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# Negotiating Taboo, Culture, and Science: Culturally Responsive Science Learning for Reproductive Health Literacy of Elementary School Teacher Candidates in Papua

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**Abstract:** Reproductive health literacy in Papua still faces various socio-cultural challenges, such as body taboos, customary norms, and religious values that limit open discussion about reproduction. These conditions also impact prospective elementary school teacher students who will later serve as health educators for children. This study will investigate how prospective teacher students negotiate taboos, culture, and scientific knowledge in culturally responsive science learning to develop reproductive health literacy. The study used a narrative inquiry approach involving five of 28 fifth-semester students in the Elementary School Teacher Education (PGSD) Study Program in Papua. Data were collected through in-depth narrative interviews, weekly reflective journals, and participant observation, then analyzed using Clandinin's three-dimensional narrative framework (temporality, sociality, and place). The results of the study indicate a process of transformation from taboo body language to meaningful scientific language, negotiation between indigenous knowledge, religion, and science, the formation of the class as a safe space for dialogue, and the development of students' professional identities as prospective health educators. These findings confirm that culturally responsive science learning not only enhances cognitive understanding but also plays a significant role in strengthening reproductive health literacy and pedagogical readiness of prospective elementary school teachers in Papua.

**Keywords:** Cultural Taboos; Culturally responsive science learning; Narrative Inquiry; Prospective elementary school Teachers; Reproductive health literacy

## Introduction

Numerous studies have investigated reproductive health literacy and menstrual hygiene management in Papua and the Melanesian region; however, the majority concentrate on adolescent girls, hygiene practices, or access to sanitation facilities, predominantly employing descriptive and quantitative methodologies (Owiredu et al., 2025; Setty et al., 2019). These methodologies inadequately represent how individuals, especially pre-service elementary school educators, perceive, interpret, and navigate reproductive health matters amid cultural taboos, traditional norms, and robust religious convictions (Nigar & Kostogriz, 2025; Valderrama-Pérez et al., 2015).

Furthermore, teacher education—particularly in science instruction—serves as a pedagogical space that remains relatively underexplored for fostering safe and meaningful dialogue about reproductive health (Green et al., 2007; Naeem et al., 2023). Nevertheless, prospective elementary school teachers hold a strategic position as future educators who will bridge scientific knowledge with the socio-cultural realities of students in Papua (Fitriati et al., 2024; Noviana et al., 2023; Wollmann & Lange-Schubert, 2022). To address this gap, this study uses a narrative inquiry approach to explore how pre-service elementary school teachers negotiate

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taboos, culture, and scientific knowledge in culturally responsive science instruction (Rozi et al., 2025; Shein & Sukinarhimi, 2022).

By examining the narratives of students' learning experiences through the dimensions of temporality, sociality, and place, this study offers conceptual contributions to the development of culture-based reproductive health literacy and pedagogical implications for science education and teacher education in Papua.

## Method

*Research Design*

This study uses a narrative inquiry approach to explore the experiences and construction of meaning of pre-service elementary school teachers' experiences in culturally responsive science learning related to reproductive health literacy. This approach was chosen because reproductive health issues in Papua are sensitive, taboo, and deeply rooted in traditional and religious values. Therefore, understanding them requires in-depth exploration of participants' lived experiences, emotions, and negotiation of meaning. Narrative inquiry allows researchers to understand how learning experiences are reconstructed in narrative form, bound by the dimensions of time, social relations, and the context of place.

*Research Location & Context*

The research was conducted in the Elementary School Teacher Education (PGSD) Study Program, Faculty of Teacher Training and Education, Cenderawasih University, Papua. The Papuan context is understood as a socio-cultural space characterized by cultural diversity, strong customs and religious norms, and limited access to reproductive health information. In this context, science learning serves not only as a transfer of knowledge but also as a space for dialogue between science, local culture, and the social values entrenched within the student community.

*Research Participants*

The research participants consisted of five students out of a total of 28 fifth-semester students of the Elementary School Teacher Education Study Program who were taking a science course with a culturally responsive science learning approach. The participants were selected using purposive sampling with the following criteria: following the entire learning series, being willing to participate in narrative interviews and writing reflective journals, and coming from diverse Papuan cultural backgrounds. The limited number of participants is considered adequate within the narrative inquiry framework because this research emphasizes depth of experience, richness of narrative, and dialogic processes between the researcher and participants, not statistical generalizations.

