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Interactive Sociocultural Teaching Materials Based on CRT With Lectora As Innovation in Citizenship Education

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ABSTRACT

Objective: This study aims to produce interactive sociocultural teaching materials based on CRT with lectora to improve student learning outcomes that contain information about Indonesian cultural diversity. **Method:** This study is the development of interactive sociocultural teaching materials based on CRT with lectora using the 4D model from Thiagarajan, which includes Defining, Designing, Developing, and Disseminating. Meanwhile, the study subjects were grade IV students of Public Elementary School 1 Plalangan Ponorogo to determine the effectiveness of interactive teaching materials. **Results:** The interactive sociocultural teaching materials based on CRT with Lectora were considered valid by experts, with an average score reaching the very valid category. This teaching material is efficient, as evidenced by the ease of use by teachers and the high level of student readability (83% -92%). The teaching materials effectively improve student learning outcomes, with an average N-Gain Score of 0.67 (moderate to high category). Interactive teaching materials support sociocultural learning based on the CRT approach, making students learn according to their abilities. **Novelty:** Sociocultural interactive teaching materials use CRT as an approach to learning, which has not been widely applied in developing Citizenship Education teaching materials, especially for the material on the diversity of Indonesian culture. This teaching material was developed using Lectora, which can produce interesting and innovative Citizenship Education teaching materials.

INTRODUCTION

Civics is an important subject for elementary school students, as it forms character and moral values for them to become good and intelligent citizens (Becker, 2023; Gutzwiller-Helfenfinger et al., 2022). Civics is crucial in developing harmonious, peaceful, and tolerant mindsets, attitudes, and behaviors (Anderson, 2023; Bagus & Gede, 2015; Makri, 2019). Civics teaches knowledge and skills and must instill a person's background and culture (Ordu University et al., 2021; Prihandoko et al., 2017). Sociocultural theory arises from the awareness of the importance of studying culture (Javadi & Tahmasbi, 2020; Mispandi & Widayati, 2021; Zhardemova et al., 2021). Awareness to students that Indonesia is a multicultural, multiethnic, multireligious country is a gift and is very influential in civics education. This can provide a learning experience for children about living together with different people, individuals, or groups (Arshavskaya, 2020; Mispandi & Widayati, 2021). Children not used to cultural heterogeneity tend to be closed and prefer to interact only with fellow members (Bocharova & Safonova, 2020; Piddubna et al., 2022; Zhou, 2024). In its development, this next generation will prefer an exclusive paradigm and reject existing differences (Zakharova et al., 2021).

Sociocultural education is a process of instilling a way of life that respects, is sincere, and is tolerant of cultural diversity in a diverse society (Bocharova & Safonova, 2020; Hayes, 2024; Howerton-Fox et al., 2024). Several previous research results show that elementary school teachers have difficulty instilling sociocultural education in students, which makes the learning outcomes of students' Citizenship Education on the material of Indonesian cultural diversity low (Zhou, 2024). The difficulties experienced by elementary school teachers in providing sociocultural education can also be a problem for children's personalities in the future (Zhardemova et al., 2021). This is because teachers play a role in shaping personality and instilling character education in children as provisions for life in the future (Bushra Manzoor et al., 2025; Shrivastav et al., 2025; Soleymani et al., 2024). Based on these problems, elementary school teachers are expected to be able to develop socio-cultural-based learning to improve students' understanding of Indonesian cultural diversity and to shape the personality and character of the Indonesian nation in the future.

Based on the results of observations and interviews with students and teachers at Public Elementary School 1 Plalangan, it was found that civic education learning in grade 4 about the diversity of Indonesian culture requires innovation in learning activities. Civic education learning activities that are carried out should utilize innovative technology to teach material about Indonesian cultural diversity (Baldassa et al., 2025; Huang, 2025; Ordu University et al., 2021). The researcher also highlighted that the teaching materials used by children in learning activities only use books obtained from the government. The material contained in the book is still conceptual regarding the diversity of Indonesian culture. The existing material has not integrated and regulated human and social relationships between humans. Teachers have also never used innovative teaching materials that utilize interactive digital technology. The learning activities also do not use an approach that responds to the existing culture.

