



# Comic Media Integrated with Tumpek Wariga Local Culture as an Effort to Increase Environment Awareness in Early Childhood

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## ABSTRAK

Penumbuhan sikap kepedulian dilakukan pada saat proses pembelajaran dengan menggunakan media berupa komik yang terintegrasi dengan budaya lokal tumpek wariga. Tujuan dari penelitian ini yakni untuk menguji efektifitas media komik terintegrasi budaya lokal tumpek wariga sebagai upaya peningkatan kepedulian terhadap lingkungan pada anak usia dini. Penelitian ini tergolong kedalam jenis penelitian pengembangan dengan menggunakan model pengembangan 4-D. Subjek dalam penelitian ini yakni 2 orang ahli pendidikan, 2 orang praktisi, 6 dosen, 40 guru, dan 30 anak usia dini. Pengumpulan data menggunakan metode non-tes dengan instrument penelitian berupa lembar angket. Data yang diperoleh dalam penelitian kemudian dianalisis dengan uji validitas konstruk menggunakan formula Gregory. Data efektifitas komik diukur berdasarkan ketercapaian tujuan komik yang telah dikembangkan, menggunakan rumus uji-t satu variabel dengan satu arah pihak kanan. Hasil analisis data menunjukkan bahwa hasil validasi ahli berada pada berkatagori valid. Kepraktisan media komik hasil respon dosen terhadap keterlaksanaan komik adalah sangat praktis pada aspek afektif, aspek interaktif, menarik, efisien dan kreatif. Hasil respon guru terhadap keterlaksanaan modul adalah praktis pada aspek afektif, interaktif, menarik, efisien dan kreatif. Penerapan komik terintegrasi budaya lokal tumpek wariga berpengaruh terhadap kepedulian anak terhadap lingkungan. Berdasarkan hasil tersebut maka dapat disimpulkan bahwa penerapan komik terintegrasi budaya lokal tumpek wariga meningkatkan terhadap kepedulian anak terhadap lingkungan.

## ABSTRACT

Growing a caring attitude is carried out during the learning process by using media in comics that are integrated with the local culture of tumpek wariga. This research aims to test the effectiveness of the local culture-integrated comic media tumpek wariga to increase awareness of the environment in early childhood. This research belongs to the type of development research using the 4-D development model. The subjects in this study were two education experts, two practitioners, six lecturers, 40 teachers, and 30 early childhood children. Data collection uses a non-test method with a research instrument in the form of a questionnaire. The data obtained in the study were then analyzed by construct validity test using the Gregory formula. Comic effectiveness data is measured based on the achievement of comic goals that have been developed, using a one-variable t-test formula with one right-side direction. The data analysis results show that expert validation results are valid. The practicality of comic media due to the lecturer's response to the implementation of comics is very practical in affective aspects, interactive aspects, interesting, efficient, and creative. The results of the teacher's response to the module's implementation are practical in the effective, interactive, interesting, efficient, and creative aspects. Applying local culture-integrated comics, tumpek wariga affects children's concern for the environment. Based on these results, it can be concluded that applying local culture-integrated comics, tumpek wariga, increases children's concern for the environment.

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## 1. INTRODUCTION

The environment is everything around humans and influences the survival of humans, both directly and indirectly (Indra & Fitria, 2021; Murdianingsih & Sumarno, 2022). The environment can include natural resources such as land, water, solar energy, minerals, flora, and fauna that grow on land and in the oceans (Rismayanti, 2022; Wardani, 2020). Environmental conditions greatly affect human life; the better the environmental conditions, the better the human welfare (Nugroho & Surjono, 2019; Siskayanti & Chastanti, 2022). One of the efforts that can be made to keep the environment clean is to develop an attitude of caring for the environment for children. The attitude or character of caring for the environment is very important to develop in children from an early age. The character of caring for the environment is an attitude or action taken to prevent environmental damage through the attitude of protecting, preserving, and loving the surrounding environment (Gusmadi & Samsuri, 2020; Nengsi & Eliza, 2019; Santika et al., 2022). In addition, the character of caring for the environment also refers to the attitude of the community's willingness to improve and maintain environmental quality in every behavior of daily life related to the environment (Akhadiyah et al., 2019; Aryanti & Fuadah, 2020). Environmental care character development in children can be done by getting them used to disposing of trash in its place and teaching them to sort the types of waste. Introducing the types of waste from an early age by disposing of waste according to its type is a simple habit that will greatly impact the environment. Developing environmental care character from an early age will help students get used to a healthy and clean lifestyle (Sapriadi & Hajaroh, 2019).

