EDUKASI: JURNAL PENDIDIKAN DAN PENGAJARAN
ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

# DEVELOPING A VALID AND RELIABLE INSTRUMENT TO ASSESS CULTURALLY RESPONSIVE TEACHING IN INDONESIAN EDUCATION

**IYAN IRDIYANSYAH, RINA ROSDIANA, SITI CHODIJAH, DINI MARDIANI, ENENG SYIFA RAHMADANI**
Universitas Pakuan, Indonesia
Corresponding author: iyan.irdiyansyah@unpak.ac.id

**Abstract**
Culturally Responsive Teaching (CRT) is a pedagogical approach that emphasizes the importance of considering students' cultural backgrounds in the learning process to create an inclusive, equitable and effective learning environment. This study aims to develop a valid and reliable CRT practice measurement instrument for CRT practices tailored to the Indonesian educational context. The research employed a Research and Development (R&D) methodology using the Four-D model, which included the phases Define, Design, Develop, and Disseminate. The instrument was constructed based on an extensive literature review and validated by experts. Subsequently, it was tested on students enrolled in the Teacher Professional Education Program (PPG) through validity and reliability analyses. The content validity assessment, using Aiken's V, indicated that 20 of the 24 statement items were valid. Furthermore, the reliability test yielded a Cronbach's Alpha value of 0.984, demonstrating a very high level of internal consistency. The resulting CRT instrument included five main dimensions, namely validating, multidimensional, empowering, transformative, and emancipatory. This instrument can be utilized by teachers, researchers, and policymakers to assess and enhance the implementation of culturally responsive learning. Additionally, it serves as a foundation for developing more inclusive and contextualized education policies in Indonesia.

***Keywords***: culturally responsive teaching, empirical testing, instrument development.

## Introduction

Culturally Responsive Teaching (CRT) is an approach that emphasizes the importance of considering students' cultural backgrounds in the learning process (Caingcoy, 2023; Abdalla & Moussa, 2024). This approach has been shown to increase learner engagement, academic achievement, and build stronger relationships between teachers and students. CRT is also able to integrate students' cultural backgrounds into teaching practices, with the aim of creating an inclusive, equitable and effective learning environment (Ladson & Billing, 1994). As cultural diversity increases in educational settings, the need to measure the extent to which teachers implement CRT practices becomes more urgent. The development of an increasingly multicultural society requires education to be more responsive to students' cultural diversity (Azhari et al. 2024; Arfaton et al, 2025). In this context, CRT approach becomes very relevant.

Despite the abundance of literature discussing the principles and practices of CRT, valid and reliable instruments to measure its application are still limited, especially in the context of education

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

in Indonesia or other local contexts with high cultural diversity. Most of the available instruments were developed overseas and have not undergone adequate cultural adaptation. There are several reasons why CRT instruments need to be developed including, first, the limited number of local instruments; many existing CRT instruments were developed in Western countries such as the United States whose social and cultural contexts are different from Indonesia. Direct use of these instruments without adaptation can lead to cultural bias. Second, the lack of empirical validation in non-Western contexts. Only a few studies have tested the validity and reliability of CRT instruments in developing country contexts or with teacher populations in Southeast Asia, including Indonesia. Third, there is a lack of focus on teachers' perspectives. Some studies have emphasized learners' perceptions of CRT practices, while teachers' own perceptions and practices have received less attention. Fourth, conceptual aspects vary. The definitions and indicators of CRT in the literature are still diverse, so there is a need for conceptual alignment when developing instruments that fit the local context (Keiko et al., 2025).

Test the validity and reliability of the instrument through statistical analysis and provide an applicable measurement tool for teachers, researchers, and policy makers to assess and improve CRT competence in teaching practice. The development of CRT instruments is important because it is able to answer the challenges of cultural diversity in the classroom (Alhanachi et al., 2021). Teachers need tools to reflect on the extent to which their learning strategies have reflected a response to students' cultural diversity. The instrument can help teachers reflect their practice and identify areas for improvement. It can be used to assess and strengthen the implementation of equitable and socially just learning, which in turn supports the engagement and achievement of students from diverse backgrounds. Additionally, it can fill practical and theoretical gaps Many studies on CRT are theoretical, while the needs in the field demand concrete measurement tools to monitor CRT implementation. This instrument bridges the gap between theory and practice. It can also serve as a basis for policy-making. Data from the CRT instrument can be the basis for schools, education offices or ministries to structure teacher training, evaluate learning programs and formulate education policies that are more responsive to diversity. As well as being able to contextualize with the local environment. Locally developed CRT instruments will be more relevant and sensitive to the Indonesian socio-cultural context, compared to instruments from abroad that may not be directly appropriate (Azhary & Fatimah, 2024).

The gaps of this study are limitations of local measurement instruments. The majority of CRT implementation measurement tools were developed in Western countries with different cultural contexts, making them less appropriate and prone to bias when used directly in Indonesia, which has high cultural diversity without adequate cultural adaptation. Lack of Empirical Validation in Non-Western Contexts: Only a few studies have tested the validity and reliability of CRT instruments in developing countries, or particularly in Southeast Asia, such as Indonesia. Therefore, their validity and reliability in local contexts remain questionable. Lack of Focus on Teacher Perspectives: Many CRT studies emphasize student perceptions, while the perspectives and practices of teachers who are the primary implementers of CRT receive less attention. Consequently, understanding how teachers understand and apply CRT remains limited. Additionally. Conceptual variation and misalignment of CRT that the definitions and indicators of CRT remain diverse and inconsistent in the literature, necessitating conceptual alignment appropriate to local contexts to ensure more focused and relevant CRT measurement and practice.

Practical Implementation Challenges: Implementing CRT requires specialized teacher knowledge and skills as well as strong institutional support. However, many teachers lack a thorough understanding or training in CRT, which makes its effective implementation difficult. The impact of

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

CRT on learning outcomes and student engagement is difficult to measure directly and requires long-term observation. This presents a challenge in systematically evaluating and improving CRT implementation. The implementation of CRT needs to be supported by culturally responsive education policies and ongoing teacher training to reflect and reinforce practices appropriate to the cultural diversity of students in the classroom.

This research gap underscores the importance of research that develops culturally valid and reliable CRT measurement instruments in Indonesia, prioritizes teacher perspectives, and aligns with the local social and cultural context so that CRT can be effectively implemented and evaluated to support inclusive and equitable education. The aim of this research was to develop a valid and reliable instrument for measuring culturally responsive teaching (CRT) practices in the context of education in Indonesia.