Innovation is needed in civic education learning that can involve interesting technology by integrating and implementing human social relations to improve student learning outcomes (Muhamad et al., 2023; Murtonen et al., 2017; Yuliansih et al., 2021). Sociocultural-based interactive teaching materials developed using Lectora can be the right solution to overcome these problems (Ferdiyansyah et al., 2022; Sari & Tyas, 2024; Shrivastav et al., 2025; Wijaya et al., 2019). These teaching materials can be applied using the Culturally Responsive Teaching (CRT) approach to learning (Rahmah et al., 2023; Siswanto et al., 2024).

Learning innovation is a teaching and learning process that always presents something new to eliminate boredom and improve student learning outcomes (Dwiputra et al., 2023; Muhamad et al., 2023; Murtonen et al., 2017; Yuliansih et al., 2021). Civic education learning innovation can be interpreted as a new effort in the learning process by using various approaches, models, methods, facilities, and learning atmospheres that can support the achievement of learning objectives (Anderson, 2023; Gutzwiller-Helfenfinger et al., 2022). Learning innovation must always be carried out by civic education educators. This is done to provide learning that can shape student competencies by the competencies to be achieved to improve student learning outcomes (Curaj et al., 2015; Harefa, 2023; Isroani et al., 2022; Yuliansih et al., 2021).

Learning outcomes are students' abilities obtained after learning activities (Dwijayani, 2019; Yuliansih et al., 2021; Yurdugül & Çetin, 2015). Learning outcomes are specific competencies or abilities students achieve after following the learning process (Goh et al., 2017; Harefa, 2023; Harris & Clayton, 2019). Learning outcomes are related to changes in knowledge, understanding, attitudes, and behavior in a person due to

their learning (Curaj et al., 2015; Muhamad et al., 2023). Changes caused by growth are not included in learning outcomes. Good or lousy learning outcomes depend on the individual students who learn and the teachers who teach because learning outcomes are obtained from students who experience the learning process and the teachers who teach them (Deep et al., 2025; Isroani et al., 2022; Palinussa et al., 2025; Sa'diah et al., 2025).

Interactive teaching materials are teaching materials developed by combining several interactive audio, video, animation, text, or graphic learning media to control command so that there is a two-way relationship between the teaching materials and the user (Muda et al., 2022). Interactive teaching materials are designed to provide information to users through text, images, sound, and sound made using multimedia technology (Muflihah & Aziz, 2018; Nurlita, 2022; Toni et al., 2024). Using interactive teaching materials with multimedia technology in the learning process can increase efficiency and motivation and facilitate active learning and consistency with more effective and engaging learning (Ferdiyansyah et al., 2022; Pujiastuti & Fitriah, 2019; Salzabila & Fathurrahman, 2024; Syahida & Glory Indira D. Purba, 2022). Interactive teaching materials can be developed by utilizing the Lectora application.

Lectora is a software used to develop electronic learning content (Malikh et al., 2024; Wijaya et al., 2019). Lectora is exciting to use in developing interactive teaching materials for civic education. Lectora has various tools that can make the appearance of learning media more interesting and innovative (Argareta Simorangkir & Kariani Br Sembiring, 2018; Aswal et al., 2019; Kurniawan & Kurnia, 2025; Linda et al., 2016). Lectora is software that provides interactive content for interactive teaching materials, making learning more straightforward because it can utilize audio, video, animation, and internet technology, which is undoubtedly more sophisticated than others (Anriana et al., 2024; Hidayah et al., 2024; Krisnajati et al., 2024; Sari & Tyas, 2024). Lectora is an application program that can be used to create ready-to-use and easy interactive materials (Astuti & Widodo, 2024; Krisnajati et al., 2024; Tunnisa et al., 2024).

Interactive teaching materials created using Lectora in civic education will be more interesting if developed socioculturally. Sociocultural learning integrates culture into learning (Evans & Taylor, 2025; Javadi & Tahmasbi, 2020; Kim & Park, 2025; Yang et al., 2025). Teaching materials are information, tools, and texts needed by teachers for planning and reviewing the implementation of learning (Nafiah & Wuryandani, 2024; Oktaweri et al., 2019; Rulismi, 2023; Syahida & Glory Indira D. Purba, 2022). Using local culture in making teaching materials is beneficial for achieving learning outcomes because students gain direct contextual experience and apperception materials to understand scientific concepts in civic education in local culture (Fitriani, 2019; Miqawati et al., 2024; Nasution et al., 2020). Sociocultural-based interactive teaching materials will be more enjoyable and meaningful because the things teachers use are contextual with the values of the surrounding culture that are developed interactively using a lectora.

