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Development of Science Modules Based on a Culturally Responsive Teaching Approach on Banten's Typical Pottery Crafts to Scientific Literacy

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Abstract

This study was conducted based on field observations showing a lack of fundamental science literacy skills and limited teaching materials to support them. Therefore, a science module based on a culturally responsive teaching (CRT) approach was developed utilizing Banten's traditional pottery craft to facilitate the scientific literacy of seventh-grade students. This study aimed to analyze the validity of the CRT-based science module for improving scientific literacy. The research and development (R&D) method was employed using the ADDIE development model, which was limited to three stages: analysis, design, and development. Data were collected through validation questionnaires using instruments for expert validation. Nine validators, comprising subject matter experts, teaching material experts, and practitioner experts, conducted the validation. The obtained data were analyzed using quantitative and qualitative methods. The results showed that the science module was classified as "very feasible" with a percentage of 89.23%, with details of 87.95% for subject matter experts, 93.16% for teaching material experts, and 86.58% for science practitioners. It can be concluded that the science module based on a culturally responsive teaching (CRT) approach, which was developed using Banten's traditional pottery craft to facilitate the science literacy of seventh-grade students are appropriate for use in learning activities.

Keywords: science module; Culturally Responsive Teaching; scientific literacy.

Introduction

Scientific literacy is an individual's ability to utilize the knowledge they have in the scientific process, starting from identifying problems, acquiring new knowledge, explaining scientific phenomena, and drawing conclusions based on evidence related to scientific problems (Wulandari & Sholihin, 2016). Natural Science learning requires mastery of scientific problem-solving skills as a basic competency of students. The ability of students to solve individual problems and environmental issues reflects their scientific literacy attitude. Scientific literacy itself focuses on the capacity of students to apply scientific knowledge to identify problems, evaluate evidence, and draw logical conclusions. The construct of scientific literacy includes four fundamental aspects, namely competence, knowledge, content, and scientific attitudes. The competency aspect is broken down into three key indicators: identifying scientific issues, explaining phenomena

scientifically, and interpreting scientific data and evidence(OECD, 2013). Because education requires critical thinking, not just reading and writing. This is the essence of scientific literacy (Yusmar & Fadilah, 2023). Through the development of this module, participants are taught to get used to observing phenomena and discuss scientifically by applying their knowledge and interpreting data independently, so that they can improve their scientific literacy skills. Mastery of scientific literacy is considered very crucial because it forms a systematic and critical mindset, which is not only useful in the academic context but also in daily life. However, in practice, this ability is often not the focus of the main learning outcomes. The focus of education is still largely focused on mastery of the material and final grades, while the scientific process that trains identification, explanation, and drawing conclusions, even though it is not yet perfect, is actually the foundation for developing science (Ayu et al., 2023).

Facts in the field, based on interviews with teachers in several junior high schools in Serang, show that students' scientific literacy skills are still low, allegedly due to a lack of interest in reading and writing. Research indicates that low scientific literacy skills are a significant concern among junior high school students. Students experience difficulties, especially in interpreting data and making independent conclusions, so they require intensive guidance from teachers. In this case, the role of teachers and the availability of quality teaching materials are the main determinants. Access to quality instructional materials, complemented by effective professional development, is essential for teachers' success and can significantly enhance student engagement and learning outcomes in science (Belisario & Paglinawan, 2025). This is where teaching materials in the form of modules that meet the characteristics of self-instructional, self-contained, and user-friendly can play a strategic role in facilitating independent learning and overcoming teachers' time limitations. Systematically designed teaching materials, such as modules, can facilitate independent learning and improve student understanding. However, teachers' limitations in time and ability often hinder the development of learning tools that can support scientific literacy.

