

The slidesgo platform is a solution for teaching "building space" in the era of independent learning during the pandemic

Choirudin^{1,*}, Anindita Verliana Ridho^{i 2}, and Rani Darmayanti²

¹Institut Agama Islam Ma'arif NU (IAIMNU) Metro Lampung, Indonesia

²Yayasan Assyfa Learning Centre (YALC) Pasuruan, Indonesia

*Corresponding author: choirudiniaimnumetro@gmail.com

KEYWORDS

build space
covir-19
freedom to learn
slidesgo platform

ABSTRACT The school's e-learning page is used for Distance Learning (PJJ). To keep up with changes in the world, YALC Pasuruan Middle School also moves and delays all of its learning activities. These activities include field practice, lab practice, multimedia practice, and other types of exercise. YALC Pasuruan Middle School set up technical learning tasks and told all students to study at home. Online classes are used at YALC Pasuruan Middle School. The Slidesgo app is a critical way to learn, especially when you are learning from afar. The Slidesgo app is helpful for things that need to be seen. Building space is one of these things. Teachers and students can reach their learning goals with the Slidesgo Platform for building tools. Some teachers still use easy tools like slides, documents, photos, and drawings to help students learn. This study aims to determine what building materials-related online learning tools teachers need based on the Slidesgo Platform. Study and development is the type of study that is done. Questionnaires sent out through Google Forms were used to collect data. Some research analysis methods include needs analysis, literature review, small-scale research, and planning to make a research framework. The study shows that math teachers in junior high schools and similar levels in Pasuruan Regency need online learning tools like the Slidesgo Platform to help students build their spatial skills. The study concludes that learning media like the Slidesgo Platform need to be created so that teachers can get students more interested in learning and help them understand spatial building material better.

© The Author(s) 2021. CC BY-NC 4.0 International license

1. INTRODUCTION

The Ability to Learn policy program was recently introduced by Nadiem Makarim, the minister of education and culture, in 2019 (Sugianto et al., 2017; Vidyastuti et al., 2018). This initiative allows instructors and students to engage in independent thinking and expression (Ahmed, Usmiyatun, et al., 2021; In'am & Darmayanti, 2021). The primary objective of the autonomous learning program will be to enhance the calibre of human resources. The initiative above aims to improve the educational system in Indonesia, which is perceived as lacking diversity, by fostering a positive and enjoyable learning environment within the classroom. According to the research conducted by (Usmiyatun et al., 2021) and (Choirudin et al., 2021), the educational process must cultivate a positive and joyful environment encompassing educators, students, parents, and all stakeholders involved. Nevertheless, the progress was impeded by the rapid transmission of the Covid-19 virus, commonly called coronavirus. The emergence of the COVID-19 epidemic has resulted in a significant transformation in global societal dynamics, including education. Hence, the decision was made by the Minister of Education and Culture, Nadiem Makarim, to transition educational environments to an online platform

through the introduction of a distance learning (PJJ) initiative (Ahmed, Darmayanti, et al., 2021; Darmayanti et al., 2021).

PJJ refers to a pedagogical approach wherein students and instructors engage in a learning activity while physically situated in distinct locations (Maman, 2021). The physical separation between students and instructors necessitates the utilisation of online learning platforms as a means to establish a connection between the two parties and facilitate the learning process. The media should possess interactive features, evoke excitement, and facilitate comprehension. Hence, educators must acquire proficiency in diverse online learning platforms, as (2021) research emphasises. The study underscores the necessity for educational innovation by utilising online learning media, such as establishing study groups on popular social media platforms like WhatsApp, Telegram, and Zoom. The efficacy of learning media employed by educators significantly influences the outcome of the learning process. Additionally, educators strive to utilise these media to enhance students' engagement in learning while reinforcing their comprehension of various subjects, particularly mathematics.

According to (Suradika et al., 2021) study, observations and unstructured interviews conducted with mathematics

teachers at YALC Pasuruan Middle School indicate room for improvement in students' enthusiasm for online learning. (Suharsiwi et al., 2021) The impact of students' inclination towards learning is contingent upon various aspects, encompassing the students themselves, educators, and the facilities and infrastructure available. However, a crucial factor in the learning process is how the teacher effectively communicates the subject matter in a manner that captivates the students' attention. One of the strategies involves utilising instructional techniques and educational media tailored to the specific content being taught. Hence, educators must employ efficacious pedagogical approaches to enhance students' engagement in learning and foster a deeper comprehension of the subject matter. In addition, educators must provide support for effective learning by utilising learning media, aiming to enhance students' engagement and enthusiasm towards the subjects being taught.

