Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

Development of Interactive Infographic Media Assisted by Google Sites with Cooperative Learning Model for Elementary School Students

Dini Alya Rosyada*, Makmum Raharjo, Suratmi
Elementary School Teacher Education Study Program,
Faculty of Teacher Training and Education, Universitas Sriwijaya, Indonesia.
*Corresponding Author. Email: 06131182126009@student.unsri.ac.id

Abstract: This study aims to develop interactive infographic learning media based on Google Sites that integrates cooperative learning models on food chain material for fifth grade elementary school students. The type of research used is development research with the ADDIE model consisting of the stages of Analysis, design, development, implementation, and evaluation. Data collection techniques used are observation, interviews, documentation, needs analysis, validation sheets, response questionnaires, and tests. The results of this study indicate that interactive infographic learning media based on Google Sites is effective and practical to use, with an N-gain score reaching 0.838452, which is included in the high category. This study shows that interactive infographic media can improve students' understanding of concepts and mastery of material, so it is suitable for use in the learning process.

Article History
Received: 12-03-2025
Revised: 14-04-2025
Accepted: 19-04-2025
Published: 25-04-2025

Key Words:
Interactive Infographic; Learning Media; Google Sites; Cooperative Learning Models.

How to Cite: Rosyada, D., Raharjo, M., & Suratmi, S. (2025). Development of Interactive Infographic Media Assisted by Google Sites with Cooperative Learning Model for Elementary School Students. *Jurnal Paedagogy, 12*(2), 537-545. doi:https://doi.org/10.33394/jp.v12i2.15284

https://doi.org/10.33394/jp.v12i2.15284

Introduction

The rapid development of technology and information encourages the presence of learning media that are increasingly diverse and in accordance with the needs of the times. In addition, digital-based resources, which provide materials that can be accessed without being limited by space and time, are necessary for classroom teaching in the modern era (Hersita, et al., 2020). Teachers have an important role in determining the success of classroom learning, which has an impact on students. Many factors influence the success of classroom learning, including the use of appropriate learning media to achieve learning objectives, innovative classroom management, and learning variations (Nugraheni, 2019). This aims to encourage students' active involvement and provide ample opportunities for them to develop creativity, initiative and independence. In addition, learning is also tailored to students' talents, interests, and physical and psychological development.

Learning media is a supporting tool designed to support the learning process. The presence of this media plays an important role in increasing students' interest in learning. With learning media, students tend to be more actively involved in the learning process, while teachers become more creative and active in delivering material. This happens because teachers have a central role in creating learning media that is effective and easy for students to understand (Nurfadillah, et al., 2021). The learning media used is expected to accommodate not only text, there are other media aspects, such as images. The combination of text and images in a medium can be an attraction for students during the learning process (Khomariah, 2017). One type of media that can accommodate images as well as text is infographic media. Infographic media can provide data or knowledge information by simplifying the presentation of complex detailed information to be clearer and simpler

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

(Padrian & Syafril, 2020). Infographics also present complex explanatory text to be simple through images that have explanations and meanings about information (Tsai, et al., 2022). Learning models play an important role in the teaching and learning process. Students' understanding of the subject matter can be influenced by the selection of appropriate learning models, so that learning objectives can be achieved properly. Various learning models are available as alternatives for teachers in creating effective and optimal learning in the classroom. One of the models that can be applied is cooperative learning, which supports collaborative learning. The cooperative learning model is a learning model where students learn in small groups with different levels of ability (Riana & Hulu, 2022). The cooperative learning model is able to train students to express opinions and ask questions with other students and can train their mentality to learn together side by side with others, so that students can play an active role and there is interaction between students with each other in the learning process.

In the early stages of media development, needs analysis is the basis for developing learning media that are relevant to the expectations of students and teachers. Based on the needs analysis of students, teachers, learning media and instructional design, on pedagogical aspects (48%), technical aspects (48%), cognitive aspects (58%), aesthetic aspects (53%), socio-cultural aspects (38%) and evaluation aspects (58%). The data obtained from the analysis indicates that the need for learning media that is interactive, easily accessible, and visually appealing is very high (Raharjo et al., 2024).