Culturally Responsive Teaching (CRT) is an approach used in learning activities by paying attention to the diversity and equal rights of each student in the learning process, without differentiating the cultural background of students. It can facilitate students' understanding because this approach is contextual in nature, which raises issues or phenomena around students (Gay, 2002). And identifying scientific issues is the most important thing in scientific literacy skills. Learning using this approach will shape students' cultural understanding and experiences with new knowledge gained from various sources. This is because the CRT approach prioritizes equal rights in learning without distinguishing between ethnicities and cultures. Critical thinking skills can be developed through the CRT approach (Girsang et al., 2024). Learning becomes relevant when participants' existing knowledge and experiences are incorporated (Abacioglu et al., 2020). In line with the research conducted by this approach can improve scientific literacy skills (Maskhanah et al., 2020).

Scientific literacy skills among junior high school students in Serang remain a significant concern, particularly in their ability to interpret data and draw independent conclusions. This challenge is often linked to a lack of student interest and limited engagement with traditional learning materials. To address this, various approaches integrating local wisdom into science education have emerged as promising avenues to make learning more meaningful and contextual (Kasi et al., 2022). Studies have explored ethnoscience in diverse cultural contexts, including traditional crafts like brick making (Basuki et al., 2023) and even other forms of pottery (Trisnowati et al., 2023).

However, there remains a notable gap in research specifically investigating the pedagogical potential of Banten pottery crafts, a unique and thriving local wisdom in Bumi Jaya Village, Ciruas District. This traditional craft, maintained for generations and a frequent site for educational visits, offers an authentic and rich context for exploring scientific concepts. While the integration of local wisdom with the learning framework is gaining traction (Safitri et al., 2023), specific empirical studies demonstrating its effectiveness in teaching core scientific concepts through unique local practices like Banten pottery are still limited.

This study aims to bridge this gap by examining how the traditional process of Banten pottery making, with its inherent demonstration of "substances and their changes", the transformation of clay with water, drying by evaporation, and chemical changes during firing, can serve as an effective, culturally responsive teaching material. By situating science learning within this familiar and culturally significant context, our research offers a novel approach to enhance junior high school students' understanding of abstract scientific principles.

So based on the background description above, the formulation of this research problem is "What is the feasibility level of science modules based on the Culturally Responsive Teaching (CRT) approach on Banten's typical pottery craft materials to improve the scientific literacy of grade VII students?" with the research objective being "To analyze the feasibility level of science modules based on the CRT approach to scientific literacy".

Research Method

This research employed the Research and Development method, adopting the ADDIE instructional development model (Branch, 2009). The ADDIE model is a systematic framework for designing and developing educational programs or learning materials, consisting of five stages: Analysis, Design, Development, Implementation, and Evaluation. In this study, the implementation of the ADDIE model was focused on the development stage, with an initial evaluation in the form of an expert feasibility test, due to time constraints. The development of this Science module utilized the Canva platform as a primary tool. The following are the research stages conducted in this study, as outlined in Figure 1.

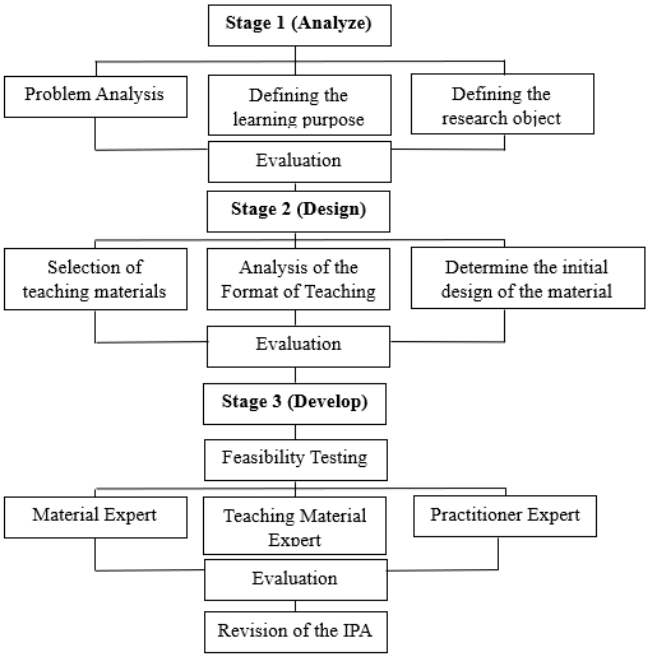

Figure 1. ADDIE Development Procedure

Research Stages

Analysis Stage

This initial stage forms the foundation of the research, aiming to identify the needs and characteristics of the subjects.

