



Learning Media for Writing Fantasy Story Text Based on Scientific Plus Using Adobe Flash

Karina Balqis^{1*}, Mulyadi Eko Purnomo², Santi Oktarina³

^{1,2,3} Master's Degree in Indonesian Education, Sriwijaya University, Indonesia

ARTICLE INFO

Article history:

Received June 18, 2021

Revised June 20, 2021

Accepted July 28, 2021

Available online August 25, 2021

Kata Kunci:

Media Pembelajaran, Saintifik Plus, Teks Cerita Fantasi

Keywords:

Instructional Media, Scientific Plus, Fantasy Story Text



This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Copyright © 2021 by Author. Published by Universitas Pendidikan Ganesha.

ABSTRAK

Minimnya media pembelajaran yang memfasilitasi siswa menyebabkan siswa mengalami kesulitan dalam belajar. Selain itu guru masih mengalami kesulitan dalam menyajikan materi menulis teks cerita fantasi dan guru menggunakan pembelajaran hanya sebatas memberikan materi saja tidak tahap evaluasi. Hal ini berdampak pada pemahaman siswa yang kurang. Penelitian ini untuk menganalisis validitas media pembelajaran berdasarkan uji alpha, kepraktisan media pembelajaran dan keefektifan media pembelajaran. Jenis penelitian ini yaitu penelitian pengembangan. Model yang digunakan untuk mengembangkan media yaitu Alessi dan Trolip (2001) yang terdiri dari tahap perencanaan, perancangan dan pengembangan. Pengumpulan data dilakukan melalui telaah ahli, wawancara, dan tes. Subjek penelitian berjumlah 9 orang ahli yang meliputi ahli media, ahli materi, dan ahli bahasa. Subjek uji coba produk berjumlah 32 orang siswa. Teknik yang digunakan untuk menganalisis data yaitu analisis deskriptif kualitatif dan kuantitatif. Hasil uji alpha menunjukkan validitas media pembelajaran sebesar 92,50% dengan kategori sangat sesuai. Hasil uji beta menunjukkan kepraktisan produk sebesar 85,49% dengan kategori sangat baik. Dapat disimpulkan bahwa media pembelajaran berbasis saintifik plus menggunakan adobe flash dapat diterapkan dalam pembelajaran menulis teks cerita fantasi. Implikasi dari penelitian ini adalah media yang dikembangkan dapat digunakan oleh guru dalam pembelajaran.

ABSTRACT

The lack of learning media that facilitates students causes students to experience difficulties in learning. In addition, teachers still have difficulty presenting material for writing fantasy story texts and teachers use learning only to provide material, not at the evaluation stage. This has an impact on students' lack of understanding. This study analyses the validity of the learning media based on the alpha test, the practicality of the learning media and the effectiveness of the learning media. This type of research is development research. The model used to develop the media is Alessi and Trolip (2001), consisting of planning, design and development stages. Data was collected through expert review, interviews, and tests. The research subjects were nine experts, which included media experts, material experts, and linguists. The product trial subjects were 32 students. The technique used to analyze the data is descriptive qualitative and quantitative analysis. The alpha test results showed the validity of the learning media of 92.50% with a very appropriate category. Beta test results show the practicality of the product is 85.49%, with an excellent category. It can be concluded that scientific-based learning media plus using adobe flash can be applied in learning to write fantasy story texts. This research implies that teachers in learning can use the developed media.

1. INTRODUCTION

Learning media is tools, simulation material or program used in teaching and learning activities (Arista & Kuswanto, 2018; Dhika et al., 2019). Learning media is used to attract students' interest so that it can foster learning motivation and clarify the meaning of teaching material, teaching methods become more varied and students can do more activities (Lawrence & Tar, 2018; Sholihin et al., 2020). The use of instructional media also helps teachers present and explain subject matter with varied activities and an