*Data collection techniques*

Data was collected through three main techniques: In-depth narrative interviews, conducted twice during the semester to explore students' experiences related to learning, body taboos, and the meaning of reproductive health literacy. This technique primarily represents the dimensions of sociality and temporality; Weekly reflective journal, used to record changes in students' understanding, emotions, and self-position throughout the learning process, thereby capturing the dimension of temporality: Participatory observation was conducted during the learning process to record class interactions, cultural dialogue dynamics, and the learning context as a spatial dimension.

*Data analysis*

Data analysis was conducted using narrative thematic analysis, which focuses on interpreting experiences in narrative form, rather than simply grouping themes descriptively. The analysis process included repeated readings of interview transcripts, reflective journals, and observation notes; initial coding based on key experiences and events; and interpretation of narrative themes by considering the dimensions of temporality, sociality, and place. The analysis was conducted iteratively and reflectively to capture the process of negotiating meaning among students in culturally responsive science learning. Data analysis was conducted using narrative thematic analysis, a qualitative approach that emphasizes the process of interpreting experiences through narrative structures, rather than simply grouping data into descriptive themes. This methodology enables researchers to gain profound insights into students' personal experiences by conducting multiple readings of interview transcripts, reflective journals, and observation notes to discern pivotal experiences and events that influence the learning process (Braun & Clarke, 2022). Furthermore, narrative themes are interpreted iteratively and reflectively to capture the complexity of interpreting students' learning experiences in an educational context influenced by social and cultural backgrounds.

*Data Validity & Ethics*

Data validity was preserved via triangulation of data sources (interviews, reflective journals, and observations), member checking with participants, and researcher reflexivity in narrative interpretation. This study has obtained institutional ethics approval, and all participants provided written informed consent.

Participants' identities have been disguised to maintain confidentiality, given the sensitivity of the research topic.

## Result and Discussion

This section presents research findings based on narrative analysis of in-depth interviews, reflective journals, and classroom observations. Overall, the findings form a collective narrative of the journey of elementary school student teachers from experiences of silence, shame, and taboo to the ability to name their bodies, understand reproductive health scientifically, and position themselves as culturally sensitive future health educators. This narrative is articulated through four interrelated main themes.

*Theme 1*
*From Taboo Language to the Language of Science: Linguistic Transformation and Early Literacy*

The first theme describes how students experienced a transformation in how they labeled their bodies and reproductive processes. At the beginning of the course, most students expressed discomfort, embarrassment, and a tendency to avoid using taboo biological terms. Language about the body and reproduction was often disguised or replaced with implicit terms passed down through family and traditional communities. As culturally responsive science learning progresses, students begin to understand that the use of scientific language is not a violation of cultural values but rather a means to understand the body meaningfully and with dignity. This transformation is not only linguistic but also marks the development of reproductive health literacy as the right to know and care for one's own body, which has implications for students' attitudes, awareness, and engagement in the learning process (Ratnadila & Permatasari, 2022). In this context, scientific language functions not only as an academic tool but also as a medium for the formation of students' identity and dignity when combined with relevant cultural perspectives, thus enabling the meaning of science as an integral part of their social experience (Huszka et al., 2024). This finding aligns with studies that emphasize the importance of contextual, interactive, and meaningful learning strategies—including the use of visual and innovative approaches—to strengthen students' understanding and literacy of reproductive health (Festiawan et al., 2019).