## Literature Review

This literature review establishes the theoretical and empirical foundation of the study focusing on Culturally Responsive Teaching and Instrument Development. It presents the relevant concepts and theories about this study.

### *Culturally responsive teaching*

Culturally Responsive Teaching is a pedagogical approach that recognizes the importance of students' culture in all aspects of learning. Gay (2010); Hidayati et al. (2024) defines CRT as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning more relevant and effective for them." CRT aims to create inclusive and equitable learning, considering students' cultural backgrounds as strengths rather than barriers. Billings (1994); Attaya & Hilliard (2023) emphasizes that CRT is teaching that "consciously empowers students from historically marginalized groups." There are three main principles according to Ladson-Billings about CRT: first, Academic success; all learners are expected to achieve academic achievement. Second, Cultural competence; students learn to maintain their cultural heritage while mastering the dominant culture. Third, Critical consciousness; learners are encouraged to criticize social injustice and participate in social change. The above statement is reinforced by Gay who emphasizes the importance of aligning curriculum content, teaching style, and classroom communication with students' cultural context (Gay, 2010; Alhanachi, 2021). In fact, Gay suggests five components of CRT including; first, developing a knowledge base about cultural diversity. Second, building connections between cultural experiences and academic content. Third, using communication styles that are appropriate to the learners' culture. Fourth, implementing culturally responsive learning strategies, and fifth, creating an inclusive learning environment. CRT is closely related to multicultural education, which aims to integrate various cultural perspectives into the curriculum to realize educational justice and equality (Banks, 2006; Ulbricht, Schachner, Civitillo & Juang, 2024; Firmansyah & Wiyono, 2025). Hammond (2015); Hutchison & McAlister-Shields (2020) suggest the connection between CRT and the Brain. It was explained that CRT is a neuroscientific approach that strengthens learning through social and cultural connections. He emphasizes that CRT is not just about recognizing cultural differences, but about building emotional and cognitive connections that support deep learning. In this case, the brain learns better when students feel "seen", valued and understood. Paris (2012) extends the idea of CRT through the Culturally Sustaining Pedagogy approach which emphasizes not only responding to

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

students' culture but also maintaining, preserving and developing that culture within the classroom. CRT should encourage learners to maintain their cultural practices while still succeeding academically. Teachers need to create a space where cultural diversity is not only accommodated, but also empowered. The following are the basic principles about CRT.

**Table 1.** *Principles of Culturally Responsive Teaching*

| No | Main Principle of CRT | Explanation |
|---|---|---|
| 1 | Cultural awareness | Teachers recognize that cultural values and practices influence how students learn. |
| 2 | Trust and high expectations | Teachers believe in the potential of all students without bias against their backgrounds. |
| 3 | Inclusive curriculum | Learning materials reflect the diverse cultures of students. |
| 4 | Meaningful relationships with students | Teachers build positive and respectful personal relationships. |
| 5 | Flexible teaching practices | Learning methods are adapted to students' learning styles and cultural contexts |

In the context of a highly multicultural Indonesia with more than 700 ethnic groups and various regional languages, the CRT approach is highly relevant. However, this approach has not been systematically adopted in education policy or teacher training. Therefore, CRT is not only important as a pedagogical approach, but also as a framework for more equitable and contextualized education reform (Siwatu, 2007; Zimmer, Juang & Schachner, 2024) focuses on how teachers' self-efficacy affects their success in implementing CRT. He states that developing teachers' beliefs that they are capable of teaching culturally responsively is an important first step. Instruments such as the CRT Self-Efficacy Scale were developed to measure the extent to which teachers believe they can implement CRT strategies, which in turn will encourage more consistent implementation in the classroom. While the concept of Culturally Responsive Teaching is widely recognized and used, its measurement remains a challenge. Many teachers may claim to have implemented CRT, but without a valid and reliable instrument, it is difficult to ascertain whether the implementation actually, conforms to the theoretical principles of CRT. Gay (2010) states that CRT must be grounded in real practice through structured and measurable strategies, not just slogans or good intentions. Instrument development research is urgently needed to assess the effectiveness of teachers in implementing CRT. Identifying which aspects of CRT competencies are strong and which are still weak, and providing data-based feedback for teachers and educational institutions.

### *Instrument development*

In the context of instrument development, instruments that have been developed abroad are not always suitable for direct application in the context of education in Indonesia or other countries with different cultural contexts. Therefore, it is necessary to make cultural adaptations to the indicators and statements in the instrument. Construct validation to make the instrument suitable for local sociocultural conditions. Development research (R&D) involving empirical testing of teachers and learners. Kehl et al. (2024) emphasized that cultural diversity is highly contextualized, so CRT measurement must consider the specific cultural background of students. Without a good instrument,

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

CRT risks becoming mere jargon in education policy. A standardized CRT instrument can be used by policy makers to assess the success of inclusive education programs. It can be the basis for curriculum development, teacher training and more equitable learning assessments. CRT instruments are important as tools for quality assurance and monitoring the implementation of culturally equitable education (Stoicoy, 2002; Samuels, 2007).

The development of a Culturally Responsive Teaching (CRT) instrument based on the Research and Development (R&D) concept is a systematic process aimed at producing a valid, reliable, and effectively applicable measurement tool to assess the implementation of culturally responsive teaching. This process involves structured and sequential stages, from needs identification to instrument dissemination. The initial stage in developing a CRT instrument using the R&D approach is Define, where researchers identify the problem and need for an instrument capable of measuring culturally responsive teaching in the Indonesian educational context. This stage also conducts an in-depth literature review to determine relevant indicators or dimensions to be measured, such as teacher knowledge, attitudes, and skills in implementing CRT. Next comes the Design stage, where researchers design the instrument based on the established indicators. This design includes creating questions or items that align with the CRT conceptual framework, taking into account accessible language and the local cultural context to ensure relevance to respondents. At this stage, content validity testing is also conducted by experts to ensure that each item accurately represents the aspect intended to be measured.

