

From Belief to Practice: Localizing and Indigenizing Mathematics Instruction in Philippine Elementary Schools

Mark John A. Belleza¹, Paul David B. Jalandoon¹, Shela Mae B. Mahigugma-on¹,
Irish Kim P. Barrios¹, Sharlene Joy D. Amo¹, Mikka A. Lobaton¹,
Alyssa Marie M. Salavia¹

¹ Northern Iloilo State University, Estancia, Iloilo, Philippines

Abstract – Culturally responsive teaching (CRT) has emerged as a vital approach to promoting equity and inclusivity in education. This study examines the beliefs and practices of 176 elementary mathematics teachers in the district of Carles, Iloilo province, focusing on CRT through localization and indigenization. Using a validated instrument, the results reveal strong alignment with CRT principles and frequent use of localization strategies, yet only moderate implementation of indigenization. Significant positive correlations between teachers' beliefs and practices affirm pedagogical consistency; however, the uneven translation of beliefs into practice highlights a need for targeted professional development to deepen culturally grounded instruction. Beyond these immediate findings, the study carries broader implications: Strengthening CRT capacities in mathematics education can enhance educational equity, help preserve indigenous knowledge systems, and foster context-sensitive learning environments, particularly in rural and island communities. Furthermore, these findings inform policy development by providing empirical support for culturally aligned teacher training programs and curriculum design across diverse Philippine educational contexts.

DOI: 10.18421/TEM153-89

<https://doi.org/10.18421/TEM153-89>

Corresponding author: Mark John A. Belleza,
Northern Iloilo State University, Estancia, Iloilo, Philippines
Email: mj.beelleeza@gmail.com

Received: 11 August 2025.

Revised: 15 February 2026.

Accepted: 07 May 2026.

Published: 27 August 2026.

 © 2026 Mark John A. Belleza et al.; published by UIKTEN. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDeriv 4.0 License.

The article is published with Open Access at
<https://www.temjournal.com/>

Keywords – Culturally responsive teaching, localization, indigenization, mathematics education, teacher beliefs.

1. Introduction

Mathematics education plays a foundational role in developing students' analytical thinking, problem-solving abilities, and logical reasoning-skills essential for success in a knowledge-based, global society [1].

Despite this importance, mathematics instruction often remains rigid and culturally neutral, failing to account for the diverse cultural backgrounds of learners.

This oversight contributes to disengagement, inequity, and learning gaps, particularly among marginalized communities. To address these concerns, culturally responsive teaching (CRT) has gained international traction as a framework for promoting inclusivity, equity, and relevance in the classroom [3], [4].

CRT in mathematics emphasizes the integration of students' cultural experiences and knowledge into instruction, leading to improved engagement, participation, and conceptual understanding [4], [5]. In recent years, countries with culturally diverse populations have begun incorporating CRT principles through localized instructional materials, teacher training programs, and culturally relevant curriculum development [6]. However, despite its recognized benefits, CRT implementation remains inconsistent and challenging-especially in under-resourced, rural, or linguistically diverse communities [7], [8].

In the Philippines, national and international assessments such as PISA [9], TIMSS [10], and the Southeast Asia Primary Learning Metrics [11] have consistently revealed poor mathematics performance among Filipino learners. Localized assessments, such as the Enhanced Regional Unified Numeracy Test (ERUNT), further affirm this trend.

In Carles district, only 7.1% of learners met proficiency standards, and out of 176 surveyed teachers, merely 48 had received training in contextualized instruction-highlighting a significant professional development gap.

Emerging research advocates for a more intentional application of localization (adapting content to local contexts) and indigenization (integrating indigenous knowledge and values) within CRT frameworks. These culturally rooted strategies are vital in ensuring meaningful learning experiences that resonate with learners' identities and lived realities [12], [13]. Yet, there is a limited body of empirical studies-particularly within the Philippine context-that examines how mathematics teachers apply these concepts in real-world classrooms.

The study addresses this gap by investigating the beliefs and practices of elementary mathematics teachers in the district of Carles in relation to CRT, with a particular emphasis on localization and indigenization. It also seeks to determine how demographic variables such as teaching experience, school size, and school location influence these beliefs and practices.