Mathematics is a discipline that necessitates a profound comprehension of cognitive processes. Spatial material is a crucial component of Mathematics disciplines, as it necessitates depiction through a medium. A study conducted by (Priyadi Susilana, 2021) and (Zhu, 2021) found that students encountered misconceptions and misunderstandings related to terminology in the field of building space. Hence, incorporating educational media is crucial in facilitating students' comprehension of this architectural material in a spatial context. One example of a learning media is the Slidesgo Platform.

According to (2018), the Slidesgo platform is an internet-based tool designed to enhance the efficiency of creating presentations. The Slidesgo platform is accessible through both laptops and smartphones. According to (I. et al., 2020), the Slidesgo platform offers various benefits, such as a user-friendly interface, web-based functionality, collaborative features, and unique design. In addition to its practicality, the Slidesgo Platform provides enhanced convenience for students and teachers. Moreover, the Slidesgo platform serves as a digital instructional resource that may be effectively employed during the ongoing COVID-19 pandemic through the utilisation of technology.

Previous research by (Safitri & Damaianti, 2021) and (Leontyeva et al., 2021) focused on developing interactive electronic teaching materials. The findings of their study indicated that the developed interactive electronic teaching materials successfully fulfilled the criteria for visual appeal and language proficiency and elicited positive responses from students (Mpungose, 2020a; Wahjuningsih, 2020). The distinction between the forthcoming research and the research conducted (Pulikowski, 2021) and (Prihaswati, 2020) is in utilising the Slidesgo platform to construct an interactive instructional resource to foster an educational environment for junior high school students. There has also been research conducted by (Toma et al., 2021) and (A'Yun 2021) on interactive teaching materials. The research involved the validation questionnaire method, which yielded results that met the criteria for excitement. Additionally, the research included student response trials, which obtained results that met the requirements for fascination and testing. The accepted effect size fell within the medium range, as reported by (Rahmawati, 2021)—the disparity between the study conducted by (Mpungose, 2020b). Moreover, the present research involves utilising distinct materials for mathematics subjects, specifically spatial con-

struction and teaching materials implemented through the Slidesgo platform. This platform incorporates textual and video-based materials and animated demonstrations that offer illustrative instances of spatial objects. The presented content is an abstract with a three-dimensional nature. The questions included in this study can potentially enhance students' abilities to comprehend and grasp abstract concepts. It is worth noting that prior research has utilised Matrix material in conjunction with Slidesgo and Quizzizz platforms. In addition to this, the forthcoming platform will be used during the Covid-19 pandemic.

2. METHOD

The current development approach exhibits considerable diversity; however, this research employs the 4D development methodology (Define, Design, Develop, Disseminate). The 4D development model is a design paradigm that follows a systematic approach. The four stages of development encompass defining, designing, developing, and disseminating. However, it is essential to note that the final step, dissemination, is not executed until the completion of the development phase. The research included two tools, a validation questionnaire sheet and a student response questionnaire, designed to assess spatial building material. The validation questionnaire consists of 13 grids, whereas the student response questionnaire consists of 16.

The academic discourse surrounding the validity of teaching materials is a topic of considerable importance and scrutiny. Evaluating and assessing teaching materials is critical to ensuring their effectiveness and appropriateness for educational purposes. The data acquired by currently available instruments will be analysed by converting the expert-assessed questionnaire scores into pre-established categories. A study was conducted to evaluate the instructional materials through data analysis using expert-validated assessment instruments. The assessment involves assigning numerical values ranging from 1 (indicating significant disagreement) to 4 (indicating strong agreement). Subsequently, the teaching materials are evaluated using Aiken's validity analysis.

Nevertheless, this study solely encompasses the initial phase, which involves conducting research and gathering information. Several sequential steps exist During the initial research and information collection phase. The research entails a systematic analysis process that encompasses several steps. Firstly, it involves examining the requirements of educators regarding online learning media that can effectively enhance students' comprehension of building material and stimulate their interest. Secondly, it entails conducting a comprehensive review of existing literature on analysing these educational needs. Lastly, the research involves conducting a small-scale investigation focused explicitly on junior high school mathematics educators and their counterparts. In the city of Pasuruan, the initial steps are being taken to develop a research framework.

