



The Development of Anyflip Media Based on The PjBL Model on PPKN Subjects at SMK Muhammadiyah 1 Kemlagi, Mojokerto Regency

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ABSTRACT

This study aims to produce Anyflip Media Based on the PjBL Model on appropriate PPKN subjects. The development model used is Dick & Carey. The development process involves subject matter experts, instructional design experts and learning media experts to provide feedback and suggestions for improvement. In addition, teachers of PPKN subjects and students of SMK Muhammadiyah 1 Kemlagi Mojokerto Regency as users of the Pjbl Model-Based Anyflip Media also gave their feedback and input. The results of this development research are (1) The Development of Anyflip Media Based on the Pjbl Model in Civics Subjects developed based on the needs analysis of teachers and students through a needs questionnaire provided by the developer, (2) The results of the validation of material experts, media experts, and design experts on product development Anyflip Media Based on the Pjbl Model in Civics Subjects with very feasible criteria to be developed, and (3) Based on the results of research on the development of the Pjbl Model-Based Anyflip Media in PPKN Subjects, it can be concluded that the Anyflip Media Based on the Pjbl Model is used in developing abilities in designing creative learning, innovative and interesting. Based on the results of this study, it was concluded that using Anyflip Media Based on the Pjbl Model could improve student learning outcomes in PPKN at SMK Muhammadiyah 1 Kemlagi, Mojokerto Regency. The implication of this research is that Anyflip Media Based on the Pjbl Model can be used as a way to improve student learning outcomes for PPKN.

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1. INTRODUCTION

Learning media is defined as everything that is used to channel messages and can stimulate students' thoughts, feelings, attention, and willingness so that it can encourage a deliberate, purposeful, and controlled learning process (Putri & Reinita, 2020; Septarini, 2021). Learning media is the media used in learning, which includes teacher aids in teaching and means of carrying messages from learning sources to recipients of learning messages (students). This is in line with Briggs who stated that learning media is a means

to provide stimulation for students so that the learning process occurs (Kartini, 2021; Savitri & Zaman, 2021). Learning media can be concluded are all forms and means of delivering information that are made or used in accordance with learning theory, can be used for learning purposes in channeling messages, stimulating thoughts, feelings, attention, and willingness of students so that they can encourage a learning process that is intentional, purposeful, and controlled (Muliani, 2021; Subroto et al., 2020).

The Ministry of National Education's guide to media development explains that Media Anyflip is a book written with the aim that students can learn independently without or with teacher guidance. Learning with Anyflip Media allows a student who has a high speed in learning to complete one or more KD faster than other students. Thus, the module must describe the KD that will be achieved by students, presented using good, interesting language, and equipped with illustrations (Nabilah, 2021; Santika & Sylvia, 2021).

Project-based learning (PjBL) is the application of active learning. In simple terms, project-based learning is defined as teaching that tries to link technology with everyday life problems that are familiar to students, or with school projects (Gestira et al., 2021; Kim, 2021; Safithri et al., 2021). Project-based learning models have enormous potential to make learning experiences more interesting and useful for students (Rusdiharti, 2021; Wahyuni & Rahayu, 2021).

Culclasure et al., (2019); Ratnasari et al., (2018) explained that "Project-based learning is a learning strategy that empowers students to gain new knowledge and understanding based on their experiences through various presentations". Project-based learning is a learning model that provides opportunities for teachers to manage learning in the classroom by involving project work. Improve collaboration. The importance of group work in projects requires students to develop and practice communication skills (Widarti et al., 2020).

The project learning model (project based learning) can be an alternative model in all subjects and provide new nuances in conventional learning (Du & Chaaban, 2020; Widarti et al., 2020). Project-based learning focuses on questions or problems that encourage living concepts and principles. Project-based learning also engages students in constructive investigation. This investigation can be in the form of design, decision making, problem finding, problem solving, discovery or model building process. In project-based learning, these activities must include the transformation and construction of knowledge on the part of the students (Jauhariyyah et al., 2017; Purwaningsih et al., 2020). This learning encourages students to get a learning experience to a significant degree. Project-based learning prioritizes autonomy, choice, uncomplicated working time, and student responsibility. The target for project-based learning is the resulting product (Maryani et al., 2020; Rahardjanto et al., 2019; Safaruddin et al., 2020).