By anchoring the research on culturally responsive pedagogy, sociocultural theory, and teacher belief systems, the study not only examines the alignment between beliefs and practices but also highlights areas for professional growth and institutional support. The findings aim to inform teacher education, curriculum development, and policy reforms, ultimately contributing to the cultivation of equitable and culturally grounded mathematics instruction in the Philippines.

2. Methodology

Research design: This study employed a descriptive-correlational quantitative research design to examine the relationship between elementary mathematics teachers' beliefs and their instructional practices in implementing CRT, particularly through localization and indigenization strategies. A descriptive approach was used to summarize prevailing beliefs and practices, while the correlational component assessed the strength and direction of associations between variables without manipulating any conditions [14]. This design enabled the analysis of naturally occurring patterns in teachers' perspectives and behaviors in diverse school settings.

Respondents and sampling technique: The study population consisted of elementary mathematics teachers from the 36 public elementary schools in the district of Carles, division of Iloilo, during the academic year 2024–2025. Using stratified random sampling, the researchers ensured representation from both mainland and island schools, addressing geographic and contextual diversity.

A total of 176 teachers participated, representing 100% of the sample. Respondents were distributed across schools of varying sizes and types. The demographic profile captured variables such as sex, civil status, teaching rank, years of teaching experience, school size, and school locale. This stratification enhanced the generalizability of the findings within the district's unique educational landscape.

Locale of the study: The research was conducted across 36 public elementary schools in Carles, Iloilo, a coastal municipality composed of both mainland and remote island barangays. Schools ranged in size and included both integrated and central elementary institutions. This varied context provided a rich setting to explore how teachers adapt culturally responsive pedagogy within different socio-geographic constraints.

Research instrument: A researcher-developed and expert-validated questionnaire was used as the primary data-gathering instrument. It was divided into three main sections: Part I – *demographic profile*: Captured respondent characteristics (e.g., sex, civil status, teaching rank, years of experience, school size, and locale). Part II – *teachers' beliefs on CRT*: Measured the degree of support for CRT integration through localization and indigenization. Each subscale (localization and indigenization) included 10 items rated on a 5-point Likert scale: 5 = strongly supportive, 4 = moderately supportive, 3 = neutral, 2 = minimally supportive, 1 = not supportive. Part III – *teachers' CRT practices*: Assessed the frequency of implementing localization and indigenization strategies using a similar 5-point Likert scale: 5 = highly applied, 4 = applied, 3 = undecided, 2 = slightly applied, 1 = not applied at all. The instrument underwent pilot testing among mathematics teachers in the Estancia school district (not included in the main study). Revisions were made based on feedback regarding clarity and content. The final instrument achieved a Cronbach's alpha of 0.970, indicating excellent internal consistency and high reliability [15].

Data collection procedure: The researchers obtained formal approval from the Dean of the College of Education, the Schools District Supervisor, and the school heads of participating institutions. Data collection was conducted through face-to-face administration of printed questionnaires in mainland schools (104 respondents) and online distribution via Google Forms in island schools (72 respondents), addressing access constraints. Participants received informed consent forms detailing the study's objectives, confidentiality protocols, and voluntary nature. Completed surveys were collected, reviewed, and prepared for statistical processing.

Data analysis procedure: The data were encoded and analyzed using Statistical Package for the Social Sciences (SPSS) Version 23.0. The following statistical tools were employed: Frequency and percentage to describe demographic profiles; Mean and standard deviation to interpret central tendency and variability of responses on beliefs and practices; Pearson Product-Moment Correlation Coefficient (r) to test the relationship between teachers' beliefs and practices, and among subcomponents (localization and indigenization). A positive correlation would indicate that stronger beliefs in CRT are associated with more frequent application of culturally responsive strategies. This analytical approach aligns with the study's aim of assessing whether teachers' internal dispositions influence their instructional actions.

Ethical considerations: This study adhered to ethical standards in educational research: Informed consent was secured from all participants; Anonymity and confidentiality were maintained throughout the research process; Participation was voluntary, with respondents free to withdraw at any time without penalty; Data were securely stored and used solely for academic purposes. These measures ensured that the research was conducted with transparency, respect, and accountability.

