



## Development of Environment-Based Comic Learning Media for Junior High School Class VIII

Soleh Khalimi<sup>1✉</sup>, Joko Widodo<sup>2</sup>, Andryan Setyadharma<sup>3</sup>

Postgraduate, Universitas Negeri Semarang

### Article Info

Article History :  
 Received June 2022  
 Accepted October 2022  
 Published December 2022

Keywords:  
*Learning Media, Comics, Environment*

### Abstract

Based on interviews that have been conducted by researchers with teachers and also the school. The results of field observations obtained data that so far the learning media used is still fixated with printed books in schools. The media used only uses learning media such as power points. This research used the Research and Development (R&D) method of the ADDIE model. The data source is obtained from primary data and secondary data. The subjects in this study were students of SMP Negeri 1 Seponti Jaya VIII IPS for the 2022/2023 academic year which consisted of two classes, namely class VIII. The data collection techniques used in this study used observation and questionnaire methods. Meanwhile, the data analysis technique used in this study is qualitative analysis using walkthrough techniques. Based on the results of the research and discussion, the following conclusions were obtained: (1) This development research uses the concept of the ADDIE development model. Model development consists of five stages, namely: Analysis, Design (desing), Development (Development), Implementation (Implementation), Evaluation (evaluation), (2) Environmental-based digital comics are declared valid with validity according to validators of 85.3 with very valid categories, and (3) Environmental-based digital comics are declared effective according to the results of the N-Gain calculation which shows that the N-Gain score of 0.31 is included in the category of quite effective.

© 2022 Universitas Negeri Semarang

✉ Correspondence :  
 Postgraduate, Universitas Negeri Semarang  
 Kelud Utara III, Semarang 50237 Indonesia  
 E-mail: solehkhalim1192@students.unnes.ac.id

**p-ISSN 2301-7341**  
**e-ISSN 2502-4485**

## INTRODUCTION

Education will not be separated from a teaching and learning process and in it will not be separated from five important components, including objectives, materials, methods, media and learning evaluation (Hartog et al., 2020). These five aspects greatly influence the teaching and learning process. For example, if a teacher chooses a teaching method, the teacher must adjust what type of media is appropriate to use in the learning process. Without forgetting the three aspects of the teaching and learning process, media is a form or tool as a delivery of messages and information from the sourcer, so that the message is expected to stimulate the mind and foster the enthusiasm, willingness and attention of students in following the teaching and learning process (Suryani, et al 2018).

Rao (in Budiarti & Haryanto, 2016) stated that "The media, if used in the educational setting will complement the teaching learning process " if the media is used in a learning environment, it will complement a learning process. Learning media is expected to provide skills or attitudes to students. In this case, it can be said that the main function of learning media is a tool that also affects motivation, conditions and the learning environment (Hamalik, 1990). Media can also be interpreted as a tool for teachers in presenting messages or information to their students that cannot be seen directly but can still be described through the media (Grass & Court, 2017).

The development of learning media has an important role in the learning process, according to Santrock (2007: 7) states that development is a change in pattern that is carried out from the beginning of the initial creation process, then continues to the life span. Furthermore, according to Sudirman (in Yuberti, 2014) explained that the principles of development include: 1) The Principle of Relevance, which is meant by the Relevance of Education, the present, and the demands in the world 2) the Principle of Effectiveness, 3) the Principle of Efficiency, and 4) the Principle of Flexibility. When viewed from its function, the use of media in the teaching and learning process can provide its own interests, and desires for students, the media can also increase stimulation and

motivation in learning and can bring the influence of student psychology (Hadi et al., 2019). One of the media that can apply the principles and functions of learning media development is comics.

In modern times, comics are becoming a common reading for people, both children and adults, comics usually contain not only humor but values that can be used as learning or moral messages (Novakovich et al., 2017). In the beginning, comics were created not for learning activities, but only for entertainment purposes in filling the gaps in time. However, as the popularity of comics expanded and inspired researchers to make comics a learning medium (Mudlaafar et al., 2019). Nowadays, comics are more than just fictional readings or entertainment stories, but as a medium of proselytizing, educational media and even an effective means of promotion. Learning using comics has been widely applied even in some developed countries such as Japan (Reis et al., 2021).