Based on the results of observations and interviews at SD Negeri 25 Indralaya, South Sumatra province, it shows that the use of learning media is still minimal, with learning dominantly using textbooks and lecture methods. The lack of variety in learning causes students to get bored easily and lack motivation. In addition, this school has never used interactive infographic media based on Google Sites, so its development is expected to improve the quality of learning and encourage teachers to be more innovative in the use of media. According to the analysis revealed by (Pakpahan et al. 2024), boredom in learning often occurs due to the learning methods used by teachers being too monotonous. This condition can reduce the motivation of students, so they feel that the knowledge gained does not progress. This is contrary to the principle that learning in schools should encourage progress in accordance with the stage of cognitive development of students in the concrete operational phase. This opinion is in line with (Imannulhaq & Ichsan, 2022), which states that at the concrete operational stage, children are able to think logically about real or directly observable things, but still have difficulty in understanding or solving abstract problems without the help of real objects. In addition, the researcher identified that this school had never developed interactive infographic media assisted by Google Sites. This finding encourages researchers to develop learning media that can be applied in learning activities in the classroom. This development is expected to motivate teachers to utilize similar learning media to improve the quality of learning and meet the needs of students at the concrete operational stage.

Research Method

This research uses the Research and Development (R&D) method with the ADDIE development model. The ADDIE model consists of five main stages, namely Analysis, Design, Development, Implementation, and Evaluation (Gultom et al., 2019; Surdyanto & Kurniawan, 2020). This research was conducted at SD Negeri 25 Indralaya, located in Indralaya Mulia, Indralaya District, Ogan Ilir Regency, South Sumatra. Data collection was

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

carried out in the odd semester of the 2024/2025 school year. The research subjects were fifth grade students, who were selected based on the consideration that they already have a basis in the use of technology and are more adaptable to digital-based learning media. The data collection techniques used in this study were validation, response questionnaire, and test. The data were analyzed using mixed methods and presented in tables.

Results and Discussion

The ADDIE model consists of five main stages, namely Analysis, Design, Development, Implementation, and Evaluation.

Development Stage

The development stage is based on the design that has been designed in the previous stage. The researcher will realize the product by utilizing the materials that have been determined, collecting the necessary elements, and following the planned production procedures. All materials are then integrated into a website-based learning media, supported by several other platforms that are interconnected and presented in the form of shortcuts so that users can access them easily. The infographic acts as the main learning media, with support from the Google Sites website and Canva application. After the product reaches the prototype stage, this web-based learning media will be validated by media experts and material experts using validation instruments that have been compiled previously. The final stage of this process is product revision based on input and recommendations from the validators.

Table 1. Recapitulation of Media Expert and Material Expert Validation Scores

No	Assessment Components	Earned Score	Max Score	Persentase (%)	Category
1	Media Expert	80	80	100%	Very Valid
2	Materials Expert	79	80	98,75%	Very Valid
	amount	159	160	99,4%	Very Valid

Implementation Stage

At this stage, researchers evaluate the product based on suggestions and feedback from media experts and material experts. Implementation includes testing infographic media products. The following is an access link to interactive infographic media assisted by google sites on food chain material https://bit.ly/MediaInfografisInteraktif_RantaiMakanan.