atmosphere that is not boring (Kucker, 2021; Riyanto & Gunarhadi, 2017). Therefore, learning media is important to use because it can help to overcome the barriers in learning and educators can use new learning styles to be applied in the classroom so that the learning process becomes effective and learning objectives can be maximally achieved (Buchori et al., 2017; Linda et al., 2018; Ristanto et al., 2020). The lack of learning media that facilitates students causes students to experience difficulties in learning (Seruni et al., 2020; Susanti et al., 2020). Previous research has also stated that the lack of learning media makes students learn independently (Blaschke & Hase, 2019; Sunismi, 2015; Yusuf & Widyaningsih, 2020). This causes learning media to be essential in learning. Based on the results of observations made at SMP Negeri 8 Palembang, it was found that the problem was the lack of learning media that could facilitate students in learning. Teachers still have difficulty developing technology-based learning media. This has an impact on students' understanding of the material taught by the teacher is still lacking. Based on the results of needs analysis, the results of the student's needs analysis show that students need mastery of fantasy story text writing materials, presentation of topics of writing fantasy story text in learning media, presentation of examples of fantasy story text with several different themes, the use of scientific learning approaches and text-based approaches, as well as learning media including elements of images, videos, charts, text, and audio. The results of the teacher's needs analysis showed that teachers still have difficulty in presenting fantasy story text writing material so that students can write fantasy story text in accordance with the structure of fantasy story text, and teachers use learning only limited to giving material only not to the evaluation stage.

Nowadays the learning process applies curriculum 2013 by using scientific approach as the foundation of learning in the classroom (Istuningsih et al., 2018; Suarsana et al., 2018). Indonesian language learning in schools nowadays also contains more text in it so that learning tends to lean more towards text-based learning (Angga et al., 2020; Puspayanti et al., 2013). Indonesian language learning is structured on a text-based, both oral and written, by placing Indonesian as a means for expressing feelings and thoughts and it is expected that students will be able to produce text according to their goals and social functions in curriculum 2013 (Dwiasih & Agung, 2021; Joyo, 2018). Learning Indonesian in seventh grade, one of which is fantasy story text, is a text that is compiled based on the author's imagination with the characteristic of magical things or miracles beyond human reason that appear in his writings. Fantasy story text are very in accordance with the general characteristics of junior high school students who are included in the category of teenagers who like fantasy even though only imaginations. Moreover, scientific plus learning combines a scientific approach and a text-based approach (Arifah, 2017; Shofiyah & Wulandari, 2018).

Therefore, the researcher tried to develop instructional media for writing fantasy story text scientific plus based using adobe flash so that the learning was not fixated on giving text or material only but instructional media was designed in a very complete to cover all important aspects of learning such as basic competence, competence achievement indicators, objectives, material, examples, general instructions, practice questions, evaluation, summary, author bio and references. The completeness of instructional media greatly supported learning activities in the classroom so that learning objectives can be easily achieved (Bus et al., 2020; Sholihin et al., 2020). Media becomes an inseparable part of teaching and learning process in order to achieve educational goals in general and learning objectives at school in particular (Nazalin & Muhtadi, 2016; Weng et al., 2018). One application that can develop learning media is Adobe Flash. Adobe flash is one of the applications that can be used to create instructional media. The application can be used to present the lesson started from the learning objectives, material, summary to evaluation by combining various forms of images, video, sound, and text (Chilmi et al., 2020; Trilaksono et al., 2018). Instructional media made with the adobe flash application can present images, videos, audio and games that can attract students' attention without reducing their effectiveness in delivering the subject matter (Herdiansyah et al., 2019; Saputra et al., 2019). This application provides the final result in the form of learning media that can be used offline and has a small document size (Isdayanti, 2020; Sugandi & Rasyid, 2019). The use technology-based media in learning process is carried out with an appropriate learning approach to obtain maximum learning outcomes (Chien, 2017; Snape & Zealand, 2017). The selection of scientific plus learning to support the learning process using instructional media becomes more meaningful and the stages can help students in the learning process using instructional media.

Previous research findings stated that Adobe Flash could develop learning media for students (Angraini et al., 2019; Muyaroah & Fajartia, 2017). Other research findings state that media developed with the Adobe Flash application will increase students' enthusiasm for learning (Rahmawati et al., 2019; Yasa, Ariawan, 2017). It can be said that flash applications can be used in developing learning media. The purpose of this research is to develop a scientific-based learning media for writing fantasy story texts plus using Adobe Flash. It is hoped that this learning media can increase students' enthusiasm for learning.

