



## Animated learning on "Environment is our friend" Topic in Social Science Subject

Ni Wayan Yuna Kharismayani<sup>1\*</sup>, I Gde Wawan Sudatha<sup>2</sup>, I Gusti Ayu Tri Agustiana<sup>3</sup> 

<sup>1,3</sup> Pendidikan Guru Sekolah Dasar, Universitas Pendidikan Ganesha, Singara, Indonesia

<sup>2</sup> Teknologi Pendidikan, Universitas Pendidikan Ganesha, Singara, Indonesia

### ARTICLE INFO

#### Article history:

Received July 03, 2022

Accepted August 14, 2022

Available online August 25, 2022

#### Kata Kunci:

Animasi Pembelajaran, IPS, Sekolah Dasar

#### Keywords:

Learning Animation, Social Studies, Elementary School



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

Copyright © 2022 by Author. Published by Universitas Pendidikan Ganesha.

### ABSTRAK

Kurangnya media belajar berdampak pada motivasi dan hasil belajar siswa yang rendah. Tujuan penelitian ini yaitu mengembangkan produk animasi pembelajaran pada muatan IPS Materi Lingkungan Sahabat Kita. Jenis penelitian ini yaitu penelitian pengembangan dengan menggunakan model ADDIE. Subjek uji coba yaitu 1 ahli materi pembelajaran, 1 ahli media pembelajaran, dan 1 ahli desain pembelajaran. Subjek uji coba yaitu siswa kelas V SD yang berjumlah 30 siswa. Metode pengumpulan data menggunakan kuesioner. Instrumen pengumpulan data menggunakan angket. Teknik analisis data yang digunakan dalam penelitian ini yaitu analisis statistik deskriptif kualitatif dan analisis statistik deskriptif kuantitatif. Hasil penelitian yaitu hasil penilaian yang diberikan oleh ahli materi pembelajaran yaitu 98% (sangat baik). Penilaian yang diberikan oleh ahli media pembelajaran yaitu 90% (sangat baik). Penilaian yang diberikan oleh desain pembelajaran yaitu 94% (sangat baik). Hasil uji coba perorangan mendapatkan skor 100% (sangat baik). Hasil uji coba kelompok kecil yaitu 98% (sangat baik). Hasil uji coba kelompok besar yaitu 92% (sangat baik). Disimpulkan bahwa animasi pembelajaran pada muatan IPS Materi Lingkungan Sahabat Kita layak digunakan dalam pembelajaran.

### ABSTRACT

The lack of learning media has an impact on students' low motivation and learning outcomes. This study aims to develop a learning animation product on the social studies content for the Environmental Materials of Our Friends. This type of research is development research using the ADDIE model. The test subjects are 1 learning material expert, 1 learning media expert, and 1 learning design expert. The experiment subjects were fifth-grade elementary school students collected 30 students. Methods of data collection using a questionnaire. The data collection instrument used a questionnaire. The data analysis technique used in this research is descriptive qualitative statistical analysis and quantitative descriptive statistical analysis. The study results are the results of the assessment given by learning material experts, namely 98% (very good). The assessment given by learning media experts is 90% (very good). The assessment given by the learning design is 94% (very good). The trial results get an individual score of 100% (very good). The results of the small group trial were 98% (very good). The results of the large group trial were 92% (very good). It was concluded that the learning animation on the Social Science content of the Environmental Materials of Our Friends is suitable for learning.

### 1. INTRODUCTION

Human resources can be increased effectively with education. Education can develop all the potential possessed by a person (Bulan et al., 2020; Hamzah et al., 2016). This is what makes Indonesian education always updated to keep up with the times and develop human resources effectively. The government has implemented the 2013 curriculum at the basic education level to achieve educational goals (Divayana et al., 2016; Nasihin, 2016). Learning is learning activities that are carefully designed and actualized (Setiawan & Kumala, 2020; Tiara & Sari, 2019). This is why education is one of the efforts in educating the nation's life so that the quality of education needs to be constantly improved. The integration of learning activities is one of the learning activities that must also be considered by every teacher. Learning that is not paid attention to can lead to less understanding of students so that students do not understand the material properly (Atmojo et al., 2020; Nácher et al., 2021). Moreover, learning activities are currently running online. This makes teachers have to design online learning activities that can help students learn online easily.