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

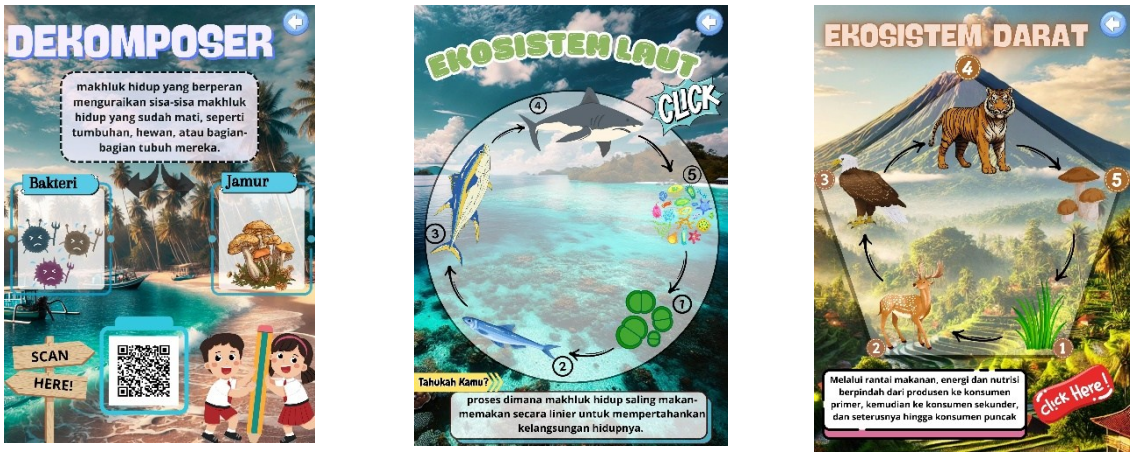

Figure 1. Infographic Media

The next stage is testing and filling out teacher and learner response questionnaires. To find out the response of teachers and students to the use of media. The results of filling out the questionnaire then recapitulated the results to determine the practicality of the media.

Table 2. Recapitulation of Teacher and Learner Response Questionnaires

No	Assessment Components	Earned Score	Max Score	Persentase (%)	Category
1	Teacher Response	20	20	100%	Very good
2	Student Responses in Individual Trial Phase	57	60	95%	Very good
3	Student Responses in Small Group Trial Stage	113	120	94,2%	Very good
	Amount	190	200	95%	Very good

The results of the trial and questionnaire filling by the fifth grade teacher showed a score of 20 with a percentage of 100%, categorized as “Very Good”. In the individual trial conducted by three learners, the score obtained was 57 with a percentage of 95%, categorized as “Very Good”. In the small group trial involving six learners, the response questionnaire results showed a score of 113 with a percentage of 94.2%, which is included in the “Very Good” category.

Evaluation Stage

The evaluation stage was carried out field trials to measure the effectiveness of the media that had been developed. This field trial was conducted with 20 fifth grade students. Field trials were carried out by giving pretest and posttest questions with 10 questions about food chain IPAS material. Pretest questions are done before learning to find out the initial knowledge of students and posttest questions are done after learning is completed using the media.

Table 3. Pretest and posttest results with N-Gain Score

No	Name	Mark		*Posttest-Pretest*	Max Score *Pretest*	N-Gain Score	Category
		Pretest	*Posttest*				
1	APN	60	90	30	40	0,75	Currently
2	AQ	50	80	30	50	0,6	Currently
3	BAL	40	80	40	60	0,66667	Currently
4	CPP	50	90	40	50	0,8	high
5	APM	70	100	30	30	1	high
6	DAR	30	90	60	70	0,85714	high

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

7	SR	60	100	40	40	1	High
8	ABN	50	90	40	50	0,8	High
9	WPP	40	100	60	60	1	High
10	MLP	30	100	70	70	1	High
11	SAW	50	90	40	50	0,8	High
12	KPL	70	100	30	30	1	High
13	MY	30	80	50	70	0,71429	Currently
14	YP	40	90	50	60	0,83333	High
15	PL	50	100	50	50	1	High
16	SRZ	80	100	20	20	1	High
17	MRI	30	80	50	70	0,71429	Currently
18	AM	40	90	50	60	0,83333	High
19	SRP	50	70	20	50	0,4	Currently
20	APM	70	100	30	30	1	High
Average		**49,5**	**91**	**41,5**	**50,5**	**0,84**	High

The students' pretest and posttest results showed a value of 0.84, which is included in the high category. This shows that the interactive infographic learning media developed is effective to be used in the learning process. Based on these findings, the researcher concluded that the interactive infographic learning media not only has high effectiveness, but also plays a role in helping students deepen concept understanding and improve mastery of material about the food chain.

Discussion

Researchers developed interactive infographic media based on the needs of students, teachers, instructional design, and learning media. This development aims to increase students' activeness, motivation, and learning outcomes. By considering this, researchers designed interactive infographic media using a cooperative learning model for food chain material for grade V elementary school students. This research was conducted at SD Negeri 25 Indralaya by applying the ADDIE development model, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation.

The analysis stage was conducted through observations and interviews with the fifth grade teacher of SDN 25 Indralaya. The results show that the use of learning media is still limited, dominantly using the lecture method and books without variations in visual media. This causes students to be easily bored and less active in learning, especially in abstract material such as IPAS. This analysis is reinforced by the literature which states that monotonous learning decreases student learning motivation, especially in the concrete operational phase which requires visual assistance.