The next stage is Development, which is the process of testing the instrument through a pilot test on a representative sample. At this stage, the empirical validity and reliability of the instrument are tested using statistical analysis, including exploratory and confirmatory factor analysis to test the instrument's structure and consistency. The results of this pilot test serve as the basis for revising and refining the instrument to improve its quality and accuracy. The final stage is Dissemination, where the validated and reliable instrument is published and distributed for widespread use in educational evaluation and research. Training for teachers and instrument users is also crucial at this stage to ensure optimal use of the measurement tool and produce reliable data. Through the R&D concept, the development of CRT instruments goes beyond creating the measurement tool but also ensures its quality and usability in educational practice (Martawijaya, Wahid & Mahir, 2024). This approach ensures that the resulting instrument truly meets real-world needs, is theoretically and empirically valid, and can be relied upon to improve the quality of teaching that respects students' cultural diversity. Therefore, the development of R&D-based CRT instruments is a strategic step in supporting inclusive and equitable education in Indonesia. From the above statement, it can be concluded that CRT instrument development research is an urgent need in an increasingly multicultural world of education. This instrument not only helps measure and evaluate teacher practice, but also becomes a transformation tool in building a more equitable, inclusive, and culturally diverse student-oriented education system.

## Methodology

### *Research design and approach of the study*

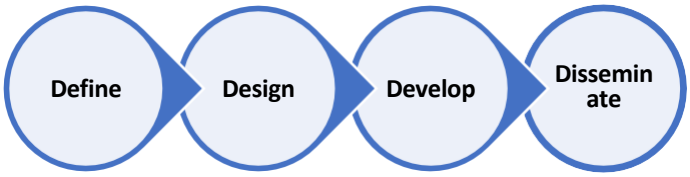
The approach used in this research was Research and Development (R&D) (Wedul, 1974; Creswell & Poth, 2016) with the Four-D (4D) model developed by Thiagarajan, Semmel, & Semmel (1974). This

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

model consists of four main stages:

1) Define; analyzing the needs, theoretical background, and results of previous studies related to CRT. Identifying CRT competency indicators from the literature. Review the curriculum, learning context, and teacher/learner characteristics.
2) Design; developing a blueprint or instrument lattice based on the predetermined CRT indicators. Develop initial items in the form of a Likert Scale. It is assumed that within the sphere of internationalistic responses there is good prediction from one response to the next. Select the measurement format, involving educational and cultural experts for initial content validation (expert judgment).
3) Develop; conducting a small-scale trial of the instrument. Analyzing validity and reliability using statistical tests using Aiken's V Index and Cronbach's Alpha. Make revisions based on trial results and expert input. Two stages of development are possible: initial development and final development.
4) Disseminate; Instruments that have been valid and reliable are disseminated in a broad context. The figure of the Four D model is presented as follows:

**Figure 1**. *Model Four D (Thiagarajan, S., Semmel, D., Semmel, M.I., 1974)*




***Research site and participants***

The subjects in this study were students of the teacher professional education program (*PPG*) at Pakuan University, Bogor, Indonesia, who are undergoing the educational process to become professional teachers. They were chosen as subjects because they are going through the transition from prospective to professional teachers. They have received relevant pedagogical and content learning and have sufficient teaching practice experience to evaluate the implementation of Culturally Responsive Teaching (CRT) principles in a learning context. *PPG* students are considered appropriate subjects because they become strategic targets in the implementation of inclusive, equitable, and culturally oriented pedagogy. 33 participants of this study joined principles of effective teaching course. This study used a purposive sampling technique based on certain considerations. Inclusion criteria for respondents in this study included being active students in the pre- service PPG program. Teaching experience in schools through practice or field experience was required. They were willing to participate and complete the development instrument.

This course, which had three credits equipped students not only with an understanding of Culturally Responsive Teaching (CRT) theory but also with its practical implementation. During the learning process, students collaboratively analyzed CRT content in teaching materials, including teaching modules, teaching materials, student worksheets (LKPD), learning media, and assessments. Working groups were formed based on the location of the field experience practice (PPL) that the students were currently undergoing, so that the analysis was relevant to the field context. Each group

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

provided input and suggestions for improvements to existing teaching materials and develops new teaching materials based on specific material in accordance with the learning outcomes of the independent curriculum. In addition to group work, students also individually developed teaching materials tailored to the characteristics of their students. All development of these teaching materials referred to the principles of CRT, including the learning model and other teaching material content, so that students were able to integrate the CRT approach comprehensively into their teaching practice.

***Data collection and analysis***

In this study, the process of data collection and analysis was carried out with reference to the Four Design model developed by Shammel and Shemmel (1974). This model was chosen because it provides a systematic and integrative framework, which is very relevant to be used in instrument development research, especially in the context of developing Culturally Responsive Teaching (CRT) instruments. The Four Design Model consists of four main interrelated components, namely conceptual orientation, procedural design, data collection, and data analysis.

The designed instrument was first administered to a number of experts with relevant backgrounds, namely language experts, evaluation experts, and educational management experts. The goal was to obtain professional input on the appropriateness of the instrument's language, content, and technical aspects based on their experience and expertise. This stage, called content validation, aimed to ensure each item is relevant and representative of the construct being measured. After the instrument was reviewed by the experts, the feedback was used to refine and revise the instrument. This revision stage was crucial for refining the language, clarifying questions, eliminating ambiguities, and ensuring its suitability for the research objectives.

After revisions are made, the instrument was piloted on a panel of experts, typically a group of individuals representing the target population of the study or those competent as evaluators. The goal was to empirically test the instrument's understanding and acceptance before its widespread use. To assess the instrument's validity quantitatively, the Aiken's V index was used. A statistic was used to measure expert agreement on instrument items. A high Aiken's V value indicated that the item was considered valid by the panelists. Items indicated as dropped based on Aiken's V are those with low scores and are deemed invalid or inappropriate, and therefore, were removed from the instrument. Valid items were those with adequate Aiken's V scores and were therefore retained.

After content validity is assured, the next step is to test the instrument's reliability. Reliability measures the instrument's internal consistency; namely how stable and consistent the instrument measures the same construct across conditions. Cronbach's alpha is a common statistical formula used to calculate this reliability. A high alpha value (usually above 0.7) indicates the instrument's reliability. This process is a standard step in developing educational research instruments, ensuring that the measurement tool is not only valid (measures what it is supposed to measure) but also reliable (measures consistently). Thus, the data obtained is credible and supports valid research conclusions

Furthermore, in the data analysis stage, the Four Design model provided guidance in processing and interpreting data systematically. The analysis was conducted using quantitative approaches, such as validity and reliability analysis, and supported by qualitative analysis on input from experts and respondents. Messick (1989) & Giralt, et al. (2021) defined that conceptualized validity as an integrated evaluative judgment about the degree to which empirical evidence and theoretical

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

rationales support the adequacy and appropriateness of inferences and actions based on test scores. Validity is not a property of the test itself but of the interpretations and uses of test scores. This unified view integrates content, criterion-related, and construct validity into a single framework.