3. Results

Demographic profile of respondents is shown in Table 1. A total of 176 elementary mathematics teachers from the Carles school district participated in the study. The demographic profile of the respondents revealed that the majority were female (87.5%) and married (80.7%), reflecting the typical composition of the Philippine elementary teaching workforce. Most participants held Teacher I positions (58.0%) and had between six and fifteen years of teaching experience in mathematics (71.0%), indicating a predominantly mid-career cohort. In terms of school characteristics, 61.4% of the respondents taught in small schools, while 59.1% were based in mainland communities. This demographic distribution suggests a teaching force embedded in localized and closely knit educational settings, which may influence their receptiveness to culturally responsive teaching practices. The predominance of female educators and mid-career professionals in small, community-based schools provides a contextual backdrop for understanding how beliefs and practices related to localization and indigenization are shaped and enacted in elementary mathematics instruction.

Table 1. Demographic profile of respondents ($N = 176$)

Variable	Categories	Frequency (f)	Percentage (%)
Sex	Male	22	12.5
	Female	154	87.5
Civil Status	Married	142	80.7
	Single	34	19.3
Teaching Position	Teacher I	102	58
	Teacher II	27	15.3
	Teacher III	35	19.9
	Master Teacher	12	6.9
Years Teaching	1–5 years	22	12.5
	6–10 years	65	36.9
	11–15 years	60	34.1
	16+ years	29	16.5
School Size	Small	108	61.4
	Medium	42	23.9
	Large	26	14.8
Locale	Mainland	104	59.1
	Island	72	40.9

Teachers' beliefs on contextualizing CRT through localization and indigenization: Teachers expressed strong support for contextualizing CRT through both localization and indigenization, as shown in Table 2. On a 5-point Likert scale, the mean score for beliefs related to localization was high ($M = 4.53$, $SD = 0.40$), as was the score for indigenization ($M = 4.51$, $SD = 0.44$). These results indicate a shared conviction among elementary mathematics teachers that integrating local and indigenous cultural contexts into instruction is essential for effective mathematics teaching. The high levels of support suggest that teachers view CRT as a way to make mathematics more relevant, accessible, and affirming for learners, particularly within culturally diverse and community-based educational settings.

Table 2. Teachers' beliefs on CRT

Dimension	Mean (M)	Standard Deviation (SD)	Description
Localization	4.53	0.4	Strongly Supportive
Indigenization	4.51	0.44	Strongly Supportive

Teachers' practices in contextualizing CRT: As shown in Table 3, teachers' practices in implementing CRT were assessed across two dimensions: Localization and indigenization.

On a 5-point Likert scale, localization practices were rated as highly applied ($M = 4.51$, $SD = 0.42$), while indigenization practices were rated as applied ($M = 4.31$, $SD = 0.48$). These findings suggest that while both approaches are positively endorsed, localization is more consistently implemented in classroom instruction. Teachers frequently adapted examples using local objects, contexts, and experiences to enhance mathematical understanding. In contrast, indigenization, which involves deeper integration of indigenous knowledge systems and cultural practices, was slightly less applied. This discrepancy may be attributed to limited resources, insufficient training, or challenges in accessing culturally specific content. Nonetheless, the overall ratings reflect a meaningful effort among educators to contextualize mathematics instruction in ways that affirm students' cultural identities and promote inclusive learning environments.

Table 3. Teachers' practices on CRT

Dimension	Mean (M)	Standard Deviation (SD)	Description
Localization	4.51	0.42	Highly Applied
Indigenization	4.31	0.48	Applied

Table 4 shows the relationship between beliefs and practices in CRT: A strong positive correlation was found between teachers' beliefs in localization and their corresponding instructional practices ($r = 0.674$, $p < .05$). This result suggests that educators who hold stronger beliefs in the value of localization are significantly more likely to implement these strategies in their mathematics classrooms. The alignment between belief and practice underscores the influence of internal dispositions on pedagogical decisions, particularly in culturally responsive teaching. Teachers who recognize the importance of integrating local cultural contexts tend to actively adapt their instructional methods to reflect these values, thereby enhancing the relevance and inclusivity of mathematics education.

