION

Teaching materials are part of student learning resources. These teaching materials can be any form of material used by the teacher to help him carry out the learning process. Teaching materials can be packaged in written or unwritten form (Depdiknas, 2008). Teaching material development activities can refer to certain models so that the resulting products are suitable for use. Each development model has advantages and disadvantages. In this case, developers need to consider the advantages and disadvantages in order to produce valid, practical and effective products (Zidatunnur & Rusilowati, 2021). The condition for a product to be said to be "practical" is to carry out tests on product users. In this case, if the product is developed in the form of teaching materials, then user responses such as from teachers and students are mandatory. Users who come from teachers can provide assessments from several aspects, namely: Content,

Language, Presentation, Graphics. Users who come from students can provide assessments from several aspects, namely: Perception of Convenience, Usefulness, Attractiveness, Actual Use of the Product (Hariyani, 2016).

The teaching materials to be developed can be packaged digitally (electronic books) or non-digitally (printed books). The choice depends on the considerations used by the developer of the teaching material. Currently, digital teaching materials are the choice of developers who aim to make their teaching materials easily accessible, anytime and anywhere. Digital teaching materials are also an option that is in line with developments in today's digital era. Digital teaching materials have the most prominent characteristic, namely the presence of facilities in the form of hyperlinks (Tasri, 2011). Teaching materials can be grouped into five types. First, teaching materials that are not projected. Second, the projected teaching materials. Third, audio teaching materials. Fourth, video teaching

materials. Fifth, computer teaching materials (Sadjati, 2017). Teaching objects contained in Google Sites-based teaching materials can be text, images, audio, video and animation (Wibawanto & Sahid, 2010). There are many digital applications for compiling teaching materials (Fadillah, 2016), one of which is using

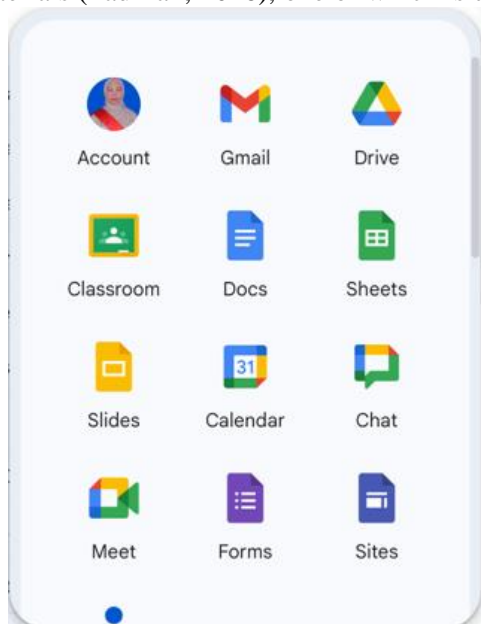


Figure 1a. Sites icon

Developers can insert text boxes, images, embed links, or drive. Developers can also create home pages and content pages that match the material or menu that will be included on the Sites. Site themes provided by Google include: Aristotle, Diplomat, Vision, Average, Impression. Developers can also customize the colours for each theme. The development of teaching materials is a necessity in the world of education because these teaching materials must be adapted to developments in science and technology. The preparation of teaching materials for a subject must take into account the characteristics of the material and the characteristics of students, including the availability of facilities and infrastructure as well as the current curriculum. These teaching materials should also be contextually based so that they can create meaningful learning experiences for students. In this case, teachers can collaborate to develop teaching materials with colleagues or experts (Irmawati et al., 2016). The hope of having Google Sites-based teaching materials is that students can have alternative learning resources that will help them master various concepts and have various skills that will be useful in the future (Nirahua et al., 2020). The

aim of this research is to conduct an analysis of the practicality of Google Sites-based teaching materials to improve student learning outcomes.

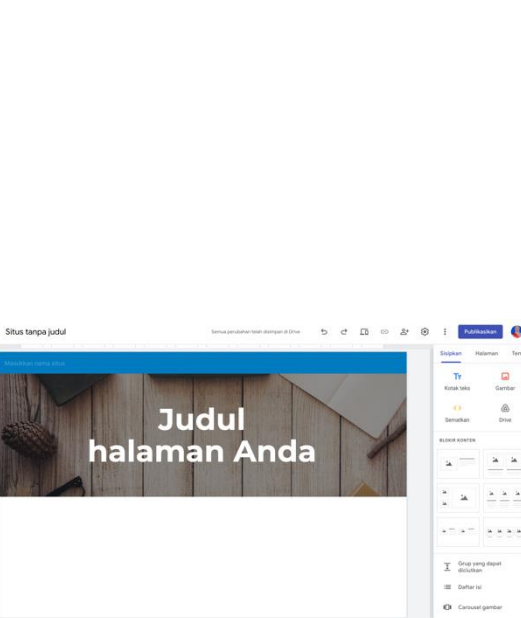


Figure 1b. Sites Templates

aim of this research is to conduct an analysis of the practicality of Google Sites-based teaching materials to improve student learning outcomes.