By using the Four Design framework, researchers could maintain methodological consistency from design to interpretation of results, so that the instruments developed had high accuracy, relevance and acceptability in the context of implementing learning that is responsive to cultural diversity. The explanation was as follows.

### *Defining*

At the define stage, a theoretical review was conducted, especially on the main source from Gay (2018) by identifying the dimensions and indicators that will be used as Culturally Responsive Teaching (CRT) instruments. Gay divided CRT into eight dimensions, namely; Validating, Comprehensive and Inclusive, Multidimensional, Empowering, Transformative, Emancipatory, Humanistic, and Normative and Ethical. These eight dimensions are the dimensions Gay developed for CRT. However, this research was related to the development of learning steps designed by teachers in the teaching module. These steps were found in learning activities which included opening activities, core activities, and closing activities. In this step, the components of CRT were expected to be written in the form of dimensions in the formulation of each step containing CRT. In this study, not all dimensions could be applied in learning activities, both teacher activities and learner activities. There were five dimensions that can be implemented in the learning steps. The five dimensions were validating, multidimensional, empowering, transformative, and emancipatory.

The Comprehensive and Inclusive dimension was not included in the choice of CRT dimensions in this study because thinking skills training is not always measured by higher-level thinking skills. So, even low-level CRT will be applicable. Students' emotional feelings are built by the teacher from the beginning of learning in the diagnostic assessment. This assessment is the first step to prepare the learning process for students. The humanistic dimension relates to the application of differentiated learning. In addition, this dimension adjusts the development of learning materials based on the diagnostic assessment results. So, this dimension is related to the development of materials, not in the development of learning steps in the teaching module.

The normative and ethical dimension relates to the development of assessments in learning. This assessment product includes the development of assessment for learning, the development of attitude assessment (assessment as learning), and other assessment completeness, such as the availability of answer keys, rubrics, and scoring guidelines. This assessment tool is certainly not contained in a series of learning activity steps in the teaching module. One of the CRT components, for example related to culture that can be used as a question stimulus, is contained in the question content itself, not in the instructions for learner activities in learning activities in the teaching module. For these reasons, this research did not choose eight dimensions, but only five dimensions were used in formulating learning activities in the Indonesian teaching module.

### *Designing*

Based on the dimensions that had been obtained and determined above, a matrix was prepared in the form of a table containing dimensions, indicators and statement items that would be

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

tested both logistically and empirically. The initial grid that had been prepared is as follows:

**Table 2.** *Culturally Responsive Teaching Instrument Grid (Gay, 2018)*

| Dimensions | | Indicators | Items |
|---|---|---|---|
| Validating | | | 1. Relating material to cultural context (apperception)<br>2. Stimulating students' cultural understanding (building context/asking questions)<br>3. Identifying differences in students' learning styles |
| | 1.2 | Creating and valuing a learning community that cares about every difference | 4. Forming groups in heterogeneous learning styles/interests)<br>5. Respecting opinions within the internal group |
| Multidimensional | 2.1 | Managing learning in the classroom | 6. Providing clear group learning instructions<br>7. Conditioning student-centered learning<br>8. Conditioning learning time appropriately |
| | 2.2 | Interacting with students | 9. Giving students the opportunity to express their opinions<br>10. Showing empathy to students |
| Empowering | 3.1 | Increasing student self-confidence | 11. Giving appreciation to students verbally<br>12. Presenting the results of group discussions |
| | 3.2 | Supporting academic achievement | 13. Ensuring assessment of the learning process<br>14. Ensuring assessment of learning outcomes<br>15. Providing feedback |
| Transformative | 4.1 | Making innovations in learning | 16. Implementing problem-based models<br>17. Presenting problem-based material |
| | 4.2 | Involving technology in learning | 18. Presenting multimodal materials by utilizing various digital platforms in learning.<br>19. Utilizing various digital application platforms in the learning process and outcomes |
| Emancipatory | 5.1 | Providing multicultural learning | 20. Presenting culture-based material to strengthen concepts<br>21. Presenting culture-based material in practice activities<br>22. Presenting culture-based assessments |
| | 5.2 | Using an inclusive and representative knowledge framework | 23. Presenting material with correct scientific concepts and in accordance with the curriculum<br>24. Presenting material with correct scientific concepts and in accordance with the characteristics of students. |

### *Development*

Based on the construction result of the culturally responsive teaching instrument, five dimensions of the CRT variable, indicators and 24 statement items were obtained. A set of test instruments were given to experts to be commented on and criticized. The experts involved were three experts consisting of two material experts and one evaluation expert. The results of the experts' comments are collected in large numbers in the following table:

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

**Table 3.** *Expert test results on CRT instruments*

| No. | Indicators | Expert Comment |
|---|---|---|
| 1.2 | Creating and valuing a learning community that cares about every difference | *"No. 5. It would be best to change it with "supporting cross-cultural understanding"* |
| 3.2 | Supporting academic achievement | *"No. 14. Replace the word" ensure" with "aassessing individual involvement in the learning process"*<br>*No. 15. Replace the word "ensure" with "assessing the students' learning outcomes for formative purposes"* |
| 4.1 | Making innovations in learning | *"No. 16. Add the word" immediate" before the word "feedback"*<br>*"No. 17. Add the word the word "learning" before the word" model". Replace the word "culture" into "cultural diversity"* |

The table above illustrated the results of expert comments that provided input on the perfection of the instrument. In this case, there was no reduction in the number of items in the CRT instrument but the revision of the sentences should be necessary. There were five items that should be revised, namely number 5, 14, 15, 16, and 17. The improvements to a set of instruments based on expert comments are as follows:

**Tabel 4**. *Instrument improvement based on expert comments*

| Dimension | | Indicators | | Items |
|---|---|---|---|---|
| Validating | 1.1 | Using students' diverse cultural knowledge, prior experiences, frames of reference and learning styles | 1. | Relating material to cultural context (apperception) |
| | | | 2. | Stimulating students' cultural understanding (building context/asking questions) |
| | | | 3. | Identifying differences in students' learning styles |
| | 1.2 | Creating and valuing a learning community that cares about every difference | 4. | Making groups in heterogeneous learning styles/interests) |
| | | | 5. | Supporting cross-cultural understanding |
| Multidimensional | 2.1 | Managing learning in the classroom | 6. | Providing clear learning instructions in groups |
| | | | 7. | Conditioning student-cantered learning |
| | | | 8. | Arranging learning time appropriately |
| | 2.2 | Interact with students | 9. | Giving students the opportunity to express their opinions |
| | | | 10. | Showing empathy to participants |
| Empowering | 3.1 | Increase student self- confidence | 11. | Giving appreciation to |