2. METHOD

This study applied research and development (R&D) method. This study also produced a product in the form of instructional media to write fantasy story text that went through the stages of needs analysis to test the effectiveness of the product. This research was also conducted on seventh grade students in Public Junior High School 8 Palembang. The design of this research used the Alessi and Trolip's model development model which was devoted to the development of instructional media (Admadja et al., 2016). The steps taken included the planning, design, and development stages (Yogiyatno & Sofyan, 2013). The subjects of this study conducted validity tests by giving questionnaires to media experts, material experts, and linguists, conducted practicality tests by giving questionnaires to 9 students, and conducted product trials by giving tests on 32 students. The results of the questionnaire data obtained from the validity test and practicality test were used to determine the level of validity and practicality of instructional media in writing fantasy story text. These results were calculated and converted based on the conversion formula in four scales according to (Sugiyono, 2016). Here is a data conversion table 1. Furthermore, the results of the data obtained from product trials were used to see the level of effectiveness of instructional media products written in fantasy story text. The results were calculated and converted according to Hake's formula. Based on these criteria, instructional media to write fantasy story text was successful if they met the average percentage of 0.3 to 0.7.

Table 1. Data Conversion

Score	Conversion	Interpretation
4	76 % - 100 %	Very Appropriate
3	51 % - 75 %	Appropriate
2	26 % - 50 %	Inappropriate
1	0 % - 25 %	Very Inappropriate

3. RESULT AND DISCUSSION

Result

The validity test was obtained from the questionnaire assessment from media experts, material experts, and linguists. Each expert assessment questionnaire had different assessment indicators. The following is a table of the results of the three experts' assessments.

Table 2. Validity Assessment Results

Aspects	Total Score	Average	Category
Appearance of Instructional Media	66	91.67 %	Very Appropriate
Material Content	84	95.45 %	Very Appropriate
Linguistic Elements	47	90.38 %	Very Appropriate

Based on the table, the average validity test result is 92.50% with the very appropriate category. The results of the overall validity test showed that the instructional media for writing fantasy text based on scientific plus designed by using Adobe Flash application were valid in terms of media appearance, material content, and linguistic elements. The practicality test was obtained from an assessment questionnaire given to nine students. The nine students were selected based on the category of students with abilities above average, average, and below average. The average practicality test result is 85.4% with the very good category. The results of the practicality test as a whole showed that the instructional media of writing fantasy story text based on scientific plus which was designed by using adobe flash application was practical in terms of aspects, design, video, navigation, sound and language.

The effectiveness test was obtained from the results of the pre-test and the post-test that had been given to 32 students of seventh grade. the average result of the pre-test score was 61 and the average post-test score was 74. The average increased from the pre-test and the post-test was 13, so that the n-gain result was 0.4 in the moderate category. The following is a diagram of the results of students' pre and post tests. The results showed that there was an increase in the ability to write fantasy story text based on scientific plus using adobe flash. The increase was obtained from N - gain between pre-test and post-test. the increase in learning outcomes can be determined by calculating the gain value (normalized gain or n-gain).

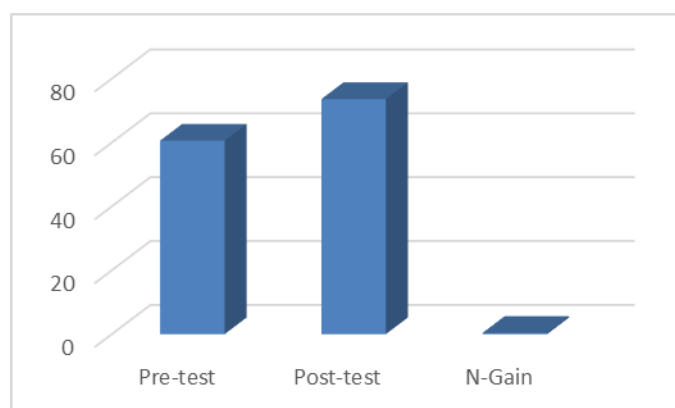


Figure 1. Diagram of the pre-test, post-test and N-gain

Discussion

The validity test results consist of assessments of media experts, material experts, and linguists. First, the results of the media expert's assessment indicated that the instructional media was valid in terms of overall appearance of all the components contained in terms of images, text composition, video, and sound. All elements contained in the media must be balanced and in accordance with the topic or idea (Irwansyah et al., 2017; Zhang et al., 2016). Second, the results of the material expert's assessment indicated that the instructional media was valid in terms of the content of the material in accordance with the basic competencies of learning. Teaching materials must be based on basic competencies in order to produce good teaching materials (Boyd, 2019; Tchen et al., 2018). The media must be adapted to the learning objectives so that it can produce effective learning (Hamid et al., 2017; Irwansyah et al., 2017). Third, the results of the linguist's assessment showed that the instructional media was valid in terms of good language use. A quality teaching material must be communicative, meaning that the content of the teaching material was easy to digest, systematic, clear, and did not contain language errors (Darmaji et al., 2019; Triwahyuningtyas et al., 2020).