The PPKN learning process at SMK Muhammadiyah 1 Kemlagi Mojokerto Regency also found various problems that occurred in the field. The problems found include not a few students who are less motivated in learning. From this it also affects the learning achievement of students who get scores below the KKM. In addition, students also feel bored following the learning process that is only centered on the teacher. Teachers in the learning process have not maximized the use of media in learning. Also, the use of Anyflip Media has not been maximized in learning. Anyflip media is important to use so that students can learn independently.

2. RESEARCH METHOD

This type of research is descriptive research, which is taken from the development of the Project Based Learning model conducted by the author. The development model in this thesis uses the Dick and Carey model with 10 steps. In this development model, it is carried out systematically so that the design of this development model starts from the

identification of the objectives being researched to the step of designing and evaluating the results.

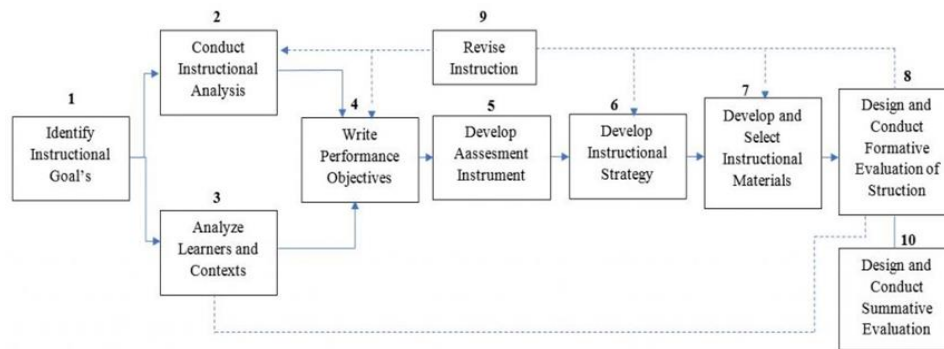


Figure 1. Dick And Carey's Research Process
Source: (Dick & Carey, 2015)

The purpose of the trial is to obtain data that can be used as a basis for making improvements in order to achieve the level of effectiveness and attractiveness of the product itself. The resulting product is tested in full, including stages (a) Review of subject content experts to obtain data in the form of assessments, opinions and suggestions on the contents of the learning package, (b) Review of design experts and learning media, aiming to get an assessment, on the design of the model. learning includes development models, (c) individual trials, aiming to identify errors in the form of typos and inappropriate use of language, (d) small group trials, aiming to check for errors that may be missed in the individual test and reviewing the improvements that have been made from the results of individual trials, and (e) field trials to test materials that were prepared together with the industry.

The instruments used for data collection were interviews and questionnaires: (a) The interview guide was used as a guide for interviews in order to collect information and data in identifying problems, suggestions and input from test subjects, and (b) Questionnaires were used to collect data and suggestions. of the test subject for improvement purposes.

Qualitative descriptive data analysis techniques were used to process data collected from the results of product reviews and trials. Qualitative descriptive analysis techniques were used to process data from interviews and discussions with experts as well as the results of individual and small group trial questionnaires. Qualitative descriptive analysis was carried out by classifying information in the form of input, criticism and suggestions for improvement contained in the questionnaire. The results of this analysis are then used as the basis for product revision.