*Theme 2*
*Negotiating Indigenous, Religious, and Scientific Knowledge in Understanding Reproductive Health*

The second theme highlights the epistemic negotiation process students experience when scientific knowledge intersects traditional values and religious teachings. Students describe how their initial understandings of menstruation, puberty, and bodily relations are largely shaped by traditional rules and normative religious moral messages that rarely include biological explanations. Through culturally responsive classroom dialogue, students begin to reflect on their traditional and religious practices, enabling them to distinguish between protective values and practices that potentially reinforce stigma. This dialogic process allows for critical reflection and value negotiation that aligns with students' cultural and religious beliefs, as emphasized in dialogic teaching approaches and classroom interaction patterns such as *Initiation–Response–Follow-up* (IRF), which encourage a more nuanced awareness of reproductive health issues (Gourlay, 2005; Nassaji, 2000; Song & Cadman, 2012). Thus, reproductive health literacy is not formed through a unilateral replacement of local knowledge but rather through a negotiation of meaning between science, culture, and religion that takes place in a validating and inclusive learning space (Kaneoka & Spence, 2019; Tseng et al., 2025).

*Theme 3*
*Classroom as Safe Space: Relational and Affective Transformation*

The third theme highlights the classroom's role as a social space that allows students to share their experiences of their bodies and reproductive health without fear or stigma. In the early stages, students—especially female students—tended to remain silent and avoid open discussions, especially in the presence of male students. The implementation of learning strategies such as story-based discussions, personal reflection, and the affirmation of norms of mutual respect gradually establish the classroom as a safe space for students. Through story-based discussions, students have the opportunity to share personal experiences and understand diverse perspectives, which strengthens social bonds and encourages affective transformation in the form of increased empathy and confidence in expressing experiences (Cunsolo Willox et al., 2013). The practice of personal reflection and an ethic of care in the learning space also contribute to the creation of a sense of safety and acceptance so that students are more confident in engaging in dialogue on sensitive issues (Sykes & Gachago, 2018). Furthermore, the affirmation of norms of mutual respect and attention to gender dynamics in classroom discussions creates an inclusive emotional environment, which encourages students to have open and reflective (Ashe, 2024; Mitchell et al., 2025; Thomas & Manalil, 2025).

*Theme 4*

*Envisioning Ourselves as Health Educators: The Formation of a Professional Identity*

The fourth theme describes how learning experiences influence how students interpret their professional roles as future elementary school teachers. Initially, some students viewed reproductive health as the responsibility of health workers or their families. After going through a process of reflection and learning, students began to realize that teachers have a strategic role in providing accurate, culturally sensitive, and developmentally appropriate information for children. This awareness marked the formation of a new professional identity as prospective educators who not only focus on teaching science but also contribute to the health and well-being of students. This finding is in line with the view that teachers' professional identity is formed through personal experiences and social contexts that influence how teachers interpret their pedagogical roles and practices (Beijaard et al., 2004) and is strengthened through involvement in learning designs and practices that are relevant to educators' social responsibilities (El Nagdi et al., 2018). Furthermore, awareness of cultural sensitivity and social justice in education positions teachers as agents of change who play a vital role in supporting student well-being through contextual and responsive learning (Moore, 2008; Tran & Selcen Guzey, 2023).

*Discussion*

This discussion section examines the research findings by linking them to the literature on culturally responsive science learning, reproductive health literacy, and teacher education. Four emerging themes—body language transformation, knowledge negotiation, the classroom as a safe space, and professional identity formation—reflect a learning process that is simultaneously cognitive, affective, and sociocultural. The following discussion highlights how culturally responsive science learning functions as a space for negotiating meaning between taboos, culture, and science in the context of primary school teacher education in Papua.

*Transforming body language is the foundation of reproductive health literacy*

The findings regarding the shift from taboo body language to meaningful scientific language demonstrate that reproductive health literacy is inextricably linked to issues of language and meaning. Students' inability to name their bodies and biological processes early in their learning reflects the strength of cultural norms that limit discourse about the body. Culturally responsive science learning serves as a linguistic bridge, enabling students to adopt scientific terminology without negating their cultural values (Yektiningtyas et al., 2023). This transformation confirms that reproductive health literacy is not merely an increase in factual knowledge but also a process of reconstructing the perspective on the body as a subject worthy of scientific and ethical understanding. With an approach sensitive to cultural context, science learning contributes to the formation of a more reflective and contextual literacy, especially in areas with strong social taboos such as Papua (Khairunnisa et al., 2023). This finding is in line with studies that emphasize the importance of integrating local cultural values in learning to increase the meaningfulness and success of literacy programs (Maimun et al., 2020) and demonstrates the effectiveness of ethnoscience-based science learning in bridging scientific knowledge with the socio-cultural context of students (Eko Atmojo & Lukitoaji, 2020).

