

Development of Snake-D Ladd-Up Media Based On East Java Culture to Improve Cultural Literacy of Grade IV Elementary School Students

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Abstract: Cultural literacy plays an important role in supporting students in understanding and appreciating cultural diversity, traditions, and societal values. Based on observations and interviews with fourth-grade teachers, it was found that the social studies learning media used lacked variety, especially in the material on regional cultural diversity, resulting in suboptimal delivery. This study aims to describe the initial condition of fourth-grade students' cultural literacy, design the Snake-D Ladd-Up media based on East Javanese culture, and test the implementation, validity, and effectiveness of the media in improving cultural literacy. This study used the Research and Development (RnD) method with the ADDIE model approach. The research instruments included interviews, observations, material validation questionnaires, media, language, practitioners, and tests validated using the Aiken v construct. The sample was determined using a purposive sampling method, involving fourth-grade students from four elementary schools. The results showed that the Snake-D Ladd-Up media was very valid with 96% of experts' scores and very practical with 94% of practitioners' scores. The average pretest and posttest results showed a significant increase from 53 to 83 on a small scale and from 55.17 to 89.15 on a field scale. Therefore, the Snake-D Ladd-Up media has been proven to help make the learning process more enjoyable, facilitate explanations, and its use does not require extensive preparation.

Keywords: RnD, Cultural Literacy, Snake-D Ladd-Up Media

PRELIMINARY

Education is a process of transforming a person's attitudes, grounded in knowledge, skills, and positive habits through teaching, research, and training. Education plays a crucial role in the advancement of a nation. Therefore, education must be continuously improved in both quality and quantity. According to Sujana (2019), education is an effort to awaken a person's inner and outer spirit, leading to a better human civilization. Several components of education require attention. One such component is the use of learning media, which requires specific planning. Learning media plays a

crucial role in facilitating student understanding of messages or information provided by teachers. This aligns with Nurrita's (2018) opinion, explaining that educational media is highly effective in enhancing students' understanding of the topic being studied and building their knowledge.

The use of learning media can help students absorb learning materials more easily. Engaging media can enhance student concentration during learning. Learning media can be tailored to the material being taught. One subject that requires media is Natural and Social Sciences (IPAS). The science material studied consists of a collection of facts, and also encompasses the process of obtaining these facts, which relies on the ability to apply basic science knowledge to predict, explain, and solve various phenomena (Suhelayanti, Z., et al., 2023). One such topic is cultural diversity. Culture can be defined as all learned behaviors and beliefs that characterize members of a particular society (Normina, 2017).

Indonesia has a diverse culture with varying differences. Culture in Indonesia is spread across various provinces or regions from Sabang to Merauke. One of these is in East Java, which has various cultures with diverse patterns. Therefore, students need to understand the types of culture that exist in East Java, especially for students domiciled in East Java. East Javanese culture is a rich and diverse blend of ancient local customs, Hindu-Buddhist influences, and Islam, forming a unique and diverse identity in art, language, and social customs (Sutrisno, E., Efendi et al., 2024). East Javanese culture provides students with an understanding of the importance of recognizing and preserving regional culture. So that culture such as art, language, and customs are maintained and not lost to time. Where basically, East Javanese culture is one component to improve students' Cultural Literacy. In this context, cultural literacy encompasses understanding, appreciation, and engagement in the various cultural aspects around us. Cultural literacy extends beyond reading and writing skills, including the ability to interpret, analyze, and respond to various forms of cultural expression (Malawi Ibadullah et al., 2017).