Sociocultural-based interactive teaching materials developed using Lectora will be more meaningful if implemented with the Culturally Responsive Teaching (CRT) approach in civic education. The Culturally Responsive Teaching (CRT) approach is a learning approach that respects cultural diversity in the classroom to support meaningful learning and improve student learning outcomes (Amalia Sukmawati et al., 2024; Nabella et al., 2024). The CRT approach emphasizes various techniques integrating culture with background and characteristics (Alamha et al., 2024; Giammaria et al., 2016; Ndandara & Hambandima, 2021). Learning activities are carried

out by linking them to the culture in students' lives. This approach can indirectly increase student wisdom (Riba et al., 2022; Siswanto et al., 2024).

Based on this background, the formulation of this study is: 1) “How is the development of Interactive Sociocultural Teaching Materials Based on Culturally Responsive Teaching (CRT) With Lectora as An Innovation in Citizenship Education?", 2) "How is the practicality of Interactive Sociocultural Teaching Materials Based on Culturally Responsive Teaching (CRT) With Lectora as An Innovation in Citizenship Education?", and 3) "How is the effectiveness of Interactive Sociocultural Teaching Materials Based on Culturally Responsive Teaching (CRT) With Lectora in improving student learning outcomes in citizenship education?". The development of this teaching material is significant because research on the development of interactive teaching materials has not integrated sociocultural factors into its application. The strength of this study lies in the innovation of civic education for elementary school students with the Culturally Responsive Teaching (CRT) approach in the development of interactive sociocultural-based teaching materials using lectora. The results of this development can make learning more meaningful, engaging, and efficient in its implementation. Developing this teaching material can improve students' abilities in cultural material in civic education. The novelty of this study lies in integrating sociocultural factors into the development of interactive teaching materials. Materials made with Lectora Inspire are applied with the CRT approach for civic education.

RESEARCH METHOD

Research Design

The research conducted is a type of research and development (R&D). Research and development is a method carried out in a structured manner to improve existing products or develop new products through testing so that they can be accounted for (Sastradika et al., 2021; J. Ellis & Levy, 2010; Richey & Klein, 2014). The development model approach used in this study is the 4D development model (Define, Design, Develop, Disseminate) (V. A. Safitri et al., 2019; Bordens & Abbott, 2011; Brent & Leedy, 1990; Secolsky, 2017). This study focuses on producing interactive sociocultural teaching materials based on CRT with lectora to improve student learning outcomes in civic education learning on Indonesian cultural diversity.

Subject

This research was conducted on Public Elementary School 01 Plalangan, Jenangan District, Ponorogo Regency fourth-grade students. The limited trial phase involved 1 class consisting of 27 students with heterogeneous characteristics. The extensive trial phase involved 3 IV classes with a total of 87 students, with details of IVb totaling 29 students, IVc class totaling 28 students, and IVd class totaling 30 students. The trial was conducted to test the effectiveness of the teaching materials. Other subjects were class teachers who used interactive teaching materials and expert validators who assessed interactive teaching materials.

Research Procedures

This research began by obtaining permission from the school and parents of students, then continued with an analysis of students' needs for interactive teaching materials containing socio-cultural education, identification of learning characteristics with a culturally responsive teaching (CRT) approach, a study of the use of Lectora as an interactive teaching material application, the preparation of interactive teaching

materials, and the creation of supporting devices. The development includes validation of teaching materials by experts, limited trials to test the practicality and effectiveness of interactive teaching materials, and revisions based on validator input of the trial results. Dissemination of large-scale trials in several grades IV and socialization of interactive teaching materials for elementary school class teachers through training.

Data Collection Instruments and Techniques

The validator assessed interactive teaching materials using the validation sheet instrument and the interactive teaching material validator technique. Implementing interactive teaching materials in the classroom was measured using the teacher observation sheet and observation techniques (Babbie, 2021; Biasutti & Frate, 2017; Wallen & Fraenkel, 2001). The ease of use of interactive teaching materials was determined using the interactive teaching material readability questionnaire instrument and the questionnaire technique. Learning outcome improvements were measured using the test instrument (pretest-posttest) and the learning outcome test question technique (Zakir et al., 2021). Qualitative input was obtained using the interview guideline instrument and interview technique (Wallen & Fraenkel, 2001; Cohen et al., 2000; Richey & Klein, 2007)