Data obtained from expert test questionnaires, individual tests and small group tests were processed using descriptive statistical analysis techniques in the form of percentage descriptive. The formula used to calculate the percentage of each expert test subject and individual test is as follows:

$$\text{Persentase} = \frac{\sum (\text{Jawaban pilihan} \times \text{bobot pilihan})}{n \times \text{bobot tertinggi}} \times 100 \%$$

Figure 2. Research Development Formula

Information:

Σ : amount

N : total number of questionnaire items

The data obtained from the small group test were processed using the percentage formula To give meaning and make decisions in revising the product, a level qualification that has the following criteria is used:

Table 1. Rating Scale

Skala Penilaian	Klasifikasi	Keterangan
81%-100%	Sangat Baik	Tidak Perlu Direvisi
66%-80%	Baik	Tidak Perlu Direvisi
56%-65%	Kurang Baik	Perlu Revisi
0%-55%	Sangat Tidak Baik	Perlu Revisi

(Sugiyono, 2017)

3. RESULTS AND DISCUSSIONS

Data and data analysis will be presented in this chapter in succession starting from the results of the reviews of PPKN subject content experts, learning design experts, media experts, individual trials, small group trials, field trials, and peer trials. The data obtained from the results of this feasibility assessment are presented for analysis based on the assessment formula. Based on this analysis, it will be known the shortcomings or inadequacy of the learning content, the feasibility of the learning design and the feasibility of the media that has been prepared by the author. The next step is to revise or improve what is suggested by the assessor so that this product is suitable for use by PPKN subject teachers. Thus, this product will be useful for students in the school.

The content expert's questionnaire data for the revision of the Anyflip Media product based on the Pjbl Model in Student Civic Education Learning can be seen in table 2:

Table 2. Content Assessment Analysis

No	Indicator	Skor
1	The level of relevance of textbooks with the curriculum.....	4
2	The accuracy of the unit title with the material description in each unit	5
3	Introductory clarity on each theme	5
4	Clarity of content outline (epitome)	5
5	Appropriateness of indicators and basic competencies	5
6	Conformity of indicators with material description	4
7	Conformity between basic competencies, indicators and material descriptions	5
8	Clarity of description	5
9	The suitability of the examples presented with the learning material	5
10	Clarity of completion of sample questions on the sidelines of the material description	4
11	Clarity of the contents of the summary	4
12	Conformity between competency test and indicators	5
13	The attractiveness of the components in the textbook	5
14	Interesting learning content	5
15	The attractiveness of organizing Digital Books using the Dick & Carey model	4
Total		70

The score obtained from the questionnaire is 70 or the percentage of eligibility is 93.33%. So the feasibility of content experts for Anyflip Media Based on the Pjbl Model for Students in Class XI PPKN SMK Muhammadiyah 1 Kemlagi Mojokerto Regency means that it is very feasible to use for students in learning.

The design expert's questionnaire data for the revision of the Anyflip Media product based on the Student Pjbl Model can be seen in table 3.

Table 3. Analysis of Learning Design Assessment

No	Indicator	Skor
1	Binding quality	5
2	Attractive cover design	4
3	Typing layout accuracy	4
4	Consistent use of title space, sub and typing material	5
5	Clarity of writing/typing	5
6	Completeness of the components in each chapter of the textbook	5
7	The accuracy of the presentation of the material	5
Total		33

The score obtained from the questionnaire is 33 or the percentage of eligibility is 94.29%. So the feasibility of the design expert on the Anyflip Media Based on the Pjbl Model for Class XI Civic Education Subjects at SMK Muhammadiyah 1 Kemlagi, Mojokerto Regency, means that it is very suitable for students to use.

The media expert's questionnaire data for the revision of the Anyflip Media product based on the Student Pjbl Model can be seen in table 4.

Table 4. Analysis of Learning Media Assessment

No	Indicator	Skor
1	The accuracy of the illustrations used in the cover of the textbook	4
2	The suitability of the material with the media used	4
3	Quality of paper used	5
4	Font size accuracy	5
5	Image placement accuracy	5
6	Text quality	5
7	Organizing learning message design	5
Total		33

The score obtained from the questionnaire is 33 or the percentage of eligibility is 94.29%. So, the feasibility of media experts for Anyflip Media Based on the Pjbl Model for Students of PPKN Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency means that it is very feasible to use for students in learning

Data were taken from Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency, using a questionnaire from 3 selected students. This trial data serves to test the quality of the learning material elements contained in the Anyflip Media Based on the Student Pjbl Model that is being developed and to correct the deficiencies that exist in this product.