Online learning activities are also expected to create meaningful learning so that students can formulate a problem and solve a solution that occurs in their lives (Baragash & Al-Samarraie, 2018; Wei et

\*Corresponding author.

E-mail addresses: [yunakarismaya@gmail.com](mailto:yunakarismaya@gmail.com) (Ni Wayan Yuna Kharismayani)

al., 2021). One of the contents that students get in online learning is social studies. IPS content obtained by students in elementary schools emphasizes the elements of education and equipping students in learning activities. The emphasis on social studies learning does not only emphasize a number of rote concepts but lies in so that students can make and use what they have learned as provisions in living life and solving all problems in society (Widyastuti et al., 2019; Wildawati et al., 2018). Compulsory social science given in elementary schools. This learning examines all events, concepts, facts related to global issues and social life (Alfianti et al., 2020; Anggraini et al., 2018). In addition, this subject also combines and integrates basic concepts from various social sciences which are developed with a psychological and social approach. Students who understand IPS will later be able to overcome social problems so that students can live well in society (Widiasih et al., 2018; Widnyana & Sujana, 2017). Social studies learning objectives also instill basic knowledge and skills that are useful for students in everyday life (Puspitaningdyah & Purwanti, 2018; Suasaningdyah, 2018). This makes IPS learning must be well designed so that students can understand the material easily.

However, the current problem is that teachers are less able to design activities properly. Previous research findings also reveal that there are still many teachers who only use book learning resources and do not make use of technology even though this century requires technology in learning activities (Rofiq et al., 2019; Syawaludin et al., 2019). Other studies have also revealed that some teachers are still monotonous using the lecture method so that students are less active in learning and have an effect on students' poor abilities (Dewi et al., 2019; Riwu et al., 2018). Lecture learning can also influence students to be less creative in developing an idea and solving a problem (Dwi Lestari & Putu Parmiti, 2020; Pamungkas et al., 2018). Besides that, other findings also reveal that some teachers also have difficulties in developing creative media (Ponza et al., 2018; Siddiq et al., 2020). The results of observations at SD Negeri 1 Cempaga found that learning activities had not been carried out optimally. The findings also reveal that the social studies content of students has not yet reached the KKM. The social studies competency score of students is 73 and students who achieve completeness are at least 14 students. It was found that 17 students had not reached the KKM. This indicates that students are less able to understand IPS material. The observation results also found that students did not concentrate enough in participating in learning and students paid less attention to the teacher in teaching. In addition, the teacher also revealed that in learning activities there is still a lack of media use because teachers have difficulty developing media.

The solution to this problem is to use interesting and interactive media. Online learning activities must use technology-assisted media so that learning becomes optimal. One of the media that can be used is learning animation. This learning animation can help and support remote learning activities (Candra Dewi & Negara, 2021; Ponza et al., 2018). The use of technology in developing animated media can make it easier for teachers to channel information and also make it easier for students to receive material (Yuliani, 2017; Yuniarni et al., 2020). In helping students understand the concept of material, animation can be developed through the form of a series of images that are made alive. The use of this animation can create interesting learning activities and beautify the appearance of the media so that students are more enthusiastic about participating in learning (Alfianti et al., 2020; Margareta Widiyasanti et al., 2018). One of the animations that can be developed is stop motion animation which is a learning media in the form of animation with media capture techniques using a collection of images that are put together so that the images come alive. This animation can animate images and move images so that it will be very interesting for students (Abbas, 2019; Widiyasanti & Ayriza, 2018).

Previous research findings also reveal that the use of well-developed animation will make it easier for students to learn (Kusumawati, 2016; Lubis & Hidayat, 2021; Prasetya et al., 2021). Other studies have also revealed that animation is an interesting medium that can increase students' motivation to learn (Awalia et al., 2019; Ompi et al., 2020). It can be concluded that the use of this animation will assist teachers in distributing material, especially in online learning. There is no study regarding the development of stop motion learning animation. The advantage of the animation developed is that this animation is very easy to use and very interesting because it moves the images as if they were alive. In addition, the packaging of the material is also adjusted to the characteristics of students so that it is suitable and makes it easier for students to learn. The purpose of this research is to develop learning animation products on social studies content on Sahabat Kita Environmental Materials. It is hoped that this animation can help teachers distribute material online.

