



# Environmental Literacy Based on Local Wisdom in Elementary Schools

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**Abstract.** Character education is now a major issue in education. This character education is expected to be the main foundation in succeeding to prepare Indonesian children with character in addition to intelligence, productivity, creativity, and adaptability. The importance of promoting local wisdom as a form of nationalist character development through the use of engklek character game learning media according to the cultural environment in elementary school. This research aims to research and develop a character-based learning model by using engklek game media in elementary school properly and effectively. Research methods use the design and development of Dick and Carry models. The study subjects involved students of grade IV of the PGSD FIP UNJ Laboratory Elementary School. The results of the study are in the form of a character-based learning model by using engklek game media in grade IV elementary school that can promote local wisdom through the use of engklek game media that is in the cultural environment in elementary school.

**Keywords:** Cultural Environment · Local Wisdom · Media Of Character Engklek

## 1 Introduction

It takes a variety of skills to be ready to accept life's problems and the effect of globalization, which can have a positive or negative impact. This is true of many initiatives to prepare students to face social changes in the period of Revolution 5.0. Due to this, educational development should have a stronger future-focused orientation while maintaining a strong cultural foundation. With a large area and all its diversity, Indonesia has many cultures that hold local wisdom. However, the younger generation's interest in their own culture began to shift to the culture of a more advanced nation. The process of self-discovery carried out by young people will result in them being easily influenced by foreign cultures. The onset of symptoms where children have begun to decline their sense of nationalism, lack of respect for the nation's culture, prefer foreign culture, and also art from other countries. In addition, there is a process of national degradation that occurs in today's younger generation, marked by one of them is the abuse of state symbols. This demonstrates that there are still instances where Indonesian individuals' national attitudes are degrading and even declining, especially among young people. In-depth research is necessary in order to address this social phenomena, which is a major issue in Indonesia.

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One solution is to fortify elementary school students with the ability to build character through the development of local wisdom based on the local cultural environment in the form of environmental literacy. An understanding of environmental literacy or ecoliteration or ecological intelligence is a person's skill to adapt to the ecological domain or place of residence. The ability to adapt to an ecological domain or place of habitation is known as ecoliteracy or ecological intelligence [5]. Which is founded on information, values, and actions that are in tune with the natural world. Knowledge, attitudes, and actions that are in tune with the environment are the foundation of ecological intelligence. Environmental intelligence is intricate. Cognitive, affective (social and emotional), and psychomotor components all contribute to this intelligence. Environmental knowledge is the foundation of the desire to safeguard the environment. Affective factors are the foundation of environmental awareness. The psychomotor aspects are described by acts that protect the environment [10].

For this reason, the need for environmental literacy is owned by students and can be obtained through education in elementary schools. In order to promote an understanding of the necessity of helping to safeguard the cultural environment, it is expected of students to possess the necessary information, in this instance competence in managing and preserving the environment. Culture is a result of human creation and works in the form of values, norms, and behaviors possessed by a population community. Culture is concerned with the human way of life because man learns to think, feel and believe something based on the propriety of this culture. Cultural factors can provide influence human behavior and communication patterns [1, 3, 4]. The culture has been tested and can survive to this day called local wisdom. Local wisdom is an idea or idea of the local community that is wise and wise. Local wisdom can be said to be a tradition that is hereditary because it is still believed by the community local [4].

Learning in elementary schools can be developed by combining local wisdom in the learning carried out. Through education, the noble values of culture should be introduced to students and developed so that students can become proud heirs and can develop the nation's culture [2]. All of these are indicators of the need to research the introduction of local wisdom through the learning media of Engklek Karakter to restore children's morals in a better direction. It is necessary to strengthen and instill the character of the nation in the younger generation. The noble principles found in traditional knowledge can enhance national identity and foster love of country and state. This is so because local knowledge is derived from the high ideals held by the society itself. According to Geertz (1973), local wisdom is a component of traditional culture that is ingrained in people's daily lives and connected to personal, cultural, economic, and legal resources. Local knowledge is influenced by the local cultural setting [7].