## METHODS

One of the stages in developing teaching materials using the 4D model from Thiagarajan, Semmel & Semmel (Thiagarajan et al., 1974) is the Develop stage. At this stage, teaching materials are produced that are "fit" to be used in the categories: valid, practical, and effective. In this article, an analysis will be carried out regarding the practicality of the teaching materials developed. Data collection techniques for the practicality of teaching materials are obtained by administering user response questionnaires, namely teachers and students. There are 10 science teachers in the city of Mataram, while student users are 34 class VII students at SMP Negeri 8 Mataram. The practicality of Google Sites-based teaching materials to improve student learning outcomes was analyzed based on user response questionnaire data (teachers and students). The score weight used uses a Likert scale (Likert, 1932), with four answer choices, namely

Strongly Agree (score 4), Agree (score 3), Disagree (score 2), or Strongly Disagree (score 1). The percentage value of practicality of teaching materials uses the equation:  $P = \frac{f}{N} \times 100\%$ , where P is the practicality percentage number, f is the score obtained from the assessor, and N is the maximum number of scores. The practicality criteria for science teaching materials developed in this research are shown in Table 1 (Solihudin, 2018).

Table 1. Criteria for the practicality of teaching materials

Percentage (%)	Practicality Criteria
0 - 25	Very impractical
26 - 50	Not practical
51 - 75	Practical
76 - 100	Very practical

## RESULT AND DISCUSSION

The menu contained in Google Sites-based teaching materials to improve student learning outcomes at junior high school level includes: Home, Materials, Exhibitions, Games, Bibliography. A screenshot of teaching materials based on Google sites can be seen in Figure 2. Teaching materials can be accessed via the link: <https://sites.google.com/unram.ac.id/sains-sasak/beranda>



Figure 2. Google sites-based teaching material menu

Responses from users of Google Sites-based teaching materials to improve student learning outcomes were obtained from teachers and students. The number of teacher users is 10 science subject teachers at the junior high school level in the city of Mataram, while the student users are 34 class VII students at SMP Negeri 8 Mataram. Information on users of teaching materials from teachers including school origin and length of teaching can be seen in Table 2.

Table 2. User Information from Teachers

No	Institution	Teaching experience
1	SMP Negeri 2 Mataram	16 years
2	SMP Negeri 8 Mataram	16 years
3	SMP Negeri 8 Mataram	5 years
4	SMP Negeri 15 Mataram	15 years
5	SMP Negeri 16 Mataram	24 years
6	SMP Negeri 16 Mataram	13 years
7	SMP Negeri 16 Mataram	15 years
8	SMP Negeri 21 Mataram	18 years
9	SMP Negeri 21 Mataram	18 years
10	SMP Negeri 23 Mataram	19 years

The average teacher assessment of Google Sites-based teaching materials to improve student learning outcomes is 93.4 which is in the category: "Very Practical". Aspects of teacher assessment of teaching materials are reviewed from 4 aspects, namely: content, language, presentation and graphics. User responses from teachers can be seen in Figure 3.