The reality shows that the attitude of concern for children and society towards the environment still tends to be low (Riwanto & Budiarti, 2021; Sitorus & Lasso, 2021). The high rate of environmental damage indicates this. The results of observations and interviews conducted in 10 Kindergartens in Banjar District show that the level of concern for the environment for children is still relatively low. It is indicated that many children are not used to disposing of trash in its place even though the teacher has given directions. In addition, children also tend not to care about the surrounding environment and play more. If left continuously, this attitude will certainly impact the low character values possessed by children. One of the efforts that can be made to overcome this problem is by using media to cultivate characters, such as comic media. Comics are one of the media that is very popular among children and adolescents, including parents. Comics usually contain love or funny stories (Daulay & Nurmalina, 2021; Karmiani, 2018). Comics generally contain interesting pictures and writing and are easy to read. In using comics, especially in responding to positive and negative messages, a comic for children cannot be separated from the role given by parents (Rohmanurmeta & Dewi, 2019; Salahuddin et al., 2020). So parents must accompany and choose comics according to the age and developmental level of the child's age. Nowadays, comics are often used as a means of education in schools or the community. Comics are also widely available online, adapted to changing times if today's children cannot be separated from gadgets (Solihah et al., 2022).

The application of comic media in cultivating environmental care characters can be done based on local culture. In this regard, the Balinese Hindu community has a tradition of respecting the environment, especially plants, commonly called *tumpek wariga* (Pradnya & Suswandari, 2022; Puspa & Andita, 2021). This ceremony is held twice yearly and has been passed down from generation to generation since ancient times. The *tumpek wariga* ceremony means begging and asking for environmental safety, especially plants (Suseni, 2021). *Tumpek wariga* is also said to be an ecological, religious activity that is a form of respect for plants as the main components of nature (Martini, 2019; Winangun, 2020). This ceremony is also interpreted as a thanksgiving to God as the creator for all His gifts and gifts to humans through plants that humans can use in various activities that support their life activities (Sunampan, 2020). According to Hindu literature, when people plant plants and care for them, they will be born as their children (Budiasih, 2019; Tantowi et al., 2022). Whoever gives herbs will please the gods through the flowers on the trees. Implementing learning based on local culture will strengthen national identity and instill a love for the nation and the country. It is because local wisdom is taken from the noble values that exist in the community itself (Mahardika, 2017).

Several previous studies have revealed that using Warak Ngendog culture-based comic media can significantly increase students' understanding of the value of local wisdom (Senoprabowo et al., 2021). The results of other studies reveal that entertaining and light comic media can significantly increase students' enthusiasm and motivation to learn (Putri & Kurniawan, 2019). Further research revealed that comic media improved students' critical thinking skills and environmental care characters (Murdianingsih & Sumarno, 2022). Based on some of the results of these studies, the application of comic media can significantly increase character values in students. In previous studies, no studies specifically discussed the development of integrated comic media with the local culture of *tumpek wariga* to increase awareness of the environment in early childhood. So this research is focused on this study to test the effectiveness of the local culture-integrated comic media *tumpek wariga* as an effort to increase awareness of the environment in early childhood.

## 2. METHOD

This research belongs to the type of development research that was developed using the 4-D model. The 4-D development model consists of four stages: define, design, develop and disseminate. At the define stage, the development requirements are determined and defined. The design stage simulates the local culture-integrated comic media tumpek wariga to increase early childhood awareness of the environment. In the development stage, experts in the field conduct an evaluation. The suggestions are used for comic media integrated with the local culture of tumpek wariga to increase early childhood awareness of the environment. In developing a learning model, the dissemination stage carried out instrument trials in a limited class. The dissemination stage in the research was not carried out because this stage is the dissemination of a product being developed that will require quite a lengthy socialization.

Research subjects at the expert validation stage used two education experts, two practitioners, and 6 PGPAUD lecturers who teach science for Early Childhood, have a background in science education or Early Childhood Education, and have carried out or understood minimal development for internal needs in educational institutions each. The trial phase used 40 teacher subjects and 30 early childhood students spread across 10 Kindergartens throughout the Banjar District. Widya Shanti Kumara Kindergarten, Bintang Hati Kindergarten, Tunas Harapan Kindergarten, Banjar Pembina Kindergarten, Banjar Tegeha Village Kindergarten, Banjar Village Kindergarten, Banyuseri Kindergarten, Pedawa Village State Kindergarten, Tigawasa Village Kindergarten, Sinar Harapan Kindergarten.