a. Problem Analysis: Identifying relevant problems in Science learning, such as student difficulties or limitations of existing teaching materials.
b. Defining the learning purpose: Formulating the objectives to be achieved through the development of the Science module.
c. Defining the Research Object: Clarifying the focus or scope of the material to be developed in the module. Following these activities, an Evaluation was conducted to ensure all aspects of the analysis were met before proceeding to the next stage.

Design Stage

Based on the results of the Analysis stage, this stage involved the conceptualization of the initial Science module design. Steps in this stage included:

a. Teaching Material Selection: Determining the specific science content or materials to be included in the module.
b. Format Analysis: Determining the appropriate presentation format and structure of the module, including the media and activities to be used.
c. Initial Material Design Determination: Creating a blueprint or initial design framework for the module, including layout, visual elements, and learning flow. This stage concluded with an internal Evaluation to review and refine the initial design before proceeding to the development process.

Development Stage

This stage is the realization of the design that has been created. In this stage, the Science module was concretely developed and then formatively evaluated.

Feasibility Testing: The developed Science module was then subjected to feasibility testing by experts. This served as an initial product evaluation focusing on the quality and suitability of the material. This feasibility testing process involved.

1. Material Experts are the validators who assessed the accuracy, relevance, and completeness of the science content within the module.
2. Teaching Material Experts are the validators who evaluated the instructional design and suitability of the module as a teaching material.
3. Practitioner Experts, the validators from educational practitioners or science teachers, who assessed the practicality and implementation of the module. After receiving input from these three types of experts, a comprehensive Evaluation of the module was conducted based on their suggestions and assessments. The results of this evaluation were then used to perform the Science Module Revision to refine the developed product.

Research Location and Participants

The research was conducted in 2025 in Serang Regency. The research subjects included nine expert validators, consisting of three material expert validators, three teaching material expert validators, and three science practitioner validators. These validators were selected based on their competence and experience in their respective fields to ensure a comprehensive assessment of the developed module.

Data Collection

Data collection was carried out using two main instruments:

a. Interview Instrument: Used at the beginning of the study to obtain qualitative information regarding student needs and existing learning challenges, which was essential for the Analysis stage of the ADDIE model. Interviews were conducted with science teachers using the instrument.
b. Feasibility Test Questionnaire Instrument: This instrument was used after the product was developed. It served to gather assessments from material experts, teaching material experts, and practitioners regarding the feasibility of the material, the developed teaching materials, as well as suggestions and input for improvement. The questionnaire was structured with closed-ended items with a Likert scale and open-ended sections for comments.

Data Analysis

The collected data were analysed using both quantitative and qualitative methods.

a. Qualitative data, derived from initial interviews, open-ended suggestions, and input from the expert validators
b. Quantitative data were obtained from the scores of the feasibility test questionnaire. The scores on the instrument used a Likert scale with a score range of 1 to 4.

Table 1. Likert Scale Validator

Description of Assessment Score	Score
Excellent	4
Good	3
Average	2
Need improvement	1

The validator assessment results were processed into percentages using the following formula.

$$NP = \frac{R}{MC} x\ 100\%$$

Information:

NP = Percentage value
R = Score obtained
MC = Maximum score
100% = Fixed number

The results of the calculation obtained based on the formula above are then interpreted qualitatively with guidelines that are divided into several categories according to Table 2.

Table 2. Categories of Eligibility Results

Achievement Percentage	Information
21% - 40%	Not Feasible
41% - 60%	Reasonably Feasible
61% - 80%	Feasible
81% - 100%	Very Feasible

Result and Discussion

The research carried out is the development of a CRT-based science module on the scientific literacy of grade VII students. This module is developed using the ADDIE model. The purpose of the study is to analyse the feasibility of the Science Module based on the Culturally Responsive

Teaching Approach on Banten's Typical Pottery Crafts on the Scientific Literacy of Grade VII Students.