Table 4. Correlation: Beliefs ↔ practices in localization

Variables	r	p-value	Interpretation
Beliefs – Localization	0.674	.000	Strong Positive Correlation

Table 5 shows the relationship between beliefs and practices in Indigenization: A stronger positive correlation was observed between teachers' beliefs in indigenization and their corresponding instructional practices ($r = 0.726$, $p < .05$).

This finding indicates that educators who place a high value on indigenization are significantly more likely to implement indigenous content and culturally grounded strategies in their mathematics instruction. The strength of this relationship suggests that belief in the importance of integrating indigenous knowledge systems plays a critical role in shaping classroom practices, reinforcing the idea that internal convictions can drive culturally responsive pedagogical approaches.

Table 5. Correlation: Beliefs ↔ practices in indigenization

Variables	r	P-value	Interpretation
Beliefs – Indigenization	0.726	.000	Strong Positive Correlation

Table 6 shows the relationship between beliefs in localization and practices in indigenization: A moderate to strong positive correlation was found between teachers' beliefs in localization and their practices in indigenization ($r = 0.534$, $p < .05$). This result suggests that educators who value the relevance of local cultural contexts are also inclined to apply broader CRT strategies, including the integration of indigenous knowledge systems. The association implies that a strong belief in localization may serve as a gateway to deeper CRT implementation, encouraging teachers to extend their culturally grounded practices beyond familiar local examples to include more complex and meaningful indigenous content in mathematics instruction.

Table 6. Correlation: Beliefs (localization) ↔ practices (indigenization)

Variables	r	p-value	Interpretation
Localization – Indigenization	0.534	.000	Moderate to Strong Correlation

Table 7 shows the relationship between beliefs in indigenization and practices in localization: Notably, a strong positive correlation was also found between teachers' beliefs in indigenization and their practices in localization ($r = 0.726$, $p < .05$). This result suggests that educators who highly value the integration of indigenous knowledge systems are significantly more likely to apply localized teaching approaches in their mathematics instruction. The strength of this relationship highlights the interconnectedness of culturally responsive teaching strategies, indicating that belief in one dimension of CRT, such as indigenization, can positively influence the implementation of another, like localization. This finding reinforces the idea that a holistic appreciation of cultural relevance in education fosters broader and more consistent application of inclusive pedagogical practices.

Table 7. Correlation: Beliefs (indigenization) ↔ practices (localization)

Variables	r	p-value	Interpretation
Indigenization – Localization	0.726	.000	Strong Positive Correlation

4. Discussion

This study explored the beliefs and instructional practices of elementary mathematics teachers in the District of Carles regarding CRT, with particular attention to localization and indigenization. Accordingly, the findings offer valuable insight into how demographic factors, teacher dispositions, and institutional contexts shape CRT implementation within rural and semi-urban Philippine classrooms. As such, the results add to the growing body of literature that promotes equity-oriented and culturally situated mathematics instruction [2], [16], [3].

As revealed by the demographic profile, most respondents were female, married, and held the rank of Teacher I, with 6–15 years of experience in small, mainland-based schools. This pattern reflects national trends, suggesting a moderately experienced and stable teaching workforce. Moreover, their immersion in close-knit communities may enhance their receptivity to culturally responsive and student-centered pedagogies. Nonetheless, alignment between teacher identity and community context alone is insufficient; sustained professional development, resource access, and institutional backing remain essential to translate predispositions into responsive practices [17].

In terms of beliefs, teachers expressed strong support for both localization and indigenization of instruction. These perspectives align with established pedagogical arguments emphasizing the benefits of contextualizing teaching within students' lived environments [18]. The findings also affirm that culturally responsive teaching enhances relevance and engagement by aligning instruction with learners' cultural realities [2]. While this readiness reflects a shift toward more meaningful and localized pedagogical approaches, it is important to note that belief alone does not guarantee implementation. Research has highlighted that rigid curricular structures and limited access to appropriate teaching materials often hinder the practical enactment of culturally responsive teaching, despite teachers' intentions [19], [20].

Although teachers reported high implementation levels in localization, their practices related to indigenization were only moderately high, suggesting challenges in fully integrating indigenous knowledge systems into mathematics instruction. These findings echo existing concerns about cultural misrepresentation, limited training, and inadequate support that hinder teachers' engagement with indigenous content [21], [22].