The Programme for International Student Assessment (PISA) survey revealed that literacy levels in Indonesia remain very low, as evidenced by Indonesia's ranking of 69th out of 76 countries analyzed (Ahsani, E. & Azizah, 2021). Cultural literacy is crucial for learning from an early age to foster an appreciation for culture. Cultural literacy plays a role in helping students understand the diversity of cultures, traditions, and values within society. Cultural literacy itself has several crucial indicators. Through cultural literacy,

students can appreciate the four differences that exist in their environment. Students can also directly participate in cultural recognition and preservation activities. Based on findings from the observation and interview process at SDN 1 Jati, SDN 1 Kerjo, SDN 1 Sumberingin, and SDN 2 Sumberingin, that students do not understand the culture that exists in Indonesia, especially East Java, because the material presented is limited and only refers to textbooks. This can be seen from the results of the pretest students who obtained an average score of 50, with the average student answering incorrectly on the meaning and types of East Javanese culture. Students find it difficult to understand the types of culture that exist when only using textbooks. The media used during learning activities tend to be concrete media that are easy to apply. In addition, the use of media to learn about culture is considered less interesting and sometimes feels boring because it lacks variety. The application of modern local game-based media with QR Code integration to support students' cultural literacy skills has not been implemented.

Considering the aforementioned issues, it is necessary to develop more diverse and interactive media for the learning process. The use of engaging learning media aligned with students' needs is crucial. One type of learning media that can be used to address these issues is Snake-D Ladd-Up. This Snake-D Ladd-Up learning media combines the game of Snakes and Ladders and QR Codes. Snakes and Ladders is a game commonly played by children. This game can be played by two or more players, with the aim of instilling competitiveness and athletic behavior in children (Salombe, 2021). Using games as media is one strategy for providing a varied learning process. The development of this Snakes and Ladders learning media will be complemented by QR Code technology.

A QR Code is a two-dimensional matrix code that can be read by a smartphone camera and connects users to various digital information (Ariyandi, & Handayani, 2022). QR codes allow anyone to access a variety of resources, including visual, audio, or video, printed or electronic files, multilingual text, URL links, and websites (Sogut, S., & Belli, 2024). According to Abdul Rabu et al (Misnawati, et al., 2023), integrating QR codes in the classroom has been shown to encourage active and distributed learning. Using QR codes as a complement to snakes and ladders can provide a more contemporary innovation. Furthermore, QR codes can add a new atmosphere to the learning process. The tool used to translate QR codes is called a QR code scanner.

This research is expected to provide several benefits for students, teachers, schools, and other researchers. The results can have positive impacts, such as providing an alternative, engaging and educational media, helping teachers manage the learning process, encouraging students to be more active in the learning process, and serving as a reference for writing works with similar titles to this research.

METHOD

The method used in this study is Research and Development. The researcher took this type of development research to develop a product in the form of a snakes and ladders game media combined with QR Codes to strengthen the cultural literacy skills of fourth-grade elementary school students. In this study, the model used is the ADDIE model. The ADDIE development model according to Branch in Rarastika, N., & Karawistha, (2022) consists of five stages, including: 1) Analysis, 2) Design, 3) Development, 4) Implementation, and 5) Evaluation. The following is an overview of the ADDIE model :

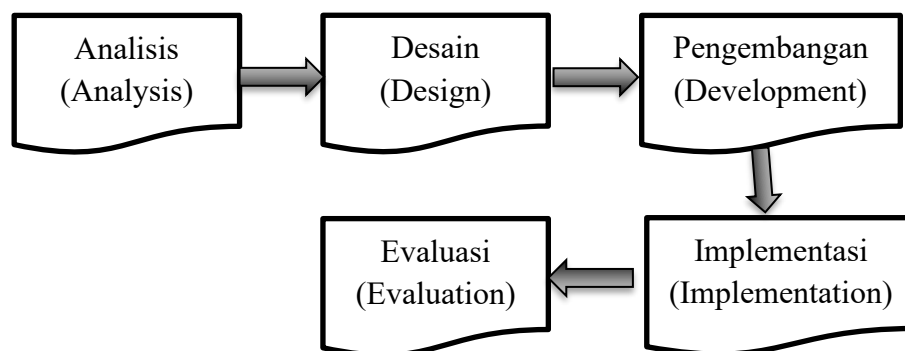


Figure 1. Stages of the ADDIE Model by Rarastika & Karawistha, (2022)

