

Article

Culturally Responsive School Leadership and School Effectiveness: Teachers' Cultural Intelligence as a Mediating Mechanism in Malaysian Indigenous Schools

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Abstract. There is still a gap in effectiveness between Indigenous school and other type of primary school in Peninsular Malaysia. This study examines the relationship of culturally responsive school leadership (CRSL), teachers' cultural intelligence (CQ) and school effectiveness (SE) in Malaysian national primary schools where Indigenous pupils form the majority. A cross-sectional survey design was applied, using multistage stratified random cluster sampling to obtain responses from 450 teachers representing 85 Indigenous schools across seven states in Peninsular Malaysia. The results indicate that CRSL exerts a significant direct influence on SE ($\beta = .457$, $p < .001$) and on CQ ($\beta = .548$, $p < .001$). In addition, teachers' CQ significantly predicts SE ($\beta = .505$, $p < .001$). Mediation analysis using bootstrapping provided evidence that CQ significantly mediates the CRSL–SE relationship (SIE = .277, $p < .001$; 95% CI [.198, .332]). The final structural model achieved acceptable fit indices ($\chi^2/df = 2.222$, RMSEA = .052, CFI = .910, TLI = .907) and accounted for 72% of the variance in school effectiveness. Overall, the findings imply that leadership preparation and ongoing teacher professional development in Indigenous community schools should give stronger emphasis to cultural responsiveness and the enhancement of CQ. The study also contributes an empirically supported model positioning CQ as an important connecting pathway between CRSL and SE within a Southeast Asian Indigenous schooling context. The contribution of the study not only fills the research gap in Indigenous school in Peninsular Malaysia but also provides input to improve CRSL, CQ, and SE, as well as input to improve policies, training and practices in Indigenous school in Peninsular Malaysia.

Keywords: Culturally responsive school leadership; Cultural intelligence; School effectiveness; Orang Asli; Malaysia; Structural equation modelling

Introduction

Schools that educate learners from Orang Asli communities (Indigenous peoples of Peninsular Malaysia) commonly deal with a mix of cultural, structural, and resource constraints that can influence both instructional quality and overall school outcomes. In the Malaysian context, national schools where Orang Asli pupils form the majority often report comparatively weaker academic performance, less consistent attendance patterns, and lower levels of parental participation. These patterns are frequently linked to gaps between school culture and ways of life, shortages in school facilities and support, and teachers' limited exposure to or knowledge of indigenous cultural realities (KPM, 2013; Norwaliza & Ramlee, 2015; Saari et al., 2023).

Although national initiatives such as the Malaysia Education Blueprint (PPPM 2013–2025) were introduced to reduce educational inequality, progress is still uneven because many barriers are shaped by deeper cultural, contextual, and relationship-based factors, not only by academic issues alone (UNESCO, 2019; KPM, 2023b). This situation highlights the need for school leadership that is culturally responsive and for classroom approaches that connect learning activities with Indigenous learners' lived experiences and community background (Khalifa et al., 2016).

Culturally Responsive School Leadership (CRSL) reflects leadership practices that deliberately integrate community values, cultural knowledge, and local ways of learning into school policies and instructional decisions, thereby enhancing trust and engagement among Indigenous pupils and families (Castagno & Brayboy, 2008). Complementing this, teachers' Cultural Intelligence (CQ) refers to the capacity to understand cultural cues, adapt appropriately, and function effectively in cross-cultural settings (Earley & Ang, 2003; Van Dyne, Ang, & Koh, 2008). Higher CQ equips teachers to modify pedagogy, prevent culturally driven misunderstandings, and foster psychologically safe classroom climates for Indigenous learners (Liao & Thomas, 2020; Rajaram, 2023a). Importantly, CRSL may act as a contextual enabler that nurtures teachers' CQ, which then supports school effectiveness by strengthening instructional quality, school and community relationships, and inclusive practices across the school (Santamaria et al., 2016).

Schools situated within Indigenous communities such as Orang Asli schools in Malaysia function in layered socio-cultural ecosystems, where educational outcomes are shaped not only by instructional quality but also by the degree of cultural alignment, leadership responsiveness, and the strength of school and community relationships. Evidence from Indigenous education research repeatedly indicates that when school norms and practices are misaligned with community culture, learners are more likely to disengage, show inconsistent attendance, and experience weaker academic achievement (Castagno & Brayboy, 2008; Hanafi et al., 2014; Nicholas, 2010). While national reforms such as the Malaysia Education Blueprint (PPPM 2013–2025) are designed to narrow equity gaps, structural enhancements alone remain limited if leadership and school practices do not genuinely integrate Indigenous worldviews and local knowledge systems into everyday schooling (UNESCO, 2019). Building on this logic, the present study addresses three core questions:

1. To what extent is CRSL associated with School Effectiveness (SE) in Orang Asli primary schools?
2. Does CRSL contribute to strengthening teachers' CQ?
3. Does teachers' CQ mediate the relationship between CRSL and SE?