Consequently, the discrepancy in implementation suggests that while localization tends to involve surface-level adaptations, such as contextual examples, indigenization requires deeper cultural understanding and pedagogical skill. Thus, teachers must be equipped with structured professional training, culturally relevant resources, and appropriate guidance for respectful integration of indigenous knowledge. This reinforces the recommendation to actively collaborate with cultural elders, historians, and community leaders in crafting accurate and meaningful learning experiences [12].

Statistical analysis revealed significant positive correlations between teachers' beliefs and their practices in both localization and indigenization. This confirms that pedagogical beliefs serve as strong predictors of classroom behavior and instructional choices [16], [23].

Furthermore, the presence of cross-dimensional correlations between beliefs in localization and practices in indigenization and vice versa reinforces the holistic nature of CRT. As posited in the previous research, responsiveness in one domain can inform pedagogical engagement in another [2]. Yet, while belief is an important catalyst for pedagogical change, its influence is often moderated by real-world limitations such as resource scarcity, rigid curricular structures, and institutional constraints. These factors can inhibit the translation of culturally responsive intentions into sustained classroom practice, particularly in environments where bureaucratic systems and standardized mandates dominate instructional decision-making [24], [25], [26].

Ultimately, this study affirms that CRT can be meaningfully implemented in Philippine public school mathematics classrooms, provided that both teacher preparedness and institutional support are in place. It makes a valuable contribution by presenting evidence from a rural district, an area often overlooked in CRT research. The findings illustrate that localization can serve as a practical starting point for contextualizing instruction, as it allows educators to relate learning content to local materials, experiences, and community realities. In contrast, indigenization demands more intentional interventions, including capacity-building efforts, collaborative curriculum development, and sustained engagement with Indigenous knowledge holders and cultural communities. These processes require institutional support, teacher training, and policy alignment to ensure authenticity and responsiveness [27], [28], [29]. Moreover, the alignment between teacher beliefs and practices underscores the importance of cultivating culturally responsive dispositions during both preservice and in-service professional formation.

This relationship is particularly critical in contexts serving culturally and linguistically diverse learners, where teacher beliefs significantly influence instructional decisions, responsiveness to professional learning, and student engagement outcomes [30], [31], [32].

Equally important, the results underscore the power of place-based education in a discipline often considered culturally neutral. By foregrounding local and indigenous contexts, this study reveals how mathematics instruction can be enriched and rendered more relevant. In doing so, it echoes the call for culturally sustaining pedagogies that preserve and advance learners' cultural identities [3].

Taken together, the research emphasizes that CRT is not merely an abstract principle, it is a critical, measurable, and necessary transformation in how mathematics is taught. Such a shift is vital to honoring the cultural and geographic diversity of Filipino learners and ensuring inclusive, equity-driven education.

5. Conclusion

This study underscores the readiness and willingness of elementary mathematics teachers in the District of Carles to embrace culturally responsive pedagogy. The findings reveal strong teacher beliefs in localization and indigenization, coupled with moderately high implementation of localization strategies, reflecting a promising foundation for culturally relevant mathematics education in the Philippines. However, the significant gap between strong beliefs and deeper practice, particularly in indigenization, must be addressed through systemic, resource-based, and pedagogical support. Several important conclusions can be drawn from this work. First, while teachers recognize the value of CRT, translating this awareness into authentic classroom practice requires more than philosophical alignment; it demands concrete strategies, localized resources, and ongoing mentorship. Second, the disparity between localization and indigenization practices suggests that teachers may feel more comfortable adapting content to local contexts than integrating indigenous knowledge systems, possibly due to limited familiarity with community-specific cultural frameworks or insufficient curriculum guidance.

The contribution of this study lies in its nuanced exploration of how CRT can be localized and indigenized in Philippine elementary mathematics classrooms. It offers empirical evidence that belief-practice alignment is strong, yet constrained by structural factors such as resource availability, curriculum flexibility, and professional development opportunities.

By documenting these dynamics, the study provides a framework for moving from potential to practice in CRT implementation, emphasizing that sustainable change requires both teacher development and institutional support.