This study used a small-scale test with a sample of 11 fourth-grade students of SDN 1 Kerjo and a field-scale test with a sample of 45 fourth-grade students from SDN 1 Sumberingin, SDN 1 Jati, and SDN 2 Sumberingin. Two types of data were used, namely quantitative data and qualitative data. Quantitative data were obtained from the analysis of questionnaires given to media experts, material experts, linguists, practitioners, as well as student and teacher response questionnaires. Quantitative data were also obtained from the analysis of cultural literacy ability tests. Qualitative data were obtained from interviews, observations, and suggestions and comments provided during the data collection process. Then the data obtained were presented descriptively. The

analysis technique used to measure the effectiveness, practicality, and validity of the use of the Snake-D Ladd-Up media was quantitative data analysis. Where to measure the effectiveness of the media using the N-Gain formula while to measure the practicality and validity of the media using a Likert scale involving several experts. There are several data that need to be analyzed including the analysis of expert validity data, practitioners, teacher responses, student responses, cultural literacy ability tests.

RESULTS

This development research has five stages in its process. First, the analysis stage obtained the results of interviews with four fourth-grade teachers, it was found that science learning has not utilized interesting and contextual media. SnakeD Ladd-Up media has also never been used; previous teachers only used media such as interactive power points and whiteboards. Students' cultural literacy skills are still low, as seen from their ignorance of culture and how to preserve it in East Java. Next, the second design stage is carried out with several steps including: determining learning outcomes and learning objectives, the material used in this media development is related to fourth-grade science chapter 6. Learning outcomes emphasize students' ability to describe various cultures, local wisdom, and preservation efforts. The learning objectives include: 1) Stating the meaning of East Javanese cultural heritage according to their own understanding; 2) Identifying types of cultural heritage in the area where they live; 3) Analyzing the variety of cultural heritage in East Java; 4) Mentioning examples of cultural heritage in their respective provinces; and 5) Explaining how to preserve cultural heritage in the local area. Then, in the third stage of development, researchers developed the Snake-D Ladd-Up learning media based on East Javanese culture to improve the cultural literacy of fourth-grade elementary school students. The media contains material from Chapter 6, Topic A of Social Sciences regarding regional culture, and is designed to suit the students' needs. After the development process, researchers continued with validation tests involving material experts, language experts, media experts, and practitioners. The following is a recapitulation of the scores from the experts regarding the Snake-D Ladd-Up media can be seen below.

Table 3. Average Expert Validation Score

No	Data Sources	Score	Criteria
1.	Media Expert	94 %	Very Valid
2.	Materials Expert	98 %	Very Valid
3.	Linguist	96 %	Very Valid
Average		96 %	Very Valid

Table 4. Expert Practitioner Scores

No	Data Sources	Score	Criteria
1.	Expert Practitioner	94 %	Very Practical

Referring to the table above, the expert test recapitulation results presented a percentage of 96% and the expert practitioner test showed a score of 94%. Therefore, the Snake-D Ladd-Up media that has been developed is included in the "Very Valid and Very Practical" category. The media is ready to be implemented by students and teachers in elementary schools. The following is the final appearance of the Snake-D Ladd-Up media after being validated by experts:



Figure 4. Final View of Snake-D Ladd-Up Media

Furthermore, the developed media was also tested on a limited basis at SDN 1 Kerjo to determine student responses when using the Snake-D Ladd-Up media and the results of improving cultural literacy in fourth-grade students. The following are the results of the small-scale test:

Table 5. Pretest and Posttest Results of Small-Scale Test

No	Name	Score	
		Pretest	Posttest
1.	ABF	66	95
2.	MAR	50	75
3.	NADA	50	79
4.	ANA	45	70
5.	PAF	58	87
6.	RAFI	54	70
7.	IR	45	91
8.	SATRIA	41	83
9.	AAK	70	95
10.	FPP	50	87
11.	RNA	54	83
Total		583	915
Average		53	83

Table 6. Results of the Student Response Questionnaire for the Small-Scale Test

No.	Statement	Presentase
1.	Media that can attract students' attention for learning	89,09 %
2.	I feel more focused when learning using Snake-D Ladd-Up media	90,90 %
3.	Students don't get bored easily using Snake-D Ladd-Up media	90,90 %
4.	Snake-D Ladd-Up media is fun, so I want to continue using it in my learning	92,72 %
5.	Students like the media design that has been created	92,72 %
6.	Students can understand how to use it correctly	94,54 %
7.	I wasn't confused the first time I used this learning media	96,36 %
8.	Students learned about various cultures in their region	90,90 %
9.	Students are interested in further improving their literacy by using media	87,27 %
10.	More confident after learning to use Snake-D Ladd-Up media	87,27 %
Total		91,27 %