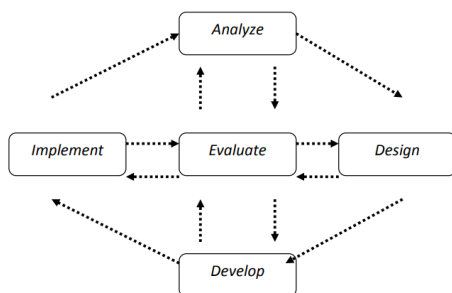
The results of interviews that have been conducted by researchers with teachers and also the school using interview questionnaires and also questionnaires for student needs questionnaire instruments. During the learning process, researchers made observations in one school where from the results of field observations, data was obtained that so far the learning media used in the interspace dependence material was seen from the economic concept and its influence on the sub-discussion of the use of natural resources in the learning implementation plan (RPP) used by SMP Negeri 1 Seponti Jaya was still glued to printed books in schools. In addition, the media used only uses learning media such as power points. The learning media of the subject matter should be able to use media other than power points.

Media in social studies learning has its own characteristics and provides special skills in solving incomprehensions about theories, concepts, laws and facts. So the media used can be in the form of environmental-based comic learning media, in this case researchers are interested in providing an innovation in the form of learning media that uses technology (La et al., 2014). The development of environmental-based comic learning media on Natural Resource Utilization material has not been carried out much. Based on the description above, the objectives of this study are: (1) the development

process of environmental-based comic learning media, (2) the feasibility of developing environmental-based comic learning media, (3) the effectiveness of developing environmental-based comic learning media.

## RESEARCH METHODS

This research uses the *Research and Development* (R&D) method. Sugiyono (2016: 297) stated that *Research and Development* is a research method that produces a certain product and tests the feasibility and effectiveness of the product by getting validity from experts then tested to students and revised to get the perfect product. This development research uses the ADDIE development model concept. According to Coal (2020) ADDIE development is an effective development to use. The development of this model consists of five stages, namely: 1) Analysis (*analyze*), 2) Design (*desing*), 3) Development (*Development*), 4) Implementation (*implementation*), 5) Evaluation (*evaluation*). The concept of the ADDIE Development Model can be described as follows:



**Figure 1** ADDIE Development Pipeline

The data source is obtained from primary data and secondary data. Primary data are data obtained from Instrument Validation by media experts and material experts and data obtained data in the form of Quantitative data and Qualitative data used in research (Figueiredo & Bidarra, 2015). Quantitative data is obtained by questionnaires, while qualitative is obtained from criticism and suggestions in assessing the media used for consideration in media improvement (Wooten, 2020). Meanwhile, secondary data is obtained from the distribution of questionnaires filled in by students and the data obtained in the form of quantitative data. The subjects in this study were students of SMP Negeri 1 Seponti Jaya VIII IPS for

the 2022/2023 academic year which consisted of two classes, namely class VIII. The reason for taking research samples taken in class VIII is because the Natural Resources Utilization Material is studied in class VIII.

The data collection techniques used in this study used observation and questionnaire methods. The observation method is used to determine the availability of learning media used in these subjects (Katharina et al., 2017). Validation sheets are used to see how feasible *the developed media* can be used in the learning process. While the questionnaire method in the form of a questionnaire is a data collection technique carried out by giving a set of questions or written statements to respondents for them to answer. The questionnaire method is carried out to find out the validity of the media by several experts and the response of students to the media.

Meanwhile, the data analysis technique used in this study is qualitative analysis using *walkthrough techniques*. *Walkthrough* is a technique to evaluate or validate a design carried out by experts in their field directly so that the interaction that mixes on design improvements (Listiyani & Widayati, 2012). This technique was chosen because it allows researchers to interact directly with expert validators. In addition, quantitative data analysis techniques were also used in this study using data from questionnaire instruments from experts and questionnaire instruments for respondents from students. Quantitative data analysis is carried out to determine the characteristics of the media. Analysis of usage trial data or developed to samples is carried out using questionnaire instruments.

## RESULTS AND DISCUSSION

The results of the development of environmental-based comic media were carried out from October to November 2022 with the test subjects of class VIII SMP Negeri 1 Senopati Jaya, North Kayong Regency, West Kalimantan, for the 2022 academic year using the ADDIE model R&D method. The results of the Analysis Stage research, based on the results of observations in class VIII of SMP Negeri 1 Senopati Jaya, North Kayong Regency, West Kalimantan, in 2020, learning was

carried out online due to the Covid-19 virus which requires face-to-face learning to be transferred to online learning.