By integrating CRSL and CQ within the Orang Asli schooling context, the study provides a more coherent explanation of how culturally grounded leadership shapes school-level outcomes, while positioning CQ as a key linking pathway through which leadership translates into effectiveness in Orang Asli educational settings.

Theoretical background

CRSL offers an important theoretical lens for explaining leadership effectiveness in culturally diverse schooling contexts. Khalifa et al. (2016) define CRSL as leadership that deliberately acknowledges systemic inequities, affirms community cultural wealth, and embeds culturally grounded knowledge within school structures and decision-making processes. Extending this view, Khalifa (2018) argues that culturally responsive leadership should not stop at symbolic representation; instead, it requires transformative actions that confront deficit-oriented assumptions and strengthen the agency of marginalised communities. Within Indigenous schooling contexts, culturally responsive leadership can enhance relational trust, cultivate cultural safety, and affirm Indigenous identity as a legitimate and valued part of everyday schooling (Santamaria & Santamaria, 2016). Conceptually, these leadership practices align with the wider literature on culturally relevant pedagogy (Ladson-Billings, 1995) and culturally responsive teaching (Gay, 2018), which both argue that meaningful learning for minority students depends on connecting academic content with learners' cultural histories, values, and lived experiences. Consequently, CRSL is expected to exert a direct influence on school effectiveness by strengthening inclusive school climates, deepening school and community partnerships and enabling instructional practices that are culturally aligned with Orang Asli learners.

Although school leadership provides strategic direction, teachers translate and enact educational priorities through daily classroom practice. CQ, originally introduced by Earley and Ang (2003) and later elaborated by Ang et al. (2007), refers to an individual's capability to function effectively in culturally diverse contexts. Conceptually, CQ comprises four interrelated dimensions: metacognitive, cognitive, motivational, and behavioural capabilities which together shape how individuals interpret cultural cues, adjust responses, and engage productively across cultures (Van Dyne et al., 2008). In Orang Asli schooling contexts where teachers often come from dominant cultural backgrounds, CQ becomes a crucial professional competence. Teachers with high CQ demonstrate stronger cultural awareness, adaptability, and behavioural flexibility, allowing them to reduce misunderstandings and create culturally meaningful learning experiences. Empirical research indicates that CQ enhances cross-cultural adjustment, communication effectiveness, and instructional responsiveness (Thomas & Inkson, 2017). From a leadership development perspective, CRSL may foster teacher CQ by modelling cultural respect, embedding cultural learning into professional development, and establishing expectations for inclusive practice. Leadership thus becomes a contextual enabler of teacher level cultural capability.

School effectiveness theory traditionally emphasizes instructional leadership, high expectations, monitoring of student progress, and safe school climates (Edmonds, 1979; Lezotte & Snyder, 2011). However, scholars such as Hargreaves (2001) argue that school effectiveness must also consider social and cultural capital, particularly in marginalized communities. In Indigenous contexts, effectiveness extends beyond test scores to include cultural safety, student belonging, relational trust, and meaningful community engagement (Smith, 2012). Leadership that integrates cultural identity into schooling practices contributes to holistic effectiveness by aligning institutional goals with community values.

Theoretically, mediation occurs when a predictor influences an outcome through an intervening mechanism (Preacher & Hayes, 2008). In this study, teachers' CQ is conceptualised as that mechanism. CRSL provides the structural and normative conditions that cultivate teacher CQ, which in turn enhances culturally responsive teaching and strengthens SE. This logic aligns with multilevel leadership theory, which posits that leadership effects on organizational outcomes often operate indirectly through the development of staff capacity (Leithwood et al., 2020; Robinson et al., 2008). Therefore, CQ functions as a professional capability through which culturally responsive leadership translates into improved educational outcomes. By integrating CRSL, CQ theory, and SE scholarship, the proposed framework offers a culturally grounded explanation of how leadership influences Orang Asli schooling outcomes in the Malaysian context.