Specifically, this module focuses on developing scientific literacy based on the PISA framework, which defines scientific literacy as the capacity to engage with science-related issues and with the ideas of science, as a reflective citizen (OECD, 2013). To achieve this, the module is designed to foster three core scientific competencies as outlined by PISA.

a. Identifying scientific issues, encouraging students to recognize and evaluate situations that require scientific inquiry and understanding.
b. Explaining phenomena scientifically, enabling students to describe, interpret, and predict natural and technological phenomena using scientific knowledge.
c. Using scientific evidence, equipping students with the ability to interpret and evaluate scientific data and evidence, and draw appropriate conclusions.

a. Analyze

This stage is the main basis that is important to know the gap that occurs between expectations and reality that occurs in the field. The analysis of the need to obtain information was carried out through teacher interviews in several junior high schools. The results showed that students need a learning approach to facilitate the understanding of the material. The learning approach certainly has stages in the learning process that aim at student learning outcomes (Siswondo & Agustina, 2021).

A learning approach is a strategy chosen to meet educational objectives, taking into account students' individual needs and traits. Therefore, this research and development project aims to create a science module based on the Culturally Responsive Teaching approach, designed for students to use in their learning process to enhance their scientific literacy skills. The analysis revealed a significant gap in students' ability to identify scientific issues in daily life or interpret scientific data from experiments. This finding guided the module's design to specifically reinforce these aspects of scientific literacy.

b. Design

Based on the results of the analysis, the science module is one of the solutions in the form of products to be developed. The Science module is specifically designed to discuss substance materials and their changes by integrating local wisdom in the form of pottery crafts. The activities in the module are designed to contain literacy activities. These activities are specifically crafted to foster the dimensions of scientific literacy. For instance, the activity of identifying scientific issues directly addresses the scientific literacy dimension of 'evaluating and designing scientific inquiry' by challenging students to discern scientific problems within real-world contexts.

The activity of identifying scientific issues is shown in identifying problems and classifying the forms of substances from materials and tools for making pottery. Furthermore, the emphasis on local wisdom through pottery crafts serves as a culturally responsive pedagogical approach that makes scientific concepts more relevant and accessible.

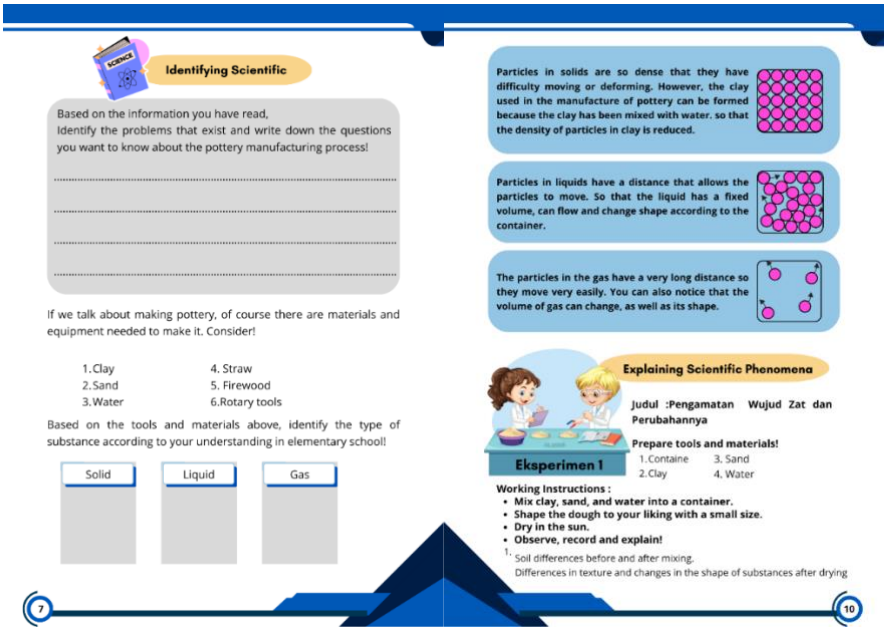

Figure 2. Activities to identify scientific issues and Activities to explain scientific phenomena