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

| | | | | |
|---|---|---|---|---|
| | | | | students verbally |
| | | | 12. | Presenting the results of group discussions |
| | 3.2 | Supporting academic achievement | 13. | Ensuring assessment of the learning process |
| | | | 14. | Assessing individual involvement in the learning process |
| Transformative | 4.1 | Making innovation in learning | 15. | Providing immediate feedback |
| | | | 16. | Implementing Problem-based learning models |
| | | | 17. | Presenting problem-based material |
| | 4.2 | Involving technology in learning | 18. | Presenting multimodal materials by utilizing various digital platforms in learning |
| | | | 19. | Utilizing various digital application platform in the learning process and outcomes |
| Emancipatory | 5.1 | Providing multicultural learning | 20. | Presenting culturally diverse material to strengthen concepts |
| | | | 21. | Presenting culturally diverse material in practice activities |
| | 5.2 | Using an inclusive and representative knowledge framework | 22. | Using culturally diverse assessments |
| | | | 23. | Presenting material with correct scientific concepts and in accordance with the curriculum |
| | | | 24. | Presenting material with scientific characteristics of students |

Concepts that are appropriate to the next stage is the Aiken's V index test involving 17 panelists. The Aiken's V test serves to ensure that the instrument used truly reflects the construct to be measured, based on expert assessment. The results of the Aiken's V index are presented in the following table:

**Table 5.** *Tabulation of Panelist Test Results with Aiken's V Index*

| Items | Aiken's V Index Score | Aikens's V Index Table | Items Quality |
|---|---|---|---|
| Item 1 | 0.762 | 0.710 | Valid |
| Item 2 | 0.725 | 0.710 | Valid |
| Item 3 | 0.712 | 0.710 | Valid |
| Item 4 | 0.725 | 0.710 | Valid |
| Item 5 | 0.687 | 0.710 | Drop |
| Item 6 | 0.725 | 0.710 | Valid |
| Item 7 | 0.725 | 0.710 | Valid |
| Item 8 | 0.650 | 0.710 | Drop |
| Item 9 | 0.712 | 0.710 | Valid |
| Item 10 | 0.762 | 0.710 | Valid |
| Item 11 | 0.712 | 0.710 | Valid |

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

| | | | |
|---|---|---|---|
| Item 12 | 0.750 | 0.710 | Valid |
| Item 13 | 0.662 | 0.710 | Drop |
| Item 14 | 0.787 | 0.710 | Valid |
| Item 15 | 0.737 | 0.710 | Valid |
| Item 16 | 0.775 | 0.710 | Valid |
| Item 17 | 0.750 | 0.710 | Valid |
| Item 18 | 0.737 | 0.710 | Valid |
| Item 19 | 0.750 | 0.710 | Valid |
| Item 20 | 0.737 | 0.710 | Valid |
| Item 21 | 0.650 | 0.710 | Drop |
| Item 22 | 0.737 | 0.710 | Valid |
| Item 23 | 0.762 | 0.710 | Valid |
| Item 24 | 0.750 | 0.710 | Valid |

Based on the Aiken's V Index test results table, there were twenty statements that were included in the valid category and could be included in the CRT-based learning plan. However, to meet the perfection of the test, a reliability test was needed. This reliability test used the Alpha Cronbach formula with the help of the SPSS version 21 program. The test results are as follows:

**Tabel 6.** *Reliability statistics*

| Cronbach's Alpha | N of Items |
|---|---|
| .984 | 20 |

Based on the results of the reliability test of twenty statement items, a Reliability value of 0.984 was obtained. This means that the statement items can be said to be Fit and have a high level of reliability.

***Disseminating***

Based on the test results, all statements tested were tested by including several components of the CRT dimensions into the Learning Plan. This had been tested in several schools by PPG students and was shown by a good understanding and real implementation of the culturally responsive teaching (CRT) concept in compiling learning modules. Students were able to validate students' cultural identities by linking teaching materials to the local cultural context, using familiar language, and inserting cultural elements into learning activities and reflections. They also took into account the diversity of interests and learning styles in forming groups, so that a respectful and inclusive class community is created. In the multidimensional dimension, students applied various strategies, approaches, and cultural-based learning media that were relevant to students' needs.

The empowerment dimension is reflected in students' efforts to provide space for expression, provide motivating feedback, and appreciate the process and active participation of students. Furthermore, the transformative dimension was evident from students' courage to integrate problem-based materials and the use of technology to support contextual and critical learning. In the emancipatory dimension, students strived to display the diversity of Indonesian culture through inclusive

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

materials and exercises that were adaptive to students' social and emotional environments. Overall, students not only understood the concept of CRT theoretically, but also applied it systematically at each step of learning according to the indicators of each dimension, thus contributing to the creation of an inclusive, fair, and empowering learning environment.

## Findings

The CRT instrument developed in this study was based on five main dimensions adapted from Gay's theory (2018), namely: validating, multidimensional, empowering, transformative, and emancipatory. These five dimensions were chosen because they were the most relevant and they could be applied in classroom learning steps, while the other three dimensions (comprehensive and inclusive, humanistic, normative and ethical) were not included because they were more related to material development and assessment, not direct learning activities. From the initial construction results, the instrument consisted of 24 statement items representing indicators in each dimension. After going through a content validity test by three experts (two material experts and one evaluation expert), there were several editorial revisions to the five statement items to clarify the meaning and adjust to the learning context. There was no reduction in the number of items, only improvements to the sentences in items 5, 14, 15, 16, and 17.

Furthermore, the instrument was tested using the Aiken's V Index by 17 panelists to ensure content validity. The results showed that 20 of the 24 items were declared valid (having a V value above 0.710), while four items (numbers 5, 8, 13, and 21) were declared invalid and had to be dropped. The reliability test using Cronbach's Alpha produced a value of 0.984 for 20 valid items, indicating that the instrument was very reliable and consistently used in measurement. This validated instrument was then implemented in the preparation of the Learning Plan by PPG students in several schools. The results of the implementation showed that students were able to integrate the CRT concept in real terms, such as linking material to the local cultural context, forming heterogeneous study groups, using culture-based learning strategies, providing motivating feedback, and displaying cultural diversity in material and assessment. This proves that the CRT instrument is not only statistically valid and reliable, but also effective in encouraging inclusive, equitable, and empowering learning in the classroom.