Learning is carried out online through the Whatsapp group, the teacher gives assignments and delivers material through the Whatsapp group. Learning does not make students active, because in learning teachers only use LKPD given from school in the form of printed books, where students are only told to do their assignments and collected on weekends or only through photos sent via cellphones. So that student learning outcomes cannot be maximized from KKM 75, the average student gets a score of 72 so that it can be categorized as still below KKM. Therefore, based on the results of observations, researchers develop environmental-based digital comic learning media to improve student learning outcomes.

The results of the Design Stage research, the environment-based comics to be developed began to be designed based on the results of the analysis at the initial stage. The activities carried out at this stage are: 1) format selection is carried out for the selection of approaches and designing the content of the developed environment-based comics. The approach chosen in this study is a contextual approach, and 2) environmental-based comic design This activity is the preparation of environmental-based comics which include: syllabus, RPP, environmental-based comics, and evaluation tools. At the same time, a research instrument is compiled that will be used as a tool for collecting research data.

The results of this Development Stage research aim to modify learning media and tools. Learning tools that already exist as early versions must be modified before they become valid and effective final versions, the learning tools that have been developed in this study include: 1) RPP, 2) environmental-based comics, and 3) evaluation tools. Conducting product feasibility tests meets the criteria of validity and practicality.

The results of the Implementation Stage research, at this stage the results of the material and media expert tests have met the good criteria. This stage is a trial of experts in learning media developed by researchers. After testing and meeting the criteria, the learning media developed can be implemented for students.

Evaluation Stage research results. The evaluation stage is the final stage of the ADDIE model. This stage is carried out after the fourth of the above stages has been carried out, this has the aim of measuring the achievement of development goals by looking at the shortcomings, advantages, learning media developed (Maulida et al., 2020). So that revisions are made to the media developed to meet the criteria and needs.

Student worksheets are one of the learning media used during learning and are considered to be one of the most preferred learning methods for students The initial analysis of this digital comic includes validity, reliability, differentiability, and difficulty levels (Setyawati & Widodo, 2020). This was done so that the digital comics developed were tested for effectiveness, so researchers conducted limited trials and extensive trials (Nuswowati, 2012). A limited-scale trial was conducted in SMP 1 with 36 learners, the question item was said to be valid if  $r$  count  $> 0.329$ . The validity results shown in table 4.1 show that the 10 items of the question are declared valid because  $r$  counts  $> 0.329$ .

Environment-based digital comics developed before applying to students, drafts are first validated by experts / experts (Matanluk et al., 2013). Environmental-based comic validation aims to find out the aspects of the home menu, aspects of Core Competencies and Basic Competencies, preliminary aspects, material aspects, evaluation aspects. There are three environmental-based comic validators, namely Dr. Mohamad Rifat, Matius Hendrik, S.Pd. Validation by experts / experts is carried out by giving a check mark (✓) in the column provided on the validation sheet. The results of the validation of environmental-based comics by material experts are presented in Table 1.

**Table 1** Validity

Assessment Aspects	Number of Scores	Maximum Score
Aspects of the home menu	65	72
Aspects of Core Competencies and Basic Competencies	66	84

Preliminary Aspects	86	96
Material Aspects	94	120
Evaluation Aspects	75	84
Total score count	389	456
Percentage	85,3%	
Criterion	Highly Valid	

source: Research Primary Data

source: Research Primary Data

Based on Table 1, the validation results by media experts get a percentage result of 85.3%. This result consists of the home menu aspect with a total score of 65, the core competency and basic competency aspects with a score of 66, the preliminary aspect with a score of 86, the material aspect with a score of 94, the evaluation aspect with 75. The validation results of obtaining very valid criteria show that environmental-based digital comics are worth using for economic learning. Furthermore, environmental-based comics are tested for practicality. Based on the validity test of the environment-based digital comic, the researcher did not get validator input, only that there was a validator who recommended that the developed android-based interactive pop-up multimedia be tested immediately.

#### Feasibility of Developing Environment-Based Comic Learning Media

The initial design of environmental-based digital comics was validated by expert media validators. The validation results by media experts as a whole get a percentage of 85% with very valid categories, meaning that the environment-based digital comics developed can be used both in the home menu aspect, core competency aspects and basic competencies, preliminary aspects, material aspects, evaluation aspects. Overall, environmental-based digital comics have met the category of very valid but revisions are still being made to improve environmental-based digital comics in accordance with the advice that validators have given from media experts. Media is used as a support for the delivery of learning materials.