Activities explaining scientific phenomena are shown in experimental activities explaining scientific phenomena that occur due to changes in physics and chemistry. Students were asked to do a simple experiment, making pottery to directly observe changes in the form of substances in the process of forming and drying pottery. This hands-on experiment directly develops students' ability to 'explain phenomena scientifically' by applying scientific knowledge to real-world processes and observing changes firsthand. Scientific explanations of natural phenomena are based on observation, and their goal is to understand and explain the phenomena (Baek & Yang, 2023).

The process of drying pottery is a process of evaporation, where the water content in the pottery evaporates, causing the pottery to lose water content so that the texture becomes dry and hard. Hardened pottery can be used for various needs, namely as teapots, urns, and storage containers. The good quality of pottery from Bumijaya Village makes the pottery called kowi cauldron known to provinces outside Banten. Pottery is widely used for metal and gold smelting (Wahyuningsih et al., 2023)

Meanwhile, the activity using scientific evidence is shown in the form of observation reports based on simple experiments carried out regarding the process of burning pottery, which is a chemical change. There are signs of chemical reactions, such as odors during the combustion process, changes in the color of pottery, and the appearance of new substances from burning firewood. This activity directly hones students' scientific literacy in 'interpreting data and evidence scientifically' as they gather, record, and draw conclusions from empirical observations, linking them to underlying scientific principles. It also includes the ability to transform data from one type of presentation to another; analyze, interpret, and draw appropriate conclusions; identify assumptions, evidence, and reasoning in scientific texts; distinguish arguments based on evidence and scientific theory; and disseminate scientific arguments and evidence from a variety of sources (Winarni & Purwandari, 2020).

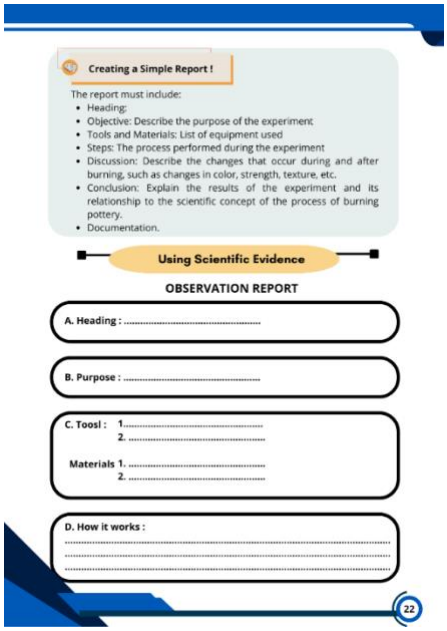

Figure 3. Activities using scientific evidence

c. Development

After creating the product design, the next stage is making a science module and a feasibility test. The science module is developed based on the learning objectives. The Canva application is used to develop modules because. There are features that can facilitate the creation of modules, which have various advantages in making digital and printed teaching materials.

The Canva application makes modules more communicative by utilizing color combinations, icons, and illustrations that are relevant to science material, so as to increase students' interest in learning. The visual aids and interactive elements, such as QR codes to access videos, are designed not just for engagement but also to provide multiple representations of scientific phenomena, aiding students in 'explaining phenomena scientifically' and building a deeper conceptual understanding. Specifically, regarding interactive elements such as QR codes, their use, especially when combined with other digital media, enables the communication of digital information that includes models, images, videos, and synchronized audio, thereby increasing student learning interest and instant access to related content of interest (Haris et al., 2023). Science materials, which are often abstract or require visualization, can be enriched with QR codes to access videos, images, and illustrations of pottery making available on Canva that can be displayed through visual illustrations that are easy for students to understand (Yuliana et al., 2023).