The data collection instrument employed in this study was a questionnaire administered to educators. The questionnaire aimed to assess the educators' requirements for learning media, specifically focusing on the Slidesgo Platform and its application in construction materials. The questionnaire was administered using Google Forms. The research employs an analytical approach known as descrip-

tive analysis, which involves illustratively examining and presenting questionnaire data. The data and a comprehensive table description are presented in a tabular format.

3. RESULT AND DISCUSSION

The investigation was carried out in October 2020. The participants of this study consisted of mathematics educators employed at junior high schools in Pasuruan City. This study's samples were collected from public and private schools in Pasuruan City. The data gathered in this study employed a questionnaire to examine the necessity of developing the Slidesgo Platform in building materials.

The findings derived from the analysis of survey data, which involved the distribution of questionnaires to mathematics educators at the junior high school level and their equivalents in Pasuruan City, it was determined that a significant proportion of these educators expressed a requirement for online learning resources centred around spatial building material. Specifically, the educators preferred utilising the Slidesgo platform as the basis for such help. All educators possess a comprehensive understanding of distance learning. The observation above stems from the significant influence exerted by the COVID-19 epidemic, which emerged in early 2020, on various facets of existence, encompassing education. The dissemination of a circular letter issued by the Ministry of Education and Culture (Kemendikbud) Directorate of Higher Education No. 1 of 2020 about mitigating COVID-19 is noteworthy. The letter above mandates the implementation of remote learning and advises students to engage in their academic pursuits from the comfort of their residences. Students engage in indirect learning through the utilisation of online educational platforms.

Moreover, the findings indicated that 87.92% of educators believed students' comprehension might be further enhanced despite remote learning. In comparison, an additional 11.12% of respondents asserted that distance learning did not contribute to improving students' understanding. The students' comprehension remains suboptimal due to the transition from offline to online learning. According to (In'am & Hajar, 2021; R. et al. et al., 2021), online learning refers to a method of education that does not involve in-person interactions but utilises a digital platform to facilitate remote learning. Various venues, such as Zoom, are used for educational purposes, although many instructors and students exhibit limited proficiency. Consequently, educators are anticipated to engage in innovative practices to cultivate a novel learning environment.

Additionally, the findings indicate that most mathematics educators, precisely 59.13%, utilise online learning resources primarily consisting of simplistic geometric materials created using Slidesgo. A smaller proportion, 14.3%, choose PDF or Word documents, while another 28.6% rely on externally sourced photos or images downloaded from various sources. Naturally, this does not align with the distinctive attributes exhibited by students in different geographical areas.

Based on the findings, most educators (64.18%) indicated that the online learning media employed for spatial construction material could enhance students' comprehension, albeit not optimally. Conversely, some respondents expressed that the online learning media utilised by educators did not effectively reinforce students' understand-

ing of spatial construction material. The complexity of the language employed poses challenges for pupils, mainly due to the lack of alignment between the material and the curriculum taught in schools and the structure of the practice questions.

Educators widely recognise online learning media as crucial tools for facilitating distance learning. According to a survey conducted among instructors, a significant majority (77.11%) expressed the view that utilising WhatsApp as a platform for delivering explanations or supplying learning materials in the form of documents or books does not effectively enhance students' interest in learning, particularly in the context of construction materials. In contrast, a significant proportion of educators (57.10%) expressed the belief that utilising WhatsApp as a platform for educators to provide explanations or furnish learning resources in the form of documents or books has the potential to enhance students' engagement in the learning process, particularly about the construction of materials. According to a survey conducted among instructors, a significant majority (87.01%) expressed that using WhatsApp or providing instructional materials in documents or books hindered students' comprehension of the subject matter about construction. In contrast, most educators (65.06%) reported utilising WhatsApp as a means of instruction while also providing students with easily comprehensible materials such as documents or books about spatial building materials. All educators universally require access to online learning resources related to construction materials. A significant majority of educators, namely 95.7%, express a requirement for online learning resources that cater to spatial material. This demand encompasses Slidesgo-based 2D/3D motion animations and 2D/3D photos as preferred formats for delivering such content. All educators unanimously expressed the necessity of using online learning media, specifically the Slidesgo Platform, to develop instructional materials.