## 2. METHOD

This type of research is development research. The model used in developing animation is ADDIE which includes analysis, design, development, implementation, and evaluation (Sari et al., 2020). The analysis stage is to analyze the existing problems. The design stage is designing animation products. At the

development stage, namely developing animation products and product validation tests. The implementation phase is testing the effectiveness of the product. The evaluation phase is carried out throughout all stages. The test subjects were 1 learning material expert, 1 learning media expert, and 1 learning design expert. The test subjects were fifth grade elementary school students, totaling 30 students. Methods of data collection using a questionnaire. The data collection instrument uses a questionnaire. The questionnaire grid is presented in [Table 1](#).

**Table 1. Learning Animation Feasibility Sheet Grid**

No	Aspect	Indicator
1	Function	The function of learning animation media 1. Display media is able to attract students' attention to study. 2. Ease of use of learning animation media.
2	Appropriateness	Display of learning animation media 3. The material displayed in the media is able to attract students' attention in learning. 4. The material in learning animation media is easy for students to understand.
3	Accuracy	The effectiveness of the use of learning animation media. 5. Completeness of material/information contained in learning animation media. 6. The suitability of the material in the theme book used in learning animation media. 7. Suitability of the material with basic competence. 8. The suitability of the material with learning animation media. 9. The breadth of material coverage in learning animation media. 10. The depth of the material in learning animation media.

(Modificaton from [Cahyadi, 2019](#))

The data analysis technique used in this research is qualitative descriptive statistical analysis and quantitative descriptive statistical analysis. Qualitative descriptive analysis was used to process input data from experts. Quantitative descriptive analysis is used to process the score data given by experts. The five conversion guidelines are used to provide product categories.

### 3. RESULT AND DISCUSSION

#### Result

This research produced learning animation products on social studies content on Sahabat Kita Environmental Materials using the ADDIE model. First, analysis. the result of the analysis is that learning activities have not been carried out optimally. The findings also reveal that the social studies content of students has not yet reached the KKM. The social studies competency score of students is 73 and students who achieve completeness are at least 14 students. It was found that 17 students had not reached the KKM. This indicates that students are less able to understand IPS material. The observation results also found that students did not concentrate enough in participating in learning and students paid less attention to the teacher in teaching. In addition, the teacher also revealed that in learning activities there is still a lack of media use because teachers have difficulty developing media. The results of the curriculum analysis are presented in [Table 2](#).

**Table 2. Basic Competencies and Competency Achievement Indicators**

Basic competencies	Indicators of Competence Achievement
3.3 Analyzing the role of the economy in an effort to improve people's lives in the social and cultural fields to strengthen the unity and integrity of the Indonesian nation and its relationship with spatial characteristics. KD.	3.3.1 Observing pictures/photos/videos/reading texts about social interaction of development outcomes in the community.

Second, design. At this stage, designing learning animation products on social studies content is our friend's environmental material. The design process begins with designing product designs according

to learning materials, then the designs are developed through the Canva application. The design results are presented in [Picture 1](#).



**Picture 1.** IPS Load Animation Design

Third, development. At this stage, namely developing learning animation products on Social Science Content Materials of Our Friends Environment in accordance with the designs that have been made. The animation that has been developed consists of an opening, KD, indicators, objectives, content and closing. The size of this animated video uses a Landscape (16:9) frame system with a total of 96 image pages. The technique used is cut out to form an animation by making image cuts so that the image seems to move. The development results are presented in [Picture 2](#).



**Picture 2.** Results of IPS Content Animation Development

Learning animation products on Social Science Content Materials of Our Friends Environment that have been developed are then tested for validity. The results of the assessment given by learning material experts are 98% (very good). The assessment given by learning media experts is 90% (very good). The assessment given by the learning design is 94% (very good). Individual test results get a score of 100% (very good). The results of the small group trials were 98% (very good). The result of the large group trial was 92% (very good). It was concluded that the learning animation on social studies content on Sahabat Kita Environmental Material is appropriate for use in learning. As for the advice given by the expert, namely first, there is a mention in the text that does not match the picture. Second, the text in the image does not match the supporting image. The revised results are in [Picture 3](#).