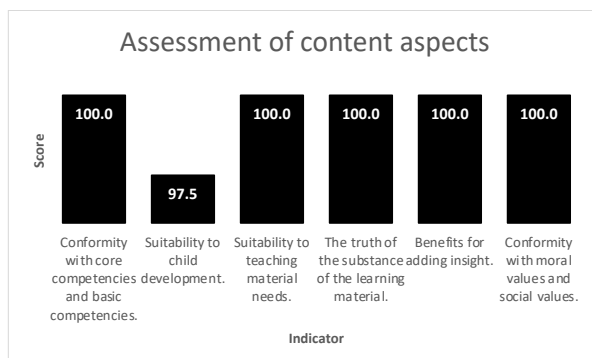


Figure 3a. Content aspect

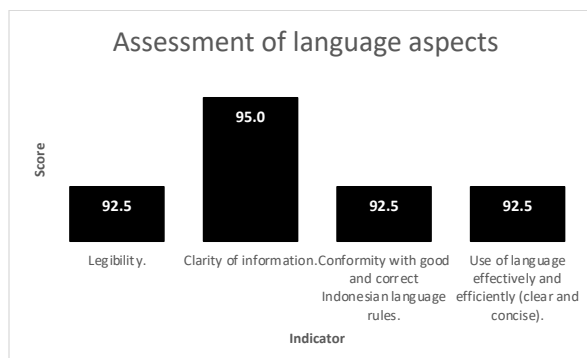


Figure 3b. Language aspect

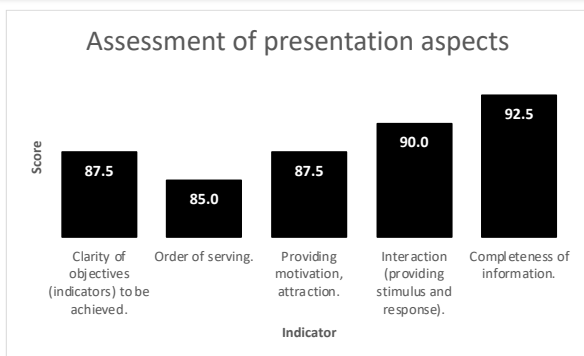


Figure 3c. Presentation aspect

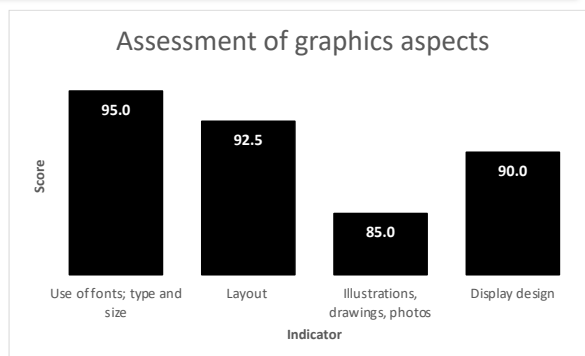


Figure 3d. Graphics aspect

Students' activities in using Google Sites-based teaching materials are shown in Figure 4.



Figure 4a. Students use teaching materials



Figure 4b. Students try the "Games" menu



Figure 4c. Class VII students fill out a questionnaire on user responses to teaching materials

The average student assessment of Google Sites-based teaching materials to improve learning outcomes is 95.5 which is in the category: "Very Practical". Aspects of student assessment of teaching materials are reviewed

from 4 aspects, namely: Perception of Convenience, Usefulness, Attractiveness, Actual Use of the Product. User responses from students can be seen in Table 3.

Table 3a. Assessment Aspect "Perception of Ease"

Indicator	Score
The material in "Google Sites Based Teaching Materials" is complete and simple	95.6
Basic Competencies are clearly formulated in "Google Sites Based Teaching Materials"	89.0
Learning indicators are clearly formulated in "Google Sites Based Teaching Materials"	95.6
The text or sentences in "Google Sites Based Teaching Materials" are easy to understand	95.6
The sentences in "Google Sites Based Teaching Materials" use effective sentences	93.4
The use of language in "Google Sites Based Teaching Materials" is in accordance with EYD (Enhanced Spelling)	96.3
The writing of formulas and symbols is very clear	96.3

Table 3b. Aspects of "Usability" Assessment

Indicator	Score
The material presented is equipped with examples of application in daily life containing the context of local wisdom	94.9
Examples of application in daily life contain the context of local wisdom using formal language that is clear and easy to understand	95.6
Formative tests use formal language that is clear and easy to understand	95.6
Formative tests are equipped with answer keys so they are easy to understand	91.2
Presents the material in sequence so it is easy to understand	98.5
Present attractive and proportional images and videos	97.1

Table 3c. Aspects of "Attractiveness" Assessment

Indicator	Score
The design of "Google Sites Based Teaching Materials" is very attractive	97.1
The choice of colors in writing, images and formulas is very precise	97.1
The choice of font size and type is clear and easy to read	95.6
The appearance of "Google Sites Based Teaching Materials" attracts attention	94.9
The placement of the menu in "Google Sites Based Teaching Materials" is in accordance with the background design	97.8
The images and videos are simple and provide additional explanations to help understand the material	94.1