The survey findings indicate that online learning media through the Slidesgo Platform can significantly enhance students' interest in spatial building material. Moreover, it has been shown that students may effectively reinforce their comprehension of spatial building material using this approach. A significant proportion of educators, precisely 77.31%, prefer a moderate level of animation regarding the spatial material Slidesgo. Additionally, approximately 62.9% of educators indicate a desire for a substantial quantity of energy in the spatial geometric material Slidesgo. Most educators, precisely 79.4%, prefer limited slides on the Slidesgo Platform. Additionally, a notable proportion of educators, amounting to 28.6%, advocate for adequate drops to facilitate the creation of instructional materials. According to the survey results, most educators (87.1%) preferred a poor color display on the Slidesgo Platform. In contrast, a smaller proportion of educators (18.6%) desired a full-color display. In comparison, an additional 14.3% preferred a primary color display specifically for constructing materials on the Slidesgo Platform.

The findings derived from the examination of questionnaires administered to mathematics educators in Pasuruan Regency, specifically those teaching at the high school level or its equivalent, indicate that these educators possess knowledge about distant learning. The implementation of novel pedagogical approaches by educators to cultivate a transformative learning environment is highly im-

perative. Innovation is a deliberate endeavour to introduce novel elements to enhance pre-existing ones, ultimately creating novel methodologies (Afiah et al., 2021). The implemented innovation has been intentionally engineered to ensure it does not occur spontaneously. The occurrence of innovation in the field of learning may be attributed to various factors, one of which is the alignment of educational practices with contemporary advancements. Innovations in the learning process encompass several elements, such as teaching materials, teaching strategies, and teaching approaches tailored to specific conditions. Various factors necessitate teachers to engage in innovative practices and adopt new teaching methods, primarily due to the shift from traditional face-to-face instruction to online learning. One of the implemented innovations involves the creation of non-printed instructional materials through using Slidesgo, leveraging existing technological resources. Several forms of media can be employed to accomplish educational goals when delivering instructional content effectively. Providing teaching resources facilitates the instructional process for educators, enhancing students' comprehension and assimilation of knowledge.

Teaching materials encompass a variety of educational resources, both in printed and non-printed formats. Teaching materials encompass educational resources encompassing materials, methodologies, constraints, and assessment strategies, all intentionally intended to facilitate educational goals (Michalakakis, 2021). Printed teaching materials encompass textbooks and handouts, whereas non-printed teaching materials encompass audiovisuals and multimedia resources. Utilising non-printed instructional materials offers practicality and facilitates the learning process for both students and educators. In the present COVID-19 pandemic context (Lilis & Iswara, Ulfah Setia Retnani, 2020; Setyawan et al., 2021; Uhomioibhi et al., 2011), technology (Khairani et al., 2020), specifically Slidesgo (Dewi, 2015; Fandiño, 2019), can utilise non-printed instructional resources.

The prevailing consensus among educators is that, despite the implementation of distance learning, students' comprehension can still be enhanced by using suitable online educational resources. Educators have employed online learning platforms primarily relying on Slidesgo presentations, textual papers, and visual aids such as images or photographs. Among the three forms of media, Slidesgo-based media is the most commonly utilised by educators, constituting the highest percentage. As per the analysis of educators, the utilisation of online learning media in this particular course has the potential to enhance comprehension, albeit not optimally, primarily due to its reliance on rudimentary Slidesgo-based resources. In addition to this, educators regard online learning media as a significant component in the context of remote learning. Hence, when the means of explanation involve platforms such as WhatsApp or instructional resources in the form of documents or books, a prevailing viewpoint among educators suggests that these methods fail to foster heightened student engagement and hinder comprehension of spatial concepts. Therefore, it is imperative to have a suitable online learning platform to maximise the learning process's effectiveness.

Online learning media, such as the Slidesgo Platform, is regarded as a potential solution to address the challenges above. According to researchers, using the Slidesgo Platform as an online learning medium can enhance interest

and deepen comprehension of spatial building materials. This form of media is strongly suggested for use in educational instruction and learning endeavours. The utilisation of motion animation, whether in 2D or 3D, within the Slidesgo presentation facilitates the process of spatial shape visualisation for pupils. This assertion is substantiated by educators' perspective, expressing a solid necessity for an online learning platform, particularly one that incorporates spatial building materials. Most instructors prefer online learning media like Slidesgo-based 2D or 3D motion animation. In addition, most educators believe that the Slidesgo Platform's inclusion within educational resources is both significant and indispensable. Educators acknowledge that using media can cultivate student engagement and enhance their comprehension of spatial construction material.

