Development of E-Comic Based Learning Media to Increase Student Learning Motivation on Journal Material Adjusted by Service Companies for Class XII High School Students

Nurfitri Ramadana[1], Ani Widayati[2]
[1,2] Faculty Of Economics And Business, Yogyakarta State University, Indonesia
Email : nurfitriramadana.2022@student.uny.ac.id , ani_widayati@uny.ac.id

Abstract. This study aims to develop e-comic-based learning media to enhance the motivation of Grade XII students at SMA Kolombo in learning adjusting journal entries for service companies. The research employed the ADDIE development model with a control group experimental design. Media evaluations indicated that the e-comic is highly feasible, scoring 4.77 from media experts, 3.88 from material experts, and 5.27 from Accounting teachers. Data collected through observations, interviews, and questionnaires showed a significant motivation improvement in the experimental class, with average scores increasing from 90.62 to 105.69, compared to a less significant increase in the control group. An independent t-test confirmed significant differences between the groups (p < 0.05), demonstrating the e-d effectiveness. This study recommends e-comic media as an engaging, interactive, and efficient innovation to improve students' motivation in learning accounting concept..

Keywords Learning Media, E-Comic, Learning Motivation, Adjusting Journal

1. INTRODUCTION

Motivation is very important in the learning process because it can help students complete tasks and achieve success in school, and currently, educators are very focused on encouraging students to be more motivated in learning, which is a big challenge in the world of education, because someone who is highly motivated will show interest, attention, concentration, perseverance, and focus on achievement without feeling bored, bored, or giving up (Filgona et al., 2020; Puspitorini et al., 2014; Rosadi et al., 2021) However, not a few students lose their motivation to learn. If low motivation to learn is not addressed immediately, it will cause students to participate less in the learning process.(Lintang et al.,2019). On the contrary, if learning motivation is handled well, they will achieve great academic achievements (Broussard & Garrison, 2004).

Motivation can be increased with the help of external parties such as a teacher who has an important role in the world of education, because he not only teaches but also guides students in the teaching and learning process at school. Teachers must try hard to make learning effective, one of which is by using learning media to attract students' attention besides books.

Mok, (2021), said that with the passage of time, digital technology has changed many things and become an important component in the world of education. This development has an impact on the opening up of information and knowledge as well as learning media throughout the world (Usmaedi, et al., 2023). But, with the changes in technology and information, it affects learning media because an educator can create learning media to be

creative, interactive, and innovative, so that students are motivated to actively seek literature sources and expand their own knowledge(Indriani & Sakti, 2022; Putri & Dewi, 2020). With the use of creative and innovative learning media, it can create motivation, stimulate learning activities, and improve understanding (Payanti, 2022; Sapriyah, 2019).

The learning media is everything that serves as a link between students who receive and teachers who convey information, with the aim of encouraging students to follow the learning process thoroughly and meaningfully (Hasan et al., 2021). The use of learning media can help teachers in delivering material in order to attract students' interest.(Wulandari et al., 2023). The importance of learning media to take into account illustrations that can help students understand the message conveyed. (Junaedi, 2021). One of the best ways to achieve effective learning is by using appropriate and accurate learning media (Ibrahim et al., 2022).

Colombo High School, a private school in Yogyakarta with good facilities, faces challenges in optimizing the use of information technology-based learning media. Observations in class XII IPS showed that learning was still dominated by conventional media such as textbooks and lecture methods, while students often showed a lack of motivation, such as playing smartphones or ignoring the teacher. Accounting materials, especially adjusting journals that involve abstract concepts and high cognitive load, become difficult for students to understand, thus reducing motivation and learning achievement. The lack of variety in learning media also exacerbates this condition, making students quickly bored and difficult to maintain concentration. The following is a diagram of the results of observations of students in class XII IPS.
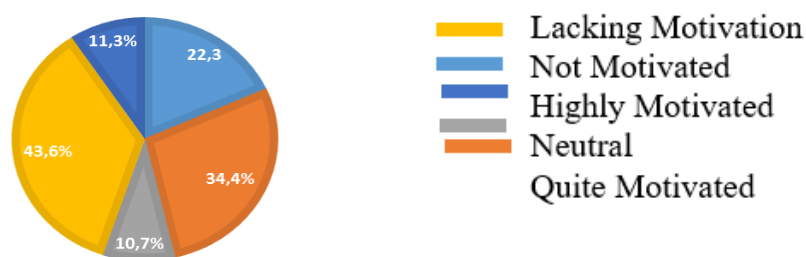