Data collection in this study was carried out using a non-test method with a research instrument in the form of a questionnaire. In more detail, the types of data and research instruments can be seen in [Table 1](#).

**Table 1.** Types of Data, Data Collection Techniques, and Research Instruments

Data	Data type	Data collection technique	Instrument
Comic media prototype	Qualitative	Document analysis to obtain statements in the form of suggestions and input from comic media expert lecturers and education expert lecturers	<i>Chek-list</i>
Comic validity	Qualitative and quantitative	Document analysis to obtain statements in the form of suggestions and input from comic media expert lecturers and education expert lecturers and distribution of product validity questionnaires	Comic validity questionnaire
Comic practicality	Qualitative and quantitative	Document analysis to obtain statements in the form of suggestions from educational practitioners, teachers spread across 10 Kindergartens in Banjar District, and distribution of questionnaires practicality of product comics	Comic practicality questionnaire
Comic effectiveness	Qualitative and quantitative	Instrument deployment in kindergarten	Environmental care instrument

The data obtained in the study were then analyzed using the construct validity test technique using the Gregory formula. The practicality data of the developed comics were measured by assessing the practicality questionnaire filled out by practitioners by looking for the average score. Furthermore, comic effectiveness data is measured based on the achievement of comic goals that have been developed, using a one-variable t-test formula with one right-side direction.

## 3. RESULTS AND DISCUSSION

### Result

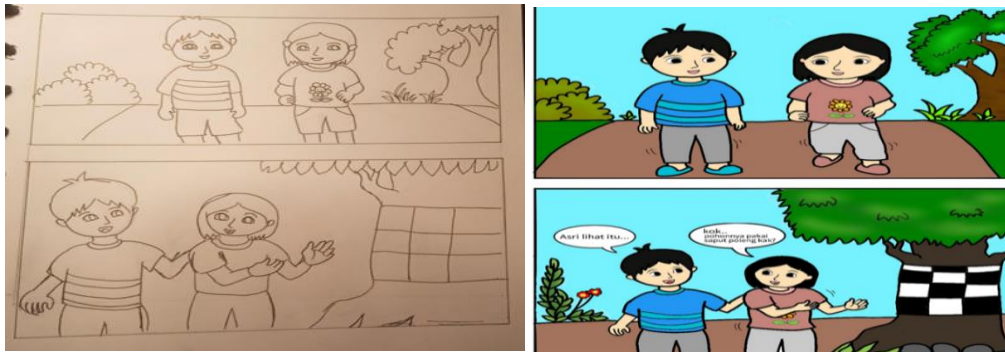
This development research was carried out using the 4-D development method. The results of each stage of development are as follows: the first stage is the define stage, which is carried out to establish and define learning requirements at the beginning by analyzing the objectives of the developed material boundaries. The define stage is carried out in four phases, including the initial analysis stage, learning analysis, task analysis, and goal formulation. The initial and final analysis phase (Front-End Analysis) showed findings that the Early Childhood Education School chosen as the research location had

implemented the 2013 curriculum, which means that early childhood has been prepared in a planned and holistic manner for optimal development in its golden age and children get adequate stimulation. Whole, thus developing the various potentials of children. One of the efforts that can be made in developing this potential is to carry out learning assisted by comic media, which is full of noble values of local wisdom to support children's abilities and care for the environment. On the psychological aspect, 87% of teachers said that children were motivated during learning and that children felt happy if their work was assessed correctly by the teacher. While the results of the interviews with the children, as much as 100% said that they enjoyed learning at school, and they said that they were happy if they answered the questions correctly. On the aspect of the ability, as many as 75% of teacher respondents said that children were able to do assignments without the help of the teacher, and 83% of children were able to communicate well during learning, but 17% said children had not been able to communicate properly and even still tended to be silent. When the learning process takes place. In the experience, as much as 50% of respondents said that children had been given lessons related to everyday life, often given to know children's activities at home. Furthermore, as much as 50% of respondents said children were often given story questions during learning and adjusted to the theme during the learning process.