The educators' suggestions for developing the Slidesgo Platform and the corresponding learning media were included in the questionnaire analysis results. There is ongoing debate among educators on the optimal quantity of animations, slides, and colours utilised to display building materials on the Slidesgo Platform. Regarding the quantity of animation, educators generally advocate for a moderate level of animation, avoiding both excessive and insufficient amounts.

Most educators advocate for a moderate quantity of animations, avoiding excessive and insufficient amounts. Educators want a limited quantity of slides in terms of production. Furthermore, regarding visual representation, a prevailing viewpoint among educators is that the Slidesgo Platform should minimise the use of full color or limit the number of colours to a moderate extent. Therefore, using the Slidesgo Platform as an online learning medium is anticipated to assist instructors and students in mathematics education, particularly in fostering engagement and enhancing comprehension of geometric concepts.

The relevance of developing online learning media on the Slidesgo platform to enhance student's interest and comprehension of spatial building material aligns with past studies undertaken by scholars in the field. According to a study conducted by Fitiyah & Zahroh (2021), using multimedia Slidesgo as a teaching tool for constructing three-dimensional space efficiently enhances students' academic achievements. Using Slidesgo as a learning medium that facilitates students' comprehension of geometric shapes in remote education settings while mitigating potential boredom. Numerous colours and dynamic visual elements within the Slidesgo presentation contribute to this phenomenon. This study demonstrates that using Slidesgo as a learning medium can influence students' learning results and foster positive attitudes. In addition to the aforementioned pertinent research, (2021) did a study elucidating the efficacy of a Slidesgo-based interactive learning medium in enhancing students' comprehension of cone-related concepts.

Slidesgo is an online presentation tool that is developed by the media (Gupta, 2021; Wibawa, 2021). Slidesgo may be conveniently viewed on any computer connected to the internet due to its cloud-based nature, allowing users to utilise this tool by logging into their personal Google accounts. The utilisation of the Slidesgo platform offers numerous benefits for media development. These advantages encompass user-friendliness, as the platform is not arduous to acquire proficiency. Additionally, the web-based

nature of the platform facilitates the seamless integration of documents into web pages. Furthermore, the collaborative nature of Slidesgo enables multiple individuals to create and edit presentations simultaneously. Lastly, the platform's innovative features, including questions and answers, contribute to the presentations' dynamic and engaging nature. The visual representation of the media under development is depicted in Figure 1.

4. CONCLUSION

Based on an initial research investigation, it can be inferred that mathematics educators at the junior high school level in Pasuruan City will benefit from using online learning resources, specifically the Slidesgo Platform, to enhance spatial building material instruction. This form of media is expected to cultivate a desire for knowledge and enhance students' comprehension of spatial construction materials. The desired Slidesgo Platform for educators is characterised by a moderate amount of slide displays, striking a balance between adequacy and excessiveness. Additionally, the color scheme employed in the displays is neither excessively vibrant nor excessively muted but instead falls within a moderate range. This research is anticipated to serve as a valuable resource for future researchers in understanding the requirements of educational learning media centred on the Slidesgo Platform, specifically in construction materials.