Figure 1. Diagram of Observation Results

Based on the results of a pre-survey of student learning motivation in accounting learning, especially in the material of adjusting journals, it was found that 43.6% of students were less motivated, 11.3% were not motivated, 34.4% were moderately motivated, 10.7% had neutral motivation, and only 22.3% were highly motivated. This data shows that the majority of students have a low level of motivation, so a varied, interactive, and interesting learning media is needed to increase learning motivation and ensure the learning process runs more effectively.

Students' understanding of the service company's adjusting journal material can be overcome by using appropriate and interesting learning media. Interactive media such as e-modules, learning videos, augmented reality (AR), and e-comics have been widely used by teachers in schools. (Nilawati et al., 2022). Among these media, e-comics have become an effective and popular choice due to their simplicity and ability to enhance student understanding, both among students and adults (Suparmi, 2018).

Comics are interesting learning media that help students understand the material, increase their interest in learning, and motivate them to learn more actively as well as being one of the alternative means (Mikamahuly & Fadieny, 2023; Nafis, 2016; Sevty Nuranis dan Fitriani lubis, 2021; Sugiartinengsih, 2018). With a combination of verbal and visual narratives, comics are not only effective in conveying complex ideas but also in boosting students' confidence (Calafato & Gudim, 2022). Since 1992, comics have become a popular learning media at various levels of education, ranging from primary education to higher education (Vassilikopoulou et al., 2011). Along with the development of technology, comics have also transformed into electronic comics or E-Comics, which not only deepen concept understanding, but also attract students as a learning tool ((Syarah et al., 2018).

Previous research found that E-comic as learning media is effective for improving concept understanding and student motivation in general subjects (Badeo & Ong Kian Koc, 2021; Gunawan & Sujarwo, 2022; Syaferi et al., 2022). Research on the use of e-comics in accounting subjects shows an imbalance of results. The use of digital comic media or e-comic is proven to increase students' understanding and motivation to learn, compared to the use of conventional learning media (Aryansyah et al., 2023; Lintang Madina Cahyani, Sudiyanto, 2019). However, Maharani Fijri, (2018) states that the use of educational comic-based learning media is not proven to increase student learning motivation in accounting subjects.

The reality in the field encourages researchers to use learning media that can motivate students in learning Accounting, especially the material of adjusting journal of service companies. In this study, the material was developed into an E-Comic entitled Jenius Accounting, a digital comic that discusses the concepts and stages of adjusting journal transactions with interesting and easy-to-understand stories. This comic can be accessed through Anyflip software, a web-based application that converts static documents into interactive digital publications, making it easier for students and teachers to access. Learning media in the form of comics is expected to strengthen the learning process so that students are eager to understand the material being taught.

In accordance with the above background, the researchers took the title "**Development of E-Comic Based Learning Media to Increase Student Learning Motivation in the Material of Adjusting Journal of Service Company in Class XII Students of Colombo High School**".

2. METHODS

This research uses the Research and Development (R&D) research model with the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation which aims to develop digital-based comic learning media (Maydiantoro, 2019). This model was chosen because it is able to produce innovative learning products, such as e-comics, as well as test their feasibility and effectiveness in increasing student learning motivation, while allowing a thorough evaluation of the media development process and its implementation in learning (Cahyadi, 2019; Rohaeni, 2020).