On the other hand, traditional Indonesian games are still rarely used as a learning medium by children, especially engklek. One of the games that teachers can use to develop all these aspects of development is the traditional Engklek game which has been forgotten by many children [10]. Students prefer internet games or online games on smartphones. Meanwhile, civic education learning media in elementary schools are less varied. Based on observations, the engklek game media has not been widely used as a learning medium in elementary schools. For this reason, it is hoped that the traditional game "Engklek Karakter" can be used as an alternative learning media for civic education

to introduce the values of local wisdom according to the Indonesian cultural environment. To achieve this goal, it is necessary to use learning media that are by the characteristics of students in elementary school. Alternative media are used by providing traditional games that students can use as a learning medium. There are several traditional games known in Indonesia, one of which is “Engklek”. With this engklek game media, it is hoped and expected to be able to introduce the values of local wisdom according to the student’s cultural environment.

The traditional game engklek or commonly called folk games is a game carried out by the community for generations and is the result of extracting local culture which contains a lot of educational and cultural values, and can please the heart who plays it. The traditional game engklek that is known so far is only used for games to fill the playing time of children of elementary school age. Usually, traditional engklek games, in addition to making a sense of pleasure, can also develop children’s motor skills by jumping movements according to the shape of the engklek. Every child who plays the engklek tries to successfully jump to the end of the engklek by balancing the body so that it does not fall. There are several learning experiences when children play this traditional engklek game, namely, there is a challenge, empathy, and communication. So all this can increase interpersonal intelligence in children to be able to join or socialize with other children [11].

The engklek game is one of the traditional games played by two or more children. Before doing the game, children usually make plots to be a foothold when jumping and each of them has a coin or object that is used as a pawn to detect the point to which the journey has stopped. How to jump is not like jumping in general, but rather jumping on one foot. When jumping, children should be able to stand on the box after box without being allowed to touch the outline of the box. In addition, players should also pay attention to whether there are opponent coins in any of the plots. If there are coins belonging to the opponent then the box should not be jumped. This means players should be able to jump over the next box. If it turns out that it fails to do so, then the child must stop playing and be continued by the next player [15]. This game is usually done individually and in groups, usually played by girls as well as boys. When playing engklek children can also do it while learning [14]. Many benefits will be obtained both for training intelligence and social skills of children. Especially through a traditional game [16]. Traditional games have cultural elements that continue to develop in society and contain customary rules and norms that need to be preserved for generations [16]. Therefore, traditional engklek games are a simple learning medium that is a local culture that aims to introduce the values of local wisdom, so it is necessary to carry out many strategies for introducing traditional games to children. Used as an alternative civic education learning medium to recognize and instill the value of Indonesian ethnic and cultural diversity.

## **1.1 Problem of Research**

The research problem studied is about how to develop learning media in the form of Engklek Karakter to introduce local wisdom based on the cultural environment around students. Furthermore, whether the Engklek Karakter learning media is effectively used to introduce local wisdom values according to the student’s cultural environment. The

research problem studied is about how to develop learning media in the form of Engklek Karakter to introduce local wisdom based on the cultural environment around students. Furthermore, whether the learning media of Engklek Karakter is effectively used to introduce the values of local wisdom in accordance with the cultural environment of students to develop environmental literacy.

## **1.2 Research Focus**

The research problem studied is about how to develop learning media in the form of Engklek Karakter to introduce local wisdom based on the cultural environment around students. Furthermore, whether the learning media of Engklek Karakter is effectively used to introduce the values of local wisdom in accordance with the cultural environment of students to develop environmental literacy.

## **2 Methodology of Research**

### **2.1 General Background of Research**

The research aims to develop an Engklek Karakter (EKA) game media that contains moral messages that are useful for introducing the values of local wisdom that can be used as an alternative to civic education learning media in elementary schools about "Diversity of tribes and cultures in Indonesia". The research method uses the design and development of Rita C. Richey and James D. Klein (Richey, 2007) which includes the stages of needs analysis, front-end analysis, design, development, and evaluation. The study was conducted in an elementary school in Central Jakarta on fourth-grade elementary school students. Respondents were fourth-graders in elementary school.