### *Aiken's V index test*

Aiken's V was used as statistic to quantify the content validity of an assessment item. It is calculated based on the ratings provided by a panel of experts on the degree to which an item represents the construct being measured (Aiken, 1985; Irdiyansyah, 2024). Based on testing both logically or expertly and empirically, the following research findings were obtained. In this study, content validity was tested using the Aiken's V Index involving 17 expert panelists. The results of the Aiken's V Index test shown in Table 5 showed that of the 24 statement items tested, 20 items had an Aiken's V score above the critical value of 0.710, so they were declared valid. Meanwhile, 4 statement items (items 5, 8, 13, and 21) had scores below 0.710 and were declared invalid (dropped). This meant that 20 statement items were declared suitable for use or included in the Learning Plan. Meanwhile, four statement items did not meet the validity criteria and had to be removed or discarded. Thus, the research instrument to be used in the CRT- based learning plan consists of 20 statement items that have been validated by experts. The data is as follow:

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

**Table 7.** *The resume of final result of aiken's v index test*

| Valid Items | Drop Items |
|---|---|
| 1,2,3,4,6,7,9,10,11,12,14,15,16,17,18,19,20,22,23,24<br>Total: 20 Items | 5,8,13,21<br>Total: 4 Items |

***Reliability Testing with Cronbach Alpha***

After obtaining valid statement items, the next step is to test the reliability of the instrument using the Cronbach's Alpha formula through the SPSS version 21 program. The results of the reliability test shown in Table 6 show that the Cronbach's Alpha value for 20 statement items is 0.984. This means that the Cronbach's Alpha value> 0.9 indicates a very high level of reliability (Cronbach, 1971). The instrument consisting of 20 statement items is very consistent and reliable to use. The instrument based on the test results is presented as follows:

**Table 8.** *Final Instrument tested logically and empirically*

| Dimensions | | Indicators | Items |
|---|---|---|---|
| Validating | 1.1 | Using students' diverse cultural knowledge, prior experiences, frames of reference and learning styles | 1. Relating material to cultural context (apperception)<br>2. Stimulating students' cultural understanding (building context/asking)<br>3. Identifying differences in students' learning styles |
| | 1.2 | Creating and valuing a Learning community that cares about every difference | 4. Making groups in heterogeneous learning styles/interests) |
| Multidimensional | 2.1 | Managing learning in the classroom | 5. Providing clear learning instructions in groups<br>6. Conditioning student-centered learning |
| | 2.2 | Interact with students | 7. Giving students the opportunity to express their opinions<br>8. Showing empathy to students |
| Empowering | 3.1 | Increase students' self-confidence | 9. Giving appreciation to students verbally<br>10. Presenting the results of group discussions |
| | 3.2 | Supporting academic achievement | 11. Assessing individual involvement in the learning process<br>12. Providing immediate feedback |
| Transformative | 4.1 | Making innovations in learning | 13. Implementing problem-based learning models<br>14. Presenting problem-based materials |

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

| | | | |
|---|---|---|---|
| | 4.2 | Involving technology in learning | 15. Presenting multimodal materials by utilizing various digital platforms in learning<br>16. Utilizing various digital application platforms in the learning process and outcomes |
| Emancipatory | 5.1 | Providing multicultural learning | 17. Presenting cultural diversity-based material in concept reinforcement<br>18. Using cultural diversity-based assessments |
| | 5.2 | Using an inclusive and representative knowledge framework | 19. Presenting material with scientific concepts that are correct and in accordance with the curriculum<br>20. Presenting material with scientific concepts that are in accordance with the characteristics of students |

## Discussion

Based on the results of the instrument development consisting of five main dimensions of CRT, namely Validating, Multidimensional, Empowering, Transformative, and Emancipatory, it can be concluded that the instrument has covered important aspects in the responsive and inclusive learning process (Razali et al, 2024). Based on the results by testing 24 items, 20 items were declared valid. This Showed that these items meet the content validity criteria according to the assessment of experts, so they are suitable for use in research or measurement instruments. While, the total of 4 items were declared dropped items. These items do not meet the established validity criteria (the Aiken V value is below the minimum limit required), so it is recommended not to be used because they are considered less relevant or not representative of the construct being measured. The results of the content validity test using the Aiken V Index on this instrument showed that most of the items (83.3%) were declared valid, while a small portion (16.7%) had to be dropped. Thus, the instrument is quite suitable for use in data collection according to the research objectives, after removing invalid items. Overall, this instrument is designed to assess various important aspects of learning that is responsive to student diversity. Each dimension and its indicators complement each other to ensure that the learning process is not only academically effective, but also inclusive, innovative, and empowering for all students regardless of their cultural background or learning style. This approach is very relevant to creating an educational environment that is fair, adaptive, and oriented towards the development of each individual's potential.

This study successfully developed a valid and reliable measurement instrument for Culturally Responsive Teaching (CRT) practices for the Indonesian education context. The resulting instrument consisted of 20 empirically validated statements. Based on the results of the instrument validation consisting of five main dimensions, namely Validating, Multidimensional, Empowering, Transformative, and Emancipatory, it could be concluded that the instrument has covered important aspects in the responsive and inclusive learning process. First, the validating dimension emphasizes the importance of using cultural knowledge, prior experience, and recognition of diverse learning styles as a basis for linking learning materials to the cultural context of students and building a

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

learning community that values differences (Billings, 1995). Second, the multidimensional dimension shows that effective learning management includes providing clear instructions, conditioning student-cantered learning, and interactions that support active participation and empathy for students (Hu et al, 2020; Supsiloani et al. 2024). Third, The Empowering dimension emphasizes the role of learning in increasing student self-confidence through appreciation and presentation of discussion results, and supporting academic achievement with assessment of individual involvement and timely feedback (Min, 2022; Susilo et al. 2025). Fourth, the transformative dimension emphasizes innovation in learning through the application of problem-based learning models and the use of diverse digital technologies to present materials in a multimodal manner (Rahmawati, 2020). The last, the emancipatory dimension emphasizes the importance of presenting inclusive and representative multicultural learning, with materials based on cultural diversity and scientific concepts that are correct and in accordance with the characteristics of students (Omodan, 2022).