**Picture 3.** Results of the IPS Content Animation Revision

## Discussion

Learning animations on social studies content on Sahabat Kita's Environmental Materials are suitable for use in learning. This is because, first, it makes it easier for students to learn. The learning animation that has been developed adjusts the material to the social studies learning curriculum so that it can be used by students in learning. In addition, the material presented about Our Friends Environment also presents examples to make it easier for students to learn. This is in accordance with research which reveals that the use of examples in the media will make it easier for students to absorb all the information

presented in the media (Hanif, 2020; Rahayuningsih, 2020). In addition, this media is also equipped with appropriate explanations so that students can understand the concept of the material well (Lin & Li, 2018; Sanchez & Weber, 2019; Endang Saripudin et al., 2018). This learning animation was developed based on the results of a needs analysis so that it can be a solution in overcoming problems that occur in students. This is in accordance with constructivism theory which states that learning activities will run well if they focus on direct knowledge so that students can gain direct experience through learning (Pande & Bharathi, 2020; Suwannaphisit et al., 2021). In using this animation can make students fully involved in learning activities by listening to reading and understanding the material. This provides a meaningful experience for students so that students more easily understand and grasp the concepts presented in the animation (Koning et al., 2019; Sanchez & Weber, 2019).

Second, learning animation on social studies content motivates student learning. This social studies content learning animation is guided by the ADDIE model so it is very clear and systematic. Clarity in media development will have an impact on the results of developing interesting animations so that they can motivate students in learning (Koning et al., 2019; Saripudin et al., 2018). In addition, this animation design was built using the Canva application so it is very interesting. This learning animation is adapted to the material so that the animation presents material systematically. The material presented systematically will have an impact on students' comfort in learning so that student motivation increases (Prehanto et al., 2021; Puspita & Raida, 2021). Besides that, the development of this animation also uses a cut out technique that can make the pieces of the image move so that it is very interesting. Previous research has also revealed that attractively presented media can motivate student learning (Koning et al., 2019; Munawaroh, 2019). The development of this animation makes the pictures seem to move real which will increase students' enthusiasm when learning the material. This can also be seen from students' responses to learning animations which reveal that students are very interested when learning material through learning animated videos. This learning animation also has a clear focus and clear learning objectives. The clarity of this learning video also makes students interested in learning to use media (Amali et al., 2020; Suprianti, 2020).

Previous research findings also reveal the importance of using media in online learning, so teachers must design digital-based media (Agustina et al., 2021; Candra Dewi & Negara, 2021). Other research also reveals that learning animation is appropriate to use because it is practical and motivates students to learn (Lubis & Hidayat, 2021; Ompi et al., 2020). Other findings also reveal that animations that are designed as attractive as possible and according to needs can overcome student learning problems (Arditya Isti et al., 2020; Kurniawan et al., 2020). It was concluded that animated videos can create a fun learning atmosphere. The implication of this research is that the IPS content animation that has been developed can help students learn online so that students more easily understand learning material. In addition, this video also makes learning activities more effective so that it will have an impact on increasing student understanding..

#### 4. CONCLUSION

Based on the results of data analysis and discussion, it can be concluded that the principal as a leader has carried out his role as an agent of change, direction giver, and as a coach for the staff, teacher and student. The obstacles that are felt by the principal in carrying out his role are that there are still some teachers who come late to school because of personal reasons such as taking care of children and family.

#### 5. REFERENCES

- Abbas, M, L, H. (2019). Penerapan Animasi Macromedia Flash Untuk Meningkatkan Hasil Belajar Fisika Pada Materi Tekanan. *Ed-Humanistics*, 4(1), 509–515. <https://doi.org/10.33752/ed-humanistics.v4i1.359>.
- Agustina, M., Azizah, E. N., & Koesmadi, D. P. (2021). Pengaruh Pemberian Reward Animasi terhadap Motivasi Belajar Anak Usia Dini selama Pembelajaran Daring. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(1), 353–361. <https://doi.org/10.31004/obsesi.v6i1.1331>.
- Alfianti, A., Taufik, M., Hakim, Z. R., Sultan, U., & Tirtayasa, A. (2020). Pengembangan Media Pembelajaran IPS Berbasis Video Animasi Pada Tema Indahnnya Keragaman Di Negeriku. *Indonesian Journal of Elementary Education*, 2(1), 1–12. <https://doi.org/10.31000/ijoe.v1i2.2927.g1791>.
- Amali, L. N., Zees, N., & Suhada, S. (2020). Motion Graphic Animation Video As Alternative Learning Media. *Jambura Journal of Informatics*, 2(1). <https://doi.org/10.37905/jji.v2i1.4640>.
- Anggraini, D., Relmasira, S., & Tyas Asri Hardini, A. (2018). Penerapan Model Pembelajaran Student Teams Achievement Division (Stad) Melalui Media Pembelajaran Ular Tangga Untuk Meningkatkan