The population in this study were XII social studies students at Colombo High School, Sleman, Yogyakarta, totaling 52 students. The research subjects were students of class XII of SMA Kolombo Sleman Yogyakarta, with the division of classes into control class (XII IPS 1) and experimental class (XII IPS 2). The method used was a quasi-experiment with a pre-survey and post-survey design in the control and experimental groups, adapted from Sugiyono 2012.

Table 1. R&D Design Pretest- Post test Control Group Desaign

Group	Pretest Measure	Treatment	Posttest Measure
Kelas Eksperimen	O_1	X	O_2
Kelas Kontrol	O_3	-	O4

Description:

O1 = Pre-Test

O2 = Post-Test

X = Treatment in this case using e-comic-based learning media

O3 = Pre-Test

O4 = Post-Test

The data collection technique uses observation interviews and questionnaires, using a rating scale in this questionnaire using a Likert scale which aims to measure a person's attitudes, opinions, and perceptions (Sugiyono, 2022). Data from pretest and posttest results will be analyzed using parametric statistical tests, the t-test, paired t-test and Independent t-Test.

3. RESULTS

Product Feasibility Test

The learning media that has been developed is then validated. At this stage E-comic will be validated by media experts, material experts and accounting teachers.

Media Feasibility Validation by Media Experts

Table 2. Validation by media experts

No	Aspect	Total Score	Average	Description
1	Displey Aspect	42	4,67	Very Feasible
2	Prensentation Aspect	44	4,89	Very Feasible
3	Benefit Aspect	19	4,75	Very Feasible
	Total	**105**	**4,77**	**Very Feasible**

Source: Processed Data 2024

Based on the table above, the average score of the E-comic media display aspect of 4.67 is included in the very feasible category, the average score of the media presentation aspect of 4.89 is included in the very feasible category and for the aspect of media benefits getting an average score of 4.75 with a very feasible category. The overall average score of 4.77 for the results of media expert validation based on the aspects of appearance, presentation and benefits of E-comic-based learning media. Based on media expert validation, these findings indicate that E-comic-based learning media with the title "Jenius Accounting" is included in the very feasible category.

Media Feasibility Validation by Material Experts

Table 3. Validation by Material Experts

No	Aspect	Total Score	Average	Description
1	Displey Aspect	27	3,86	Feasible
2	Material Aspect	24	4,00	Feasible
3	Presentation Aspect	26	3,71	Feasible
4	Benefit Aspect	16	4	Feasible
	Total	**93**	**3,88**	**Feasible**

Source: Processed Data 2024

Based on the table above, the average score of the media display aspect is 3.86 with a decent category, the average score of the material aspect is 4.00 with a decent category, the average presentation score is 3.71 with a decent category and for the average score of the benefit aspect is 4 with a decent category. The overall average score was 3.88 for the validation

results from the material expert. Based on the validation of this material expert, it shows that E-comic-based learning media with the title Jenius Accounting is included in the feasible category.

Media Feasibility Validation by Accounting Teacher

Table 4. Validation by accounting teacher

No	Aspect	Total Score	Average	Description
1	Content	39	4,88	Very Feasible
2	Comic View	57	4,75	Very Feasible
3	Benefit Aspect	20	5	Very Feasible
Total		**116**	**5,27**	**Very Feasible**

Source: Processed Data 2024

Based on the table above, the average score on the content aspect is 4.88 with a very feasible category, the average score of the comic display aspect is 4.75 with a very feasible category and for the average score of the benefit aspect is 5 with a very feasible category. The overall average score was 5.27 for the accounting teacher validation results. Based on these findings, it shows that e-comic-based learning media with the title Jenius Accounting is included in the very feasible category.

Product Trial

Implementation of Product Trial

First Meeting

In the first meeting, the activity began with an introduction to introduce the service company adjusting journal material to students in both groups, both experimental and control classes. Before the learning method was applied, a pre-questionnaire was distributed to all students to measure the level of learning motivation with 27 statements. The results of the pre-questionnaire showed that the average questionnaire score of the control class (XII IPS 1) was 93.77, while the experimental class (XII IPS 2) obtained a mean of 90.62. Thus, it can be concluded that students' learning motivation in XII IPS 2 class is lower than XII IPS 1 class before the treatment is applied.