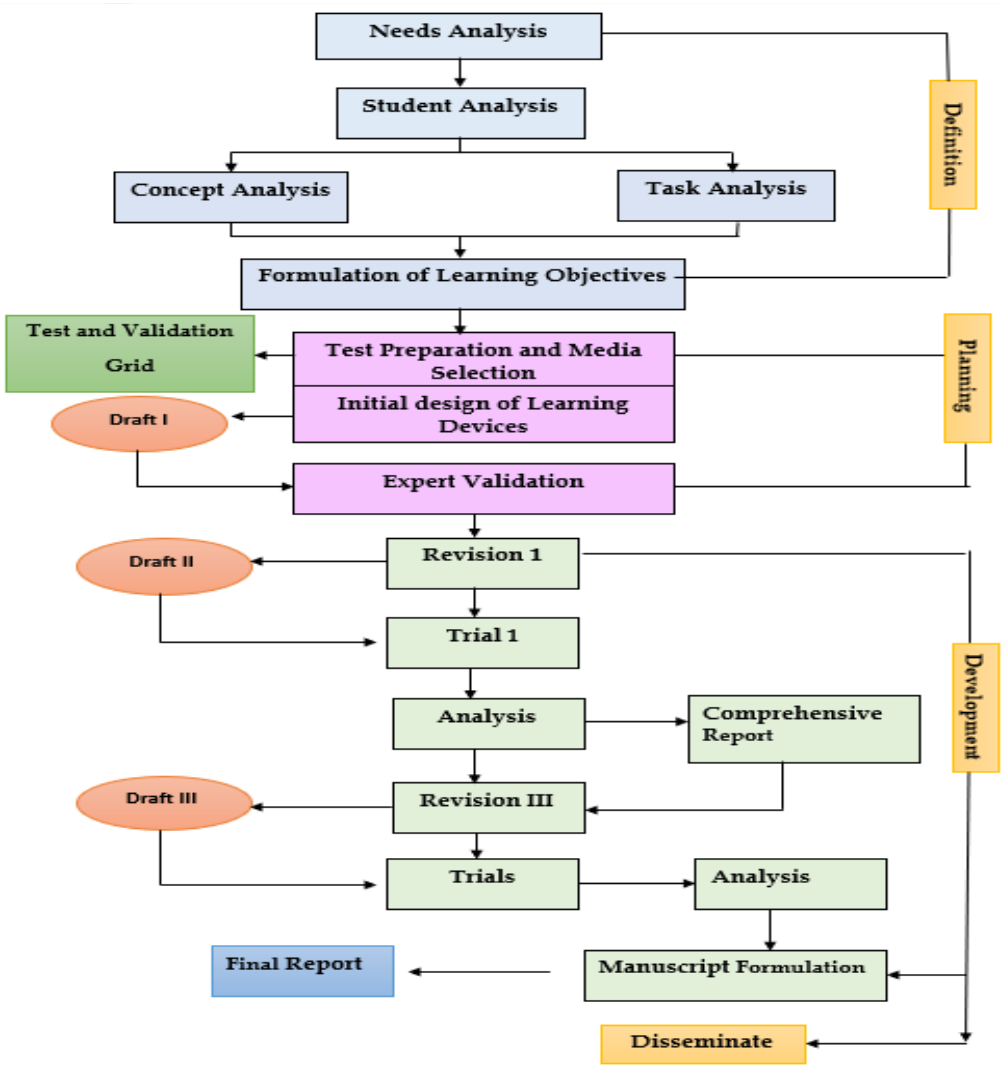

Figure 1. 4D Model Development Procedure
Source: (V. A. Safitri et al., 2019)

Data Analysis Techniques

Validation of interactive teaching materials uses the average validator score with validity assessment criteria (Gesmundo, 2022). Data on the practicality of interactive teaching materials uses quantitative descriptive statistics with percentage readability (Sastradika et al., 2021). The effectiveness data of interactive teaching materials uses a t-test to test the significance of improving learning outcomes and an N-Gain score to calculate the improvement in learning outcomes (Leutner et al., 2017). The t-test is performed with a significance level of 5%. If the significance level value of t is less than 5% ($\alpha < 0.05$), then Ha is accepted while Ho is rejected. Qualitative analysis uses input from students, teachers, and validators about improving interactive teaching materials. The N-Gain score is obtained using the following formula (Leutner et al., 2017).

$$\text{N-Gain Scores} = \frac{Posttest\ Scores - Pretest\ Scores}{Maximum\ Scores - Pretest\ Scores}$$

The N-Gain score categories are grouped as follows (Leutner et al., 2017).
High : N-Gain score > 0.7
Medium : 0.3 ≤ N-Gain ≤ 0.7
Low : N-Gain < 0.3

RESULTS AND DISCUSSION

Results

Development of Interactive Teaching Materials

Developing sociocultural interactive teaching materials based on culturally responsive teaching (CRT) with lectora as an innovation in citizenship education was developed through several stages.