Referring to the two tables, Table 5 shows an increase in the pretest and posttest results, from an initial average score of 53 to 83. These results indicate that the Snake-D Ladd-Up media can significantly improve student test scores. Furthermore, Table 6 shows a comparison of student response data to the use of the Snake-D Ladd-Up media, with a score of 91.27%. The student responses, according to the Snake-D Ladd-Up media, fall

into the "Very Suitable" category for implementation in the learning process and help teachers create effective, efficient, and enjoyable learning activities.

Fourth, the implementation stage, which involves implementing the developed media in the pilot schools. This study involved 17 students at SDN 1 Jati, 16 students at SDN 2 Sumberingin, and 12 students at SDN 1 Sumberingin. In addition to administering the tests, the researchers also distributed questionnaires to students to gauge their opinions about the media and administered questionnaires to classroom teachers to assess the media used. The following illustrates the results of the students' pretest and posttest:



Figure 5. Comparison of Pretest and Posttest Averages

The difference in average scores between the students' pretest and posttest results presented in the figure above shows that the posttest results were more prominent than the pretest scores. Therefore, it can be concluded that the cultural literacy skills of fourth-grade students improved after using the Snake-D Ladd-Up media. Furthermore, to determine student and teacher responses regarding the Snake-D Ladd-Up media, the researcher administered a student and teacher response questionnaire. The distributed questionnaires could be completed after the media was implemented. The following is a summary of the results obtained:

Table 7. Results of Student and Teacher Response Questionnaire Field Scale Test

No	Name	Persentase	Category
1	Teacher	94,66 %	Very Practical
2	Students	89,55 %	Very Practical

Referring to the table above, the percentage of student and teacher questionnaire responses to the Snake-D Ladd-Up media demonstrates the "Very Practical" criteria. The table also shows that the scores obtained fall within the "Very Appropriate" criteria. The table clearly demonstrates that the questionnaires aimed at students and teachers achieved optimal results. Therefore, it can be concluded that the Snake-D Ladd-Up media, based

on East Javanese culture, is engaging and practical for implementation in elementary schools.

The evaluation phase is the final stage of the ADDIE model. The purpose of this phase is to measure the effectiveness of the Snake-D Ladd-Up media, based on East Javanese culture, in improving students' cultural literacy. To measure the media's effectiveness, researchers collected data from several questionnaires administered in the previous phase. Furthermore, researchers analyzed the results of students' cultural literacy tests before using the Snake-D Ladd-Up media (pretest) and after using the Snake-D Ladd-Up media (posttest). Based on the data analysis, the average N-Gain score was 0.77. Therefore, it can be concluded that N-Gain is in the high category because it is ≥ 0.7 . This means that there is a very high increase between the pretest and posttest scores after using the Snake-D Ladd-Up media based on East Javanese culture.

DISCUSSION

This study used the Research and Development (R&D) method. The researchers developed the Snake-D Ladd-Up media using the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation. According to Sugiyono (in Okpatrioka, 2023), Research and Development (R&D) is a research method used to produce a specific product and test its validity, practicality, and effectiveness. The Snake-D Ladd-Up learning media is a combination of the Snakes and Ladds learning media and QR Codes.

According to Afandi (2015), Snakes and Ladds learning media is a learning medium developed based on traditional games, adapted to student characteristics, with the aim of achieving learning objectives as a means of receiving and providing information to students. A QR Code, on the other hand, is a two-dimensional image that represents data, particularly text (Prathivi, 2019). The Snake-D Ladd-Up media was designed using Canva and a QR Generator and Scanner application. The data collection material for this study was for fourth-grade students in Science, Chapter 6, Topic A, which covers regional culture.