The theoretical model proposed in this study, therefore, connects CRSL, CQ, and SE. It suggests that culturally responsive leadership may foster teachers' CQ, which then supports school effectiveness. Teachers become more capable of adapting teaching methods, building culturally respectful relationships, and supporting the overall learning process. This mediating role of CQ provides a clearer explanation of how leadership influences effectiveness in culturally diverse school settings, especially in Orang Asli communities.

The integration of culturally responsive leadership theory, cultural intelligence theory, and school effectiveness scholarship suggests that CRSL influences SE both directly and indirectly through CQ. CRSL is conceptualised as the central predictor within the model, given that leadership fundamentally shapes school vision, policy orientation, professional support structures, and the quality of school and community engagement. Leaders who demonstrate culturally responsive practices are more likely to establish environments grounded in cultural respect, foster constructive relationships with Orang Asli families, and promote the implementation of culturally relevant pedagogical approaches. Through these mechanisms, CRSL is expected to exert a direct positive influence on school effectiveness by strengthening school climate, reinforcing community trust, and enhancing instructional quality. At the same time, CRSL is theorised to enhance teachers' cultural intelligence by modelling inclusive norms and embedding culturally grounded expectations within professional practice. Teachers with stronger CQ are subsequently better positioned to implement culturally responsive pedagogy and build relational trust with Orang Asli pupils and families. In this way, CQ functions as the mediating mechanism linking leadership practices to school-level effectiveness outcomes.

Methodology

This study adopted a quantitative design using a cross-sectional survey to examine the relationships among CRSL, teachers' CQ, and SE in Orang Asli pupils' national primary schools across Peninsular Malaysia. To support representativeness, multistage stratified random cluster sampling was employed. The procedure began by identifying national primary schools in which Orang Asli pupils constituted the majority population, followed by the selection of schools across seven states Peninsular Malaysia, and the random sampling of teachers within each selected school. In total, 450 teachers from 85 schools participated, yielding a sample that is considered adequate for Structural Equation Modelling (SEM) based on commonly cited methodological recommendations. The adequacy of the sample size is consistent with recommendations for covariance-based SEM, which suggest that samples above 200 are generally sufficient for stable parameter estimation and model testing (Hair et al., 2010; Kline, 2016).

Research instrument and measurement

Data were gathered through a structured, self-administered questionnaire. The instrument was organised into four sections: respondent demographics, the CRSL scale, the CQ scale, and the SE scale. CRSL items were adapted from Amin Soleh (2022), and captured leadership practices related to an inclusive vision, cultural safety, and community engagement. Teachers' CQ was assessed using the established four-factor model proposed by Ang et al. (2007), covering metacognitive, cognitive, motivational, and behavioural dimensions. SE was measured using a scale reflecting widely recognised features of effective schooling, drawing particularly on Lezotte's Effective Schools Framework (2011) and Edmonds' (1979) foundational work on school effectiveness. All measures employed a seven-point Likert response format ranging from strongly disagree to strongly agree. Seven-point Likert scales are frequently recommended in behavioural and educational research because they provide greater response variability, improved reliability, and better approximation to continuous data assumptions required for covariance-based SEM analysis (Hair et al., 2010; Kline, 2016). Research suggests that scales with seven response categories enhance measurement sensitivity and discriminative power without overburdening respondents (Joshi et al., 2015).

The analysis followed a two-stage procedure. First, Exploratory Factor Analysis (EFA) was used to refine measurement items and verify the underlying factor structure. Subsequently, Confirmatory Factor Analysis (CFA) was conducted to establish construct validity by assessing convergent validity, discriminant validity, and reliability. Composite reliability (CR) and average variance extracted (AVE) were examined as indicators of measurement quality, alongside item factor loadings to confirm that retained indicators were empirically appropriate. As shown in Table 1, all constructs demonstrated satisfactory convergent validity and reliability. The AVE values for CRSL (.744), CQ (.710), and SE (.719) exceeded the recommended threshold of .50, indicating that the constructs captured substantial variance from their respective indicators. CR values ranged from .907 to .928, surpassing the .70 benchmark and demonstrating strong internal consistency. Cronbach's alpha coefficients were also high (.958 to .971), further supporting reliability. Discriminant validity was established using the Fornell and Larcker (1981) criterion, as the square roots of AVE for each construct (.921, .907, .928) were greater than the corresponding inter construct correlations. These findings confirm that the measurement model exhibited adequate convergent validity, discriminant validity, and reliability, thereby supporting its suitability for subsequent structural analysis.