References

- Afiah, N. R., Pujiastuti, H., & Nindiasari, H. (2021). Analisis Kebutuhan Pengembangan Media Pembelajaran Matematika Menggunakan Google Forms Materi Limit Fungsi Aljabar. *TIRTAMATH: Jurnal Penelitian Dan Pengajaran Matematika*, 3(1), 35. <https://doi.org/10.48181/tirtamath.v3i1.11083>
- Ahmed, M., Darmayanti, R., Purnamasari, P., & Choirudin, C. (2021). CODE ATI: Sewing activities with various patterns affect the cognitive aspects of kindergarten children? *AMCA Journal of Education and Behavioral Change*, 1(1), 20–23.
- Ahmed, M., Usmiyatun, & Darmayanti, R. (2021). CODE ATI: Sewing activities with various patterns affect the cognitive aspects of kindergarten children. *AMCA Journal of Education and Behavioral Change*, 1.
- A'Yun, K. (2021). Google Classroom as the Online Learning Platform during the Covid-19 Pandemic for the Management Business Student at SMK Negeri 1 Lumajang. *IOP Conference Series: Earth and Environmental Science*, 747(1). <https://doi.org/10.1088/1755-1315/747/1/012025>
- Choirudin, C., Darmayanti, R., Afifah, A., Karim, S., & Sugianto, R. (2021). Mathematics Teacher Vs Media Development, What Are the Learning Problems in MTs? *AMCA Journal of Religion and Society*, 1(2).
- Darmayanti, R., Sah, R. W. A., & Azizah, I. N. (2021). Covid-19 Pandemic: Teacher Problems-Early Childhood Learning (PAUD)-The Solution. *Jurnal Caksana: Pendidikan Anak Usia Dini*, 4(2), 55–65.
- Dewi, R. (2015). Perancangan Aplikasi E-Learning Berbasis Website Pada SMA/SMK Dharma Bakti Medan. *Konferensi Nasional Sistem & Informatika*.
- Fandiño, F. G. E. (2019). Motivation and E-Learning English as a foreign language: A qualitative study. *Heliyon*, 5(9). <https://doi.org/10.1016/j.heliyon.2019.e02394>
- Fitiyah, L. N., & Zahroh, U. (2021). Thinking Process of Smp Students Completing Trigonometry Based On The Van Hiele Theory. *SOCIETY-5.0-LEADING-IN-THE-BORDERLESS-WORLD*.
- Gupta, A. (2021). To study the impact of Google Classroom as a platform of learning and collaboration at the teacher education level. *Education and Information Technologies*, 26(1), 843–857. <https://doi.org/10.1007/s10639-020-10294-1>
- In'am, A., & Darmayanti, R. (2021). Snakes and ladders: How do media and RME address the five components of mathematics learning in elementary school? *AMCA Journal of Science and Technology*, 2.
- In'am, A., & Hajar, S. (2021). The effectiveness of online Mathematics learning. *AMCA Journal of Community Development*. <http://journal.amca2012.org/index.php/ajcd/article/view/68>
- Khairani, N. A., Rajagukguk, J., & Derlina. (2020). Development of Moodle E-Learning Media in Industrial Revolution 4.0 Era. 384(Aisteel), 752–758. <https://doi.org/10.2991/aisteel-19.2019.172>
- Leontyeva, I., Pronkin, N., & Tsvetkova, M. (2021). Visualization of learning and memorization: Is the mind mapping based on mobile platforms learning more effective? *International Journal of Instruction*, 14(4). <https://doi.org/10.29333/iji.2021.14411a>
- Li, Z. (2018). Empowerment or substitution? Entry of Platform-based Sharing Economy on the Local Labor Markets. *International Conference on Information Systems 2018, ICIS 2018*.
- Lilis, A., & Iswara, Ulfah Setia Retnani, E. D. (2020). The Effectiveness of Using E-Learning as Learning Media. *JKBM (Jurnal Konsep Bisnis Dan Manajemen)*, 7(November), 72–81. <https://doi.org/10.31289/jkbm.v7i1.4333>
- Maman. (2021). Google Classroom as a Distance Learning Tool during a Pandemic. *Journal of Physics: Conference Series*, 1899(1). <https://doi.org/10.1088/1742-6596/1899/1/012176>
- Michalakakis, K. (2021). Obesity and COVID-19: A jigsaw puzzle with still missing pieces. *Clinical Obesity*, 11(1). <https://doi.org/10.1111/cob.12420>
- Mpungose, C. B. (2020a). Is Moodle a Platform to Decolonise the University Curriculum? Lecturers' Reflections. *Africa Education Review*, 17(1), 100–115. <https://doi.org/10.1080/18146627.2018.1479645>
- Mpungose, C. B. (2020b). Is Moodle or WhatsApp the preferred e-learning platform at a South African university? First-year students' experiences. *Education and Information Technologies*, 25(2). <https://doi.org/10.1007/s10639-019-10005-5>