Overall, this instrument is valid for use in measuring and developing holistic, inclusive, and adaptive learning practices to the needs of diverse learners, so that it can support the creation of an effective and empowering learning environment. The results of the validity and reliability tests indicated that this instrument was suitable to be used as a measurement tool for CRT practices in the field. The use of this instrument can help teachers reflect on and improve learning strategies that are responsive to students' cultural diversity, supporting the creation of more equitable, inclusive, and socially just education. In addition, this instrument can also be used as a basis for policy making and the development of teacher training programs that are more contextual and relevant to the needs of multicultural communities in Indonesia. Thus, this study contributes to bridging the gap between CRT theory and practice and strengthening efforts to improve the quality of education in the era of cultural diversity.

This research just focused on developing an instrument to measure culturally responsive teaching in the Indonesian educational context. Therefore, the results may be limited to the Indonesian educational context and culture and may not be directly applicable to other countries without modification. The instrument was developed and tested primarily on a specific sample of teachers or education students, so generalizing the results to the entire population of educators in Indonesia should be done with caution. The measurement of culturally responsive aspects focuses solely on cognitive, affective, and behavioral dimensions, in accordance with the chosen theoretical framework. Therefore, it is possible that other relevant dimensions were not fully captured.

The sample used for validation may not be nationally representative if the number or variety of respondents is limited, so the external validity of the instrument still needs further testing. Instrument development is usually preliminary and requires further testing in different educational contexts and levels to ensure robust reliability and validity. Instruments based on self-report or subjective assessments by teachers or students are potentially subject to social bias or self-assessment bias, which can affect data accuracy. Integrating culturally responsive measurement into actual teaching practices requires further support and training that may not be readily available. Therefore, instruments alone are insufficient without implementation support. This study likely does not provide detailed information on the impact of instrument use on directly improving teaching quality, so their practical functionality in the classroom context remains to be explored.

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

## Conclusion and Recommendations/Implications

Based on the results of the research on the development of the Culturally Responsive Teaching (CRT) instrument in the context of education is as much as five-dimensional CRT instrument has been proven to be valid, reliable, and applicable to support teachers in designing learning that is responsive to students' cultural diversity, and contributes to the creation of an inclusive and empowering learning environment. It is recommended that this instrument be integrated into teacher training programs and used as an evaluation tool and monitoring of learning practices in schools, so that the data produced can be the basis for policy makers in formulating more responsive and inclusive education policies, while encouraging further research for the adaptation of the instrument to a more specific local context and strengthening the teacher's perspective in the implementation of CRT. The implications of this recommendation are improving the quality of inclusive education through learning strategies that are appropriate to the cultural background of students, strengthening a school culture that values diversity, evidence- based decision making in the development of education programs and policies, contributing to the development of relevant local educational science, and encouraging the transformation of the education system towards a more democratic and humanistic system.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## References

Abdalla, H. & Moussa, A. (2024). Culturally responsive teaching: navigating models and implementing effective strategies. *Acta Pedagogia Asiana* 3(2), 91–100. DOI:10.53623/apga.v3i2.432

Aiken, L. R. (1985). Three coefficients for analyzing the reliability and validity of ratings. *Educational and Psychological Measurement*, 45, 131-142. https://10.1177/0013164485451012.

Alhanachi, S., de Meijer, Lonneke, A.L., Severiens, Sabine E. (2021). Improving culturally responsive teaching through professional learning communities: A qualitative study in Dutch pre-vocational schools, *International Journal of Educational Research*, Volume 105. https://doi.org/10.1016/j.ijer.2020.101698

Arfaton, A., Yuliantri Aria, D.R., Lestari Ismi, N., Syah Asrian, M., Rizki Ainur, I., Umar, U. (2025). The implementation of multicultural education as a means of forming characters of tolerance and mutual respect. *Jurnal Eduscience (JES).* Volume 12 No. 2. https://doi.org/10.36987/jes.v12i2.6819

Attaya, K.M & Hilliard, J. L. (2023). Applying critical race theory to social and emotional learning programs in schools. *Social and Emotional Learning: Research, Practice, and Policy*, Volume 1. https://doi.org/10.1016/j.sel.2023.100005.

Azhari Syukri, D., Sipahutar Efendi, R., Kalsum, Umi., Syahri Putri. (2024). Multicultural education and the significance of education. (*Edu Cendikia: Scientific Journal of Education)* Volume: 4, Nomor 03. https://10.47709/educendikia.v4i03.5078

Azhary, Lathifa & Fatimah, Sitti. (2024). The integration of local cultures in english teaching materials in promoting culturally responsive teaching. *(Al-Ishlah: Education Journal)* Vol.16, 2, pp. 2045-