Table 1. Convergent validity, composite reliability, and discriminant validity results

Construct	AVE (>.50)	CR (>.70)	Cronbach's Alpha	Discriminant Validity
Culturally Responsive School Leadership (CRSL)	.744	.921	.971	.921
Cultural Intelligence (CQ)	.710	.907	.958	.907
School Effectiveness (SE)	.719	.928	.967	.928

Data analysis procedure

SEM was then performed using AMOS 27 to test the hypothesised direct and indirect relationships among CRSL, CQ, and SE. Model adequacy was assessed using multiple fit indices, including χ^2/df , RMSEA, CFI, TLI, and SRMR. The mediating role of CQ was examined via bootstrapping with 5,000 resamples, generating bias-corrected confidence intervals to determine the significance of indirect effects. Collectively, these analytical steps strengthened confidence that the estimated model provides a valid and reliable representation of the proposed framework linking leadership, teachers' cultural capabilities, and school effectiveness in Orang Asli schooling contexts.

Ethical considerations

Permission to conduct the study was obtained from the Ministry of Education Malaysia (KPM) and the relevant State Education Departments (JPN). Formal approval was also secured from the respective school headmasters prior to data collection. Participation was voluntary, and informed consent was obtained from all teacher respondents. Participants were assured of confidentiality and anonymity, and no personal information was collected. All procedures were conducted in accordance with standard ethical principles for educational research.

The Findings

The sample comprised 450 teachers from national primary schools with a majority of Orang Asli pupils across seven states in Peninsular Malaysia. The largest proportions of respondents were from Pahang (30.7%) and Perak (30.2%), followed by Kelantan (20.2%), Johor (8.7%), Selangor (4.7%), Negeri Sembilan (3.6%), and Terengganu (2.0%). In terms of gender distribution, 54.9% of respondents were male, while 45.1% were female. The majority of participants were Malay (80.0%), followed by Orang Asli teachers (15.1%), Indian (3.8%), Chinese (0.4%), and other ethnicities (0.7%). Regarding teaching experience, 23.8% had five years or less of service, 24.0% had six to ten years, 20.4% had eleven to fifteen years, 12.0% had sixteen to twenty years, and 19.8% had more than twenty-one years of service. A substantial proportion of respondents (70.7%) had prior experience teaching in Orang Asli-majority schools, and 66.4% had attended courses related to Orang Asli education. Table 2 summarises the demographic characteristics of the respondents.

Descriptive statistics of study variables

Descriptive statistics were computed to determine the overall levels of the three principal constructs: CRSL, teachers' CQ, and SE. As presented in Table 3, CRSL recorded the highest mean score ($M = 6.00$, $SD = 0.768$), followed closely by SE ($M = 5.85$, $SD = 0.669$). CQ recorded a slightly lower mean ($M = 5.52$, $SD = 0.772$). On the seven-point Likert scale employed in this study, respondents perceived both CRSL and SE at very high levels, while teachers' CQ was perceived at a high level.

Table 3. Descriptive Statistics of Study Variables

Variable	Mean (M)	Standard Deviation (SD)
Culturally Responsive School Leadership (CRSL)	6.00	0.768
Cultural Intelligence (CQ)	5.52	0.772
School Effectiveness (SE)	5.85	0.669

Structural model results

Following confirmation of the measurement model's adequacy, Structural Equation Modelling (SEM) was conducted using AMOS 27 to test the hypothesised direct and indirect relationships among CRSL, teachers' CQ, and SE. The structural model demonstrated acceptable goodness-of-fit indices: $\chi^2/df = 2.222$, Root Mean Square Error of Approximation (RMSEA) = .052, Comparative Fit Index (CFI) = .910, and Tucker–Lewis Index (TLI) = .907. These values meet established criteria for covariance-based SEM, indicating satisfactory model fit and supporting the validity of the proposed structural relationships. The model explained 72% of the variance in