Define Stage

The development process begins with the definition stage, which consists of five analysis activities (Siburian et al., 2020). Front-end analysis is intended to obtain data on fundamental problems elementary school students face in learning. The analysis activity continued with an analysis of student characteristics intended to determine the student's learning condition for consideration in developing teaching materials. Third, a concept analysis of the material is carried out, where the material contained in the teaching materials developed is grade IV civics education material on Indonesian culture. A task analysis is carried out, including activities presented to students, which are carried out through the Culturally Responsive Teaching (CRT) approach. Finally, there is an analysis of learning objectives, which refer to learning.

Design Stage

The next stage is the design, which begins with determining the initial format of sociocultural interactive teaching materials based on culturally responsive teaching (CRT) made with lectora (Zakir et al., 2021). The format of interactive teaching materials consists of three main parts: the introduction, the central part, and the conclusion (Sastradika et al., 2021). After the format of the teaching materials, the initial design of the teaching materials is determined, including the background display, essential color selection, background sound, material arrangement concept, images that support the material, buttons/icons, which are used as complements on each page component such as the home button, sound effects, next, back, exit, and so on which are packaged using

lectora. This stage is divided into two main activities, namely pre-production activities and production activities (Elkins & Keller, 2003). After the format and design are determined, the initial production of the teaching materials is carried out.

Development Stage

The product realization stage will develop sociocultural interactive teaching materials based on culturally responsive teaching (CRT) with lectora as an innovation in citizenship education, focusing on Indonesian cultural diversity.

Validation of teaching materials by experts

Validation was conducted to evaluate and improve the results of researchers' development of interactive teaching materials (Gesmundo, 2022). Researchers selected lecturers, elementary school class teachers, and students to conduct validation assessments. The validated aspects included the appropriateness of content, language, presentation, and usability (Mohamad et al., 2015). Based on the validation results, the following data were obtained.

Table 1. Results of Validation of Interactive Teaching Materials

Assessment Aspects	Indicator	Expert Score			Average Score	Category
		1	2	3		
Content Eligibility	Compliance with the curriculum	4.0	3.0	4.0	3.7	Valid
	Relevance to student needs	4.0	4.0	4.0	4.0	Very Valid
Linguistics	Simple and clear language	4.0	4.0	4.0	4.0	Very Valid
	Consistency in the use of terms	3.0	4.0	4.0	3.7	Valid
Presentation	Attractive layout and design	4.0	4.0	4.0	4.0	Very Valid
	Systematic learning flow	4.0	4.0	3.0	4.0	Valid
Usability	Supporting differentiated learning	4.0	4.0	4.0	4.0	Very Valid
	It can be applied to various conditions	3.0	4.0	4.0	3.7	Valid
Overall Average					**3.85**	**Very Valid**

Source: (Huda & Ahmadi, 2020)

Practicality of Interactive Teaching Materials

The assessment of the practicality of interactive teaching materials is based on the results of teacher observations and student questionnaires. Assessment aspects include ease of use, readability, suitability, completeness of materials, and attractive presentation (Zakir et al., 2021). The results of the practicality of interactive teaching materials are presented in Table 2.

Table 2. Results of Interactive Teaching Materials Practice

Assessment Aspects	Indicator	Teacher Observation	Student Questionnaire	Average (%)	Category
Ease of Use	Teaching materials are easy to use in learning	86.0	88.0	87.0	Very Practical
Legibility	Language that is easy for students to understand	84.0	88.0	86.0	Very Practical
Time Conformity	Teaching materials according to time allocation	80.0	83.0	81.5	Practical
Completeness	Presentation of	81.0	85.0	83	Practical

Assessment Aspects	Indicator	Teacher Observation	Student Questionnaire	Average (%)	Category
of Materials	materials supports student understanding				
Attractive Presentation	Teaching materials students' attention	87.0	89.0	88	Very Practical
Overall Average (%)		83.6	86.6	85.1	Very Practical

Source: (Zakir et al., 2021)

Effectiveness of Interactive Teaching Materials in Improving Learning Outcomes

Prerequisite tests are conducted before conducting inferential analysis. Prerequisite tests include normality and homogeneity (Kilani & Kobziev, 2016). Normality tests determine whether the research data to be analyzed are normally distributed (Abe, 2015). Based on the output results of SPSS 17 for Windows, the Asymp. Sig. (2-tailed) value is obtained with the normality test of the initial citizenship education learning outcomes (pretest) for both trial class 1, trial class 2, and trial class 3 with Kolmogorov-Smirnov calculations of 0.769, 0.822, and 0.867, respectively. These three values are more significant than 0.05, so the data on students' initial citizenship education learning outcomes on the material on the diversity of Indonesian culture are typically distributed.