The practicality test results consist of aspects of content eligibility, graphics, video attractiveness, navigation effectiveness, sound, and language. First, student's assessment of the content eligibility aspect showed that the content of the instructional media was in accordance with the basic competencies contained in the Indonesian subject curriculum (Irwansyah et al., 2017; Resita & Ertikanto, 2018). Second, student's assessment of the graphic aspect indicated that the instructional media to write fantasy text based on scientific plus in the graphic aspect were good in the ease of understanding pictures, learning objectives, and text. The media should be easy to read and implementation was not confusing (Istuningsih et al., 2018; Neppala et al., 2018). Third, student's assessment of the video attractiveness aspect showed that the instructional media for writing fantasy text based on scientific plus in terms of the attractiveness of the video was good in the compatibility of the video with the subject matter as well as the attractiveness of animation. Attractive learning media must have symbols and the ability to combine all media elements such as text, video, animation, images, graphics, and sound (Hamdunah et al., 2016; McNamara et al., 2020). Fourth, student's assessment of the navigation effectiveness aspect indicated that the instructional media for writing fantasy text based on scientific plus, the effective aspect of the navigation was good in the ease of use of the buttons contained in the media. Fifth, student's assessment of the sound aspect showed that the instructional media to write fantasy story text based on scientific plus in terms of the sound aspect was good in the clarity and attractiveness of the audio or sound. Attractive learning media must have symbols and the ability to combine all media elements such as text, video, animation, images, graphics, and sound (Irwansyah et al., 2017; Triwahyuningtyas et al., 2020). Sixth, student's assessment of the language aspect indicated that learning media to write fantasy story text based on scientific plus in terms of sound was good in using the language that is easy to understand and unambiguous. The teaching materials must contain clear sentences and not contain too long sentences.

The effectiveness test of instructional media results showed that there is an improvement in students learning ability in writing fantasy story text. The use of learning media gave the positive effect to students learning outcomes. Learning media not only made the learning process more efficient but also helped students absorb the subject matter more deeply and increase the independence of students (Darmaji et al., 2019; Triwahyuningtyas et al., 2020). Besides, the implementation of instructional media could also overcome the limitations of the place and time during the pandemic because the offline school became the online school so the implementation of these media could be one of the tools that could be used in teaching and learning. The benefits of instructional media was the learning media can be designed

in such a way that students can carry out learning activities more freely, whenever and wherever, without depending on the existence of a student by designing audio-visual learning program, including learning programs using computers, enabling students to carry out learning activities independently, without being bound by time and place and making students aware of how many learning resources they can use in learning (Irwansyah et al., 2017; Istuningsih et al., 2018; Neppala et al., 2018).

The use of a scientific approach plus a text-based approach also had a positive effect on student learning outcomes. A scientific approach combined with a text-based approach was used to create learning activities which were then applied in instructional media. The scientific plus approach encouraged students to search from various sources by carrying out scientific activities such as observation, observation, and analysis (Istuningsih et al., 2018; Li et al., 2019). The scientific approach was not the only best approach in learning Indonesian, but it could be believed that a scientific approach could bring success because it is carried out systematically as scientists find out (Kholiq, 2020; Suarsana et al., 2018). The text-based approach referred to the production of a specific text following a predefined text structure. Text-based approach to genre-based language learning (Indonesia) focuses on activities to understand, study, produce, and revise various text according to their conventions or structures (Akin et al., 2015; Wulandari, 2020). The text-based approach was in line with the scientific approach in which to arrive at the text production stage, students need to be trained first to observe sample text, observe, analyze, and then try to create and communicate (Kowalewski & Bartłomiejski, 2020; Syahroni et al., 2016). It can be concluded that learning media using adobe flash can help students in learning. The implication of this research is that the developed media can be used by teachers in learning.

4. CONCLUSION

The results and discussions of the study showed that the instructional media of writing fantasy text based on scientific plus using Adobe Flash which had been developed for junior high school students had a validity level with a very valid category, the level of practicality with a very practical category, and the level of effectiveness with the medium category. In addition, teachers and students are expected to use learning media writing fantasy text based on scientific plus in learning activities at school.