- Kemampuan Berpikir Kritis Dan Hasil Belajar Ips Pada Peserta Didik Kelas 2 Sd. *Pendekar : Jurnal Pendidikan Berkarakter*, 1(1), 324. <https://doi.org/10.31764/pendekar.v1i1.379>.
- Arditya Isti, L., Agustiningih, A., & Aguk Wardoyo, A. (2020). Pengembangan Media Video Animasi Materi Sifat-Sifat Cahaya Untuk Siswa Kelas Iv Sekolah Dasar. *Edustream: Jurnal Pendidikan Dasar*, IV(1), 21–28. <https://doi.org/10.24246/j.js.2018.v8.i1.p1-15>.
- Atmojo, S. E., Muhtarom, T., & Lukitoaji, B. D. (2020). The level of self-regulated learning and self-awareness in science learning in the covid-19 pandemic era. *Jurnal Pendidikan IPA Indonesia*, 9(4), 512–520. <https://doi.org/10.15294/jpii.v9i4.25544>.
- Awalia, I., Pamungkas, A. S., & Alamsyah, T. P. (2019). Pengembangan Media Pembelajaran Animasi Powtoon pada Mata Pelajaran Matematika di Kelas IV SD. *Jurnal Matematika Kreatif-Inovatif*, 10(1). <https://doi.org/10.15294/kreano.v10i1.18534>.
- Baragash, R. S., & Al-Samarraie, H. (2018). Blended learning: Investigating the influence of engagement in multiple learning delivery modes on students' performance. *Telematics and Informatics*, 35(7), 2082–2098. <https://doi.org/10.1016/j.tele.2018.07.010>.
- Bulan, P., Sudharto, P. H., Irina Safitri, Z., Teuku, A., & Dinalestari, P. (2020). Education for Sustainable Development as Diffusion of Innovation of Secondary School Students. *Journal of Teacher Education for Sustainability*, 22(1), 84–97. <https://doi.org/10.2478/jtes-2020-0007>.
- Cahyadi, R. A. H. (2019). Pengembangan Bahan Ajar Berbasis Addie Model. *Halaqa: Islamic Education Journal*, 3(1), 35. <https://doi.org/10.21070/halaqa.v3i1.2124>.
- Candra Dewi, N. M. L., & Negara, I. G. A. O. (2021). Pengembangan Media Video Animasi IPA pada Pokok Bahasan Sistem Pernapasan Kelas V. *Jurnal Edutech Undiksha*, 9(1), 122–130. <https://doi.org/10.23887/jeu.v9i1.32501>.
- Dewi, I. G. A. A. S. S., Sudatha, I. G. W., & Sukmana, A. I. W. I. Y. (2019). Pengembangan Multimedia Pembelajaran Interaktif Berorientasi Pendidikan Karakter Mata Pelajaran Bahasa Bali. *Journal of Education Technology*, 3(3), 190. <https://doi.org/10.23887/jet.v3i3.21745>.
- Divayana, D. G. H., Suyasa, P. W. A., & Sugihartini, N. (2016). Pengembangan Media Pembelajaran Berbasis Web Untuk Matakuliah Kurikulum dan Pengajaran di Jurusan Pendidikan Teknik Informatika Universitas Pendidikan Ganesha. *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, 5(3), 149. <https://doi.org/10.23887/janapati.v5i3.9922>.