The results of the Kolmogorov-Smirnov calculations for students' final learning outcomes (posttest) in civic education learning on the subject of Indonesian cultural diversity in trial class 1, trial class 2, and trial class 3 are 0.667, 0.721, and 0.686. These three values are more significant than 0.05, so the data on students' final learning outcomes in civic education learning on Indonesian cultural diversity are typically distributed. The homogeneity of variance test is used to determine whether the research data to be analyzed has the same variance and does not show significant differences from one another (Kilani & Kobziev, 2016). The results of the homogeneity test of student learning outcomes are shown in the following Table 3.

Table 3. Results of the Homogeneity Test of Student Learning Outcome Data

Aspect	Level Test					
	Trial Class 1		Trial Class 2		Trial Class 3	
	F	P	F	P	F	P
Pretest	1.123	0.462	1.092	0.387	0.345	0.48
Posttest	0.643	0.693	0.784	0.765	0.651	0.95

Source: (Smith, 1998)

Table 3 shows that the initial and final learning outcomes of students in civic education learning on the material of Indonesian cultural diversity obtained homogeneous results. The variance scores of student learning outcomes in trial class 1, trial class 2, and trial class 3 were homogeneous, with a P value > 0.05. This value indicates that the data results meet the assumptions needed for the planned statistics. The next stage in testing the effectiveness of interactive teaching materials in improving learning outcomes is the t-test (Kilani & Kobziev, 2016). The t-test results of student learning outcomes are presented in the following Table 4.

Table 4. Significance of the Effectiveness of Interactive Teaching Materials Based on Learning Outcomes

		Paired Differences					T	d	f	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Pair 1	Posttest-Pretest	50.966	10.697	1.405	48.153	53.778	36.286	5	7	.0 0 0

Source: (Smith, 1998)

Hypothesis testing for improving pretest and posttest data in the trial class obtained a sig value of 0.00 <0.05. Based on these results, Ha is accepted, and Ho is rejected, so it can be concluded that there is an increase in the learning outcomes of citizenship education on the material of Indonesian cultural diversity after learning using interactive teaching materials is implemented. The effectiveness of interactive teaching materials in improving learning outcomes is known through pretest and posttest results (Smith, 1998). Data on the effectiveness of interactive teaching materials based on learning outcomes are presented in Table 5.

Table 5. Effectiveness of interactive teaching materials based on learning outcomes

Student Group	Pretest Average	Posttest Average	N-Gain Score	N-Gain Category
Trial Class 1	54.0	80.0	0.54	Medium
Trial Class 2	51.0	86.0	0.72	High
Trial Class 3	61.0	87.0	0.73	High
Average	**55.3**	**84.3**	**0.66**	**Medium**

Source: (Smith, 1998)

Discussion

Development of Interactive Teaching Materials

The study results indicate that CRT-based sociocultural interactive teaching materials with Lectora are valid, practical, and effective as an innovation in civic education. The increase in learning outcomes of fourth-grade students in the material on Indonesian cultural diversity in civic education also evidences this. This interactive teaching material was developed with a 4D model that defines, designs, develops, and disseminates (V. A. Safitri et al., 2019). The results of expert validation show that the interactive teaching material is declared very valid, with an average validation score that reaches the very feasible category.