Table 5. Questionnaire PreTest Results

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre EksPerimen	90.62	26	9.920	1.945
	Pre Kontrol	93.77	26	11.546	2.264

Source: Processed Data 2024

Second Meeting

In the second meeting, after checking students' learning motivation in the first meeting, it was found that some students had low learning motivation, especially in the material of service company adjustment journal. In the control class (XII IPS 1), the teacher used conventional learning media in the form of accounting textbooks and lecture and discussion methods. The teacher explained the material starting from the concept to the process of recording adjusting journal transactions, by asking questions to maintain student concentration. After the explanation, students were divided into groups to discuss examples of adjusting journal transactions and present the results of their discussions.

In the experimental class (XII IPS 2), the teacher used learning media in the form of an e-comic entitled Jenius Accounting, which discussed the adjusting journal of service companies. The teacher distributed the e-comic link and explained how to access and the reading flow. Students study the e-comic according to the specified time and can study anywhere according to their convenience. The learning process with e-comic is conducive and students show enthusiastic responses.

Third meeting

The control group's learning in the third meeting consisted solely of repeating content that they had not fully comprehended, followed by a Q&A session between the students and the lecturers. Following the lecture, students were provided with a link to a post-questionnaire on learning motivation, which they were required to complete based on their experiences during the learning process.

The experimental group's education was more centered on using an e-comic called Jenius Accounting to provide content. The instructor asked and received questions about the students' comprehension of the e-comic's content. Then, using a Google Form link, students were invited to complete a post-questionnaire on learning motivation that included questions about learning motivation when using e-comic media.

Table 6. Pre-post Questionnaire Test Results

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 2	Post EksPerimen	105.69	26	8.303	1.628
	Post Kontrol	98.23	26	8.645	1.696

Source: Processed Data 2024

Based on the results of the posttest (questionnaire) of learning motivation, the experimental group showed an average score of 105.69, while the control group had an average of 98.23. This shows a difference between the two groups. This average difference indicates that the increase in motivation is higher in the experimental group, indicating that the treatment using e-comic-based learning media to the experimental class is more effective in increasing student motivation to learn.

The following is the data on the increase in pre and post test questionnaires for each group:

Table 7. PreTest and PostTest Questionnaire Results.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest_Eksperimen	90.62	26	9.920	1.945
	PostTest_Eksperimen	105.69	26	8.303	1.628
Pair 2	PreTest_Kontrol	93.77	26	11.546	2.264
	PostTest_Kontrol	98.23	26	8.645	1.696

Source: Processed Data 2024

Based on the table above, the experimental group showed a significant increase in pretest and posttest scores. The average pretest score of the experimental group was 90.62 with a standard deviation of 9.920, while the average posttest score increased to 105.69 with a standard deviation of 8.303. This difference shows a significant increase in learning motivation after being given treatment in the form of e-comic-based learning media.

On the other hand, in the control group, the average pretest score was 93.77 with a standard deviation of 11.546, and the average posttest score increased to 98.23 with a standard deviation of 8.645. Although there was an increase in the average score, the difference was not as great as in the experimental group.

Comparison between the two groups showed that the increase in the average score in the experimental group (from 90.62 to 105.69) was much more significant than the control group (from 93.77 to 98.23). Thus, the use of e-comic-based learning media proved to be more effective in increasing students' learning motivation compared to the conventional teaching method applied in the control group.

Pretest and Posttest Results of Student Learning Motivation.