Table 3d. Assessment Aspect "Actual Product Use"

Indicator	Score
"Web-Based Science Teaching Materials Containing Local Wisdom Context" can increase motivation to learn Science	94.9
"Web-Based Science Teaching Materials Containing Local Wisdom Context" can improve high-level thinking skills and culturally caring attitudes	96.3
The menu can be used easily and effectively	97.1
The level of ease in operating "Science Teaching Materials Containing Web-Based Local Wisdom Context" is in the very easy category	95.6
"Web-based Science Teaching Materials Containing Local Wisdom Context" can be opened and closed easily	97.8

The practicality of Google Sites-based teaching materials for improving student learning outcomes is seen from two levels of users, namely teachers and students. The results of the two users' assessments are included in the "Very Practical" category. This means that the stages of developing Google Sites-based teaching materials to improve student learning outcomes can be continued to the next stage, in accordance with the stages in the teaching materials development model which uses the 4D model (Define, Design, Develop, Disseminate). Because the practicality test of this teaching material is at the Develop stage, the next stage is to test its effectiveness through implementing Google Sites-based teaching materials in limited classes. After that, developers can carry out trials on a wider scale to determine the effect of Google

Sites-based teaching materials on student learning outcomes. At the Disseminate stage, developers can disseminate products in schools by collaborating with the Education Department, publishing through articles in journals, and/or disseminating information to the educational community.

Google sites-based teaching materials can facilitate more active discussion activities between students and other students and also with teachers. Student attendance at each meeting also increases when teachers use Google systems. Students' learning completeness increased from meeting 1 to meeting 2, and improved even better at meeting 3 (Khasanah & Muflihah, 2021). Google sites can be a teacher's choice in packaging teaching materials with various benefits. Teachers can use Google Sites for free,

just by having a Google account. Google sites-based teaching materials can then be accessed by students, also for free, anytime and anywhere using a smartphone, tablet or laptop. These devices have become a basic need for society, including students, not only for communication but also to obtain information and make learning easier (Mukti et al., 2020).

Google sites based teaching materials can be used as a distance learning medium. To produce interesting Google Sites-based teaching materials that can improve the quality of learning processes and outcomes, of course, requires efforts from various parties. Because not all teachers are experts in creating Google Sites-based teaching materials, training activities organized by the government are needed so that teachers become more professional. Apart from that, lecturers can collaborate on research with teachers to produce innovative teaching materials based on Google sites (Suharto, 2021). The use of Google sites in learning is not limited to the social field, but also other fields such as science and language. Things that must be done are analysis (needs analysis and curriculum analysis), creating designs or drafting teaching materials based on Google sites, and product development (Nugroho & Grendi, 2021).

Apart from developing Google Sites-based teaching materials using the 4D model (Define, Design, Develop, Disseminate) which was carried out in this research, developers can also use the ADDIE (Analysis, Design, Development, Implementation and Evaluation) model. These Google sites-based teaching materials can then be used as learning supplements. The downside is that this Google Sites-based teaching material must be accessed online. This means that the use of Google Sites-based teaching materials requires adequate support and facilities, including electronic devices and internet networks (Nalasari et al., 2021). Other teaching material development models can also use the Dick and Carey model (Nurhasanah, 2017). The most important thing is that the teaching materials developed contain knowledge, skills, and attitudes or values (Magdalena et al., 2020).

Online learning which is supported by learning resources in the form of Google Sites-based teaching materials can foster student independence in learning. Student collaboration in carrying out interactive discussion activities facilitated in Google Sites-based teaching materials is very important to help students have

21st century skills. Apart from practicing communication skills, group leaders can hone their leadership skills in coordinating group members. Students can practice better attitudes of respect and empathy over time (Hidayat & Yulianti, 2021). Students' reading interest and learning motivation increases with the attractive display of Google Sites-based teaching materials, with photos and videos, as well as interactive activities such as discussions and games (Yuniar et al., 2021). The level of student activity increases during the learning process (Waryana, 2021). In this way, student learning achievement can improve well (Dewi, 2020). Through the use of Google Sites-based teaching materials, students are able to collect more complete data, carry out data processing more comprehensively, carry out tests more thoroughly and precisely, and are able to make good conclusions (Rizqi & Subanji, 2021).