This product was developed based on an initial needs analysis. The initial needs analysis involved interviews and observations at SDN 1 Jati, SDN 1 Sumberingin, SDN 2 Sumberingin, and SDN 1 Kerjo. Based on the interviews and observations at these

elementary schools, the researchers concluded that the use of media in learning can attract students' attention and focus. Therefore, this study used a sample of all fourth-grade students at SDN 1 Jati, SDN 1 Sumberingin, SDN 2 Sumberingin, and SDN 1 Kerjo, totaling 56 students. The sample size was 11 in small-scale trials and 45 in field trials.

Before learning media is widely implemented in the field, its development must go through a series of structured stages, from the design stage to validation by experts. The design phase includes establishing Learning Outcomes (CP) and Learning Objectives (TP), collecting teaching materials, and developing the Snake D Ladd-Up media design. This process aligns with research conducted by Syafi'i, A., & Rapi (2022), which emphasizes that careful planning is a crucial foundation for creating effective media that meets students' needs. The designed media is then evaluated by experts, including media experts, material experts, linguists, and practitioners. The purpose of this validation is to obtain assessments, recommendations, and feedback as a reference for media improvements before use in teaching and learning activities.

Based on the validation results, the Snake D Ladd-Up media received a feasibility rating of 94% from media experts, 98% from material experts, 96% from linguists, and 94% from practitioners. These figures indicate that the media is highly valid and highly practical. These findings are consistent with previous research, which states that learning media that integrate elements of games and local culture can increase student learning motivation and understanding of the subject matter. Furthermore, the application of local cultural elements in learning media has also proven effective in strengthening students' cultural literacy at the elementary school level.

Thus, the results of this study reaffirm previous theories and findings that learning media developed through a systematic process and validated by experts will produce adequate and useful products. The Snake & Ladd-Up media, based on East Javanese culture, is declared ready for implementation in elementary schools as a tool to improve the cultural literacy of fourth-grade students.

CONCLUSION

Based on the research results, the Snake-D Ladd-Up learning media that integrates East Javanese culture has met the standards of validity, practicality, and effectiveness in efforts to improve cultural literacy in fourth-grade elementary school

students. In terms of validity, the media achieved an average score of 96% with a very valid category, as assessed by media, material, language, and education practitioners experts, so it is considered suitable for application in Natural and Social Sciences (IPAS) learning. In terms of practicality, the Snake-D Ladd-Up media received positive responses from teachers and students, which is reflected in its ease of operation, attractive appearance, and its ability to foster student motivation and participation during learning activities. As for effectiveness, pretest and posttest data from small-scale trials and field scales indicate significant learning progress, with an N-Gain value reaching 0.7 which is considered high. This shows that the effective use of the Snake-D Ladd-Up media can strengthen students' cultural literacy towards cultural diversity in East Java. Therefore, this media is recommended to be implemented in the learning process and has the potential to be further developed in a wider scope and diverse cultural contexts.

REFERENCES

- Afandi, R. (2015). Pengembangan Media Pembelajaran Permainan Ular Tangga Untuk Meningkatkan Motivasi Belajar Siswa Dan Hasil Belajar IPS Di Sekolah Dasar. *Jinop (Jurnal Inovasi Pembelajaran)*, 1(1), 77–89. Retrieved from <https://doi.org/10.22219/Jinop.V1i1.2450>
- Ahsani, E. luthfi F., & Azizah, N. R. (2021). Implementasi Literasi Budaya Dan Kewargaan Untuk Mengembangkan Keterampilan Sosial Siswa Madrasah Ibtidaiyah Di Tengah Pandemi. *Jurnal Pendidikan Kewarganegaraan*, 11(1).
- Ariyandi, H. Z., & Handayani, A. N. (2022). Peran Penggunaan Teknologi QR Code untuk Meningkatkan Keterhubungan dan Efisiensi Masyarakat Menuju Era Transformasi Society 5.0. *Jurnal Inovasi Teknik dan Edukasi Teknologi*, 2(7), 299–306. Retrieved from <https://doi.org/10.17977/um068v1i72022p299-306>
- Malawi Ibadullah, Dewi Tryanasari, A. K. (2017). *Pembelajaran Literasi Berbasis Sastra Lokal* (Cetakan Pe.). Cv. Ae Media Grafika.
- Misnawati, M., Yusriadi, Y., & Tahir, S. Z. Bin. (2023). QR Code Scanning System as a MeaningFocused Input Approach in English Textbook. *Mextesol Journal*, 47(3), 1–11. Retrieved from <https://doi.org/10.61871/mj.v47n3-21>
- Normina. (2017). Pendidikan Dalam Kebudayaan. *Jurnal Ittihad*, 15(28), 17–28. Retrieved from <https://doi.org/10.18592/ittihad.v15i28.1930>.
- Nurrita, T. (2018). Pengembangan Media Pembelajaran Untuk Meningkatkan Hasil Belajar Siswa. *Misykat: Jurnal Ilmu-Ilmu Al-Quran, Hadist, Syari'ah Dan Tarbiyah*, 3(1), 171–187.