*Knowledge Negotiation as a Core Process of Culturally Responsive Learning*

The theme of negotiation between indigenous knowledge, religion, and science demonstrates that science learning does not occur in a value vacuum. Students do not passively receive scientific knowledge but interpret it through the lens of cultural and religious experiences that have shaped their understanding of the body and reproductive health. This process emphasizes that epistemic conflict is not a barrier to learning but rather a source of critical reflection that enriches students' understanding. In this context, culturally responsive science learning serves as a dialogic arena that allows students to distinguish between protective cultural practices and those that reinforce stigma. These findings reinforce the view that reproductive health literacy in multicultural societies needs to be developed through a negotiation of meaning, rather than through a unilateral replacement of local knowledge.

*Classroom as a Safe Space and Relational Transformation*

Establishing a classroom as a safe space is a key finding that underscores the affective and relational dimensions of science learning. The shame, fear, and stigma that initially inhibited student participation gradually diminished when the classroom was facilitated as a dialogue space that valued personal experiences and cultural diversity. This situation reinforces the view that social recognition and supportive relationships in the classroom are key to developing science identity and increasing student learning participation, particularly for those from diverse cultural backgrounds (Carlone & Johnson, 2007). This transformation confirms that culturally responsive science learning impacts not only conceptual understanding but also the quality of students' social relationships, self-confidence, and courage to engage in

dialogue on sensitive issues (Ladson-Billings, 1995). In the context of science education, these findings suggest that creating a safe space is a crucial prerequisite for the development of meaningful and sustainable reproductive health literacy, which is supported by students' active engagement in an inclusive and supportive learning environment (Lam & Siew, 2024; Zhang et al., 2023).

*Formation of the Professional Identity of Prospective Teachers as Health Educators*

The final theme, regarding professional identity formation, demonstrates that learning experiences influence how students interpret their roles as future teachers. The realization that elementary school teachers have a strategic role in reproductive health education marks a shift in identity from mere recipients of knowledge to active and reflective pedagogical agents. This shift aligns with studies confirming that learning experiences and engagement in multicultural educational contexts contribute to the formation of future teachers' professional identities and increased competence in dealing with students' cultural diversity (Bryan & Atwater, 2002; Cushner & Mahon, 2002). Culturally responsive science learning helps students envision sensitive, ethical, and contextual pedagogical practices while strengthening their professional confidence in integrating social and cultural issues into science learning (García et al., 2010; McAllister & Irvine, 2000). These findings reinforce the argument that teacher education needs to explicitly integrate reproductive health issues into science learning, not merely as additional content, but as part of the formation of teachers' professional identity and social responsibility as agents of change in society (Anor, 2025; Blair et al., 2017; Hernandez et al., 2013; Mensah, 2019), particularly in the Papuan context, which is rife with cultural and social dynamics.

*Theoretical Contributions and Pedagogical Implications*

Theoretically, this study expands the study of culturally responsive science learning by demonstrating that reproductive health literacy is an arena for complex epistemic and identity negotiations, particularly in socio-cultural contexts such as Papua, which are rife with local taboos and norms. The *narrative inquiry approach* allows for a more profound understanding of how students experience and interpret science learning through narratives of lived experiences tied to their social and cultural contexts (Oktaviana et al., 2022). Through this approach, students' learning experiences are understood not merely as cognitive processes, but also as processes of identity formation and epistemic positions in the face of scientific knowledge and cultural values. Pedagogically, the findings of this study emphasize the importance of designing science learning that creates a safe space for dialogue, uses dignified language, and respects students' cultural backgrounds. Culturally responsive science learning needs to be implemented through adaptations of teacher education curricula that explicitly support student health and well-being (Dhieni et al., 2024; Sholihah et al., 2023). These implications are relevant for developing teacher education programs for elementary schools in Papua, which need to be designed contextually and inclusively, taking into account local needs and students' cultural diversity (Bektiarso et al., 2024). Furthermore, the integration of culturally responsive learning into elementary science learning has the potential to strengthen the relevance and meaningfulness of learning through the incorporation of local arts and cultural elements, thereby enhancing students' understanding of scientific concepts and respect for their cultural identities (Ali et al., 2025).