### **2.2 Sample of Research**

The research involved two elementary schools, namely SD Laboratory PGSD FIP UNJ and SDN Klender 01 Pagi.

### **2.3 Instrument and Procedures**

The research instrument uses questionnaire sheets, observation sheets, and interview sheets to retrieve needs analysis data. The expert validation test uses a questionnaire containing assessment indicators regarding Engklek Karakter learning media by material experts, media experts, and material experts. The research begins by conducting a needs analysis based on data collected through questionnaires, interview results, and researcher observations. In addition, researchers also conduct curriculum analysis related to civic education learning materials that are indeed relevant to the research objectives and there are difficulties for students in learning material about "Social and Cultural Diversity".

Then the researcher carried out product planning and development in the form of learning media Engklek Karakter as a form of traditional game that introduces the values of local wisdom according to the cultural environment found in Indonesia. For this

study, before starting the game, the researcher first modified the Engklek game to be developed and used as a learning medium for civic education with the researcher's steps in developing the traditional game Engklek Karakter. First, the researcher determines the theme to be developed in the engklek game, which is about The Diversity of Tribes and Cultures. The researcher then makes 9 subs of the predetermined theme, according to the boxes in the engklek game, the point is that these 9 subs will be placed on each box in the engklek game. Each box in the engklek game will be given an image according to the sub-district that has been determined. The researcher creates a question that is packed in a card. This card has, 9 stacks of which each stack of cards has been given a question, or the material is according to the sub-specified on the question card which is 9 stacks, each stack amounts to a maximum of 10 cards or 10 questions. One question per card.

Following that, knowledgeable lecturers will validate the instructional materials. The instruments that were prepared in the earlier step are used by the validator during the validation procedure. The validation process continues until it is decided that the learning material can be used in instructional activities. At this point, the researcher additionally examined the data from the media research findings gathered from the validator.

The researcher revised the created media in the following stage by analyzing the product in light of feedback from the questionnaire. The created media should be reliable, suitable, and used by a larger school. Additionally, experiments were conducted on elementary school pupils in grade IV in small groups and one-to-one settings. Three students and fifteen primary school fourth graders participated in this trial. Data were obtained from questionnaires given to respondents as a sample of media tested using a Likert scale.

## 2.4 Data Analysis

Quantitative descriptive statistics are the method of data analysis applied. Statistics used to evaluate data by summarizing or describing the data that has been acquired as it is without aiming to draw generalizations or conclusions that apply to the wider public are known as quantitative descriptive statistics [13]. The calculation uses simple statistics, a questionnaire made with a scale of 1–4 for the questionnaire to the expert review at the expert validation test stage. After the data was obtained from the expert review activity, calculations were then carried out to determine the quality of using the Engklek Character learning media in civic education learning in Theme 1 The Beauty of Togetherness Sub-theme 2: Togetherness in Learning Diversity 2 with Basic Competencies 3.4 Identifying various forms of ethnic, social, and cultural diversity culture in Indonesia. For data collection regarding the analysis of needs from the Engklek learning media, Character (EKA) in civic education learning by using a questionnaire filled out by students and teachers. Because during the pandemic, researchers can't do face-to-face with students grade IV SD Laboratory PGSD FIP UNJ, the questionnaire was given to students with use google forms (Table 1).