Environment-based digital comics are packaged in one complete application of materials, test questions and games that allow media to be used by teachers in achieving learning goals (Sutami & March, 2018). In addition, environmental-based digital comics are equipped with water cycle materials so that they can affect environmental literacy skills and learning outcomes in students. In addition, digital media is open source designed for PC devices so that it can be used at home as independent learning because it can be accessed from each student's cellphone (Kisworo et al., 2022).

Environmental-based digital comics developed using designs that attract attention to learners. In line with (Patricia, 2021) that environment-based digital comics as an interesting and varied learning medium. The light colors and songs included in environment-based digital comics are used to draw attention to learners (Series, 2020) so that learners will be motivated to use the environment-based digital comics presented. This shows that overall the environment-based digital comics developed have produced animations/images and materials in the form of clear videos, made full colour, unique and interesting.

#### Effectiveness of Environment-Based Digital Comic Media

The effectiveness of environmental-based digital comic media involved 36 students including: (1) learning outcomes using the N-Gain test and classical completion score results. The results of the N-gain test obtained the results of the calculation of the increase in learning outcomes by 0.311 with moderate criteria. This shows that there is a significant improvement in learning outcomes before and after using media. The results of classical completeness after posttest were carried out 89% with complete criteria. The classical completeness of student learning informs that the understanding of learners in general, related to the material of economic actors presented in environmental-based digital comics, is very good. This shows that the digital comics developed can be understood by students well so that they can improve student learning outcomes, and (2) the results of student responses based on the results of the questionnaire (questionnaire) of student respondents, the data obtained shows that class

VIII students of SMP Negeri 1 Senopati Jaya, North Kayong Regency are very interested in the development of digital comics with the overall gain of getting an average score of 49 which is then analyzed Using a likert scale with a maximum score of 59, a score of 98 was obtained which is included in the very interesting category. That way, environment-based digital comics are worth using as a student's handle in the learning process.

## CONCLUSION

Based on the results of the research and discussion, the following conclusions were obtained: (1) This development research uses the concept of the ADDIE development model. Model development consists of five stages, namely: Analysis, Design (desing), Development (Development), Implementation (Implementation), Evaluation (evaluation), (2) Environmental-based digital comics are declared valid with validity according to validators of 85.3 with very valid categories, and (3) Environmental-based digital comics are declared effective according to the results of the N-Gain calculation which shows that the N-Gain score of 0.31 is included in the category of quite effective. Shows that there is a significant increase in the ability of learning outcomes before and after using environmental-based digital comics with classical completion results of 89% with complete criteria.

## REFERENCES

- 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>
- Figueiredo, M., & Bidarra, J. (2015). The development of a Gamebook for education. *Procedia - Procedia Computer Science*, 67(Dsai), 322–331. <https://doi.org/10.1016/j.procs.2015.09.276>
- Hadi, Y. A., Husni, M., & Pazri, R. (2019). Pengembangan Komik Sebagai Media Pembelajaran Ilmu Pengetahuan Sosial (IPS) Kelas IV SDN 2 Selong. *Jurnal DIDIKA: Wahana Ilmiah Pendidikan Dasar*, 5(2), 113. <https://doi.org/10.29408/didika.v5i2.1784>
- Hamalik, O. (1990). *Metode Belajar dan Kesulitan-Kesulitan Belajar*. Tarsito.
- Hartog, K., Hubbard, C. D., Krouwer, A. F., Thornicroft, G., Kohrt, B. A., & Jordans, M. J. D. (2020). Social Science & Medicine Stigma reduction interventions for children and adolescents in low- and middle-income countries : Systematic review of intervention strategies. *Social Science & Medicine*, 246(December 2019), 112749. <https://doi.org/10.1016/j.socscimed.2019.112749>
- Katharina, A., Möckel, T., Nieding, G., & Ohler, P. (2017). Journal of Applied Developmental Psychology The impact of media literacy on children ' s learning from fi lms and hypermedia. *Journal of Applied Developmental Psychology*, 48, 33–41. <https://doi.org/10.1016/j.appdev.2016.11.007>
- Kisworo, T. W., Nuswawati, M., & Ahmadi, F. (2022). *The Android-based Interactive Pop-Up Multimedia Development to Improve Environmental Literacy , Learning Autonomy , and Learning Outcomes*. 11(1), 78–90.
- La, D., Gentile, M., Dal, V., Ottaviano, S., & Allegra, M. (2014). A Game Based Learning Model for Entrepreneurship Education. *Procedia - Social and Behavioral Sciences*, 141, 195–199. <https://doi.org/10.1016/j.sbspro.2014.05.034>
- Listiyani, I. M., & Widayati, A. (2012). Pengembangan komik sebagai media pembelajaran akuntansi pada kompetensi dasar persamaan dasar akuntansi untuk siswa SMA kelas XI. *Jurnal Pendidikan Akuntansi Indonesia*, 10(2), 80–94.
- Matanluk, O., Mohammad, B., Kiflee, D. N. A., & Imbug, M. (2013). The Effectiveness of Using Teaching Module based on Radical Constructivism toward Students Learning Process. *Procedia - Social and Behavioral Sciences*, 90(InCULT 2012), 607–615. <https://doi.org/10.1016/j.sbspro.2013.07.132>
- Maulida, Y., Wahyuni, S., & Widodo, J. (2020). Penggunaan Media Edmodo Untuk Meningkatkan Minat Dan Hasil Belajar Siswa Di Sman Pakusari Jember. *Jurnal Pendidikan Ekonomi*, 13(2), 78–84. <https://doi.org/10.19184/jpe.v14i2.16384>
- Mudlaafar, K., Setiawan, E., Kirom, I., & Muflih, A. (2019). *PENGEMBANGAN MEDIA PEMBELAJARAN KOMIK SEJARAH BERWAKTU ( KOMIK RATU ) SEBAGAI ALTERNATIF PEMBELAJARAN UNTUK SISWA KELAS 5 SEKOLAH DASAR ( Kajian Materi : Tema 7, Sub Tema 2, Peristiwa Kebangsaan Seputar Proklamasi Kemerdekaan ) Abstrak*. III(1).