## Conclusion

This study demonstrates that culturally responsive science learning plays a crucial role as a negotiating space between taboos, culture, and scientific knowledge in developing reproductive health literacy among prospective elementary school teachers in Papua. Using a narrative inquiry approach, the study revealed that the learning process not only resulted in increased cognitive understanding but also in transformations in body naming, reinterpretation of traditional and religious practices, and changes in classroom social relations that enabled safe and meaningful dialogue. Research findings confirm that reproductive health literacy develops through a process of negotiating meaning across linguistic, affective, and sociocultural dimensions. Students do not simply acquire scientific knowledge but actively reconstruct their understanding by considering their cultural and religious values. This process also contributes to the formation of students' professional identities as prospective teachers with pedagogical awareness and social responsibility in health education. Pedagogically, the results of this study emphasize the importance of integrating culturally responsive science learning into elementary school teacher education, particularly in areas with strong social taboos like Papua. Science learning needs to be designed not only to transmit scientific concepts but also to create a safe space for dialogue, use identified language, and respect the diversity of students' experiences. In this way, prospective teachers are prepared to become educators capable of bridging science and students' socio-cultural realities. As a limitation, this study involved a limited number of

participants and focused on a single institutional context. Future research is recommended to include elementary school contexts and other actors, such as teachers and parents, to broaden understanding of the implementation of culturally responsive science learning in reproductive health education.

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Conceptualization; methodology; validation; A. A.; formal analysis; investigation; resources; S. W.; data curation.; A. F. W.; writing—original draft preparation; writing—review and editing; E. N.; visualization: A. K. All authors have read and approved the published version of the manuscript.

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The authors declare no conflict of interest.

## References

Ali, A., Kadir, A., & Ristiani, R. (2025). Culturally Responsive Community-Based Inquiry to Enhance Basic Scientific Literacy in Indigenous Papua Border Elementary Schools. *Ta'dib*, *28*(2), 285–296. https://doi.org/10.31958/jt.v28i2.15908

Anor, C. E. (2025). Assessing pre-service teachers' willingness to receive formal training in integrating Indigenous knowledge into science education. *AlterNative: An International Journal of Indigenous Peoples*, *21*(1), 101–112. https://doi.org/10.1177/11771801241310371

Ashe, F. (2024). Gendering Constitutional Change in Northern Ireland: Participation, Processes and Power. *Political Studies*, *72*(2), 486–504. https://doi.org/10.1177/00323217221122372

Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, *20*(2), 107–128. https://doi.org/10.1016/j.tate.2003.07.001

Bektiarso, S., Walukow, A. F., Narulita, E., & Ali, A. (2024). Khombouw in Science Learning: Development of Teaching Materials based on Local Wisdom Guided Inquiry Model to Improve Students' Interpersonal Skills. *Tafkir: Interdisciplinary Journal of Islamic Education*, *5*(4), 669–686. https://doi.org/10.31538/tijie.v5i4.1186

Blair, E. E., Miller, R. B., Ong, M., & Zastavker, Y. V. (2017). Undergraduate STEM Instructors' Teacher Identities and Discourses on Student Gender Expression and Equity: Stem Instructors' Discourses on Student Gender. *Journal of Engineering Education*, *106*(1), 14–43. https://doi.org/10.1002/jee.20157

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, *9*(1), 3–26. https://doi.org/10.1037/qup0000196

Bryan, L. A., & Atwater, M. M. (2002). Teacher beliefs and cultural models: A challenge for science teacher preparation programs. *Science Education*, *86*(6), 821–839. https://doi.org/10.1002/sce.10043

Carlone, H. B., & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching*, *44*(8), 1187–1218. https://doi.org/10.1002/tea.20237

Cunsolo Willox, A., Harper, S. L., Edge, V. L., 'My Word': Storytelling and Digital Media Lab, & Rigolet Inuit Community Government. (2013). Storytelling in a digital age: Digital storytelling as an emerging narrative method for preserving and promoting indigenous oral wisdom. *Qualitative Research*, *13*(2), 127–147. https://doi.org/10.1177/1468794112446105