- Dwi agus setiawan, & Nur Kumala, F. (2020). Multimedia Interaktif Tipe Adobe Flash CS6 Berbasis Kurikulum 2013 Dalam Meningkatkan Literasi Verbal Siswa Sekolah Dasar. *Jurnal Pendidikan Dasar Nusantara*, 6(1), 32–49. <https://doi.org/10.29407/jpdn.v6i1.14358>.
- Dwi Lestari, H., & Putu Parmiti, D. P. P. (2020). Pengembangan E-Modul IPA Bermuatan Tes Online Untuk Meningkatkan Hasil Belajar. *Journal of Education Technology*, 4(1), 73. <https://doi.org/10.23887/jet.v4i1.24095>.
- Hamzah, H., Yahya, Z., Sarip, A. G., & Adnan, Y. M. (2016). Impact of entrepreneurship education programme (EEP) on entrepreneurial intention of real estate graduates. *Pacific Rim Property Research Journal*. <https://doi.org/10.1080/14445921.2016.1158897>.
- Hanif, M. (2020). The development and effectiveness of motion graphic animation videos to improve primary school students' sciences learning outcomes. *International Journal of Instruction*, 13(4), 247–266. <https://doi.org/10.29333/iji.2020.13416a>.
- Koning, B. B. de, Marcus, N., Brucker, B., & Ayres, P. (2019). Does observing hand actions in animations and static graphics differentially affect learning of hand-manipulative tasks? *Computers & Education*, 41. <https://doi.org/10.1016/j.compedu.2019.103636>.
- Kurniawan, F. Y., Siahaan, S. M., & Hartono, H. (2020). Pengembangan multimedia interaktif berbasis adventure game pada materi prinsip animasi. *Jurnal Inovasi Teknologi Pendidikan*, 6(2), 183–195. <https://doi.org/10.21831/jitp.v6i2.28488>.
- Kusumawati, N. (2016). Pengembangan Media Pembelajaran IPA Dengan Animasi Macromedia Flash Berbasis Model Pengajaran Langsung (Direct Instruction) Di Sekolah Dasar. *Premiere Educandum : Jurnal Pendidikan Dasar dan Pembelajaran*, 5(02), 263–271. <https://doi.org/10.25273/pe.v5i02.289>.
- Lin, L., & Li, M. (2018). Optimizing learning from animation: Examining the impact of biofeedback. *Learning and Instruction*, 55. <https://doi.org/10.1016/j.learninstruc.2018.02.005>.
- Lubis, & Hidayat. (2021). Pengembangan Media Animasi Berbantuan Powtoon Melalui Pembelajaran Daring Pada Operasi Bilangan Tiga Angka Dikelas II SD. *Education Achievment: Journal of Science and Research*, 2(3). <https://doi.org/10.51178/jsr.v2i1.337>.
- Munawaroh, S. (2019). Teaching the narrative texts using animation video: raising students' skills on reading comprehension. *Utamax : Journal of Ultimate Research and Trends in Education*, 1(1), 18–22. <https://doi.org/10.31849/utamax.v1i1.2791>.