5. REFERENCES

- Admadja, Perwira, I., & Marpanji., E. (2016). Pengembangan Multimedia Pembelajaran Praktik Individu Instrumen Pokok Dasar Siswa SMK di Bidang Keahlian Karawitan. *Jurnal Pendidikan Vokasi*, 6(2). <https://doi.org/10.21831/jpv.v6i2.8107>.
- Akin, F., Koray, Ö., & Tavukçu, K. (2015). How Effective is Critical Reading in the Understanding of Scientific Texts? *Procedia - Social and Behavioral Sciences*, 174. <https://doi.org/10.1016/j.sbspro.2015.01.915>.
- Angga, P. M. W., Sudarma, I. K., & Suartama, I. K. (2020). E-Komik Pendidikan Untuk Membentuk Karakter Dan Meningkatkan Hasil Belajar Siswa Kelas V Pada Mata Pelajaran Bahasa Indonesia. *Jurnal Edutech Undiksha*, 8(2), 93. <https://doi.org/10.23887/jeu.v8i2.28920>.
- Anggraini, L., Lestari, S. R., & Handayani, N. (2019). Pengembangan Multimedia Interaktif Biologi Berbasis Adobe Flash CS6 pada Materi Sistem Sirkulasi Manusia Kelas XI MIPA SMA Nasional Malang. *Pendidikan Biologi*, 10(1), 85–91. <http://journal2.um.ac.id/index.php/jpb/article/view/9095/5488>.
- Arifah, B. (2017). Pengaruh Model Discovery Learning Dengan Pendekatan Scientific Berbasis E-Book Pada Materi Rangkaian Induktor Terhadap Hasil Belajar Siswa. *JUPITER (Jurnal Pendidikan Teknik Elektro)*, 2. <https://doi.org/10.25273/jupiter.v2i2.1795>.
- Arista, F. S., & Kuswanto, H. (2018). Virtual physics laboratory application based on the android smartphone to improve learning independence and conceptual understanding. *International Journal of Instruction*, 11(1), 1–16. <https://doi.org/10.12973/iji.2018.1111a>.
- Blaschke, L. M., & Hase, S. (2019). Heutagogy and digital media networks: Setting students on the path to lifelong learning. *Pacific Journal of Technology Enhanced Learning*, 1(1), 1–14. <https://doi.org/10.24135/pjtel.v1i1.1>.
- Boyd, L. (2019). Using Technology-Enabled Learning Networks to Drive Module Improvements in the UK OpenUniversity. *Journal of Interactive Media in Education*, 2019(1), 1–7. <https://doi.org/10.5334/jime.529>.
- Buchori, Rahmawati, S., & Wardani, S. (2017). The Development of A Learning Media for Visualizing the Pancasila Values Based on Information and Communication Technology. *Jurnal Cakrawala Pendidikan*, 36(3), 502–521. <https://doi.org/10.21831/cp.v36i3.12748>.