2056. https://10.35445/alishlah.v16i2.4998
Banks, J.A. (2006). Race, culture, and education: The selected works of James A. Banks. Routledge.
Billings, L. G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*. Vol. 32, No. 3, pp. 465-491. https://doi.org/10.2307/1163320
Caingcoy Manuel, E. (2023). Culturally responsive pedagogy: A systematic overview. *Pedagogia Culturalmente Responsiva: Uma Visão Sistemática. Diversitas Journal,* Volume 8, Number 4 (oct./dec. 2023) p. 3203 – 3212. http://10.48017/dj.v8i4.2780
Creswell, J. W., & Poth, C. N. (2016). Qualitative Inquiry and Research Design: Choosing among five approaches. Canada. Sage publications.
Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), Educational Measurement (2nd ed., pp. 443–507). Washington, DC: American Council on Education
Firmansyah, H., Atmaja, T.S., & Wiyono, H. (2025). Exploring multicultural values in interfaith lecturer cooperation: An ethnography. (*Education: Journal of Education and Teaching)*, *12*(01), 141-153. https://doi.org/10.19109/wb8kds76
Firmansyah, H., Atmaja, T.S., & Wiyono, H. (2025). Exploring multicultural values in interfaith lecturer cooperation: An ethnography. (*Education: Journal of Education and Teaching)*, *12*(01), 141-153. https://doi.org/10.19109/wb8kds76
Gay, G. (2018). Culturally Responsive Teaching: Theory, Research, and Practice. Third edn. New York, NY: Teachers College Press.
Gay, G. (2010). Culturally Responsive Teaching (2nd ed.). New York: Teachers College Press.
Giralt, E.G., & Varela, M. L. J. (2021). The content aspect of validity in a rubric-based assessment system for course syllabuses. *Studies in Educational Evaluation*. Volume 68, 100971, https://doi.org/10.1016/j.stueduc.2020.100971.
Hammond, Z. (2015). Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students. California. Corwin Press.
Hutchison, Laveria and McAlister-Shields, Leah. (2020). Culturally Responsive Teaching: Its Application in Higher Education Environments. *Education Science. 10*(5), 124; https://doi.org/10.3390/educsci10050124.
Hidayati, F. A., Yuliati, Hutagalung, D. F. (2024). The implementation of culturally responsive teaching in ELT classrooms within the concept of emancipated curriculum. *Journal of English Language Teaching*. ELT FORUM 13(2). https://doi.org/10.15294/elt.v13i2.7731
Hu, X., Xu, Z., Neshyba, M., Geng, Z. & Turner, R.K. (2020). A multi-dimensional model: implications for preparing pre-service teachers for culturally responsive teaching. *Asia-Pacific Journal of Teacher Education*, *49*(2), 1-18. https://10.1080/1359866X.2020.1753169.
Irdiyansyah, I., Karmila, N., Agustina, C., & Aisy, K. R. (2024). Development of transformational leadership instrument to measure principal's leadership. *Journal of Innovation in Educational and Cultural Research*, 5(4), 624-633. DOI: https://doi.org/10.46843/jiecr.v5i4.1912
Keiko C.P. Bostwick, Andrew J. Martin, Kevin Lowe, Greg Vass, Annette Woods, Tracy L. Durksen. (2025). A framework for teachers' culturally responsive teaching beliefs: Links to motivation to teach Aboriginal curriculum and relationships with Aboriginal students. *Teaching and Teacher Education*. Volume 161. https://doi.org/10.1016/j.tate.2025.105020.
Kehl, J., Ott, K. P., Schachner, M., Civitillo, S. (2024). Culturally responsive teaching in question:

A multiple case study examining the complexity and interplay of teacher practices, beliefs, and microaggressions in Germany. *Teaching and Teacher Education*. 152. https://doi.org/10.1016/j.tate.2024.104772

Ladson-Billings, Gloria, (1994). The dream keepers: successful teachers of African American children. San Francisco: Jossey-Bass Publishers,

Likert, Rensis, (1932). A Technique for The Measurement of Attitudes. Archives of Psychology. New York University.

Martawijaya, M.A., Wahid, Syamsul, Mahir. (2024). The development of critical thinking ability instrument based on culturally responsive teaching (crt) in physics subjects. https://doi.org/10.2991/978-2-38476-335-1_16.

Messick, S. (1989). Validity. In R. L. Linn (Ed.), Educational Measurement (3rd ed., pp. 13-103. New York: Macmillan. https://doi.org/10.1002/j.2333-8504.1989.tb00389.x

Min, M., Lee, H., Hodge, C., & Croxton, N. (2022). What empowers teachers to become social justice-oriented change agents? Influential factors on teacher agency toward culturally responsive teaching. *Education and Urban Society*, 54(5), 560–584. https://doi.org/10.1177/001312452110275

Omodan, B. I. (2022). Analysis of emancipatory pedagogy as a tool for democratic classrooms. *International Journal of Research in Business and Social Science (2147- 4478)*, *11*(2), 348–354. https://doi.org/10.20525/ijrbs.v11i2.1662

Paris, D. (2012). Culturally Sustaining Pedagogy: A Needed Change in Stance, Terminology, and Practice. *Educational Researcher*, *41*(3), 93-97. https://doi.org/10.3102/0013189X12441244

Pevec-Zimmer, S., Juang, L. P., & Schachner, M. K. (2024). Promoting awareness and self- efficacy for culturally responsive teaching of pre-service teachers through the *identity project* – a mixed methods study. *Identity*, *24*(4), 288–306. https://doi.org/10.1080/15283488.2024.2344086

Rahmawati, Y., Ridwan, A., Cahyana, U., Febriana, D. (2020). The integration of culturally responsive transformative teaching to enhance student cultural identity in the chemistry classroom. *Universal Journal of Educational Research*, 8(2), 468 - 476. https://10.13189/ujer.2020.080218.

Razali, Mohd, N.M., Hamid, A. H. A., Alias, S. B., Mansor, N. A. (2024). The validity and reliability of culturally responsive leadership practice instruments in small schools peninsular Malaysia. *International Journal of Evaluation and Research in Education (IJERE)*. Vol. 13, No. 1, February 2024, pp. 1~8. https://10.11591/ijere.v13i1.26274

Supsiloani, Baiduri, R., Amal, Khair B., Ekomila, Sulian. (2024). Multidimensional approach to curriculum transformation in increasing multicultural appreciation. *Al-Hayat: Journal of Islamic Education*, *8*(3), 1017-1035. https://doi.org/10.35723/ajie.v8i3.680

Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education, 23*(7), 1086–1101. https://doi.org/10.1016/j.tate.2006.07.011

Stoicovy, C. (2002). A case for culturally responsive pedagogy. *International Research in Geographical and Environmental Education*, 11(1), 80–84. https://Doi.Org/10.1080/10382040208667470

Samuels, A. J. (2018). Exploring culturally responsive pedagogy: Teachers' perspectives on fostering equitable and inclusive classrooms. Srate, 27(1), 22–30.

Susilo., Darmawan, I. G. N., Sunggingwati, D., Arifin, S., Nisyah, K., & Mudiawati, R. C. (2025). The understanding of culturally responsive pedagogy among high school students and

ISSN |2355-3669| E-ISSN |2503-2518|
Volume 12 | Number 2 | December 2025|

teachers in East Kalimantan. *Journal of Innovation in Educational and Cultural Research*, 6(2), 438-449. https://doi.org/10.46843/jiecr.v6i2.2187

Thiagarajan, S. Semmel, D.S & Semmel, MI. (1974). Instructional Development for Training Teachers of Exceptional Children. Indiana: Indiana University Bloomington.

Ulbricht, J., Schachner, M. K., Civitillo, S., & Juang, L. (2024). Fostering culturally responsive teaching through the identity project intervention: A qualitative quasi-experiment with pre-service teachers. *Identity*, *24*(4), 307–330. https://doi.org/10.1080/15283488.2024.2361890

Wedul, S. (1974) An introduction to research and development: The Wisconsin guide to local curriculum improvement in industrial education. Wisconsin Department of Public Instruction.