In the design stage, the media is designed using Canva (for infographics) and Google Sites (for integration of learning objectives, LKPD, modules, etc.). The learning model used is cooperative learning because it is considered effective in increasing student involvement. The material developed is IPAS with the topic of food chain, with visualization of the flow of material through flowcharts and storyboards. The selection of this model is in line with the opinion of (Akmalia et al. 2023), which states that the success of students in learning is highly dependent on the learning strategy applied by the teacher. Teachers need to understand the basic components in classroom learning in order to build students' learning motivation. This design aims to visualize the flow of material and learning content in a structured manner, as stated in the research by (Putri & Raharjo, 2024). At this stage, the structure and

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

appearance of the media are adjusted to the material and learning objectives. To ensure the validity and effectiveness of the developed media, evaluations from validators, practitioners (teachers), and students are needed.

At the development stage, interactive infographic media was developed according to design and validated by media experts and material experts. The results of media expert validation showed a very high level of feasibility of 100% and material expert validation obtained a score of 98.75%. This research has a relationship with research conducted by (Putri et al,. 2024), which obtained a media expert score of 73.61% and material expert validation of 85.41%. This proves that the media developed is more valid, interesting, and effective in delivering learning materials. This is in line with research conducted by (Agnesta, et al., 2024) that at the product feasibility development stage from the validation sheet given to each expert appointed to assess the learning media, the results of this validation are used to determine the feasibility level of learning media and provide input for further developers before the product is implemented.

The media that has been validated by the validator and revised by the researcher then goes to the implementation stage. At this stage, the researcher conducted a trial process on one homeroom teacher of grade V of SD Negeri 25 Indralaya. The assessment results obtained from the teacher obtained a percentage of 100% with the category "Very Good". In the next stage, the assessment of the student response questionnaire in the individual trial was obtained with a percentage of 95% with the category "Very Good". Furthermore, the assessment results obtained in the small group trial with a percentage of 94.5% fell into the category "Very Good". In accordance with the results of the teacher and student response questionnaire assessment process, the final recapitulation results obtained a value of 95% fell into the category "Very Good". In line with the research (Putri et al., 2024) entitled "Development of Canva-Based Infographic Learning Media for Grade V Students on the Material of the Distribution of Flora and Fauna in Indonesia" obtained a student response value of 95.83%, indicating that the implementation of the learning media is classified as good. Based on these results, the researcher concluded that the development of interactive infographic media can provide a positive response and is in accordance with learning needs, so it is suitable for use in the learning process.

The final stage in this development model is the Evaluation stage. Evaluation begins during the development phase, in which the researcher involves media experts and subject matter experts to validate the accuracy of the product before it is tested on teachers and students. The results of this validation produce various critiques and suggestions that serve as guidelines for refining the developed learning media. The evaluation process continues in the implementation stage through a trial with a homeroom teacher and 9 fifth-grade students at SD Negeri 25 Indralaya. At this stage, the teacher is given access to the learning media to study and assess using a prepared instrument. Meanwhile, the student trials are conducted in two phases: an individual trial involving 3 students and a small group trial involving 6 students. In this process, no significant feedback or suggestions were received from the teacher or students, so revisions were limited to adjustments for minor technical issues, such as clarifying the usage instructions. Once deemed feasible, the learning media was field-tested with 20 fifth-grade students at SD Negeri 25 Indralaya who had not participated in the previous implementation phase to avoid potential bias toward the material. The field test aimed to measure the effectiveness of the interactive infographic-based learning media. Effectiveness was measured using the N-gain score, calculated by comparing pretest and posttest scores. The evaluation results showed that the N-gain score reached 0.838452, which

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

falls into the high or effective category. This indicates that the interactive infographic media developed by the researcher can be effectively applied in classroom learning processes. Research conducted by *Patriot et al.* (2023), also showed effective results, with an N-gain score of 80.9% or 0.809. In addition, research conducted by *Suratmi et al.* (2018), reported an average score of 81.76. The improvement in the average pretest and posttest results was 25.95. These findings indicate that development in learning based on local potential can significantly improve students' understanding of science material.