- Bus, A. G., Neuman, S. B., & Roskos, K. (2020). Screens, Apps, and Digital Books for Young Children: The Promise of Multimedia. *AERA Open*, 6(1), 2332858420901494. <https://doi.org/10.1177/2332858420901494>.
- Chien, Y. H. (2017). Developing a pre-engineering curriculum for 3D printing skills for high school technology education. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(7), 2941–2958. <https://doi.org/10.12973/eurasia.2017.00729a>.
- Chilmi, F. I., Sina, I., & Utami, W. B. (2020). The Effectiveness of Course Review Horay Learning Model with Adobe Flash Assistance to See Interests and Abilities. *Mathematics Education Journal*, 3(2). <https://doi.org/10.22219/mej.v3i2.11050>.
- Darmaji, Astalini, Kurniawan, D. A., Parasdila, H., Iridianti, Susbiyanto, Kuswanto, & Ikhlas, M. (2019). E-Module based problem solving in basic physics practicum for science process skills. *International Journal of Online and Biomedical Engineering*, 15(15), 4–17. <https://doi.org/10.3991/ijoe.v15i15.10942>.
- Dhika, H., Destiwati, F., Sonny, M., & Surajiyo. (2019). Study of the use and application of the moodle e-learning platform in high school. *Journal of Physics: Conference Series*, 1175, 012219. <https://doi.org/10.1088/1742-6596/1175/1/012219>.
- Dwiasih, A. A. I., & Agung, A. A. G. (2021). The Development of Fabel E-Comic in Bahasa Indonesia Lesson for Grade II of Elementary School. *Advances in Social Science, Education and Humanities Research*. <https://doi.org/10.2991/assehr.k.210407.284>.
- Hamdunah, Yunita, A., Zulkardi, & Muhafzan. (2016). Development a Constructivist Module and Web on Circle and Sphere Material with Wingeom Software. *Journal on Mathematics Education*, 7(2), 109–116. <https://doi.org/10.22342/jme.7.2.3536.109-116>.
- Hamid, M. A., Aribowo, D., & Desmira, D. (2017). Development of learning modules of basic electronics-based problem solving in Vocational Secondary School. *Jurnal Pendidikan Vokasi*, 7(2), 149. <https://doi.org/10.21831/jpv.v7i2.12986>.
- Herdiansyah, H., Cholily, Y. M., & Cahyono, H. (2019). The Development of Interactive Instructional Media Using Adobe Flash in a Form of Game on the Geometry Lesson (Cube and Cuboid) for Secondary School. *Mathematics Education Journal*, 3(1), 32. <https://doi.org/10.22219/mej.v3i1.8418>.
- Irwansyah, F. S., Lubab, I., Farida, I., & Ramdhani, M. A. (2017). Designing Interactive Electronic Module in Chemistry Lessons. *Journal of Physics: Conference Series*, 895(1). <https://doi.org/10.1088/1742-6596/895/1/012009>.
- Isdayanti, D. (2020). Pengembangan Media Pembelajaran Audio Visual Berbasis Adobe Flash Pada Materi Daur Hidup Hewan. *JIPP (Jurnal Ilmiah Pendidikan Dan Pembelajaran)*, 4(2), 390–406. <https://doi.org/10.23887/jipp.v4i2.27320>.
- Istuningsih, W., Baedhowi, B., & Sangka, K. B. (2018). The effectiveness of scientific approach using e-module based on learning cycle 7e to improve students' learning outcome. *International Journal of Educational Research Review*, 3(3). <https://doi.org/10.24331/ijere.449313>.
- Joyo, A. (2018). Gerakan Literasi Dalam Pembelajaran Bahasa Indonesia Berbasis Kearifan Lokal Menuju Siswa Berkarakter. *Jurnal Kajian Bahasa, Sastra Dan Pengajaran (KIBASP)*, 1(2). <https://doi.org/10.31539/kibasp.v1i2.193>.
- Kholiq, A. (2020). Development of B D F-AR 2 (Physics Digital Book Based Augmented Reality) to train students' scientific literacy on Global Warming Material. *Berkala Ilmiah Pendidikan Fisika*, 8(1), 50. <https://doi.org/10.20527/bipf.v8i1.7881>.
- Kowalewski, M., & Bartłomiejski, R. (2020). Is it research or just walking? Framing walking research methods as “non-scientific.” *Geoforum*, 114. <https://doi.org/10.1016/j.geoforum.2020.06.002>.
- Kucker, S. C. (2021). Processes and pathways in development via digital media: Examples from word learning. *Infant Behavior and Development*, 63. <https://doi.org/10.1016/j.infbeh.2021.101559>.
- Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, 55(1), 79–105. <https://doi.org/10.1080/09523987.2018.1439712>.
- Li, G., Wang, X., & Wu, J. (2019). How scientific researchers form green innovation behavior: An empirical analysis of China's enterprises. *Technology in Society*, 56. <https://doi.org/10.1016/j.techsoc.2018.09.012>.
- Linda, Albeta, Masnaini, & Sulismawati. (2018). The Effect Of Prezy And Exe-Learning Media On Chemical Learning Results. *Jurnal Edusains*, 10(1). <https://doi.org/10.15408/es.v10i1.7204>.
- McNamara, J., Sweetman, S., Connors, P., Lofgren, I., & Greene, G. (2020). Using Interactive Nutrition Modules to Increase Critical Thinking Skills in College Courses. *Journal of Nutrition Education and Behavior*, 5(4). <https://doi.org/10.1016/j.jneb.2019.06.007>.
- Muyaroah, & Fajartia. (2017). Pengembangan Media Pembelajaran Berbasis Android dengan