The Learner Analysis phase shows that most PAUD children show joy in the school environment, are active, and want to join in playing with their friends. It can prove that children in their golden age learn happily so that physical, emotional, social, cognitive/intellectual development, and creativity can develop properly. Especially if it is given learning using comic media integrated with local culture, children are likely to learn well to foster their concern for the environment. On the psychological aspect, 100% of respondents (40 respondents) teachers said they were interested in knowing the integrated local culture tumpek wariga comic. All respondents also said they were highly motivated to make the tumpek wariga local culture integrated comic. In comparison, 100% of the students were also interested in knowing about integrated comics tumpek wariga local culture. All respondents were also motivated to listen to the integrated tumpek wariga local culture comic read by the teacher. The comic is a means to increase children's awareness of the environment. As researchers, students will not only understand the contents of the comic but can develop a character that cares about the environment, especially in the Kindergarten District of Banjar. In this aspect, 83% of respondents could understand one of the local cultures, and students as much as 50% said that they could integrate local culture into learning.

The task analysis phase (Task Analysis) is carried out by analyzing the main tasks that must be mastered by children so that students can achieve minimum competence. Task analysis was obtained from the material analysis and the initial and final analysis. The analysis results will be used as a reference for achieving minimal competence in early childhood learning. The tasks that the children will carry out include: getting to know several types of plants, getting the functions of plants, knowing the importance of protecting the environment, and taking care of the surrounding environment. The final phase is the Specifying Objectives phase. From the front-end analysis (front-end analysis), it was concluded that each Kindergarten/Early Childhood Education used as the research sample had used the 2013 curriculum so that the learning objectives carried out led to optimally encouraging the development of students to provide a basis for becoming human beings. Indonesia can live as a person and citizen who is faithful, productive, creative, innovative, and effective and can contribute to society, nation, state, and world civilization. One way to achieve this goal is by developing the learning process—development of learning process with comic media integrated with local culture. The learner analysis concluded that teachers and children are interested in comics integrated with local culture and feel motivated by learning to use comics, likewise with the analysis of students, teachers, and children who have never implemented comics that are integrated with local culture.

The second stage is the design stage, which simulates the local culture integrated comic media tumpek wariga to increase early childhood awareness of the environment. The first stage is compiling a comic script. The second stage includes making comic learning media, starting from the sketch stage to filling in the conversation blocks. The process of making comics, from sketches to coloring, can be seen in [Figure 1](#).



**Figure 1.** The Process of Making Comics from Sketching to Coloring

The third stage is the development stage conducting evaluations by experts in their fields. The suggestions are used for comic media integrated with the local culture of tumpek wariga to increase early childhood awareness of the environment. Evaluation of comic media integrated with the local culture of tumpek wariga as an effort to increase early childhood awareness of the environment using education experts and comic experts, Putu Prima Juniartini, S.Pd., M.Pd and I Wayan Nuriarta, S.Pd., M.Pd. Evaluation of the comic media integrated with the local culture of tumpek wariga as an effort to increase early childhood awareness of the environment also uses evaluations from practitioners from Early Childhood Education teachers, I Gede Nuarta, S.Pd., M.Pd and Nyoman Srinadi, S.Pd., M.Pd. The results of the validation of the material aspects of the practitioners obtained a score of 12, and the results of the validation of the construction aspects obtained a score of 10.6. And finally, the results of validating the language aspect were getting a score of 9.8 with an average of 10.8 in the valid category. The next step is to test the content validity using the Gregory formula to see the comics' quality. The validation results of the assessment of two experts using the Gregory formula for comics are in the very high category.

After the analysis validation process was carried out, it was continued to test the practicality and effectiveness of the comic. The practicality test of the module was assessed from the response of lecturers and teachers to the local culture-integrated comic media tumpek wariga as an effort to increase awareness of the environment in early childhood. Lecturer response data on the implementation of tumpek wariga local culture-integrated comics to increase awareness of the environment in early childhood were obtained using a questionnaire. The results of the lecturer's response to the implementation of comics are very practical in the effective and practical aspects in interactive, interesting, efficient, and creative aspects. At the same time, the results of the teacher's response to the module's implementation are practical in all aspects, affective, interactive, interesting, efficient, and creative aspects. Furthermore, the effectiveness of comics is measured based on the achievement of the objectives of the comics that have been developed. The effectiveness trial aims to obtain information about the effectiveness of the comics that have been developed. Before testing the effectiveness, the instruments used were tested for validity and reliability. The validity test results stated that all of the questionnaires on caring for the environment in early childhood were valid so that a reliability test could be carried out. The reliability test results of the child's concern for the environment questionnaire also obtained reliable results, so it continued to the t-test. From the results of the SPSS output above, it is known that a significance score is 0.000. Because the significance score of  $0.000 < 0.05$  corresponds to the basis for decision-making in the Paired Sample t-test, it can also be concluded that integrating comics into the local culture of tumpek wariga affects children's concern for the environment.