- Pribadi, B. A., & Susilana, R. (2021). The use of mind mapping approach to facilitate students' distance learning in writing modular based on printed learning materials. *European Journal of Educational Research*, 10(2). <https://doi.org/10.12973/EU-JER.10.2.907>
- Prihaswati, M. (2020). Applying google classroom based on prospective teacher. *Journal of Physics: Conference Series*, 1446(1). <https://doi.org/10.1088/1742-6596/1446/1/012050>
- Pulikowski, A. (2021). Searching for LIS scholarly publications: A comparison of search results from Google, Google Scholar, EDS, and LISA. *Journal of Academic Librarianship*, 47(5). <https://doi.org/10.1016/j.acalib.2021.102417>
- Putri, I. H., & Nurhayati, E. (2020). Pengembangan Game Edukasi 2D Platformer "Petualangan Rama Sinta" Berbasis Android. *Jurnal Paedagogy*, 7(3).
- Putri, R. F., & Asyah, N. (2021). Video maker kinemaster solusi pembelajaran online. *Amaliah: Jurnal Pengabdian Kepada Masyarakat*, 5(2).
- Rahmawati, E. (2021). The different google classroom and edulogy platform e-learning on HOTS problem for elementary students in the corona pandemic period. *Journal of Physics: Conference Series*, 1806(1). <https://doi.org/10.1088/1742-6596/1806/1/012210>
- Safitri, N. A. S., & Damaianti, V. (2021). Platform Evaluasi Pembelajaran Bahasa Indonesia Masa Pandemi COVID-19. *Alinea: Jurnal Bahasa, Sastra, Dan Pengajaran*, 10(2). <https://doi.org/10.35194/alinea.v10i2.1463>
- Setyawan, F., Matematika, L. M.-S. N., & 2021, undefined. (2021). Desain math e-learning berbasis moodle pada sekolah penggerak. *Conference.Upgris.ac.id*, 46–353.
- Sugianto, R., Darmayanti, R., Amany, D. A. L., Rachmawati, L. N., Hasanah, S. N., & ... (2017). Experiment on Ability to Understand Three Dimensional Material Concepts Related to Learning Styles Using the Geogebra-Supported STAD Learning Model. *Al-Jabar: Jurnal Pendidikan Matematika*, 8(2), 205–212.
- Suharsiwati, Suradika, Pandia, W. S. S., & Farokhah, L. (2021). Analysis of the Maritirukan Film as a Distance Learning Media in Developing Social Skills of Children with Special Needs. *Annals of the Romanian Society for Cell Biology*, 16190–16200.
- Suradika, A., Pandia, W. S. S., & Farokhah, L. (2021). Analysis of the Maritirukan Film as a Distance Learning Media in Developing Social Skills of Children with Special Needs. *Annals of the Romanian Society for Cell Biology*, 25(4).
- Toma, F., Diaconu, D. C., & Popescu, C. M. (2021). The use of the kahoot! learning platform as a type of formative assessment in the context of pre-university education during the covid-19 pandemic period. *Education Sciences*, 11(10). <https://doi.org/10.3390/educsci11100649>
- Uhomoibhi, J. O., Palma, J., Alves, P., Restivo, T. M., Piteira, M. R., Soares, F. O., & Fernandez, C. (2011). Development of E-Learning in Higher Education and Future Directions. *Innovations* 2011.
- Usmiyatun, U., Darmayanti, R., Safitri, N. D., & Afifah, A. (2021). Cognitive style, thinking ability, mathematical problems, how do students solve open-ended problems? *AMCA Journal of Science and Technology*, 1(2).
- Vidyastuti, A. N., Darmayanti, R., & Sugianto, R. (2018). The Role of Teachers and Communication Information Technology (ICT) Media in the Implementation of Mathematics Learning in the Digital Age. *Al-Jabar: Jurnal Pendidikan Matematika*, 9(2), 221–230.
- Wahjuningsih, E. (2020). "Storyboard That" Platform to Boost Students' Creativity: Can It Become Real? *IOP Conference Series: Earth and Environmental Science*, 485(1). <https://doi.org/10.1088/1755-1315/485/1/012095>
- Wibawa, A. E. Y. (2021). Implementasi Platform Digital sebagai Media Pembelajaran Daring di MI Muhammadiyah PK Kartasura pada Masa Pandemi Covid-19. *Berajah Journal*.
- Yu, F. (2021). Application of Computer-Based Distance Education with Dynamic Webpages in Financial Management Courses. *International Journal of Emerging Technologies in Learning*, 16(4). <https://doi.org/10.3991/ijet.v16i4.24047>
- Zhu, S. N. (2021). Instability mechanism and disaster mitigation measures of long-distance landslide at high location in Jinsha River junction zone: case study of Sela landslide in Jinsha River, Tibet. *Yantu Gongcheng Xuebao/Chinese Journal of Geotechnical Engineering*, 43(4), 688–697. <https://doi.org/10.11779/cjge202104011>