Paired T-Test Test

Table 8. Paired T-Test Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PreTest_Eksperimen - PostTest_Eksperimen	-15.077	13.839	2.714	-20.667	-9.487	-5.555	25	.000
Pair 2	PreTest_Kontrol - PostTest_Kontrol	-4.462	12.084	2.370	-9.342	.419	-1.883	25	.071

Source: Processed Data 2024

The results of the paired samples test showed a significant difference between pretest and posttest scores in the experimental group, with an average difference of -15,077 and a Sig. (2-tailed) 0.000 (smaller than 0.05). The 95% confidence interval is in the range of -20.667 to -9.487, which confirms the increase in learning motivation in this group is statistically significant. In contrast, in the control group, the mean difference of -4.462 was not significant, with a Sig. (2-tailed) of 0.071 (greater than 0.05) and a 95% confidence interval in the range of -9.342 to 0.419. These results indicate that the use of e-comic media significantly increased students' learning motivation in the experimental group, while the conventional method in the control group did not have a significant effect.

Independent T-test

Table 9. Independent T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil motivasi belajar	Equal variances assumed	.556	.459	3.174	50	.003	7.462	2.351	2.740	12.183
	Equal variances not assumed			3.174	49.919	.003	7.462	2.351	2.740	12.184

Source: Processed Data 2024

Based on the results of the Independent Samples T-Test test, the Sig. (2-tailed) of 0.003, which is smaller than 0.05, indicates a significant difference between the use of e-comic-based learning media in experimental classes and conventional learning methods in control classes on student learning motivation. The average learning motivation in the experimental group is higher than the control group, with a difference of 7.462. The 95% confidence interval shows that this difference is within the range of 2.740 to 12.183, which confirms that the difference is real and not due to chance factors. Thus, it can be concluded that the use of e-comic as learning media has a significant effect in increasing students' learning motivation compared to conventional methods.

4. DISCUSSION

This research produces e-comic-based learning media titled "Jenius Accounting" for service company adjusting journal material to increase student learning motivation. Development using the ADDIE model, which consists of the stages of analysis, design, development, implementation, and evaluation, was chosen because it is systematic and comprehensive, so as to produce products that are effective in improving students' knowledge, abilities, and attitudes (Boyman et al., 2020; Muflianah, 2023).

The material used is a service company adjustment journal for class XII SMA. Aspects to measure learning motivation using ARCS (Attention, Relevance, Confidence, Satisfaction). Learning media should be designed to attract students' attention with interesting elements, relevant to their needs and interests, and build confidence through positive feedback, Students' satisfaction with the learning experience is also important to ensure continued motivation, By integrating these aspects, learning can be more effective and motivating (J. Keller, 2006; J. M. Keller, 1987).

The e-comic-based learning media was rated in the very feasible category by media experts by giving a score of 4.77, a score of 3.88 with a feasible category from material experts and a score of 5.27 with a very feasible category from Colombo High School accounting teachers. Overall, this e-comic learning media is declared valid and eligible for use in the teaching and learning process, with minimum assessment results in the feasible category. Therefore, students can utilize this media as a learning tool that meets the basic standards of eligibility(Plomp & Nieveen, 2013).

The pre- and post-asset results showed a significant increase in learning motivation in the experimental group after using e-comic media, with an average increase from 90.62 to 105.69 (15.08 points increase). Meanwhile, the control class also experienced an increase in motivation, but smaller, from 93.77 to 98.23 (an increase of 4.46 points). The independent samples t-test resulted in a Sig. (2-tailed) of 0.003 (smaller than 0.05), indicating a significant difference between the experimental and control groups, with e-comic media proving more effective than conventional learning methods.

This suggests that using e-comic-based learning resources to modify journal content has a more beneficial effect on students' willingness to learn than that stated by Budiarti & Haryanto, (2016), It has been shown that the use of digital comic media has a good and significant impact on the learning motivation of students during the learning process. This can be seen in the scores that were obtained from the pre-test to the post-test. The experimental group's learning motivation has significantly increased in comparison to the control group.

The results of this study are in accordance with previous research conducted by (Puspitorini et al., 2014) showing that the learning process using comic media in science learning can increase students' learning motivation. In addition (Pratama, 2019)said that through digital comic media students more easily understand the material and learn in a fun way, thus increasing learning motivation.