## Discussion

Based on the results of the data analysis that has been carried out, it can be seen that the integrated comic media of the local culture of tumpek wariga that was developed is valid and effective for use in the learning process. Several factors influence the success of media development; first, the comic media developed can convey information through a series of visual and verbal pieces to be optimal in instructional and educational media (Angga et al., 2020; Hidayah & Ulva, 2017). However, its use remains limited because the developed prototype aims to explain a subject through pieces of images arranged in a sequence but must sacrifice the entertainment side by focusing on the core information as an illustration for the reader to learn something so that it does not become a distraction (Bramantyo & Prasetyo, 2021; Juneli et al., 2022). The design and design of the media made has also been adjusted to the learning objectives to be achieved so that they can meet the learning needs of students.

Second, the developed media is in the valid category. The results of the validation of the comic media integrated with the local culture of tumpek wariga are a measure that the comics resulting from this

development are considered capable of measuring children's concern for the environment. Tumpek wariga is said to have an educational function, providing moral maturity. Humans must have a moral concept, love goodness, and do good, including preserving the environment (Adi, 2020; Diatmika et al., 2021). Implementing the Tumpek Wariga ceremony provides education to all Hindus about the importance of preservation, especially the preservation of plants (Sudarsana, 2017; Sunampan, 2020). Valid learning media will be able to measure what should be measured. Local culture-integrated comics full of noble values become an alternative for teachers, especially in early childhood, instilling a love for the environment. Learning with comic media will be fun for children, so they will learn without feeling that they are learning to grow the characters needed for their future lives (Rohmanurmeta & Dewi, 2019; Salahuddin et al., 2020). In addition, the use of media can arouse students' curiosity. Moreover, comic media is used (Ananda et al., 2022).

Third, comic media integrated with local culture is very practical to use in the learning process. The practicality test determines the teacher's ease of media use. Learning media must be easily used by students so that in the learning process, students have no difficulties and learning objectives can be achieved as expected (Irawan & Hakim, 2021). Comic media integrated with the local culture of tumpek wariga is made as simple as possible but does not eliminate the interesting and funny impression for early childhood. There is a light conversation, and it contains instructions for its use for teachers. So that the teacher has no difficulty reading the comic and, most importantly, the meaning of the comic can be conveyed properly. The choice of language and storyline is very important, considering that it is part of the communication media between the teacher and students regarding the message to be conveyed. Communication can be symbolic, which is communication in the form of actions carried out using symbols (Kusuma & Yudha, 2021). The symbol most commonly used in human-to-human communication is verbal language in words, sentences, numbers, or other signs. Furthermore, it is said that comics can carry out communication activities because comics can use text or illustrations that can convey a message.

Fourth, the comic media integrated with the local culture of tumpek wariga is effectively used to increase awareness of the environment in early childhood. Comics are a fun medium for children because they can provide entertainment and learning (Daulay & Nurmalina, 2021; Karmiani, 2018). Comics are unique teaching materials. Comics connect text and images creatively to become a medium that can attract the attention of people of all ages, especially children (Solihah et al., 2022). The use of comics as a learning medium has a very important role, having the ability to create students' interest in learning and helping students to make it easier to remember the subject matter they are studying (Dasi & Putra, 2022; Saputra & Pasha, 2021). No matter how good comics are, if they are not implemented properly, they will not be able to influence readers or children, so the teacher's role is very important in implementing them. So the teacher is a determining factor for the success of a quality learning process, so the success or failure of education in achieving its goals is always associated with the quality of the teachers (Ayu et al., 2018).

The results obtained in this study are in line with the results of previous research, which also revealed that the use of Warak Ngendog culture-based comic media could significantly increase students' understanding of the value of local wisdom (Senoprabowo et al., 2021). The results of other studies reveal that entertaining and light comic media can significantly increase students' enthusiasm and motivation to learn (Putri & Kurniawan, 2019). Further research revealed that comic media improved students' critical thinking skills and environmental care characters (Murdianingsih & Sumarno, 2022). Based on some of the results of these studies, the application of comic media can significantly increase the character values in students.

#### 4. CONCLUSION

Based on the data analysis and discussion results, it can be concluded that the comic media integrated with the local wisdom of tumpek wariga is valid to be developed and used in the learning process because it can increase children's awareness of the environment. Applying local culture-integrated comics, tumpek wariga affects children's concern for the environment. Based on these results, it can be concluded that applying local culture-integrated comics, tumpek wariga, increases children's concern for the environment.

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