Table 5. Analysis of Individual Trial Assessment

Aspect	Respondent Score			Amount	Prosentase (%)
	1	2	3		
1	5	5	5	15	100%
2	5	4	4	13	87%
3	4	4	5	13	87%
4	5	4	5	14	93%
5	5	5	4	14	93%
6	5	5	5	15	100%

The score obtained from the questionnaire can be seen in the percentage of eligibility of 93%. So the feasibility of Anyflip Media Based on the Pjbl Model for Students of PPKN Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency means it is very feasible to use for students in learning.

Data were taken from Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency, using a questionnaire from 9 selected students. This trial data serves to test the quality of the learning material elements contained in the Anyflip Media Based on the Student Pjbl Model that is being developed and to correct the deficiencies that exist in this product.

Table 6. Analysis of Small Group Trial Assessment

Aspect	Small Group Respondent Score									Amount	Prosentase (%)
	1	2	3	4	5	6	7	8	9		
1	4	4	5	5	4	5	4	5	5	41	91,11%
2	5	4	5	4	4	5	4	5	5	41	91,11%
3	5	5	5	4	5	4	4	5	4	41	91,11%
4	5	5	4	5	4	5	4	5	4	41	91,11%
5	4	5	4	5	4	5	5	4	4	40	88,89%
6	5	5	4	4	5	4	4	5	4	40	88,89%
7	4	5	5	4	5	4	5	4	4	40	88,89%
Amount	32	33	32	31	31	32	30	33	30	284	90,16%

The score obtained from the questionnaire can be seen in the percentage of eligibility of 90.16%. So the feasibility of Anyflip Media Based on the Pjbl Model for Students of Class X PPKN SMK Muhammadiyah 1 Kemlagi Mojokerto Regency means that it is very feasible to use for students in learning.

The data was taken from Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency, using a questionnaire from 21 selected students. This trial data serves to test the quality of the learning material elements contained in the Anyflip Media Based on the Student Pjbl Model that is being developed and to correct the deficiencies that exist in this product.

Table 7. Field Trial Assessment Analysis

Aspek	Skor Responden Lapangan																					Jumlah	Prosentase (%)	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
1	4	5	5	4	4	5	4	5	5	5	5	4	5	4	5	5	4	4	4	5	5	96	91,43%	
2	5	4	4	4	4	5	5	5	5	4	4	4	5	5	5	5	4	4	5	5	5	4	95	90,48%
3	5	5	4	5	5	5	4	5	5	4	4	5	4	5	5	4	5	4	5	4	5	97	92,38%	
4	5	5	4	5	5	5	4	5	5	4	4	5	5	4	5	5	5	5	4	5	5	99	94,29%	
5	4	5	4	4	4	5	5	4	5	4	5	4	4	5	4	5	5	5	5	4	5	95	90,48%	
6	4	4	4	4	4	4	4	5	5	4	5	5	4	4	5	5	4	5	4	5	5	93	88,57%	
7	5	5	5	5	5	5	5	4	4	5	4	4	5	4	5	4	5	5	5	4	4	97	92,38%	
Jumlah	32	33	30	31	31	34	31	33	33	30	31	32	32	31	34	32	32	33	32	33	32	33	672	91,43%

The score obtained from the questionnaire can be seen in the percentage of eligibility of 91.43%. So the feasibility of Anyflip Media Based on the Pjbl Model for Students of PPKN Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency means it is very feasible to use for students in learning.

Based on the observations at the analysis stage that have been stated in the results of the study, it is known that students find it difficult to absorb the material presented, learning media is limited to books and texts, the display is not attractive so students get bored of studying, therefore, develop learning media that can facilitate students in learning. In the student analysis stage, it is known that students need learning media that can facilitate students in learning so that they are interesting and not bored to learn. Selection of Anyflip Media Based on the Pjbl Learning Model as a supporter of learning media that

was developed because it can make it easier for students to learn and have an attractive appearance so that students like Civics lessons.