5. CONCLUSION

E-comic-based learning media is an innovative and creative media that combines visual and narrative elements to deliver material in an interesting and interactive way. The use of e-comic proved effective in increasing students' learning motivation on the material of adjusting journal of service companies at Colombo High School. Assessments from media experts, material experts, and Accounting teachers show that e-comic is very feasible to use. The independent sample t-test results also revealed a significant difference in the increase in learning motivation between the experimental class using e-comic and the control class using conventional learning methods. Therefore, e-comic can be an effective alternative to increase motivation and understanding of difficult material for students.

6. LIMITATION

Research on the development of e-comic-based learning media for adjusting journal material faces several limitations. First, e-comic development requires specialized hardware and software as well as graphic design skills that may not be possessed by researchers or teachers. Secondly, some students had difficulty accessing the e-comic due to the limited network and facilities available so that it could hamper learning activities. Thirdly, the limited time of the pilot test hindered the exploration of the potential use of e-comic in the long term. Finally, an insufficient number of respondents may affect the results of statistical tests and reduce the accuracy of the research findings.

REFERENCES

Aryansyah, F., Putra, R. A., & Dedeh. (2023). MEDIA KOMIK DIGITAL TERHADAP TINGKAT PEMAHAMAN AKUNTANSI SISWA SMA. Jurnal Wahana Pendidikan, 10(2), 309–316.

Badeo, J. M. O., & Ong Kian Koc, B. C. U. (2021). Use of Comic-based Learning Module in Physics in Enhancing Students' Achievement and Motivation. Science Education International, 32(2), 131–136. https://doi.org/10.33828/sei.v32.i2.6

Boyman, S. N., Jamal2, M. B., Razali3, A., Shamsinor, M., & Aziz4, A. (2020). ADDIE Model Design Process For 21st Century Teaching and Facilitation Activities (Pdpc) In Nationhood Studies Module. International Journal of Psychosocial Rehabilitation, 24(09), 2020.

Broussard, S. C., & Garrison, M. E. B. (2004). The relationship between classroom motivation and academic achievement in elementary-school-aged children. Family and Consumer Sciences Research Journal, 33(2), 106–120. https://doi.org/10.1177/1077727X04269573

Budiarti, W. N., & Haryanto, H. (2016). Pengembangan Media Komik Untuk Meningkatkan Motivasi Belajar Dan Keterampilan Membaca Pemahaman Siswa Kelas Iv. Jurnal Prima Edukasia, 4(2), 233. https://doi.org/10.21831/jpe.v4i2.6295

Cahyadi, R. A. H. (2019). Pengembangan Bahan Ajar Berbasis Addie Model. Halaqa: Islamic Education Journal, 3(1), 35–42. https://doi.org/10.21070/halaqa.v3i1.2124

Calafato, R., & Gudim, F. (2022). Comics as a multimodal resource and students' willingness to communicate in Russian. Journal of Graphic Novels and Comics, 13(2), 270–286. https://doi.org/10.1080/21504857.2021.1951788

Filgona, J., Sakiyo, J., Gwany, D. M., & Okoronka, A. U. (2020). Motivation in Learning. Asian Journal of Education and Social Studies, September, 16–37. https://doi.org/10.9734/ajess/2020/v10i430273

Gunawan, P., & Sujarwo. (2022). Pemanfaatan Komik Sebagai Media Pembelajaran Sejarah dalam Meningkatkan Motivasi dan Hasil Belajar Siswa. Journal of History Education and Historiography, 6(1), 2022.

Hasan, M., Milawati, Darodjat, Khairani, H., & Tahrim, T. (2021). Media Pembelajaran. In Tahta Media Group.