Discussion

The present findings contribute to the expanding CRSL literature by offering empirical evidence from a Southeast Asian Indigenous schooling context. Specifically, the results show that CRSL significantly predicts school effectiveness in Orang Asli schools, thereby supporting earlier work which argues that leadership anchored in cultural awareness and equity-oriented practice can meaningfully strengthen school outcomes (Khalifa et al., 2016; Santamaria & Santamaria, 2016). In contrast to conventional leadership approaches that often privilege administrative efficiency or instructional supervision in isolation, CRSL foregrounds relational trust, cultural affirmation, and sustained partnership with the community. In Indigenous educational settings where historical marginalisation and ongoing cultural misalignment remain salient these leadership orientations appear especially influential for shaping both school climate and performance. This finding reinforces the view that leadership effectiveness in minority settings is inseparable from cultural legitimacy. As highlighted by Ladson Billings (1995) and Gay (2018), culturally relevant schooling depends on systemic coherence between leadership vision and classroom practice. The present study shows that when principals implement culturally responsive strategies, including the promotion of cultural safety, active engagement with Indigenous families, and recognition of local knowledge systems, schools demonstrate stronger indicators of effectiveness. These improvements extend beyond academic outcomes to encompass enhanced school climate and greater relational cohesion within the school community.

The findings further indicate that CRSL significantly strengthens teachers' cultural intelligence (CQ). This pattern aligns with multilevel leadership perspectives, which propose that leadership affects organisational outcomes partly through building staff capacity rather than only through direct managerial control (Leithwood et al., 2020; Robinson et al., 2008). In Orang Asli school settings, where many teachers do not share the same cultural background as their students, leadership assumes an explicitly developmental function by shaping professional norms around cultural understanding and inclusivity. When leaders model respect for Indigenous identity and institutionalise cultural responsiveness within school expectations, they create enabling conditions for teachers to develop stronger metacognitive, cognitive, motivational, and behavioural cultural capabilities (Ang et al., 2007; Van Dyne et al., 2008). Importantly, the results show that teachers' CQ significantly predicts school effectiveness. This extends CQ scholarship by positioning cultural intelligence not only as an individual intercultural competence, but also as an educational resource with strategic value for school improvement. Teachers with stronger CQ are more capable of interpreting cultural behaviours accurately, minimising misunderstanding, and adjusting pedagogical approaches to align with Indigenous learners' sociocultural realities. In school environments marked by cultural distance between educators and the community, CQ becomes a key condition for strengthening student engagement and a sense of belonging.

The mediating role of cultural intelligence constitutes a central theoretical contribution of this study. The results indicate that CRSL affects school effectiveness not only through a direct pathway, but also indirectly by strengthening teachers' CQ, suggesting that a portion of leadership impact is transmitted through teacher level cultural competence. This mediation pattern is consistent with conditional process reasoning (Hayes, 2018) and supports the broader view that meaningful organisational improvement depends on the combination of leadership practices that shape supportive structures and the parallel development of individual capabilities within the workforce. This contribution is especially salient for Indigenous education scholarship. While prior research has emphasised the value of culturally responsive leadership and culturally relevant pedagogy as related yet often separately discussed strands (Castagno & Brayboy, 2008; Smith, 2012), empirical work explaining how leadership is translated into classroom level cultural competence processes remains relatively limited, particularly within Southeast Asian settings. By positioning CQ as the linking mechanism, the present study integrates leadership theory with intercultural competence theory and offers a clearer account of how culturally grounded leadership can be channelled into teacher capacity development within Indigenous schooling contexts.

Moreover, the model's ability to explain 72% of the variance in school effectiveness indicates substantial explanatory strength, underscoring culturally grounded leadership and teacher capacity as central predictors within Orang Asli schools. This evidence challenges deficit-oriented interpretations that locate Indigenous educational disparities mainly in student or community shortcomings. Instead, the results foreground institutional responsiveness and leadership agency as key levers through which meaningful improvement can be pursued in Indigenous schooling contexts. Overall, the study repositions school effectiveness in Indigenous settings as

culturally embedded rather than solely instructional in nature. In Orang Asli schooling contexts, effectiveness appears to depend on coherent alignment between leadership vision, teachers' capabilities, and community identity within a shared cultural frame. When this alignment is achieved, schools are more likely to strengthen not only academic outcomes but also cultural affirmation and relational trust, which represent essential foundations for sustainable educational equity.

Conclusion

This study provides evidence that culturally responsive school leadership and teachers' cultural intelligence are important drivers of school effectiveness in Orang Asli national primary schools in Malaysia. The findings indicate that culturally responsive leadership contributes to school effectiveness through both direct effects and an indirect pathway via the strengthening of teachers' cultural intelligence, which subsequently enhances overall effectiveness. This pattern suggests that leadership grounded in respect for culture, community trust, and culturally aligned practice can build teachers' capability to work more competently with culturally diverse learners. The mediating role of cultural intelligence further implies that leadership influence is amplified when teachers are able to accurately interpret and respond to students' cultural needs in everyday classroom interaction. From a practical standpoint, the study offers several implications for policymakers, school leaders, and teacher education institutions.