The module is designed to follow the learning system, starting from an introduction to the students' culture, and the delivery of typical Banten pottery. It aims to make it easier for students and teachers to use science modules as teaching materials for grade VII students. In addition, the process of developing the science module also takes into account the principle of integration between content, learning activities, and assessment. Each section of the module is designed to guide students to learn independently or collaboratively through activities based on observation, simple experiments, and the analysis of everyday phenomena that relate to local culture. This integrated approach is crucial for fostering scientific literacy, ensuring that students not only acquire scientific knowledge but also develop the skills to engage in scientific inquiry and demonstrate their understanding through various tasks that reflect the dimensions of scientific literacy (Susongko et al., 2020). The presentation of information is structured gradually, starting

from basic concepts to their application, enabling students to build understanding in a systematic way.

In the feasibility testing stage, the module is evaluated by content experts, media experts, and education practitioners to ensure the appropriateness of the material, the attractiveness of the design, and its ease of use in the classroom. Feedback from these experts becomes the basis for revisions to ensure that the module is fully suitable for use in science learning. Fitriah et al. (2024) said that cultural integration in the learning process can motivate students to be more active and enthusiastic in learning. The module not only functions as a learning resource but also as a medium that integrates local wisdom, such as the traditional Banten pottery culture, into modern science education, cultural appreciation, and scientific skills in a balanced manner.

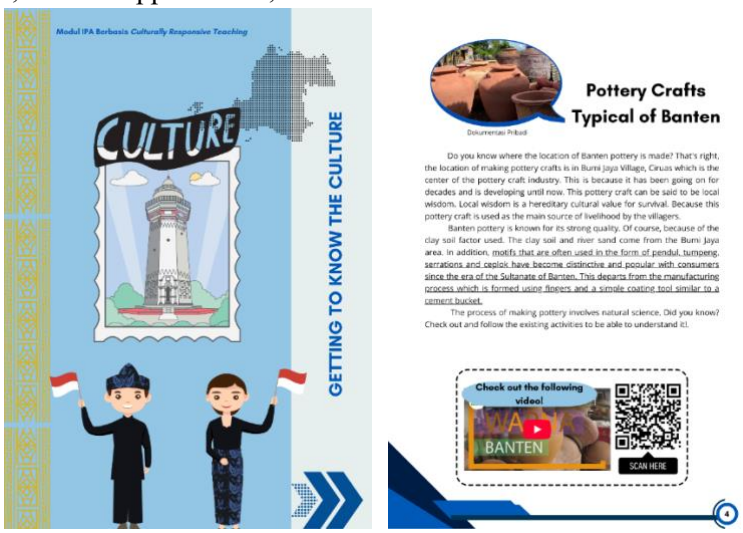

Figure 4. Stages of pottery introduction

Furthermore, the delivery of the description of the substance material and its changes continued at the stage of practice and evaluation, such as practice questions and cultural reflection, as a space for students to write down their understanding.

After the science module was developed, a feasibility test was conducted to evaluate its quality and suitability for implementation. The feasibility assessment involved three groups of experts: material experts, teaching material (media) experts, and practitioner experts. A total of nine validators participated in the evaluation, consisting of six university lecturers and three science teachers. The validators were divided into three categories: three material experts, three teaching material experts, and three practitioner experts. Each validator completed a validation questionnaire according to their respective field of expertise. The results of the expert validation are presented in Table 3.

Table 3. Overall Results of Expert Validators

No.	Validator	Percentage	Category
1.	Material Expert	87.95%	Very Feasible
2.	Teaching Material Expert	93.16%	Very Feasible
3.	Practitioner Expert	86.58%	Very Feasible
	Average	89.23%	Very Feasible

The expert feasibility test for the CRT-based science module produced highly positive results, with an overall average score of 87.95%, categorizing it as "very feasible." This validation involved assessments from subject matter experts, teaching material experts, and practitioner experts. Specifically, material experts rated the module at 87.95%, while teaching material experts provided an even higher score of 93.16%. Practitioner experts also found the module to be "very feasible," with a score of 86.58%.