## CONCLUSION

The teacher's assessment of Google Sites-based teaching materials to improve student learning outcomes is in the category: "Very Practical". Aspects of teacher assessment of teaching materials are reviewed from four aspects, namely: Content, Language, Presentation, Graphics. Student assessments of Google Sites-based teaching materials to improve student learning outcomes are in the category: "Very Practical". Aspects of student assessment of teaching materials are viewed from four aspects, namely: Perception of Convenience, Usefulness, Attractiveness, Actual Use of the Product. The Google Sites-based teaching materials that have been developed can be continued to a limited trial stage to see the effectiveness of their application in improving student learning outcomes, and trials on a wider scale to analyse their effect on learning outcomes.

## ACKNOWLEDGMENT

The author would like to thank FKIP, University of Mataram for helping to finance this research. The author also would like to thank SMP Negeri 8 Mataram for providing support, especially the use of the computer laboratory.

## REFERENCES

Depdiknas. (2008). *Panduan Pengembangan*

- Bahan Ajar. In *Dijendikdasmen, Direktorat Pembinaan SMA* (pp. 1–13). [http://file.upi.edu/Direktori/FIP/JUR.\\_KU\\_RIKULUM\\_DAN\\_TEK.\\_PENDIDIKAN/194601291981012-PERMASIH/PENGEMBANGAN\\_BAHAN\\_AJAR.pdf](http://file.upi.edu/Direktori/FIP/JUR._KU_RIKULUM_DAN_TEK._PENDIDIKAN/194601291981012-PERMASIH/PENGEMBANGAN_BAHAN_AJAR.pdf)
- Dewi, N. C. (2020). Pengembangan E-learning Berbasis Google Sites untuk Meningkatkan Prestasi Belajar Siswa. *DIADIK: Jurnal Ilmiah Teknologi Pendidikan*, 10(1), 210–216.
- Fadillah, A. (2016). *Pengembangan Bahan Ajar Kimia Berbasis Web dengan HTML 5 sebagai Pendukung Pembelajaran Abad 21*.
- Hariyani, Y. (2016). Pengembangan Bahan Ajar Teks Ulasan Film/Drama Berbasis Web Untuk Siswa Kelas Xi Sma/Ma. *Nosi*, 4(3), 384–395.
- Hidayat, A. K., & Yulianti, D. (2021). Penggunaan Google Sites Dalam Membangun Kolaborasi Pada Materi Korosi Ditinjau Dari Kemandirian Belajar Siswa. *JEMS (Jurnal Edukasi Matematika Dan Sains)*, 9(2), 440–451. <https://doi.org/10.25273/jems.v9i2.10997>
- Irmawati, F., Oktaviana, I., & Rahayu, L. (2016). Pengembangan Bahan Ajar Pengetahuan Lingkungan Berbasis Web Untuk Meningkatkan Motivasi Mahasiswa Ikip Budi Utomo Malang. *Florea: Jurnal Biologi Dan Pembelajarannya*, 3(1), 12. <https://doi.org/10.25273/florea.v3i1.783>
- Khasanah, R., & Muflihah, S. M. (2021). Online Learning Management Using Google Sites on Relations and Functions in Pandemic Conditions. *Journal of Education and Learning Mathematics Research (JELMaR)*, 2(1), 68–76. <https://doi.org/10.37303/jelmar.v2i1.49>
- Likert, R. (1932). “Technique for the Measurement of Attitudes, A.” In *Archiver of Psychology*. <https://doi.org/10.4135/9781412961288.n454>
- Magdalena, I., Sundari, T., Nurkamilah, S., Nasrullah, & Amalia, D. A. (2020). Analisis Bahan Ajar. *Nusantara: Jurnal Pendidikan Dan Ilmu Sosial*, 2(2), 311–326. <https://ejournal.stitpn.ac.id/index.php/nusantara>
- Mukti, W. M., N, Y. B. P., & Anggraeni, Z. D. (2020). Media Pembelajaran Fisika Berbasis Web Menggunakan Google Sites pada Materi Listrik Statis. *FKIP E-PROCEEDING*, 5(1), 51–59. <https://sites.google.com/view/fisikakuyess>.
- Nalasari, K. A., Suarni, N. K., & Wibawa, I. M. C. (2021). Pengembangan Bahan Ajar Berbasis Web Google Sites Pada Tema 9 Subtema Pemanfaatan Kekayaan Alam Di Indonesia Untuk Siswa Kelas Iv Sekolah Dasar. *Jurnal Teknologi Pembelajaran Indonesia*, 11(2), 135–146. [https://doi.org/10.23887/jurnal\\_tp.v11i2.658](https://doi.org/10.23887/jurnal_tp.v11i2.658)
- Nirahua, J., Taihuttu, J., & Sopacua, V. (2020). Pengembangan Bahan Ajar Berbasis Blended Learning Dan Critical Thinking Skill Pada Mata Kuliah Astrofisika Dalam Menyongsong Era Revolusi Industri 4.0. *Jambura Physics Journal*, 2(1), 24–36. <https://doi.org/10.34312/jpv.v2i1.6869>
- Nugroho, M. K. C., & Grendi, H. (2021). Pengembangan Media Pembelajaran Berbasis Google Sites Pada Mata Pelajaran Sosiologi Kelas X. *(J-PSH) Jurnal Pendidikan Sosiologi Dan Humaniora*, 12(2), 59–70.
- Nurhasanah, A. (2017). Pengembangan Bahan Ajar Pendidikan Matematika 1 Untuk Meningkatkan Kualitas Pembelajaran Mahasiswa Pgsd Universitas Kuningan. *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru*, 9(2), 67. <https://doi.org/10.17509/eh.v9i2.7017>
- Rizqi, M. A., & Subanji, S. (2021). Analisis praktek pembelajaran daring persamaan garis lurus berbantuan media geogebra melalui google sites. *AKSIOMA: Jurnal Matematika Dan Pendidikan Matematika*, 12(1), 141–154. <https://doi.org/10.26877/aks.v12i1.7621>
- Sadjati, I. M. (2017). Pengembangan Bahan Ajar. In *Hakikat Bahan Ajar* (Vol. 3, Issue 1, pp. 1–62). <https://doi.org/10.1017/CBO9781107415324.004>
- Solihudin, T. (2018). Pengembangan E-Modul Berbasis Web Untuk Meningkatkan Pencapaian Kompetensi Pengetahuan Fisika Pada Materi Listrik Statis Dan Dinamis Sma. *WaPFI (Wahana Pendidikan Fisika)*, 3(2), 51. <https://doi.org/10.17509/wapfi.v3i2.13731>
- Suharto, A. (2021). Pemanfaatan Multimedia Menggunakan Google Sites Bagi Guru-Guru Smp Smk Putra Satria Sebagai Media