Cushner, K., & Mahon, J. (2002). Overseas Student Teaching: Affecting Personal, Professional, and Global Competencies in an Age of Globalization. *Journal of Studies in International Education*, *6*(1), 44–58. https://doi.org/10.1177/1028315302006001004

Dhieni, N., Fridani, L., & Wulan, S. (2024). Teachers' Strategies in Supporting School Readiness and Transition to Primary School after Pandemic Era. *JPUD - Jurnal Pendidikan Usia Dini*, *18*(1), 208–217. https://doi.org/10.21009/JPUD.181.15

Eko Atmojo, S., & Lukitoaji, B. D. (2020). Pembelajaran Tematik Berbasis Etnosains Dalam Meningkatkan Literasi Budaya dan Kewargaan Siswa Sekolah Dasar. *Jurnal Inspirasi Pendidikan*, *10*(2), 105–113. https://doi.org/10.21067/jip.v10i2.4518

El Nagdi, M., Leammukda, F., & Roehrig, G. (2018). Developing identities of STEM teachers at emerging STEM schools. *International Journal of STEM Education*, *5*(1), 36. https://doi.org/10.1186/s40594-018-0136-1

Festiawan, R., Ngadiman, N., Kusuma, I. J., Nurcahyo, P. J., & Kusnandar, K. (2019). Pengembangan Model Pembelajaran Pendidikan Jasmani Berbasis Games, Education, and Visualisation (GEV) Untuk Meningkatkan Pengetahuan Kesehatan Reproduksi Remaja. *Jendela Olahraga*, *4*(2), 13. https://doi.org/10.26877/jo.v4i2.3678

Fitriati, F., Rosli, R., Iksan, Z., & Hidayat, A. (2024). Exploring challenges in preparing prospective teachers for teaching 4C skills in mathematics

classroom: A school-university partnership perspectives. *Cogent Education*, *11*(1), 2286812. https://doi.org/10.1080/2331186X.2023.2286812

García, E., Arias, M. B., Harris Murri, N. J., & Serna, C. (2010). Developing Responsive Teachers: A Challenge for a Demographic Reality. *Journal of Teacher Education*, *61*(1–2), 132–142. https://doi.org/10.1177/0022487109347878

Gourlay, L. (2005). OK, who's got number one? Permeable Triadic Dialogue, covert participation and the co-construction of checking episodes. *Language Teaching Research*, *9*(4), 403–422. https://doi.org/10.1191/1362168805lr175oa

Green, J., Willis, K., Hughes, E., Small, R., Welch, N., Gibbs, L., & Daly, J. (2007). Generating best evidence from qualitative research: The role of data analysis. *Australian and New Zealand Journal of Public Health*, *31*(6), 545–550. https://doi.org/10.1111/j.1753-6405.2007.00141.x

Hernandez, C. M., Morales, A. R., & Shroyer, M. G. (2013). The development of a model of culturally responsive science and mathematics teaching. *Cultural Studies of Science Education*, *8*(4), 803–820. https://doi.org/10.1007/s11422-013-9544-1

Huszka, B., Stark, A., Aini, I., & Annisa, R. I. (2024). Makna Metafora pada Pembelajaran Bahasa dan Budaya Indonesia di kelas Bahasa Indonesia bagi Penutur Asing (BIPA). *Indonesian Language Education and Literature*, *9*(2), 443. https://doi.org/10.24235/ileal.v9i2.16645

Kaneoka, M., & Spence, W. (2019). The cultural context of sexual and reproductive health support: An exploration of sexual and reproductive health literacy among female Asylum Seekers and Refugees in Glasgow. *International Journal of Migration, Health and Social Care*, *16*(1), 46–64. https://doi.org/10.1108/IJMHSC-01-2019-0002