Indriani, F. F., & Sakti, N. C. (2022). Pengembangan e-LKPD Berbasis Komik untuk Meningkatkan Kemampuan Berpikir Kritis Peserta Didik Kelas XI IPS SMA. Jurnal PTK Dan Pendidikan, 8(1), 65–77. https://doi.org/10.18592/ptk.v8i1.6414

Junaedi, S. (2021). Aplikasi Canva Sebagai Media Pembelajaran Daring Untuk Meningkatkan Kemampuan Kreatifitas Mahasiswa Pada Mata Kuliah English for Information Communication and Technology. Bangun Rekaprima, 7(2), 80. https://doi.org/10.32497/bangunrekaprima.v7i2.3000

Keller, J. (2006). Development of Two Measures of Learner Motivation. Academic Medicine: Journal of the Association of American Medical Colleges, 84(11), 1505–1509.

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. Journal of Instructional Development, 10(3), 2–10. https://doi.org/10.1007/BF02905780

Lintang Madina Cahyani, Sudiyanto, B. M. (2019). Keefektifan Media Komik Terhadap Motivasi Pada Pembelajaran Akuntansi Di Smk. Tata Arta, 5(1), 107–120.

Maharani Fijri, I. D. (2018). Development of Educational Comic "Accounting Days" As Accounting Learning Media To Improve Students Learning Motivation. Jurnal

Pendidikan Akuntansi Indonesia, 16(2). https://doi.org/10.21831/jpai.v16i2.22051

Maydiantoro, A. (2019). Model-Model Penelitian Pengembangan (Research and Development). Jurnal Metode Penelitian, 10, 1–8. http://repository.lppm.unila.ac.id/34333/1/Model-Model Penelitian dan Pengembangan.pdf

Mikamahuly, A., & Fadieny, N. (2023). Analisis Pengembangan Media Komik Pembelajaran Untuk Meningkatkan Minat Belajar Peserta Didik. 256–263.

Mochamad Arsad Ibrahim, Fauzan, M. lufti Y., Raihan, P., Nurhadi, S. N., Setiawan, U., & Destiyani, Y. N. (2022). Jenis, Klasifikasi dan Karakteristik Media Pembelajaran. AL-MIRAH: JURNAL PENDIDIKAN ISLAM, 4(2), 1–8. http://link.springer.com/10.1007/s00232-014-9701-9%0Ahttp://link.springer.com/10.1007/s00232-014-9700-x%0Ahttp://dx.doi.org/10.1016/j.jmr.2008.11.017%0Ahttp://linkinghub.elsevier.com/retrieve/pii/S1090780708003674%0Ahttp://www.ncbi.nlm.nih.gov/pubmed/1191

Mok, M. M. C. (2021). Learning, education and collaboration with the support of digital technology. Educational Psychology, 41(1), 1–4. https://doi.org/10.1080/01443410.2021.1866818

Muflianah, E. (2023). Implementation Of The Addie Model Learning Strategy In Life Skills Education Packet C (National High School Equivalency Examination) At Spnf And Skb In Tegal Regency. Romeo Review of Multidisciplinary Education Culture and Pedagogy, 2(1), 33–41. https://doi.org/10.55047/romeo.v2i1.573

Nafis, Z. F. N. (2016). Pengembangan Media Pembelajaran Komik audio Visual Bagi Pembelajaran Ekonomi Materi urs Valuta Asing di SMA Negeri 8 Malang. Jurnal Pendidikan Ekonomi, 9(2), 156–164.

Nilawati, Riswan, & Oktavia, L. (2022). Media Pembelajaran Interaktif. Jurnal Akademika, 15(1), 70–75. https://doi.org/10.53564/akademika.v15i1.845

Payanti, D. A. K. D. (2022). Peran Komik Digital sebagai Media Pembelajaran Bahasa yang Inovatif. 4(April), 464–475.

Plomp, T., & Nieveen, N. (2013). Educational Design Research Educational Design Research. Netherlands Institute for Curriculum Development: SLO, 1–206. http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ815766

Pratama, R. A. (2019). Pengembangan Media Pembelajaran Komik Digital untuk Meningkatkan Motivasi Belajar pada Siswa Akuntansi. Jurnal Kajian Pendidikan Akuntansi Indonesia, 1–18.