- Pembelajaran Jarak Jauh.  
*EMPOWERMENT: Jurnal Pengabdian Pada Masyarakat*, 1(2), 19–30.  
<https://journal.staidk.ac.id/index.php/pkm/article/view/239>
- Tasri, L. (2011). Pengembangan Bahan Ajar Berbasis Web. *Jurnal MEDTEK*, 3(2), 1–8.
- Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). Instructional development for training teachers of exceptional children: A sourcebook. In *Indiana University*.  
[https://doi.org/10.1016/0022-4405\(76\)90066-2](https://doi.org/10.1016/0022-4405(76)90066-2)
- Waryana (2021). Penerapan Model Pembelajaran Flipped Classroom Berbantuan Google Sites untuk Meningkatkan Keaktifan dan Hasil Belajar IPS. *EDUTECH: Jurnal Inovasi Pendidikan Berbantuan Teknologi*, 1(3), 259–267.
- Wibawanto, H., & Sahid (2010). Panduan Pengembangan Bahan Ajar Berbasis Web. In *Dirjendikti Jakarta*.  
[http://file.upi.edu/Direktori/FIP/JUR.\\_KURIKULUM\\_DAN\\_TEK.\\_PENDIDIKAN/194601291981012-PERMASIH/PENGEMBANGAN\\_BAHAN\\_AJAR.pdf](http://file.upi.edu/Direktori/FIP/JUR._KURIKULUM_DAN_TEK._PENDIDIKAN/194601291981012-PERMASIH/PENGEMBANGAN_BAHAN_AJAR.pdf)
- Yuniar, A. R., & Subandowo, M., (2021). Pengembangan Bahan Ajar Informatika Berbasis Google Site Custome Domain. *JUPI (Jurnal)*, 06, 360–368.  
<https://jurnal.stkipggritulungagung.ac.id/index.php/jupi/article/view/2105>
- Zidatunnur, S. F., & Rusilowati, A. (2021). Keterbacaan dan Kepraktisan Bahan Ajar Digital Gerak Melingkar Berbantuan Scratch Berbasis STEM untuk Mahasiswa. *Unnes Physics Education Journal*, 10(2), 131–138.