A scale of 1–4 describes a rating of very poor to very good. To calculate the average score of the validation results of material experts, validation results of linguists, and

**Table 1.** Description of Assessment in the Questionnaire

Skor	Deskripsi
4	Very good
3	Good
2	Not good
1	Not very good

media experts using the following formula:

$$\text{Percentage} = \frac{\text{Total score obtained} \times 100\%}{\text{Maximum score}}$$

After the researcher gives the questionnaire, the researcher will interpret the qualitative data into quantitative data using the following references:

- 0%–25% = Very Bad
- 26%–50% = Not Good
- 51%–75% = Good
- 76%–100% = Very Good

### 3 Results of Research

In order to promote the values of local wisdom to fourth-grade elementary school pupils, this study produced civic education learning media about “Ethnic and Cultural Diversity” in the form of learning media in the form of the Engklek Character game (EKA). The Engklek Character (EKA) learning media’s average percentage of product feasibility is 97.8%, and it is rated in the Very Good (SB) category, according to the results of the summary of the material expert’s assessment. The data after a field experiment was conducted on the usage of civic education learning media in the form of the game media featuring the Engklek Character (EKA) revealed the data results are shown in Tables 2 and 3.

According to the results of the responses, 82.5% of students agreed that the character engklek game media was simple to play, 81.25% of students answered that the character engklek game media after being played turned out to be enjoyable, 81.25% of students answered that after playing the character crank game, it turned out to be simple to use to

**Table 2.** One-to-One Questionnaire Calculation Results

Item Number	Maximum Score	Score	Percentage
1	15	15	100%
2	5	15	100%
Total	180	180	100%

**Table 3.** Small-Group Questionnaire Calculation Results

Item Number	Maximum Score	Score	Percentage
1	80	66	82,5%
2	80	65	81,25%
3	80	65	81,25%
4	80	65	81,25%
5	80	65	81,25%
6	80	65	81,25%
7	80	65	81,25%
8	80	65	81,25%
9	80	65	81,25%
10	80	65	81,25%
11	80	65	81,25%
12	80	65	81,25%
13	80	65	81,25%
14	80	65	81,25%
15	80	65	81,25%
Total	1200	1041	86,75%

understand the diversity of ethnicities and cultures in Indonesia, and 81.25% of students answered that after playing the character crank game, it turned out to be easy to use to understand the 81.25% of the students said that playing the character engklek game media could help them develop a love for their native Indonesia, 81.25% said that playing the character engklek game media could help them learn more about Indonesia's various cultures, 81.25% said that playing the character engklek game media was full of eye-catching images that helped them better understand the cultures of the various ethnic groups they had studied in PPKn, and 81.25% said that playing the character engklek game media could help, 81.25% of the students responded that playing the character engklek in civic education was entertaining, and 81.25% of the students responded that the media of the engklek game was not monotonous after repeated use.

## 4 Discussion

Environmental literacy based on local wisdom is an ability that should be possessed by students in elementary school. With environmental literacy based on local wisdom, students can have the ability to know and love the surrounding environment in the form of preserving it. One of the ways that can be used to obtain this environmental literacy is effective through education in schools, precisely in the learning process. Related to civic education learning the material on Tribal and Cultural Diversity which aims to introduce tribal and cultural diversity. As for the purpose of civic education learning to form good

citizens, this local wisdom-based environmental literacy also supports the realization of this goal. By learning and getting to know the various cultures that exist, students can gain knowledge about their cultural environment. This is in line with the results of research that students obtain concepts from their environment or known as cultural cognition [5]. Cognition is what a person knows and thinks. A person from a different cultural background will respond to events in different ways (Muggleton & Banissy, 2014). The process of obtaining concepts about the cultural environment or cultural cognition, it makes it easier for students to have environmental literacy. Therefore, appropriate and appropriate media is needed in introducing cultural diversity so that learning goals can be achieved.

Use of engaging game media throughout the learning process is one of the most successful ways to promote the ideals of local wisdom in educational institutions. Games that were played in groups by kids in the past are referred to as traditional games. Games are always played with others, both indoors and outside. Traditional games can help youngsters cooperate, adapt, interact positively, develop self-control, have empathy for peers, obey the law, and respect others [8]. This indicates that youngsters respond favorably to the use of traditional games in learning, notably engklek. Not only can children enhance their gross motor skills, but also their cognitive, verbal, social, and emotional abilities. One of the learning models that can stimulate and explore cognitive, language, and cognitive talents is the construction of a traditional engklek game learning model carried out by playing while learning that is innovative, active, creative, and fun. Social, emotional, motor, physical, and creative. The learning paradigm utilizing the engklek game aims to enhance social-emotional, physical, and motoric components of children's development as well as moral ideals [10].