The interactive infographic media developed in this study can be utilized as a supporting tool in Science learning, particularly on the topic of food chains. The effectiveness of this media is supported by assessment results indicating that both the media and content aspects are categorized as highly practical. In addition, field testing of its effectiveness showed that the use of this media significantly improved students' cognitive learning outcomes. Therefore, the media is considered effective and suitable for use in the learning process. The final product of this development research is an interactive infographic media that integrates a cooperative learning model into the food chain material.

Conclusion

This study developed interactive infographic media assisted by Google Sites with the Cooperative Learning model on food chain material for grade V of elementary school using the ADDIE development model. The results of the study showed that this media is very practical to use in learning, as evidenced by the positive response from teachers (100%) and students (average 95%) who rated this media in the category of "Very Good." In line with research conducted by (Tifani et al., 2024) at the implementation stage, a trial was carried out in grade IV of elementary school which was carried out in three stages, first in individual trials on 6 students resulting in a feasibility percentage of 90%, second small group trials on 15 students resulting in feasibility of 93%, and third large group trials on 30 students resulting in feasibility of 97%.

In terms of effectiveness, the results of the pretest and posttest analysis showed a significant increase in student learning outcomes with an N-gain score of 0.83, which is included in the "Effective" category. Thus, this interactive infographic media is declared very valid, practical, and effective as a learning aid. These results are supported by research (Negeri et al., 2024) Based on the results of the n-gain test on the developed image-based infographic learning media, there was an increase in the ability of students to write poetry and the results of the high criterion gain calculation were 8 students with a percentage of 40% then the medium criterion was 11 students with a percentage of 55% and then the low criterion was 1 student with a percentage of 5%. Indicates that image-based infographic learning media has an impact on student learning. In other words, the image-based infographic learning media used provides benefits and is effective for use as supporting teaching materials.

Recommendation

For teachers, it is recommended to use supporting media in learning activities, especially in abstract materials, in order to encourage active learning and make it easier for students to understand the material. Of course, learning activities are carried out by utilizing interactive infographic media so that the learning process becomes more enjoyable and varied. For researchers, it is recommended to carry out learning media development activities

with various types of learning models and different materials. This aims to improve the quality of learning media and the abilities of researchers in the future.

References

Agnesta, F., Wijaya, H., & Santoso, D. (2024). *Pengaruh metode pembelajaran kooperatif tipe jigsaw terhadap kemampuan berpikir kritis siswa pada mata pelajaran IPS di SMP Negeri 5 Surabaya*. Jurnal Pendidikan Sosial, 9(4), 210-218.

Akmalia, N., Putri, A. D., & Rahmawati, S. (2023). *Pengembangan media pembelajaran interaktif berbasis android untuk meningkatkan pemahaman konsep siswa pada mata pelajaran IPA*. Jurnal Inovasi Pendidikan, 15(1), 99-107.

Gultom, E. L., Simaremare, A., & Dewi, R. (2019). Developing Teaching Materials Based on Social Care Characters Based on Franciscan Spirituality With Contextual Teaching And Learning (CTL) Strategies. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal, 2(4), 204–215. https://doi.org/10.33258/birle.v2i4.509

Hersita, A. F., Kusdiana, A., & Respati, R. (2020). Pengembangan media infografis sebagai media penunjang pembelajaran IPS di SD. Pedadidaktika: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar, 7(4), 192-198.

Imannulhaq, R., & Ichsan, M. (2022). Analisis efektivitas penggunaan e-learning selama pandemi COVID-19 di perguruan tinggi. Jurnal Teknologi Pendidikan, 10(3), 123-130.

Isti Khomaria, K. L. L. (2017). Penggunaan Media Infografis Untuk Meningkatkan Minat Belajar Ips Pada Siswa Sekolah Dasar. Didaktika Dwija Indria, 5(4).

Negeri, S. D., Tengah, B., Muktadir, A., & Susanta, A. (2024). Pengembangan Media Pembelajaran Infografis Berbasis Gambar Menggunakan Model Project Based Learning untuk Meningkatkan Kemampuan Menulis Puisi Kelas IV Sekolah Dasar pada Pelajaran Bahasa Indonesia. 3(2), 262–276.