Despite its contributions, this work has certain limitations. The study relied on self-reported practices rather than direct classroom observations, which may introduce social desirability bias. Additionally, the sample was limited to one district, restricting generalizability to other contexts. The cross-sectional design captures only a snapshot of teacher beliefs and practices, offering limited insight into how these evolve over time or in response to interventions.

Future research should address these limitations through classroom observations to validate self-reported practices and provide richer contextual understanding. Longitudinal studies could examine how teacher beliefs and practices develop with sustained professional development and curriculum support. Comparative research across different regions and grade levels would illuminate how contextual factors shape CRT implementation. Finally, intervention studies testing specific professional development models for enhancing indigenization practices would provide practical guidance for policymakers and teacher educators seeking to strengthen culturally grounded mathematics instruction. Such efforts are imperative for creating genuinely inclusive, context-sensitive learning environments that affirm all students' cultural identities while advancing mathematical understanding.

References:

- [1]. Santos-Trigo, M. (2024). Problem solving in mathematics education: tracing its foundations and current research-practice trends. *ZDM–Mathematics Education*, 56(2), 211-222. Doi: 10.1007/s11858-024-01578-8
- [2]. Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice* (3rd ed.). Teachers College Press.
- [3]. Paris, D., & Alim, H. S. (2017). *Culturally sustaining pedagogies: Teaching and learning for justice in a changing world*. Teachers College Press.
- [4]. Leonard, J., & Martin, D. B. (2013). *The brilliance of Black children in mathematics: Beyond the numbers and toward new discourse*. Information Age Publishing.
- [5]. Dhema, M., Cholily, Y. M., & Rahardjanto, A. (2025). Tracing local wisdom in the integration of ethnomathematics in vocational high school mathematics education: A Scopus systematic review. *Indonesian Journal of Science and Mathematics Education*, 8(2), 472-485. Doi: 10.24042/ijsme.v8i2.28208
- [6]. Lasco, M. T. (2021). *Exploring the teachers development of a culturally sensitive lesson in mathematics through modular approach: Towards a professional learning community model for multicultural instruction*. [Doctoral dissertation, De La Salle University].