Engklek Character is an effective civic education learning media to introduce the values of local wisdom according to the Indonesian cultural environment. The learning media for the Engklek character relies on the use of illustrations/pictures that help students understand moral values. Through these traditional games, elementary school students can better understand the attitudes of mutual tolerance, togetherness, honesty, sportsmanship, courage, consistency, independence, and responsibility. This is by the results of research that several moral messages can be conveyed by traditional games: teach them to share with their friends, because the game requires them to interact directly with their opponents [12].

Each player must be able to be sporty in every game played and must be able to accept if he loses. Each player must complete each game from the beginning to the end of the game, and must not stop in the middle of the game (don't despair). Each player will think creatively about the things around him so it is hoped that in the future these children will become creative adults.

Through civic education learning that uses the Engklek character game as a learning medium, it can introduce the values of local wisdom more effectively because students have more opportunities to learn through activities that are more interesting and fun. This is consistent with the view that in the domain of moral education, schools should develop skills in moral judgment through a focus on personal and social issues, offering relevant perspectives from multiple dimensions [9]. This means that in the learning process, civic education as value and moral education must be able to develop students' moral skills



through personal and social problems in the form of playing the character Engklek. In the Engklek Character game, various illustrations represent the context of the life of the Indonesian people who are diverse in terms of ethnicity and culture and provide question cards containing problems that encourage students to use critical thinking skills to answer. In addition, some cards invite students to use skills in singing regional songs in Indonesia correctly. Students learn with interesting and fun situations as well as develop thinking skills that can effectively develop character. That is what the process of moral education wants.

Thus the process of moral education can be through concrete actions that involve students actively with various viewing and listening activities, then internalize the values to further manifest them in the form of behavior. Learn to behave through interactions with other people. Moral education cannot only be learned through remembering and memorizing knowledge. Learning situations need to be able to train students' character, so that character grows and develops. Therefore, learning is needed that can develop character in elementary schools by using appropriate and effective media.

## 5 Conclusions

This development research resulted in an alternative civic education learning media in the form of an effective Enklek Character game media to introduce local wisdom values according to the Indonesian cultural environment to fourth-grade elementary school students. This answers the problem of effective civic education learning media in introducing local wisdom values that are by the material regarding Indonesian ethnic and cultural diversity.

This research has produced the English Character Learning media (EKA) with expert validation tests. Expert validation tests (Expert Review) have been carried out by material experts, linguists, media experts, and Civics learning media in the form of the Character Engklek game media (EKA) categorized as very good. According to the results of the recapitulation of the material expert assessment, the average percentage of product feasibility is 97.8% and is included in the Very Good category, while the average percentage of product feasibility according to the media expert assessment is 93.85%. The summary of the linguist's evaluation reveals that the average percentage of product feasibility is 86%, falling into the Very Good category.