It was concluded that the CRT-based science module on Banten's typical crafts for the scientific literacy of grade VII students obtained a high level of eligibility, namely in the "Very Feasible" category. This high feasibility suggests that the module's design, including its embedded scientific literacy components and CRT approach, is well-structured and potentially effective for its intended purpose (Joseph, 2024). Although the validation results show that the category is very feasible, the science module still has some shortcomings that need to be improved in accordance with the suggestion to improve the quality of the science module before being used by students. The following is a description of the validation results by the validators.

Results of Qualification by Material Experts

The validation process conducted by the subject matter experts involved three validators with relevant expertise, each representing a different university. This validation aimed to evaluate the accuracy of the scientific content, the correctness of the science concepts, and the overall quality of the CRT-based science module. The assessment was conducted based on the criteria outlined in the feasibility test instrument. The subject matter expert validation instrument covered three main aspects: (1) content feasibility, (2) integration of the CRT approach, and (3) language appropriateness. The instrument consisted of a total of 24 statements. The percentage results of the validation conducted by the subject matter experts are presented in Table 4.

Table 4. Material Expert Validator Recapitulation

Aspects	Percentages (%)	Category
Eligibility of Content	91.66%	Very Feasible
CRT Approach	87.49%	Very Feasible
Scientific Literacy	85.18%	Very Feasible
Language	87.49%	Very Feasible
Average	**87. 95%**	**Very Feasible**

The overall average score obtained from the validators was 87.95%, which falls into the “Very Feasible” category. This result indicates that the material presented in the module is appropriate for use as teaching material for students. The feasibility of the material content aspect reached 91.66%, categorized as “Very Feasible,” demonstrating strong alignment between the module content and the intended learning outcomes. The accuracy and reliability of the material sources must be carefully considered to prevent potential misconceptions.

According to Pratama et al (2021), avoiding misconceptions is essential to ensure that the material is correctly understood and effectively received by students. Therefore, all references, including images, quotations, facts, and supporting theories, should be clearly cited and derived from credible sources.

In addition, supporting components such as illustrations, tables, images, fun facts, and videos must be relevant to the subject matter and aligned with the scientific concepts presented (Sari et al., 2018). These elements should also be adjusted to students’ levels of understanding to enhance clarity and engagement.

The CRT approach aspect obtained a score of 87.49%, categorized as “Very Feasible.” This result indicates that the module successfully integrates scientific concepts with the local cultural context, specifically the process of pottery making. Furthermore, the language aspect also achieved 87.49%, indicating that the language used in the module is clear, communicative, and appropriate for students’ comprehension levels.

Results of Eligibility Tests by Teaching Material Experts

The validation of teaching material experts is carried out by three validators who are competent in their fields and come from three different universities. This validation activity aims to assess the quality of CRT-based science modules by referring to the aspects that have been formulated in the validation instrument. The recapitulation of the assessment from the teaching material experts is shown in Table 5.

Table 5. Recapitulation of Teaching Material Expert Validators

Aspects	Percentages (%)	Category
Graphic	90.96%	Very Feasible
Serving	94.09%	Very Feasible
Feasibility Print	94.44%	Very Feasible
Overal average	**93.16%**	**Very Feasible**

The overall average result obtained from the validators was 93.16% with a very feasible category. The assessment is in accordance with the assessment aspects on the feasibility test questionnaire sheet, which includes the assessment of graphics, presentation, and printability.

The first aspect assessed was graphics, which obtained a percentage of 90.96%. This percentage belongs to the "Very Feasible" category. The graphic assessment includes cover design, layout, and the attractiveness of the modules. The cover is made according to the topic raised, which describes the process of making pottery. It is made interesting so that students feel interested first to see and then read and understand. Visually engaging learning materials, including the use of graphics, can increase student attention and contribute to better learning outcomes (Ghai & Tandon, 2022). Not only paying attention to the cover, but also the content of the book is important to pay attention to. An effective layout, which refers to how text and visual elements are arranged on a page, significantly enhances readability and comprehension for students. Consistency in this arrangement is crucial, as research indicates it directly contributes to students' comfort and ease when engaging with teaching materials (Santi et al., 2024)

The presentation aspect of the module received a high feasibility rating of 94.09%, placing it in the "Very Feasible" category. This is because the module's design incorporates essential elements such as an introduction, a table of contents, a list of images, module identification, usage instructions, a concept map, a summary, an answer key, a bibliography, and a glossary. This aspect has met the assessment. The completeness of the presentation will make it easier for students and teachers when using the module. Akhyar et al., (2023) argue that the presence of complete and comprehensive structural components is very important to make it easier for students to understand and navigate the material.