- Nácher, M. J., Badenes-Ribera, L., Torrijos, C., Ballesteros, M. A., & Cebadera, E. (2021). The effectiveness of the GoKoan e-learning platform in improving university students' academic performance. *Studies in Educational Evaluation*, 70. <https://doi.org/10.1016/j.stueduc.2021.101026>.
- Nasihin, S. (2016). Implementasi Kurikulum 2013 di MTs Yaqin 1 Kwang Rundun Kecamatan Jerowaru (Masalah dan Solusinya). *Jurnal Studi Keislaman dan Ilmu Pendidikan*, 4(1), 56–86. <https://doi.org/10.36088/palapa.v4i1.8>.
- Ompi, Sompie, & Sugiarto. (2020). Video animasi interaktif 3d dampak penggunaan gadget pada anak sekolah dasar tingkat awal. *Jurnal Teknik Elektro dan Komputer*, 9(2). <https://doi.org/10.35793/jtek.9.2.2020.29717>.
- Pamungkas, A. S., Ihsanudin, I., Novaliyosi, N., & Yandari, I. A. V. (2018). Video Pembelajaran Berbasis Sparkol Videoscribe: Inovasi Pada Perkuliahan Sejarah Matematika. *Prima: Jurnal Pendidikan Matematika*, 2(2), 127. <https://doi.org/10.31000/prima.v2i2.705>.
- Pande, M., & Bharathi, S. V. (2020). Theoretical foundations of design thinking – A constructivism learning approach to design thinking. *Thinking Skills and Creativity*, 36. <https://doi.org/10.1016/j.tsc.2020.100637>.
- Ponza, P. J. R., Jampel, I. N., & Sudarma, I. K. (2018). Pengembangan Media Video Animasi pada Pembelajaran Siswa Kelas IV di Sekolah Dasar. *Jurnal Edutech Undiksha*, 6(1), 9–19.
- Prasetya, W. A., Suwatra, I. I. W., & Mahadewi, L. P. P. (2021). Pengembangan Video Animasi Pembelajaran Pada Mata Pelajaran Matematika. *Jurnal Penelitian dan Pengembangan Pendidikan*, 5(1), 60–68. <https://doi.org/10.23887/jppp.v5i1.32509>.
- Prehanto, A., Aprily, N. M., Merliana, A., & Nurhazanah, M. (2021). Video Pembelajaran Interaktif-Animatif sebagai Media Pembelajaran IPS SD Kelas Tinggi di Masa Pandemi Covid 19. *Indonesian Journal of Primary Education*, 5(1), 32–38. <https://doi.org/10.17509/ijpe.v5i1.33696>.
- Puspita, I., & Raida, S. A. (2021). Development of video stop motion graphic animation oriented steam (science, technology, engineering, arts, and mathematics) on global warming materials in junior high school. *Thabiea: Journal of Natural Science Teaching*, 4(2), 198. <https://doi.org/10.21043/thabiea.v4i2.11895>.
- Puspitaningdyah, & Purwanti. (2018). Pengaruh Keterampilan Mengelola Kelas dan Keaktifan Belajar Terhadap Hasil Belajar IPS SD. *Joyful Learning Journal*, 1(1), 29–38. <https://doi.org/10.15294/jlj.v7i1.24188>.
- Rahayuningsih, S. (2020). Animation media of animal husbandry thematic science learning to stimulate scientific attitude in early childhood. *International Journal of Scientific and Technology Research*. <https://doi.org/10.23887/jet.v3i1.17959>.
- Riwu, I. U., Laksana, D. N. L., & Dhiu, K. D. (2018). Pengembangan Bahan Ajar Elektronik Bermuatan Multimedia Pada Tema Peduli Terhadap Makhluk Hidup Untuk Siswa Sekolah Dasar Kelas Iv Di Kabupaten Ngada. *Journal of Education Technology*, 2(2), 56. <https://doi.org/10.23887/jet.v2i2.16182>.
- Rofiq, A., Mahadewi, L. P. P., & Parmiti, D. P. (2019). Pengembangan Multimedia Pembelajaran Interaktif Pada Mata Pelajaran Ips Terpadu. *Journal of Education Technology*, 3(3), 126. <https://doi.org/10.23887/jet.v3i3.21732>.
- Sanchez, C. A., & Weber, K. (2019). Using Relevant Animations to Counter Stereotype Threat When Learning Science. *Journal of Applied Research in Memory and Cognition*, 8(4). <https://doi.org/10.1016/j.jarmac.2019.08.003>.
- Sari, I. S., Lestari, S. R., & Sari, M. S. (2020). Development of A Guided Inquiry-Based E-module on Respiratory System Content Based on Research Results of the Potential Single Garlic Extract (*Allium sativum*) to Improve Student Creative Thinking Skills and Cognitive Learning Outcome. *Jurnal Pendidikan Sains Indonesia*, 8(2), 228–240. <https://doi.org/10.24815/jpsi.v8i2.17065>.
- Saripudin, E., Sari, I., & Mukhtar, M. (2018). Using Macro Flash Animation Media on Motion Material to Improve Learning Achievement for Learning Science in Junior High School. *Journal of Science Research and Learning*, 4(1), 68–75. <https://doi.org/10.30870/jppi.v4i1.3316>.
- Saripudin, Endang, Sari, I. J., & Mukhtar, M. (2018). Using Macro Flash Animation Media on Motion Material to Improve Learning Achievement for Learning Science in Junior High School. *Jurnal Penelitian dan Pembelajaran IPA*, 4(1), 68–75. <https://doi.org/10.30870/jppi.v4i1.3316>.
- Siddiq, Y. I., Sudarma, I. K., & Simamora, A. H. (2020). Pengembangan Animasi Dua Dimensi pada Pembelajaran Tematik untuk Siswa Kelas III Sekolah Dasar. *Jurnal Edutech Undiksha*, 8(2), 49–63. <https://doi.org/10.23887/jeu.v8i2.28928>.
- Suasaningdyah, E. (2018). Peningkatan Nilai Peserta Didik Mata Pelajaran IPS Topik Bermain Layang-Layang Melalui Pembelajaran Kontektual. *Jurnal Pendidikan (Teori dan Praktik)*, 2(2), 105. <https://doi.org/10.26740/jp.v2n2.p105-115>.