Khairunnisa, Wardiati, & Agustina. (2023). Literasi Kesehatan Reproduksi Remaja dan Faktor-Faktor yang Mempengaruhinya (Sebuah Penelitian Cross-Sectional pada Siswi Madrasah Aliyah Negeri 1 Banda Aceh): Adolescent Reproductive Health Literacy and Factors Influencing It (A Cross-Sectional Study on Students of Madrasah Aliyah Negeri 1 Banda Aceh). *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *6*(6), 1142–1149. https://doi.org/10.56338/mppki.v6i6.3398

Ladson-Billings, G. (1995). Toward a Theory of Culturally Relevant Pedagogy. *American Educational Research Journal*, *32*(3), 465–491. https://doi.org/10.3102/00028312032003465

Lam, C. P., & Siew, N. M. (2024). Flipped Classroom in Science Education: Correlating Student Experience With Attitudes. *Problems of Education in the 21st Century*, *82*(5), 672–686. https://doi.org/10.33225/pec/24.82.672

Maimun, M., Sanusi, S., Rusli, Y., & Muthia, H. (2020). Internalisasi Nilai-nilai Karakter Kebangsaan Melalui Literasi Budaya dan Kewarganegaraan di Sekolah Menengah Atas (SMA) Kota Banda Aceh. *CIVICUS : Pendidikan-Penelitian-Pengabdian Pendidikan Pancasila Dan Kewarganegaraan*, *8*(1), 8. https://doi.org/10.31764/civicus.v8i1.1789

McAllister, G., & Irvine, J. J. (2000). Cross Cultural Competency and Multicultural Teacher Education. *Review of Educational Research*, *70*(1), 3–24. https://doi.org/10.3102/00346543070001003

Mensah, F. M. (2019). Finding Voice and Passion: Critical Race Theory Methodology in Science Teacher Education. *American Educational Research Journal*, *56*(4), 1412–1456. https://doi.org/10.3102/0002831218818093

Mitchell, H. A., Waights, V., & Hart, T. (2025). Digital storytelling within a community-based mental health improvement programme (ARCLIGHT) in Guyana. *Action Research*, *23*(4), 387–407. https://doi.org/10.1177/14767503241296717

Moore, F. M. (2008). Agency, Identity, and Social Justice Education: Preservice Teachers' Thoughts on Becoming Agents of Change in Urban Elementary Science Classrooms. *Research in Science Education*, *38*(5), 589–610. https://doi.org/10.1007/s11165-007-9065-6

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods*, *22*, 16094069231205789. https://doi.org/10.1177/16094069231205789

Nassaji, H. (2000). What's the use of "triadic dialogue"?: An investigation of teacher-student interaction. *Applied Linguistics*, *21*(3), 376–406. https://doi.org/10.1093/applin/21.3.376

Nigar, N., & Kostogriz, A. (2025). Unraveling Professional Identity Through Lived Experiences Over Time: Employing Hermeneutic Phenomenology and Narrative Inquiry. *SAGE Open*, *15*(3), 21582440251344922. https://doi.org/10.1177/21582440251344922

Noviana, E., Syahza, A., Putra, Z. H., Hadriana, Yustina, Erlinda, S., Putri, D. R., Rusandi, M. A., & Biondi Situmorang, D. D. (2023). Why is didactic transposition in disaster education needed by prospective elementary school teachers? *Heliyon*, *9*(4), e15413. https://doi.org/10.1016/j.heliyon.2023.e15413

Oktaviana, G. O., Sumardi, S. S., & Setyaningsih, E. S. (2022). Integrating Short Stories into English

Language Teaching: What English Teacher Educators Say about It? *AL-ISHLAH: Jurnal Pendidikan*, *14*(4), 6851–6864. https://doi.org/10.35445/alishlah.v14i4.2172

Owiredu, D., Chidwick, H., Kwagala, B., Mensah, D., Osei, L., & Kapiriri, L. (2025). Water, sanitation, and hygiene challenges in last-mile artisanal mining communities in Ghana and Uganda. *Dialogues in Health*, *7*, 100233. https://doi.org/10.1016/j.dialog.2025.100233

Ratnadila, R., & Permatasari, A. A. (2022). Perilaku Seksual dan Pengetahuan Kesehatan Reproduksi Komprehensif Pada Mahasiswa Ilmu Kesehatan Dan Non Kesehatan. *Jurnal Kesehatan Reproduksi*, *12*(2), 147–159. https://doi.org/10.58185/jkr.v12i2.28