Anyflip Media Based on the Pjbl Model can be used as a teaching aid because the Anyflip Media Based on the Pjbl Model for learning is a medium that has elements of sound, motion and animation. The supporting software for editing the recorded video is the ProShow software, where in the proshow there are several interesting filters that can help in making the learning video. After the problem analysis was obtained, the researchers continued to select Anyflip Media Based on the Pjbl Model as a learning medium.

After the analysis stage, the next stage is the design stage, at this stage the Anyflip Media Planning Format Based on the Pjbl Model is carried out. In the framework that has been determined, the planning of the Media Anyflip learning title framework, competency standards and basic competencies, material content, and Media Anyflip after the design framework is complete, proceed to the next stage. After everything is designed, then proceed with the evaluation stage of what needs are needed in this design stage which is designing from some of the elements above.

The next stage is the development stage, namely the media development stage, which is made based on the design stage. At the design stage of making Media Anyflip, learning starts from story design to the editing stage of Anyflip Media and then evaluation by material and media experts is called validation.

The aim is to get suggestions to improve the Anyflip Media that was developed. Input from education experts and practitioners as a reference for revision. In addition, filling out a validation questionnaire will determine the feasibility of the media to be tested on students. This revision was made as a step in making any proper Media Anyflip. The product that has been developed is then revised on several components that must be corrected in the media, such as changing the color of the unit ladder to make it look more attractive, increasing the volume to make it clearer and other components that must be improved.

The material expert's assessment of this learning media is included in the "appropriate" category with an average percentage of 86%. The media expert's assessment of this learning media is included in the "very feasible" category with an average percentage of 90.8%. After the media was revised and declared good to be tested, then it was tested on students. This stage is called the implementation stage. Student responses to learning videos on the results of the trial were included in the "appropriate" category with an average of 77.6% in the small group and 74.5% in the large group. At this stage the product does not undergo revision, because students have stated that the product developed is already good.

In the research of Iqnas Brilliant Retnaningrum who developed learning video media with the results of respondents being 84% in the very good category. Based on the results of the scores obtained from the experimental group using learning videos, the highest score of students reached 95 and the lowest was 60 if the average was 76.6%, while the control class group that did not use learning videos had the highest score of 90 and the lowest score of 55 if the average student result was 70.3% so that it can be concluded that there are differences in student learning outcomes who use the Anyflip Media Based on the Pjbl Model with students who do not use the Anyflip Media Based on the Pjbl Model.

Budi Purwanti's research which developed the mathematics learning video media showed that the media became more positive with the attractiveness of learning video media users to motivate students in learning mathematics as evidenced by the average score of class XI 1 students before 69.19 to 81.48 while class XI 2 averaged the average value from 69.58 to 81.55 after using Anyflip Media.

4. CONCLUSION

Based on the results of the research on the Development of Anyflip Media Based on the Pjbl Model in Civics Subjects Class XI SMK Muhammadiyah 1 Kemlagi Mojokerto Regency, it can be concluded several things as follows: (a) The development of Anyflip Media Based on the Pjbl Model in Civics Subjects was developed based on an analysis of the needs of teachers and students through a questionnaire. needs provided by the developer, (b) The results of the validation of material experts, media experts, and design experts on the development product of Anyflip Media Based on the Pjbl Model in Civics Subjects with very feasible criteria to be developed, and (c) Based on the results of research on the development of Anyflip-Based Media The Pjbl Model In PPKN Subjects, it can be concluded that the Anyflip Media Based on the Pjbl Model is used in developing the ability to design creative, innovative and interesting learning.