- Suprianti, G. A. P. (2020). Powtoon animation video: a learning media for the sixth graders. *VELES Voices of English Language Education Society*, 4(2), 152–162. <https://doi.org/10.29408/veles.v4i2.2536>.
- Suwannaphisit, S., Anusitviwat, C., Hongnaparak, T., & Bvonpanttarananon, J. (2021). Expectations on online orthopedic course using constructivism theory: A cross-sectional study among medical students. *Annals of Medicine and Surgery*, 67. <https://doi.org/10.1016/j.amsu.2021.102493>.
- Syawaludin, A., Gunarhadi, & Rintayati, P. (2019). Enhancing elementary school students' abstract reasoning in science learning through augmented reality-based interactive multimedia. *Jurnal Pendidikan IPA Indonesia*, 8(2), 288–297. <https://doi.org/10.15294/jpii.v8i2.19249>.
- Tiara, S. K., & Sari, E. Y. (2019). Analisis Teknik Penilaian Sikap Sosial Siswa Dalam Penerapan Kurikulum 2013 Di Sdn 1 Watulimo. *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru*, 11(1), 21. <https://doi.org/10.17509/eh.v11i1.11905>.
- Wei, X., Saab, N., & Admiraal, W. (2021). Assessment of cognitive, behavioral, and affective learning outcomes in massive open online courses: A systematic literature review. *Computers & Education*, 163, 104097. <https://doi.org/10.1016/j.compedu.2020.104097>.
- Widiasih, R., Widodo, J., & Kartini, T. (2018). Pengaruh Penggunaan Media Bervariasi Dan Motivasi Belajar Terhadap Hasil Belajar Mata Pelajaran Ekonomi Siswa Kelas Xi Ips Sma Negeri 2 Jember Tahun Pelajaran 2016/2017. *JURNAL PENDIDIKAN EKONOMI: Jurnal Ilmiah Ilmu Pendidikan, Ilmu Ekonomi dan Ilmu Sosial*, 11(2), 103. <https://doi.org/10.19184/jpe.v11i2.6454>.
- Widiyasanti, M., & Ayriza, Y. (2018). Pengembangan Media Video Animasi untuk Meningkatkan Motivasi Belajar dan Karakter Tanggung Jawab Siswa Kelas V. *Jurnal Pendidikan Karakter*, 8(1). <https://doi.org/10.21831/jpk.v8i1.21489>.
- Widiyasanti, Margareta, Proketen, S. D., & Yogyakarta, N. (2018). Pengembangan Media Video Animasi Untuk Meningkatkan Motivasi Belajar Dan Karakter Tanggung Jawab Siswa Kelas V. *Jurnal Pendidikan Karakter*, 8(1), 1–16. <https://doi.org/10.21831/jpk.v8i1.21489>.
- Widnyana, I. G., & Sujana, I. W. (2017). Pengaruh Model Pembelajaran Role Playing Berbasis Tri Hita Karana Terhadap Kompetensi Pengetahuan Ips Kecamatan Denpasar Timur Tahun Pelajaran 2016 / 2017. *Mimbar PGSD Undiksha*, 5. <https://doi.org/10.23887/jjpsd.v5i2.11995>.
- Widyastuti, I. N., Wiryokusumo, I., & Sugito. (2019). Pengembangan Modul Pembelajaran Dengan Model Dick and Carey dan Menggunakan Concept Mapping Pada Mata Pelajaran Ekonomi Kelas Xi Ips Di Sma Negeri 1 Sampang Semester Ganjil Tahun Ajaran 2018/2019. *Jurnal Education and development*, 7(2), 175–180. <https://doi.org/10.37081/ed.v7i2.924>.
- Wildawati, W., Ananda, A., & Hasan, H. (2018). Improving student's learning outcomes and student's activity of social science (IPS) subject by using jigsaw learning model at class VIII B in SMPN 14 sijunjung. *Jurnal Aplikasi IPTEK Indonesia*, 2(2), 27–36. <https://doi.org/10.24036/4.22115>.
- Yuliani, H. (2017). Pembelajaran Fisika menggunakan Media Animasi Macromedia Flash-MX dan Gambar untuk Meningkatkan Pemahaman Konsep Mahasiswa. *Jurnal Ilmiah Pendidikan Fisika Al-Biruni*, 6(1), 13–21. <https://doi.org/10.24042/jpifalbiruni.v6i1.596>.
- Yuniarni, D., Sari, R. P., & Atiq, A. (2020). Pengembangan Multimedia Interaktif Video Senam Animasi Berbasis Budaya Khas Kalimantan Barat. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 4(1), 290. <https://doi.org/10.31004/obsesi.v4i1.331>.