- Novakovich, J., Shaw, S., & Miah, S. (2017). Data in Brief Data to inform a social media component for professional development and practices : A design-based research study \$. *Data in Brief*, 10, 544–547.  
<https://doi.org/10.1016/j.dib.2016.12.039>
- Nuswowati, M. (2012). Pengembangan Perkuliahan Kimia Lingkungan Berbasis Masalah untuk Meningkatkan Nilai-Nilai Karakter Mahasiswa. *Lembaran Ilmu Kependidikan*, 41(2), 107–115.
- Patricia, C. O. S. (2021). *No 主観的健康感を中心とした在宅高齢者における健康関連指標に関する共分散構造分析* Title. 3(2), 6.
- Reis, F., Palermo, T. M., Acalantis, L., Nogueira, L. C., Meziat-filho, N., Louw, A., & Ickmans, K. (2021). Brazilian Journal of. *Brazilian Journal of Physical Therapy*, 000(xxxx).  
<https://doi.org/10.1016/j.bjpt.2021.04.009>
- Rumput, P., & Pengadilan, S. D. N. (2017). *PENGEMBANGAN MEDIA PEMBELAJARAN KOMIK DIGITAL PADA KELAS V SEKOLAH DASAR DI KOTA BOGOR* Elly Sukmanasa , Tustiyana Windiyani , Lina Novita Pendidikan Guru Sekolah Dasar Universitas Pakuan A . *Pendahuluan Penyampaian informasi terjadi dalam proses pembelaja*. 3(2), 171–185.
- Series, C. (2020). *The development of digital comic on ecosystem for thematic learning in elementary schools* *The development of digital comic on ecosystem for thematic learning in elementary schools*.  
<https://doi.org/10.1088/1742-6596/1469/1/012066>
- Setyawati, Y., & Widodo, J. (2020). Pengembangan Economics Edutainment Book Penunjang Bahan Ajar Pokok Bahasan Teori Perilaku Konsumen. *Economic Education Analysis Journal*, 9(1), 277–294. <https://doi.org/10.15294/eeaj.v9i1.37242>
- Sutami, J. I., & Maret, U. S. (2018). *THE CONCEPT OF DIGITAL COMIC AS THE HISTORICAL LEARNING MEDIA INNOVATION OF 21 ST CENTURY IN INTEGRATING ECOLOGICAL VALUES*. 114–118.
- Wooten, J. J. (2020). International Review of Economics Education Integrating discussion and digital media to increase classroom interaction. *International Review of Economics Education*, 33(July 2019), 100174.  
<https://doi.org/10.1016/j.iree.2020.100174>
- Yuberti. (2014). *Teori Pembelajaran dan Pengembangan Bahan Ajar Dalam Pendidikan*. Anugrah Utama Raharja.