The first stage of the development of interactive sociocultural teaching materials based on CRT with lectora as an innovation in civic education begins with the definition step. The definition stage is carried out by analyzing fundamental problems that can be used as a reference in developing teaching materials (Kurata et al., 2025). Through this stage, it can be seen that elementary school students based on their characteristics need sociocultural education as a process of instilling a way of life in understanding and appreciating the diversity that exists as individuals who live in various differences that exist. The results of the needs analysis show that elementary school teachers find it difficult to instill this education in students due to the limited teaching materials

available in elementary schools. The difficulties experienced by elementary school teachers cause civic education learning to be less innovative in its implementation (Akirav, 2024; Prayogi et al., 2024; E. Safitri et al., 2024). Teachers also find it difficult to apply the appropriate approach to teaching civic education, especially on the material on the diversity of Indonesian culture. Based on various analyses of these problems, at the definition stage, an analysis of learning objectives was also formulated to improve students' civic education learning outcomes, especially on the material on the diversity of Indonesian culture. Improving learning outcomes can be done by developing sociocultural teaching materials based on CRT with lectora as an innovation in civic education (Lis, 2015).

The next stage in the development activity is carried out with design activities. This activity is carried out to design interactive sociocultural teaching materials based on CRT with lectora. Interactive teaching materials are designed to consist of an introduction, a core section, and a closing section. The introduction consists of a cover with an attractive display design accompanied by attractive images according to the characteristics of elementary school students (Liano et al., 2025). The presentation of the image design on the cover consists of the diversity of traditional clothing and traditional houses of Indonesia which are packaged according to the characteristics of elementary school students (Bitskinashvili, 2018). In the design of the introduction section, there are also learning objectives and learning indicators that are taken (Ali et al., 2025). The core section consists of the presentation of the teaching material content menu. The available menu consists of 3 parts. The first part contains conceptual material about the diversity of Indonesian culture. The second part consists of a design of activities carried out by elementary school students. The third part contains a quiz design as an exercise in students' understanding of the material on the diversity of Indonesian culture. The quiz consists of 20 questions in the form of multiple choice.

The next stage is carried out by developing interactive sociocultural teaching materials based on CRT with lectora based on a predetermined design. This stage is carried out by the process of making interactive teaching materials which is carried out by utilizing Lectora (Zapata Ancajima, 2025). Lectora as a very interesting application for the process of making teaching materials with interactive multimedia (Alvarez Franco, 2025). Interactive teaching materials are developed by presenting images, animations, voice text, menu presentation, chat, video, and music back sound. After the interactive teaching materials have been developed, a validation test is carried out by experts . The results of the validation test show that the interactive teaching materials have an overall average score with a very valid category so that they can be implemented in learning activities and are ready to be distributed as the last stage of development activities.

Practicality of Interactive Teaching Materials

The practicality test of interactive teaching materials was conducted through classroom teacher observations and questionnaires filled out by students with a practicality value of 80%-90%. These results prove that interactive teaching materials are easy for teachers and students to use independently and in groups in teaching and learning. Interactive teaching materials are presented systematically and structured, using language that is easy to understand and equipped with various examples of everyday life (2024; Rahmawati, 2024; Wulandari et al., 2022). Interactive teaching materials are also equipped with student exercises in civic education on the material of Indonesian cultural diversity, which is appropriate as the main factor in the high level of

practicality. Sociocultural interactive teaching materials also show good validation and practical results. These results support the effectiveness of interactive teaching materials.

The results of the practicality test of interactive teaching materials show that in terms of user convenience, it is categorized as very practical. These results indicate that CRT-based sociocultural interactive teaching materials with lectora are very easy to use in learning activities both from the perspective of teachers and students. It is very easy for teachers to use the results of the development with various facilities that are already available at school. The school already has an LCD, Projector, Chrome Book, Sound, etc. These facilities make it easy for teachers to use the results of the development of interactive teaching materials in civic education learning activities on the material of Indonesian cultural diversity (Di Paola et al., 2013; Hjalmarson & Nelson, 2014; Mathias, 1997; Usmanova et al., 2015). Students are also very easy to use via smart phones when used for independent learning at home without teacher supervision. However, when students are at school, students can also take advantage of the chrome books that are already available at school in the amount needed to be used in learning activities.

The readability aspect shows that interactive teaching materials have language that is easy for students to understand. The language used is in accordance with the rules of good and correct Indonesian language in accordance with applicable provisions. In addition, the use of language presents language that has been adjusted to the characteristics of elementary school students in grade IV. The presentation of language that is easy for students to understand makes them motivated to learn and can absorb the material presented (Datta et al., 2015; Nolan & Temple Lang, 2007). Grade IV students are very enthusiastic about learning the material presented. The quiz section also presents questions with language that is easy to understand so that students can do it well according to their abilities.