First, leadership development initiatives should embed culturally responsive competencies, particularly for principals and senior teachers serving Indigenous communities. Such programmes should emphasise deep understanding of local cultural norms, the strengthening of school community partnerships, and the incorporation of Indigenous values and traditional knowledge into school level planning and decision making. Second, teacher professional learning should prioritise the systematic development of cultural intelligence, including training in classroom empathy, culturally relevant pedagogy, effective communication with Indigenous families, and reflective practice. These capacity building efforts can reduce culturally driven misunderstanding, strengthen student engagement, and support more inclusive learning environments. Third, education policy should extend beyond academic performance indicators by recognising cultural safety, community engagement, and cultural identity as integral dimensions of schooling quality in Indigenous contexts, thereby supporting more sustainable efforts to narrow achievement gaps between Orang Asli pupils and the wider student population.

Theoretically, the study advances understanding by demonstrating that cultural intelligence functions as a key mechanism through which culturally responsive leadership is translated into stronger school outcomes. In doing so, it extends leadership scholarship by positioning culture as a central dimension of school effectiveness, particularly within Indigenous and minority schooling contexts. The study also contributes to the evidence base by offering empirical findings from a Southeast Asian Indigenous setting, a context that remains comparatively underrepresented within mainstream educational leadership research.

In conclusion, strengthening school effectiveness in Indigenous communities requires more than leadership strength and sound instructional practice. It calls for leadership that listens to, respects, and works through culture, alongside teachers who are culturally intelligent in ways that are sensitive, adaptive, and contextually grounded. When these elements converge, schools become more than sites of academic instruction; they function as culturally meaningful spaces that affirm identity, deepen community trust, and enable sustained educational growth. Although the study offers meaningful insights into how culturally responsive leadership and teachers' cultural intelligence contribute to school effectiveness, several limitations should be noted. First, the use of a cross-sectional survey design means that data were captured at a single point in time. Consequently, the analysis cannot determine whether the relationships among culturally responsive school leadership, cultural intelligence, and school effectiveness shift or strengthen as schools and teachers gain experience over time. Future research could address this limitation through longitudinal designs that track changes in leadership practice and teacher cultural intelligence and examine how these dynamics shape school outcomes across multiple school years.

Second, the study relied on self-reported questionnaire data, which may be subject to response bias, including social desirability and participants' expectations of what is viewed as appropriate practice. In such cases, teachers and school leaders may report idealised perceptions rather than the full reality of day-to-day implementation in schools. Future research could strengthen evidence by adopting mixed method designs,

combining survey results with interviews, classroom observations, and community-based feedback to generate richer and more contextualised understanding, particularly within Indigenous school settings.

Third, the study was limited to national primary schools with a majority of Orang Asli pupils in Peninsular Malaysia. While this focus provides context specific evidence for Orang Asli schooling, the findings may not be fully generalisable to other Indigenous groups, urban settings, or different schooling systems. Future research could extend external validity by conducting comparative studies between Indigenous and non-Indigenous schools, or by testing the model in other contexts such as secondary schools, rural schools in East Malaysia, and minority communities including Penan, Bajau Laut, and Kadazan Dusun populations.

Fourth, although cultural intelligence was modelled as a mediator, the study did not examine other plausible mediating or moderating factors, such as teacher motivation, self-efficacy, community involvement, or culturally relevant pedagogy. These constructs may provide additional explanatory insight into the pathways through which leadership practices shape school effectiveness. Future research could therefore test extended models that incorporate these variables, allowing a more comprehensive account of how culture, leadership, and teacher level processes interact to influence outcomes in schools.

Lastly, cultural responsiveness is inherently contextual. Although the present study employed an established and validated measure, certain culturally specific features of Orang Asli communities, such as oral traditions, local wisdom, spirituality, and community led learning orientations, may not be fully represented through standardised instruments. Future studies could therefore develop more culturally grounded measures or adopt participatory approaches in which Indigenous communities contribute directly to the design of research tools and locally meaningful learning frameworks.

Overall, while this study offers a substantive account of culturally responsive leadership, cultural intelligence, and school effectiveness in Orang Asli schools, further work can strengthen the evidence base by using longitudinal and mixed method designs, extending the model to other populations and schooling contexts, and incorporating additional cultural and psychological variables that may shape leadership and effectiveness processes.

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