The last aspect is printability, which obtained a percentage of 94.44%. This aspect obtained the largest percentage in the assessment of teaching materials. The science module developed is a print-based science module, instead of a module, because it is adjusted to the needs of students. The module can be used anywhere and anytime without considering the signal and quota. Students are also not allowed to bring and use mobile phones at school. The printed module is easy to use

and move, and can be read anywhere, allowing readers to learn independently (Fitrianingrum Widayati, 2022).

This aspect pays attention to the quality of the science module after printing, such as the quality of prints of images, tables, and illustrations in the module is quite clear and does not cause visual confusion. The size of the paper used also affects the practicality of using the Science module. A paper size that is too large will make it difficult for students to carry, while a small paper size will make it difficult for students to read. In line with the research conducted by the (Ningrum et al., 2018), feasibility considers the quality of the clear images, the thickness of the paper used to avoid transparency, and the font size and spacing used in the writing of the module. Although in this aspect it has obtained a percentage with the category of "Very Feasible", there are suggestions and inputs provided by validators. The suggestions and inputs are used for improvement to improve the quality of the science module before being used by students.

The overall suggestions and inputs provided by the expert validators of teaching materials lie in the layout, which is not consistent. This needs to be corrected, considering that the layout has a great effect on the comfort and ease of reading for students and teachers who will use science modules in the future.

Feasibility Test Results by Expert Practitioners

The feasibility test by practitioner experts was carried out by three science teachers who are very experienced in the world of education, especially in teaching junior high school students. Practitioners come from three different schools. This validation process aims to assess the quality of CRT-based science modules based on the assessment aspects listed in the instrument. The percentage of assessment results from expert practitioners is presented in Table 6.

Table 6. Recapitulation of Practitioner Expert Validators

Aspects	Percentages (%)	Category
Learning	88.32%	Very Feasible
Benefit	86.11%	Very Feasible
Delivery	83.33%	Very Feasible
Overal average	**86.58%**	**Very Feasible**

Practitioners assess the validity of the product from several aspects. Based on the results of the expert validation above, the total percentage of assessments from the three validators is 86.58% with the category "Very Feasible". The results were obtained from the average scores of three expert practitioner validators in accordance with several aspects of the assessment on the material expert feasibility test questionnaire. The assessment aspect includes the learning aspect, the benefit aspect, and the delivery aspect. Experts evaluated various aspects, including the suitability of the material to the learning objectives, clarity, and attractiveness of the presentation (Primaharani et al., 2023). The details of the validation results of each aspect are described as follows.

The first aspect is learning to obtain a percentage of 88.32%. This result falls under the category of "Very Feasible ". This shows that the CRT-based science module developed is able to support the learning process effectively in accordance with the objectives that have been designed. This aspect was developed based on the CRT approach indicators(Blazar, 2021). The module encourages engagement between learners in the classroom through collaborative learning.

Conclusion

This research focused on developing an IPA module based on the Culturally Responsive Teaching approach, integrating Banten's traditional pottery handicrafts for "Substances and Their Changes" material, aimed at Grade VII students. The study yielded highly positive results: the module was declared "very feasible" with an average expert validation score of 89.23%, and received a "very good" response from students, averaging 85.25% in limited trials. However, a limitation of this research is that it only reached the development stage and did not comprehensively measure the module's effectiveness in enhancing students' scientific literacy. Therefore, it is suggested that this module be implemented as an innovative teaching material in Grade VII, and it is recommended to continue the research to a broader evaluation stage of the module's effectiveness and to refine its details for future development.

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