Rozi, F., Yusnadi, Suyanti, R. D., & Ansya, Y. A. (2025). Culturally Responsive Teaching as a Strategy to Improve Students' Science Literacy in Higher Education. *Jurnal Penelitian Pendidikan IPA*, *11*(6), 58–67. https://doi.org/10.29303/jppipa.v11i6.11268

Setty, K., Cronk, R., George, S., Anderson, D., O'Flaherty, G., & Bartram, J. (2019). Adapting Translational Research Methods to Water, Sanitation, and Hygiene. *International Journal of Environmental Research and Public Health*, *16*(20), 4049. https://doi.org/10.3390/ijerph16204049

Shein, P. P., & Sukinarhimi, P. (2022). Taboos as a Social Mechanism Keeping the Human-Nature Balance: Core Values and Practices of Rukai Traditional Ecological Knowledge of Water. *Sustainability*, *14*(4), 2032. https://doi.org/10.3390/su14042032

Sholihah, I. M., Sumardjoko, B., Sumardi, Muhibbin, A., & Haryanto, S. (2023). Strategic Factors Skills for Solving Hots Science Questions for Batik Junior High School of Surakarta Grade 8th. *Jurnal Penelitian Pendidikan IPA*, *9*(12), 10860–10866. https://doi.org/10.29303/jppipa.v9i12.5724

Song, X., & Cadman, K. (Eds.). (2012). *Bridging Transcultural Divides: Asian Languages and Cultures in Global Higher Education* (1st ed.). University of Adelaide Press. https://doi.org/10.1017/9781922064318

Sykes, P., & Gachago, A. (2018). Creating 'safe-ish' learning spaces—Attempts to practice an ethics of care. *South African Journal of Higher Education*, *32*(6). https://doi.org/10.20853/32-6-2654

Thomas, S., & Manalil, P. (2025). Framing emotions: Using cinema as a tool for emotional intelligence in education. *Frontiers in Psychology*, *16*, 1650676. https://doi.org/10.3389/fpsyg.2025.1650676

Tran, K. Q., & Selcen Guzey, S. (2023). Cultivating culturally sustaining integrated science, technology, engineering, and mathematics classrooms: A narrative inquiry case study of a science teacher. *Science Education*, *107*(6), 1507–1530. https://doi.org/10.1002/sce.21813

Tseng, K. W., Mohabbat, H., Adachi, A., Calaguas, A., Kaur, A., Salem, N., & Goliaei, Z. (2025). Reproductive Health Literacy and Knowledge Among Female Refugees: A Scoping Review of Measurement Methodologies and Effect on Health Behavior. *International Journal of Environmental Research and Public Health*, *22*(7), 1121. https://doi.org/10.3390/ijerph22071121

Valderrama-Pérez, D. F., Andrade, A. M., & El-Hani, C. N. (2015). Dialogue between Scientific and Traditional Knowledge in the Science Classroom: Development Study of a Teaching Sequence in a School in Taganga (Magdalena, Colombia). *Procedia - Social and Behavioral Sciences*, *167*, 217–222. https://doi.org/10.1016/j.sbspro.2014.12.665

Wollmann, K., & Lange-Schubert, K. (2022). The Development of Prospective Primary School Science Teachers' TPaCK Fostered by Innovative Science-Teacher Education. *Education Sciences*, *12*(6), 381. https://doi.org/10.3390/educsci12060381

Yektiningtyas, W., Wompere, R. N. N., Kobepa, N., & Sunarsih, T. A. (2023). Engaging students to write procedure texts through the culturally-relevant activity of bark painting. *JOALL (Journal of Applied Linguistics and Literature)*, *8*(1), 41–58. https://doi.org/10.33369/joall.v8i1.22577

Zhang, E. Y., Hundley, C., Watson, Z., Farah, F., Bunnell, S., & Kristensen, T. (2023). Learning by doing: A multi-level analysis of the impact of citizen science education. *Science Education*, *107*(5), 1324–1351. https://doi.org/10.1002/sce.21810