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## References

1. Aldeva Ilhami. (2019). Kontribusi Budaya Lokal Terhadap Literasi Lingkungan: Studi Kasus di SMP Pandam Gadang Sumatera Barat. *JNSI: Journal of Natural Science and Integration*, 2(2), 1–10. <https://doi.org/10.24014/jnsi.v5i1>
2. Ananda, R., & Fadhilaturrehmi, F. (2018). Analisis Kemampuan Guru Sekolah Dasar dalam Implementasi Pembelajaran Tematik di SD. *JURNAL BASICEDU*, 2(2), 11–21. <https://doi.org/10.31004/basicedu.v2i2>
3. Ji, L. J., Zhang, Z., & Nisbett, R. E. (2004). Is It Culture or Is It Language? Examination of Language Effects in Cross-Cultural Research on Categorization. *Journal of Personality and Social Psychology*, 87(1), 57–65. <https://doi.org/10.1037/0022-3514.87.1.5>
4. Khusniati, M., Parmin, & S. (2017). Local Wisdom - Based Science Learning Model through Reconstruction of Indigenous Science to Improve Student's Conservationist Character. *Journal of Turkish Science Education*, 14(3), 16–23.
5. Lees, M. (2017). Effect of Contemplative Pedagogy on the Ecoliteracy of Undergraduate Public State University Students. ProQuest Dissertations and Theses. Walden University.
6. Leung, A. K. Y., Qiu, L., Ong, L. S., & Tam, K. (2011). Embodied Cultural Cognition : Situating the Study of Embodied Cognition in Socio-cultural Contexts Embodied Cultural. Cognition : Situating the Study of Social and Personality Psychology Compass, 5(11), 591–608. Li-Jun Ji 1, Zhiyong Zhang, Richard E Nisbett
7. Mahardika, A. (2017). PENANAMAN KARAKTER BANGSA BERBASIS KEARIFAN LOKAL DI SEKOLAH. *Jurnal Pendidikan Kewarganegaraan*, 7(2), 16–27. <https://doi.org/10.20527/kewarganegaraan.v7i2.4264>
8. Marlina, S. (2017). “Character Values Development in Early Childhood through Traditional Games.” *Advances in Social Science, Education and Humanities Research (ASSEHR)*, 58, 407. <https://doi.org/10.2991/icet-17.2017.51>
9. Mayer, J. D. (2014). Personal Intelligence (first). *Scientific American/Farrar, Straus and Giroux*.
10. Muggleton, N. G., & Banissy, M. J. (2014). Culture and Cognition. *Journal Cognitive Neuroscience*, 41–43. <https://doi.org/10.1080/17588928.2014.88578>
11. Munawaroh, H. (2017). Pengembangan Model Pembelajaran dengan Permainan Tradisional Engklek Sebagai Sarana Stimulasi Perkembangan Anak Usia Dini. *Jurnal Obsesi*, 1(2), 90. <https://doi.org/10.31004/obsesi.v1i2.304>
12. Nadiroh Nadiroh, Uswatun Hasanah, V. Z. (2019). Behavioral Geography: An Ecoliteracy Perspective and Critical Thinking Skills in Men and Women. *Indonesian Journal of Geography*, 51(2), 9–17. <https://doi.org/10.22146/ijg.36784>
13. Saripuddin. (2019). Pemanfaatan Ethonomatika Permainan Engklek Dalam Pembelajaran Matematika. *Jurnal MathEducation Nusantara*, 2(1), 88. <https://jurnal.pascaumnaw.ac.id/index.php/JMN>
14. Sudrajat. (2015). Taat Wulandari, Agustina Tri Wijayanti. Muatan Nilai-Nilai Karakter Melalui Permainan Tradisional di PAUD Among Siwi, Panggungharjo, Sewon, Bantul. *JIPSINDO*, 2(1). <https://doi.org/10.21831/jipsindo.v0i0.4524>
15. Sugiyono. (2017). *Metode Penelitian Pendidikan*. Alfabeta.
16. Widyastuti, L. R., Malik, L. R., & Razak, A. (2020). Efektifitas Permainan Tradisional Engklek dalam Meningkatkan Hasil Belajar Matematika. *Jurnal PRIMATIKA*, 9(1), 20–21. <https://jurnal.fkip.unmul.ac.id/index.php/primatika>
17. Wiranti, Dwiana Asih., dan Mawarti, D. A. (2018). Keefektifan Permainan Engklek dalam Mengembangkan Kemampuan Motorik Kasar Anak Usia Dini. *REFLEKSI EDUKATIKA : Jurnal Ilmiah Kependidikan*, 1, 66.

18. Wiranti, D. A. et al. (2018). Kefektifan Permainan Engklek dalam Mengembangkan Kemampuan Motorik Kasar Anak Usia Dini. *Refleksi Edukatika : Jurnal Ilmiah Kependidikan*, 9(1), 67. <https://doi.org/10.24176/re.v9i1.2810>

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