Nugraheni, L. (2019). Media Sebagai Faktor Determinan Keberhasilan Pembelajaran Folklor Di Sekolah Dasar Kabupaten Pati. Konferensi Nasional Bahasa Dan Sastra (Konnas Basastra) V, 161–165.

Nurfadhillah, S. (2021). *MEDIA PEMBELAJARAN Pengertian Media Pembelajaran, Landasan, Fungsi, Manfaat, Jenis-Jenis Media Pembelajaran, dan Cara Penggunaan Kedudukan Media Pembelajaran* (R. Awahita (ed.); 1 ed.). Jawa Barat : CV Jejak (Jejak Publisher).

Padrian, A., Syafril, S., & Hendri, N. (2021). Pengembangan Infografis Motion Graphic Tema Lingkungan Sahabat Kita Untuk Kelas V SD. E-Tech, 8(1), 392606.

Pakpahan, R., Siregar, T., & Hutabarat, L. (2024). Implementasi model pembelajaran blended learning dalam meningkatkan hasil belajar matematika di SMA Negeri 1 Medan. Jurnal Pendidikan Matematika, 8(2), 78-85.

Patriot, E. A., Markos Siahaan, S., Cahaya Nurani, D., Agung, A., Firansilady, A., Kalsum, U., Nabilah, R., & Sissy Lia, R. (2023). Pembuatan Media Infografis Melalui Pelatihan dan Pendampingan Desain Media Pembelajaran Berbasis Canva for Education Bagi Guru-guru SD di Kota Palembang. *Jurnal Pengabdian Masyarakat Sains Indonesia*, *5*(2), 24–32. https://doi.org/10.29303/jpmsi.v5i2.236

Putri, M., & Raharjo, M. (2024). Pengembangan E-LKPD Berbasis Website Liveworksheets dengan Model Discovery Learning pada Pembelajaran IPAS di Sekolah Dasar. *SITTAH: Journal of Primary Education*, *5*(1), 17–32.

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 537-545

https://doi.org/10.30762/sittah.v5i1.2653

Putri, N. E., Fajrin, R., & Ana, R. (2024). Pengembangan Media Pembelajaran Infografis berbasis Canva pada Siswa Kelas V Materi Persebaran Flora dan Fauna di Indonesia. Jurnal Simki Postgraduate, 3(2), 177–185. https://jiped.org/index.php/JSPG

Raharjo, M., Erna Retna Safitri, & Ardi Saputra. (2023). Open Broadcaster Software Assisted Learning Media in Hybrid Learning. *Jurnal Pedagogi Dan Pembelajaran*, *6*(1), 141–147. https://doi.org/10.23887/jp2.v6i1.57494

Riana, R., & Hulu, L. S. P. (2022). Peningkatan Kemampuan Menulis Surat Dinas Melalui Model Cooperative Learning. Educativo: Jurnal Pendidikan, 1(2), 552–558. https://doi.org/10.56248/educativo.v 1i2.76

Suratmi, S., Laihat, L., & Santri, D. J. (2018). Development of Teaching Materials Based on Local Excellences of South Sumatera for Science Learning in Elementary School. *Jurnal Penelitian Dan Pembelajaran IPA*, *4*(1), 35. https://doi.org/10.30870/jppi.v4i1.3336

Surdyanto, A., & Kurniawan, W. (2020). Developing critical reading module using integrated learning content and language approach. Studies in English Language and Education, 7(1), 154–169. https://doi.org/10.24815/siele.v7i1.15098

Tifani, S. R. D., Nugraha, R. G., & Karlina, D. A. (2024). Pengembangan Media Interaktif Berbasis Heyzine Flipbook pada Materi Daerahku dan Kekayaan Alamnya untuk Peserta Didik Fase B Sekolah Dasar. Al Madrasah Jurnal Pendidikan Madrasah Ibtidaiya, 8(3), 1033. https://doi.org/10.35931/am.v8i3.3633

Tsai, S. T., Huang, H. Y., & Chang, T. W. (2022). The Effect of Motion Infographics on the Learning of Third and Fourth Grade Resource Classes and Regular Classes in Elementary School. Journal of Library and Information Studies, 20(1), 31–48. https://doi.org/10.6182/jlis.202206_20 (1).031