Puspitorini, R., Prodjosantoso, A. K., Subali, B., & Jumadi, J. (2014). Penggunaan Media Komik Dalam Pembelajaran Ipa Untuk Meningkatkan Motivasi Dan Hasil Belajar Kognitif Dan Afektif. Jurnal Cakrawala Pendidikan, 3(3), 413–420. https://doi.org/10.21831/cp.v3i3.2385

Putri, L. A., & Dewi, P. S. (2020). Media Pembelajaran Menggunakan Video Atraktif pada Materi Garis Singgung Lingkaran. Mathema: Jurnal Pendidikan Matematika, 2(1), 32.

https://doi.org/10.33365/jm.v2i1.568

Rohaeni, S. (2020). Pengembangan Sistem Pembelajaran Dalam Implementasi Kurikulum 2013 Menggunakan Model Addie Pada Anak Usia Dini. Instruksional, 1(2), 122. https://doi.org/10.24853/instruksional.1.2.122-130

Rosadi, F., Akhlakul, N., & Karimah, N. (2021). SENAPADMA Seminar Nasional Pendidikan Dasar dan Menengah Meningkatkan Motivasi Belajar Siswa Melalui Media Pembelajaran Komik Improving Student Motivation Through Comic Learning Media. Senapadma, 1, 87–96. https://senapadma.nusaputra.ac.id/index

Sapriyah. (2019). Media Pembelajaran Dalam Proses Belajar Mengajar. Diklat Review : Jurnal Manajemen Pendidikan Dan Pelatihan, 2(1), 470–477. https://doi.org/10.35446/diklatreview.v3i1.349

Sevty Nuranis dan Fitriani lubis. (2021). The Development of Digital Comic Media to Increase Student Interest in Learning Indonesian. Proceeding ISLALE 2021 The 3th International Seminar on of Language, Art, and Literature Education, October, 493–498.

Sugiartinengsih, R. (2018). Penggunaan Media Komik Strip dalam Meningkatkan Keterampilan Menulis Teks Ekplanasi di SMAN 1 Sukahaji. Riksa Bahasa, 2(2), 187–194.

Sugiyono. (2022). Metode Penellitian manajemen (Revisi 2). ALFABETA.

Suparmi, S. (2018). Penggunaan Media Komik Dalam Pembelajaran IPA di Sekolah. Journal of Natural Science and Integration, 1(1), 62–68. https://doi.org/10.24014/jnsi.v1i1.5196

Syaferi, A., Hakim, N., Yudiyanto, Y., & Suhendi, S. (2022). Developing COVID-19 digital comic by using flip pdf professional as a learning media for tenth grade of senior high school. Assimilation: Indonesian Journal of Biology Education, 5(1), 1–8. https://doi.org/10.17509/aijbe.v5i1.43479

Syarah, E. S., Yetti, E., & Fridani, L. (2018). Pengembangan Media Komik Elektronik Untuk Meningkatkan Pemahaman Konservasi Anak Usia Dini. JPUD - Jurnal Pendidikan Usia Dini, 12(2), 231–240. https://doi.org/10.21009/jpud.122.04

Usmaedi, Maftuh, B., K, S. N., & Siswanto, P. (2023). Development of Digital Comics with Characters for Middle Schools School Students in Social Studies Learning.

Vassilikopoulou, M., Retalisa, S., Nezi, M., & Boloudakis, M. (2011). Pilot use of digital educational comics in language teaching. Educational Media International, 48(2), 115–126. https://doi.org/10.1080/09523987.2011.576522

Wulandari, A. P., Salsabila, A. A., Cahyani, K., Nurazizah, T. S., & Ulfiah, Z. (2023). Pentingnya Media Pembelajaran dalam Proses Belajar Mengajar. Journal on Education, 5(2), 3928–3936. https://doi.org/10.31004/joe.v5i2.1074