- menggunakan Aplikasi Adobe Flash CS 6 pada Mata Pelajaran Biologi. *Innovative Journal of Curriculum and Educational Technology*, 6(2). <https://doi.org/10.15294/ijcet.v6i2.19336>.
- Nazalin, & Muhtadi, A. (2016). Pengembangan Multimedia Interaktif Pembelajaran Kimia Pada Materi Hidrokarbon Untuk Siswa Kelas XI SMA. *Jurnal Inovasi Teknologi Pendidikan*, 3(2), 221–236. <https://doi.org/10.21831/jitp.v3i2.7359>.
- Neppala, P., Sherer, M. V., Larson, G., Bryant, A. K., Panjwani, N., Murphy, J. D., & Gillespie, E. F. (2018). An interactive contouring module improves engagement and interest in radiation oncology among preclinical medical students: Results of a randomized trial. *Practical Radiation Oncology*, 8(4). <https://doi.org/10.1016/j.prro.2018.01.001>.
- Puspayanti, I. G. A. R., Darsana, I. W., & Ganing, N. N. (2013). Pengaruh Pendekatan Savi Terhadap Keterampilan Menyimak Pada Mata Pelajaran Bahasa Indonesia Gugus Letkol Wisnu Kecamatan Denpasar Utara. *Mimbar PGSD Undiksha*, 1(1). <https://doi.org/10.23887/jjgds.v1i1.1256>.
- Rahmawati, E., Irdamurni, I., & Amini, R. (2019). Pengembangan Modul Berbasis Pendekatan Kontekstual Dengan Adobe Flash Untuk Siswa Sekolah Dasar. *Jurnal Basicedu*, 3(2). <https://doi.org/10.31004/basicedu.v3i2.29>.
- Resita, I., & Ertikanto, C. (2018). Designing electronic module based on learning content development system in fostering students' multi representation skills. *Journal of Physics: Conference Series*, 1022(1), 012025. <https://doi.org/10.1088/1742-6596/1022/1/012025>.
- Ristanto, R. H., Rusdi, R., Mahardika, R. D., Darmawan, E., & Ismirawati, N. (2020). Digital Flipbook Imunopedia (DFI): A Development in Immune System e-Learning Media. *International Journal of Interactive Mobile Technologies (IJIM)*, 14(19), 140–162. <https://doi.org/10.3991/ijim.v14i19.16795>.
- Riyanto, W. D., & Gunarhadi, G. (2017). The Effectiveness of Interactive Multimedia in Mathematic Learning: Utilizing Power Points for Students with Learning Disability. *IJLTE: International Journal of Learning Technology and Teacher Education*, 1(1), 55–63. <https://doi.org/10.20961/ijlte.v1i1.8400>.
- Saputra, R., Thalia, S., & Gustiningsi, T. (2019). Pengembangan Media Pembelajaran Berbasis Komputer Dengan Adobe Flash Pro Cs6 Pada Materi Luas Bangun Datar. *Jurnal Pendidikan Matematika*, 14(1), 67–80. <https://doi.org/10.22342/jpm.14.1.6794.67-80>.
- Seruni, R., Munawaroh, S., Kurniadewi, F., & Nurjayadi, M. (2020). Implementation of e-module flip PDF professionals' critical thinking skills through problem based learning. *Journal of Physics: Conference Series*, 1521(4), 1–6. <https://doi.org/10.1088/1742-6596/1521/4/042085>.
- Shofiyah, N., & Wulandari, F. E. (2018). Model Problem Based Learning (PBL) Dalam Melatih Scientific Reasoning Siswa. *Jurnal Penelitian Pendidikan IPA*, 3(1), 33. <https://doi.org/10.26740/jppipa.v3n1.p33-38>.
- Sholihin, M., Sari, R. C., Yuniarti, N., & Ilyana, S. (2020). A new way of teaching business ethics: The evaluation of virtual reality-based learning media. *The International Journal of Management Education*, 18(3). <https://doi.org/10.1016/j.ijme.2020.100428>.
- Snape, P., & Zealand, N. (2017). Enduring Learning: Integrating C21st Soft Skills through Technology Education. *Enduring Learning: Integrating C21st Soft Skills through Technology Education*, 22(3), 48–59. <https://eric.ed.gov/?id=EJ1164214>.
- Suarsana, Supawidhiasi, & Parwati. (2018). The Use Of Portfolio Assessment To Overcome The Weakness Of Scientific Approach. *Jurnal Pendidikan Indonesia*, 7(1). <https://doi.org/10.23887/jpi-undiksha.v7i1.10394>.
- Sugandi, M. K., & Rasyid, A. (2019). Pengembangan Multimedia Adobe Flash Pembelajaran Biologi Melalui Project Based Learning Untuk Meningkatkan Kreativitas Siswa Pada Konsep Ekosistem. *Biodik*, 5(3), 181–196. <https://doi.org/10.22437/bio.v5i3.7869>.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. IKAPI.
- Sunismi. (2015). Developing Guided Discovery Learning Materials Using Mathematics Mobile Learning Application As An Alternative Media For The Students Calculus II. *Cakrawala Pendidikan*, 34(3), 334–346. <https://journal.uny.ac.id/index.php/cp/article/view/7340/pdf>.
- Susanti, N., Yennita, Y., & Azhar, A. (2020). Development of Contextual Based Electronic Global Warming Modules Using Flipbook Applications as Physics Learning Media in High Schools. *Journal of Educational Sciences*, 4(3), 541. <https://doi.org/10.31258/jes.4.3.p541-559>.
- Syahroni, M. W., Dewi, N. R., & Kasmui. (2016). The Effect of Using Digimon (Science Digital Module) with Scientific Approach at the Visualization of Students' Independence and Learning Results. *Jurnal Pendidikan IPA Indonesia*, 5(1), 116–122. <https://doi.org/10.15294/jpii.v5i1.5800>.
- Tchen, P., Leung, L., Simpson, F., Kim-Sing, A., & Pearson, M. L. (2018). Bridging the gap: An evaluation of self-paced online transition modules for advanced pharmacy practice experience students.