REFERENCES

- Culclasure, B. T., Longest, K. C., & Terry, T. M. (2019). Project-Based Learning (Pjbl) In Three Southeastern Public Schools: Academic, Behavioral, And Social-Emotional Outcomes. *Interdisciplinary Journal Of Problem-Based Learning*, 13(2). <https://doi.org/10.7771/1541-5015.1842>
- Dick, W., & Carey, L. (2015). *The Systematic Design Of Instruction*. 8th. In Boston, Ma.
- Du, X., & Chaaban, Y. (2020). Teachers' Readiness For A Statewide Change To Pjbl In Primary Education In Qatar. *Interdisciplinary Journal Of Problem-Based Learning*, 14(1). <https://doi.org/10.14434/ijpbl.v14i1.28591>
- Gestira, M., Abdurrahman, & Viyanti. (2021). Pjbl-Based Blended Learning Implementation On Energy Topic To Improve The Problem-Solving Skill. *Impulse: Journal Of Research And Innovation In Physics Education*, 1(1). <https://doi.org/10.14421/impulse.2021.11-04>
- Jauhariyyah, F. R., Suwono, H., & Ibrohim. (2017). Science, Technology, Engineering And Mathematics Project Based Learning (Stem-Pjbl) Pada Pembelajaran Sains. *Prosiding Seminar Pendidikan Ipa Pascasarjana Um*, 2.
- Juwanti, A. E., Salsabila, U. H., Putri, C. J., Nurany, A. L. D., & Cholifah, F. N. (2020). Project-Based Learning (Pjbl) Untuk Pai Selama Pembelajaran Daring. *Jurnal Pendidikan Islam Al-Ilmi*, 3(2). <https://doi.org/10.32529/AI-Ilmi.V3i2.752>
- Kartini, S. (2021). Penerapan Media Whatsapp Group Dan Linoit Dalam Meningkatkan Hasil Belajar Pengelolaan Kas. *Syntax Idea*, 3(7). <https://doi.org/10.36418/Syntax-Idea.V3i7.1316>
- Kim, Y. (2021). The Problem / Project-Based Learning (Pbl / Pjbl) At Online Classes. *International Journal Advanced Culture Technology*, 9(1).
- Maryani, I., Putri, D. R., Urbayatun, S., Suyatno, & Bhakti, C. P. (2020). Metacognition And Integrated-Project Based Learning (I-Pjbl) In Elementary Schools. *Universal Journal Of Educational Research*, 8(3). <https://doi.org/10.13189/Ujer.2020.080339>
- Muliani, D. E. (2021). Implementation Of Problem Based Learning With Cmaptools Media To Increase Problem Solving Abilities. *Gravity: Jurnal Ilmiah Penelitian Dan Pembelajaran Fisika*, 7(1). <https://doi.org/10.30870/Gravity.V7i1.9136>
- Nabilah, N. (2021). Pengembangan Handout Digital Anyflip Pada Materi Menganalisis Limbah Busana Sub Tema Outer Origami Rabbit Zero Waste. *Universitas Negeri Surabaya*, 10.
- Purwaningsih, E., Sari, S. P., Sari, A. M., & Suryadi, A. (2020). The Effect Of Stem-Pjbl And Discovery Learning On Improving Students' Problem-Solving Skills Of The Impulse And Momentum Topic. *Jurnal Pendidikan Ipa Indonesia*, 9(4). <https://doi.org/10.15294/Jpii.V9i4.26432>
- Putri, M. E., & Reinita. (2020). Media Pembelajaran Tematik Terpadu Berbasis Adobe Flashcs6 Sebagai Upaya Penanaman Pendidikan Karakter Di Sd. 4, 1203–1215.
- Rahardjanto, A., Husamah, & Fauzi, A. (2019). Hybrid-Pjbl: Learning Outcomes, Creative Thinking Skills, And Learning Motivation Of Preservice Teacher. *International Journal Of Instruction*, 12(2). <https://doi.org/10.29333/Iji.2019.12212a>
- Ratnasari, N., Tadjudin, N., Syazali, M., Mujib, M., & Andriani, S. (2018). Project Based Learning (Pjbl) Model On The Mathematical Representation Ability. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, 3(1). <https://doi.org/10.24042/Tadris.V3i1.2535>
- Rusdiharti, A. D. P. (2021). Perbedaan Rata-Rata Hasil Belajar Dan Kemandirian Belajar