- Okpatrioka. (2023). Research And Development (R&D) Penelitian Yang Inovatif Dalam Pendidikan. *Dharma Acariya Nusantara: Jurnal Pendidikan, Bahasa Dan Budaya*, 1(1), 86–100. Retrieved from <https://doi.org/10.47861/Jdan.V1i1.154>
- Prathivi, R. (2019). Analisa Sistem Qr Code Untuk Identifikasi Buku Perpustakaan. *Jurnal Pengembangan Rekayasa dan Teknologi*, 14(2), 37–40.
- Rarastika, N., & Karawistha, N. S. (2022). Pengembangan Media Pembelajaran Game Edukasi Ular Tangga Berbasis Adobe Flash Cs 6 Pada Tema 6 Di Kelas V Sekolah Dasar. *Prosiding Seminar Nasional Pendidikan, Saintek, Sosial Dan Hukum (PSSH)*, 1, 1–13. Retrieved from <https://jurnal.semnapssh.com/index.php/pssh/article/view/30>
- Salombe, Y. S. (2021). Penggunaan Permainan Ular Tangga Terhadap Hasil Belajar Mata Pelajaran IPS Siswa Sekolah Dasar. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, 2(1), 62–67. Retrieved from <https://doi.org/10.33487/mgr.v2i1.1724>
- Sogut, S., & Belli, S. A. (2024). QR Code Enriched Writing and Speaking Practices: Insights from EFL Learners at Tertiary Level. *Iranian Journal of Language Teaching Research*, 12(2), 1–18. Retrieved from <https://doi.org/10.30466/ijltr.2024.54921.2595>
- Suhelayanti, Z, S., & Rahmawati, I. (2023). *Pembelajaran Ilmu Pengetahuan Alam Sosial (IPAS)* (Cetakan Pe.). In Ronal Watrianthos & Janner Simarmata (Ed.): Yayasan Kita Menulis.
- Sujana. (2019). *Pengertian Menurut Para Ahli*. Retrieved from [https://www.journalextract.com/2020/09/5-pengertian-pendidikan-menurut-ahli.html#:~:text=Menurut Sujana \(2019%2C p.,tidak berisik agar tidak mengganggu](https://www.journalextract.com/2020/09/5-pengertian-pendidikan-menurut-ahli.html#:~:text=Menurut Sujana (2019%2C p.,tidak berisik agar tidak mengganggu)
- Sutrisno, E., Efendi, U., Lailin, M. I. A. H., Dewi, R. Z., & Ramadhani, R. S. (2024). Pemberdayaan Perempuan dan Pengentasan Kemiskinan Desa Began Lamongan Jawa Timur Melalui Pelatihan Membatik. *ABDISOSHUM: Jurnal Pengabdian Masyarakat Bidang Sosial Dan Humaniora*, 3(2), 45–54. Retrieved from <https://doi.org/10.55123/abdisoshum.v3i2.3253>
- Syafi'i, A., & Rapi, M. (2022). Pengembangan Media Pembelajaran: Menerapkan Model dalam Pengembangan Media Pembelajaran. *Al-Riwayah: Jurnal Kependidikan*, 14(1), 52–70.