The aspects of time suitability and completeness of the material produce a practical category. Interactive teaching materials are developed based on the material on the diversity of Indonesian culture with the allocation of time for use adjusted to the presentation of the material with a very appropriate time duration, not too long and not too short, so that it is practical to use with an allocation of time that can be adjusted. The teaching materials present material that supports students' understanding by using the CRT approach that is in accordance with the content of the material. Students can easily understand the diversity of Indonesian culture and how to behave towards the existence of cultural diversity. The existence of this understanding and attitude allows students to develop their skills in everyday life (Dïnc, 2017; Williams & Handa, 2016). Students are able to be respective respects the cultural differences that exist in Indonesia to be used as a basis for the strength of unity and togetherness.

The attractiveness aspect in the presentation gets a very practical category. Interactive teaching materials present materials that are easy to present with easy operation on the menu provided (Khalil et al., 2005). This teaching material has never been used in learning activities so that students are very fascinated by the presentation of the material provided. The presentation of images, sound, text, video, animation, and quizzes has an attractive color design, appearance, and sound so that students are motivated to learn. Students' attention can be focused on the interactive teaching materials presented. This makes students enthusiastic about learning (Kong & Kwok, 1999; Mathias, 1997; Pradono et al., 2013). Students' enthusiasm in learning can improve learning outcomes well in the material on Indonesian cultural diversity.

Effectiveness of Interactive Teaching Materials in Improving Learning Outcomes

The effectiveness of interactive teaching materials is also proven through the improvement of student learning outcomes in civic education learning on the material of Indonesian cultural diversity, which is carried out using t-tests and further tests with N-Gain calculations on the acquisition of scores in the medium to high categories. Student learning outcomes are influenced by the teaching materials used in learning (Olasehinde & Olatoye, 2014; Shariff et al., 2013; YuekMing & Manaf, 2014). CRT-based sociocultural interactive teaching materials have improved students' understanding of Indonesian cultural diversity in civic education learning. This study also shows that lectora can produce interactive teaching materials that are practical and effective for use in learning activities.

Through CRT-based sociocultural interactive teaching materials with lectora, students can be motivated to learn. Students are very enthusiastic about the learning presented. The CRT approach is a very enjoyable approach to presenting culture-based learning (Ghong et al., 2007; Rodríguez, 2014). This approach is very suitable for presenting learning materials about culture. This approach is also very easy for students to accept with the support of the presentation of teaching materials using lectora. Lectora as a very practical application to use in the process of developing interactive teaching materials (Ripoll & Aguado, 2013) . The application is also very easy to present in learning activities with an attractive appearance in the presentation process. The ease and practicality of CRT-based sociocultural interactive teaching materials using lectora results in increased student motivation in learning citizenship education. This motivation has an impact on increasing student learning outcomes that increase in citizenship education, especially in the material on the diversity of Indonesian culture.

The novelty of the research lies in integrating sociocultural education based on culturally responsive teaching (CRT), which is packaged in interactive teaching materials using Lectora. This approach has not been widely applied in developing civic education teaching materials, especially in the context of Indonesian cultural diversity. As a form of support for sociocultural education implemented with the CRT approach, this innovation in civic education is proven by the increase in student learning outcomes in civic education learning on the material of Indonesian cultural diversity.

This study has limitations in the relatively small scope of subjects and the limited time of its implementation. Further research suggests that this interactive teaching material can be applied on a broader scale with various materials in civic education learning to strengthen the research results and expand its benefits. Further development of interactive teaching materials can utilize better technology. Interactive teaching materials can increase student independence in learning because their use is not limited to the classroom.

CONCLUSION

Fundamental Findings: The results of the study indicate that sociocultural interactive teaching materials based on culturally responsive teaching (CRT) with Lectora are valid for application in civic education learning and easy to use by teachers and students. Its use can be an innovation in learning. Further research results show that this interactive teaching material is able to improve student learning outcomes. Its application allows students to learn about the diversity of Indonesian culture according to its characteristics. **Implications:** This interactive teaching material provides systematic and easy-to-implement learning tools. Teachers can use it as an innovation in learning. The

Lectora application can be a reference for developing interactive teaching materials in other fields. **Limitations:** This study was conducted on only a few fourth-grade students in one school, so the results cannot be generalized to a wider population. The research time was relatively short, so it could not evaluate the impact of interactive teaching materials in the long term. **Future Research**: Further research can develop CRT-based sociocultural interactive learning materials with Lectora for other civic education topics. Long-term research is needed to measure the impact of interactive learning materials on student learning and learning outcomes over a longer period of time.

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