- [7]. Saud, D. S. (2025). Teaching English in diverse settings: Lived experiences of Nepalese ELT teachers. *Far Western Journal of Education*, 2, 101-116. Doi: 10.3126/fwje.v2i01.83314
- [8]. Kerr, M. R. M. (2025). *Educator equity and pedagogy: Multilingual learners in rural schools*. [Doctoral dissertation, Antioch University].
- [9]. Organisation for Economic Co-operation and Development. (2019). *PISA 2018 results (Volume I): What students know and can do*. OECD Publishing. Doi: 10.1787/5f07c754-en
- [10]. International Association for the Evaluation of Educational Achievement. (2020). *TIMSS 2019 international results in mathematics and science*. Boston College, TIMSS & PIRLS International Study Center. Retrieved from: <https://timssandpirls.bc.edu/timss2019/> [accessed: 15 January 2026]
- [11]. UNICEF & SEAMEO. (2025). *SEA-PLM 2024 main regional report: Children's learning in 6 Southeast Asian countries*. United Nations Children's Fund (UNICEF) & Southeast Asian Ministers of Education Organization (SEAMEO) – SEA-PLM Secretariat. Retrieved from: <https://www.unicef.org/eap/reports/sea-plm-2024-main-regional-report> [accessed: 15 January 2026]
- [12]. Chávez, R. D. (2025). "I Always Thought Math Was Just Numbers": Developing Mathematics Teaching Through Integration of Multicultural Children's Literature and Social Justice. *Education Sciences*, 15(9), 1097. Doi: 10.3390/educsci15091097
- [13]. Zuliana, E., et al. (2025). The effect of culture-based mathematics learning instruction on mathematical skills: a meta-analytic study. *Journal of Education and Learning (EduLearn)*, 19(1), 191-201. Doi: 10.11591/edulearn.v19i1.21172
- [14]. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- [15]. Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. Doi: 10.5116/ijme.4dfb.8dfd
- [16]. Hammond, Z. (2015). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students*. Corwin Press.
- [17]. Chelladurai, D. S., et al. (2024). From awareness to action: strengthening teachers'culturally responsive skills in multilingual classrooms. *TPM–Testing, Psychometrics, Methodology in Applied Psychology*, 31(S4), 31-36. Doi: 10.5281/zenodo.18037511
- [18]. Farnsworth, V. (2010). Conceptualizing identity, learning and social justice in community-based learning. *Teaching and teacher education*, 26(7), 1481-1489. Doi: 10.1016/j.tate.2010.06.006
- [19]. Relampago, C. Q., & Garcia, M. P. (2025). Teacher agency in science instruction: Narratives from underserved indigenous communities in elementary school of Malita South District. *Asian Journal of Education and Social Studies*, 51(11), 910–919. Doi: 10.9734/ajess/2025/v51i112662
- [20]. McAllister, G., & Irvine, J. J. (2000). Cross cultural competency and multicultural teacher education. *Review of educational research*, 70(1), 3
- [21]. Glanfield, G. (2025). Decolonizing Secondary Mathematics: Identifying and Removing Barriers to Meaningful Incorporation of Indigenous Knowledge. *BU Journal of Graduate Studies in Education*, 17(1), 19-25.
- [22]. Madimabe-Mofokeng, M., Nubia, W. D., & Sathorah, H. (2025). An Insightful Look Into Mathematics Teachers' Navigation of Indigenisation as a Pedagogic Approach: A Contribution Toward Decolonisation¹. *Educational Research for Social Change*, 14(2), 67-72. Doi: 10.17159/2221-4070/v14n2a5
- [23]. Comstock, M., et al. (2023). A culturally responsive disposition: How professional learning and teachers' beliefs about and self-efficacy for culturally responsive teaching relate to instruction. *Aera Open*, 9, 23328584221140092. Doi: 10.1177/23328584221140092
- [24]. Hongboontri, C., & Keawkhong, N. (2014). School culture: Teachers' beliefs, behaviors, and instructional practices. *Australian Journal of Teacher Education (Online)*, 39(5), 66-88.
- [25]. Johari, N., & Singh, P. (2025). Curriculum reforms as a catalyst for fostering creativity, critical thinking, and entrepreneurial skills in education. *International Journal of Creative Research Thoughts*, 13(5).
- [26]. Studocu. (2021). *PROF-ED-104 study guide: The teacher and the community, school culture and organizational leadership – Module 4*. Pangasinan State University. Retrieved from: <https://www.studocu.com/ph/document/pangasinan-state-university/bachelor-of-elementary-education/prof-ed-104-sg-4-copy/27507590> [accessed: 05 February 2026]
- [27]. dela Cruz, J. (2021). *Localizing and indigenizing intervention materials for least mastered competencies*. SlideShare. Retrieved from: <https://www.slideshare.net/slideshow/localizing-and-indigenizing/244349540> [accessed: 11 February 2026]
- [28]. Majumdar, K., Baikady, R., & D'Souza, A. A. (2023). Understanding Indigenous social work education and practice: Local and global debates. *Indigenization Discourse in Social Work: International Perspectives*, 1-14. Doi: 10.1007/978-3-031-37712-9_1
- [29]. Nataño, N. M. (2023). Perspectives on Curriculum Contextualization and Localization as Integral to Promoting Indigenous Knowledge. *International Journal of Academic and Practical Research International Journal of Academic and Practical Research*, 2(3), 67-76.
- [30]. Buehl, M. M., & Beck, J. S. (2014). The relationship between teachers' beliefs and teachers' practices. *International handbook of research on teachers' beliefs*, 66-84. Routledge. Doi: 10.4324/9780203108437-6
- [31]. Guerra, P. L., & Wubbena, Z. C. (2017). Teacher Beliefs and Classroom Practices Cognitive Dissonance in High Stakes Test-Influenced Environments. *Issues in Teacher Education*, 26(1), 35-51.
- [32]. Martinez, M. I., Diaz Lara, G., & Whitney, C. R. (2025). The role of teacher beliefs in teacher learning and practice: Implications for meeting the needs of English learners/emergent bilinguals. *Language and Education*, 39(3), 717-735. Doi: 10.1080/09500782.2024.2362305