- Currents in Pharmacy Teaching and Learning*, 10(10). <https://doi.org/10.1016/j.cptl.2018.07.006>.
- Trilaksono, D., Darmadi, D., & Murtafi'ah, W. (2018). Pengembangan Media Pembelajaran Matematika Menggunakan Adobe Flash Professional Berbasis Literasi Untuk Meningkatkan Kreativitas Siswa. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 7(2), 180. <https://doi.org/10.24127/ajpm.v7i2.1428>.
- Triwahyuningtyas, D., Ningtyas, A. S., & Rahayu, S. (2020). The problem-based learning e-module of planes using Kvisoft Flipbook Maker for elementary school students. *Jurnal Prima Edukasia*, 8(2), 199–208. <https://doi.org/10.21831/jpe.v8i2.34446>.
- Weng, C., Otanga, S., Weng, A., & Cox, J. (2018). Effects of interactivity in E-textbooks on 7th graders science learning and cognitive load. *Computers & Education*, 120, 172–184. <https://doi.org/10.1016/j.compedu.2018.02.008>.
- Wulandari, I. G. A. A. (2020). Implementation of the 2013 Curriculum Based on a Scientific Approach (Case Study at SD Cluster II Kintamani). *International Journal of Elementary Education*, 4(3), 422–430. <https://doi.org/10.23887/ijee.v4i3.28172>.
- Yasa, Ariawan, S. (2017). Pengembangan Media Pembelajaran Interaktif Berbasis Adobe Flash Pada Mata Pelajaran Prakarya Dan Kewirausahaan Materi Elektro Listrik Untuk Kelas XI MIPA dan IPS DI SMA Negeri 3 Singaraja. *Jurnal Pendidikan Teknologi Dan Kejuruan*, 14(2), 199–209. <https://doi.org/10.23887/jptk-undiksha.v14i2.11107>.
- Yogiyatno, W., & Sofyan, H. (2013). Pengembangan multimedia interaktif kompetensi dasar mengoperasikan software basis data untuk SMK Negeri 1 Seyegan. *Jurnal Pendidikan Vokasi*, 3(3), 391–404. <https://doi.org/10.21831/jpv.v3i3.1851>.
- Yusuf, I., & Widyaningsih, S. W. (2020). Implementing e-learning-based virtual laboratory media to students' metacognitive skills. *International Journal of Emerging Technologies in Learning*, 15(5), 63–74. <https://doi.org/10.3991/ijet.v15i05.12029>.
- Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker, J. F. (2016). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. *Information and Management*, 43(1), 15–27. <https://doi.org/10.1016/j.im.2005.01.004>.