- Pemrograman Web Karena Penerapan Model Pjbl Berbantuan Digi Book Dibandingkan Dengan In Skripsi Mahasiswa Um.
- Safaruddin, Degeng, I. N. S., Setyosari, P., & Murtadho, N. (2020). The Effect Of Pjbl With Wbl Media And Cognitive Style On Students' Understanding And Science-Integrated Concept Application. *Jurnal Pendidikan Ipa Indonesia*, 9(3). <https://doi.org/10.15294/jpii.v9i3.24628>
- Safithri, R., Syaiful, S., & Huda, N. (2021). Pengaruh Penerapan Problem Based Learning (Pbl) Dan Project Based Learning (Pjbl) Terhadap Kemampuan Pemecahan Masalah Berdasarkan Self Efficacy Siswa. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 5(1). <https://doi.org/10.31004/cendekia.v5i1.539>
- Santika, A., & Sylvia, I. (2021). Efektivitas E-Modul Berbasis Anyflip Untuk Meningkatkan Kemampuan Penguasaan Materi Peserta Didik Pada Materi Nilai Dan Norma Sosial Kelas X Di Sma N 3 Payakumbuh. *Jurnal Sikola: Jurnal Kajian Pendidikan Dan Pembelajaran*, 2(4). <https://doi.org/10.24036/sikola.v2i4.128>
- Savitri, D., & Zaman, B. (2021). Media Pembelajaran Berbasis Powerpoint Untuk Memfasilitasi Perilaku Keselamatan Anak Usia 5-6 Tahun. *Awlady: Jurnal Pendidikan Anak*, 7(1). <https://doi.org/10.24235/awlady.v7i1.7043>
- Septarini, D. (2021). Pembuatan Game Edukasi Mengenai Materi Hafalan Doa Harian Sebagai Media Pembelajaran Berbasis Android. *Jurnal Multi Media Dan It*, 5(1). <https://doi.org/10.46961/jommit.v4i1.349>
- Subroto, E. N., Qohar, A., & Dwiyan, D. (2020). Efektivitas Pemanfaatan Komik Sebagai Media Pembelajaran Matematika. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 5(2). <https://doi.org/10.17977/jptpp.v5i2.13156>
- Sugiyono. (2017). *Metode Penelitian Kuantitatif Kualitatif Dan R&D (25th Ed.)*. Alfabeta.
- Syakur, A., Musyarofah, L., Sulistyaningsih, S., & Wike, W. (2020). The Effect Of Project Based Learning (Pjbl) Continuing Learning Innovation On Learning Outcomes Of English In Higher Education. *Budapest International Research And Critics In Linguistics And Education (Birle) Journal*, 3(1). <https://doi.org/10.33258/birle.v3i1.860>
- Tseng, K. H., Chang, C. C., Lou, S. J., & Chen, W. P. (2013). Attitudes Towards Science, Technology, Engineering And Mathematics (Stem) In A Project-Based Learning (Pjbl) Environment. *International Journal Of Technology And Design Education*, 23(1). <https://doi.org/10.1007/s10798-011-9160-x>
- Wahyuni, L., & Rahayu, Y. S. (2021). Pengembangan E-Book Berbasis Project Based Learning (Pjbl) Untuk Melatihkan Kemampuan Berpikir Kreatif Pada Materi Pertumbuhan Dan Perkembangan Tumbuhan Kelas Xii Sma. *Bioedu*, 10(2).
- Widarti, H. R., Rokhim, D. A., & Syafruddin, A. B. (2020). The Development Of Electrolysis Cell Teaching Material Based On Stem-Pjbl Approach Assisted By Learning Video: A Need Analysis. *Jurnal Pendidikan Ipa Indonesia*, 9(3). <https://doi.org/10.15294/jpii.v9i3.25199>
- Widyaningsih, S. W., & Yusuf, I. (2020). Implementation Of Project-Based Learning (Pjbl) Assisted By E-Learning Through Lesson Study Activities To Improve The Quality Of Learning In Physics Learning Planning Courses. *International Journal Of Higher Education*, 19(1). <https://doi.org/10.5430/ijhe.v9n1p60>