



## Integrating Surakarta local wisdom into character education: A quantitative study in elementary schools

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### Abstract

This study investigates the extent to which local wisdom predicts the multidimensional character development of elementary school students within a culturally grounded educational context. Despite increasing global emphasis on character education, empirical evidence remains limited regarding how culturally embedded values can be operationalized as measurable predictors of specific character outcomes. Addressing this gap, the study employs a quantitative cross-sectional design involving 300 students selected through stratified random sampling in Surakarta, Indonesia. Data were collected using psychometrically validated instruments measuring local wisdom and four character dimensions: religiosity, responsibility, tolerance, and environmental concern. Multiple regression analysis reveals that local wisdom significantly predicts all dimensions, with the strongest effect on religiosity ( $\beta = 0.55$ ,  $R^2 = 0.30$ ), followed by responsibility ( $\beta = 0.48$ ,  $R^2 = 0.24$ ), tolerance ( $\beta = 0.40$ ,  $R^2 = 0.16$ ), and environmental concern ( $\beta = 0.32$ ,  $R^2 = 0.10$ ). These findings demonstrate a systematic gradient in which culturally reinforced values are more effectively internalized than those requiring complex behavioral enactment. This study is among the first to empirically validate a multidimensional and culturally specific model that integrates local wisdom into a statistically robust framework of character development. The results extend existing theoretical perspectives by introducing cultural intensity and behavioral complexity as key mechanisms shaping value internalization and action. Practically, the study highlights the need to complement cultural integration with experiential and action-oriented pedagogies, particularly for behavior-driven character domains. Overall, the findings reposition local wisdom as a measurable and strategically significant foundation for designing contextually responsive and globally relevant character education systems.

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## INTRODUCTION

Character education has become a central concern in global educational discourse as societies increasingly confront moral fragmentation, cultural dislocation, and declining social cohesion among younger generations. Contemporary education systems are no longer evaluated solely by their ability to produce cognitively competent learners, but also by their capacity to cultivate ethically grounded and socially responsible individuals (Hummel, 2025; Zahid & Darmawan, 2025; Zhou et al., 2026). This shift reflects a broader recognition that education must address not only intellectual development but also the formation of character in response to complex global challenges such as cultural homogenization, technological disruption, and value relativism. Within this evolving paradigm, culturally responsive approaches have gained prominence as alternatives to universalized models of character education that often neglect local contexts. In particular, the integration of local wisdom offers a meaningful pathway for embedding moral values within students' lived experiences. Such an approach aligns with theoretical perspectives such as Social Learning Theory, which emphasizes the

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role of environmental modeling in value internalization Bianchi et al., (2022), and Cultural Capital Theory, which highlights how culturally embedded practices shape individual dispositions and social behavior. Therefore, examining culturally grounded character education is not only pedagogically relevant but also theoretically significant.

Despite its conceptual appeal, the implementation of character education in many educational systems continues to face substantial challenges, particularly in contexts undergoing rapid socio-cultural transformation. Empirical evidence suggests that the expansion of digital media, urbanization, and shifting family structures has altered the socialization processes of children, often weakening traditional mechanisms of moral development (Haq, 2024). In elementary school settings, where foundational character formation is expected to occur, students are increasingly exposed to fragmented value systems that may conflict with local cultural norms. As a result, character education programs frequently emphasize normative instruction without ensuring meaningful internalization. This disconnect is especially evident in urban cultural centers such as Surakarta, where strong cultural heritage coexists with modern lifestyles. Although schools formally integrate character education into curricula, the lack of contextual relevance often limits its effectiveness in shaping actual behavior. Consequently, students may demonstrate awareness of moral principles without consistently applying them in real-life contexts. This phenomenon underscores a critical need for approaches that bridge the gap between formal instruction and experiential learning rooted in cultural environments.

The urgency of this issue extends beyond individual development to broader societal sustainability. Educational systems that fail to integrate culturally meaningful character formation risk producing individuals who are disconnected from their social and ecological responsibilities (Druker-Ibáñez & Cáceres-Jensen, 2022; Houser, 2023). From an ecological systems perspective (Bronfenbrenner), character development is influenced by the interaction between individuals and their surrounding environments, including family, school, and community. In this regard, local wisdom functions as a cultural ecosystem that provides normative guidance and behavioral models for students. Values such as mutual cooperation, tolerance, and environmental harmony are deeply embedded in local traditions and have the potential to support holistic character development. However, without systematic integration into formal education, these values remain underutilized. Moreover, the absence of measurable frameworks for assessing their impact further limits their practical application. Therefore, there is a pressing need to empirically examine how local wisdom can be operationalized and evaluated within contemporary educational settings.

Surakarta presents a compelling context for such an investigation due to its rich cultural heritage and strong continuity of traditional values within modern society. As a center of Javanese culture, Surakarta embodies a wide range of local practices, including traditional arts, communal rituals, and philosophical teachings such as harmony, mutual respect, and collective responsibility. These cultural elements are not merely symbolic but function as lived values that shape social interactions and community life. From a pedagogical perspective, these values offer a unique opportunity to contextualize character education in ways that resonate with students' daily experiences. However, existing educational practices often treat local culture as supplementary rather than integrative, limiting its transformative potential. Without empirical evidence demonstrating its effectiveness, the incorporation of local wisdom remains largely normative and policy-driven. Consequently, a rigorous quantitative examination is required to determine the extent to which these cultural values contribute to measurable character outcomes among students.

A growing body of literature supports the role of local wisdom in enhancing character education, particularly in culturally diverse contexts. Recent studies indicate that local wisdom-based teaching materials can significantly improve students' environmental awareness, responsibility, and moral reasoning (Nurmaya et al., 2026; Sudirman et al., 2025). Ethnopedagogical approaches have also been shown to strengthen religious and socio-emotional development by embedding cultural values into learning processes (Mohd Hashim et al., 2026; Mustaghfiroh et al., 2025). Furthermore, research on culturally responsive education demonstrates that integrating local narratives and traditions fosters tolerance and social cohesion in multicultural environments (Ngiu et al., 2023; Suhaeb et al., 2024). Systematic reviews further confirm that contextualized character education enhances identity formation and promotes deeper engagement with moral values (Najafov, 2025). These findings collectively suggest that local wisdom is a powerful pedagogical

resource. However, most existing studies rely on qualitative methods or focus on single dimensions of character, limiting their generalizability and empirical rigor.

Notwithstanding these contributions, significant gaps remain in the literature that necessitate further investigation. First, there is a lack of comprehensive quantitative studies that simultaneously examine multiple dimensions of character within a unified analytical framework. This limitation restricts the ability to understand the multidimensional nature of character development and its interrelated components (Asghar et al., 2025; Lerner et al., 2021). Second, existing measurement instruments often lack cultural specificity, resulting in constructs that do not fully capture the nuances of local wisdom in particular contexts (Mahaswa & Syaja, 2025). Third, the absence of context-specific empirical evidence, particularly from culturally rich settings such as Surakarta, limits the applicability of existing findings to diverse educational environments. These gaps are not merely methodological but have practical implications, as they hinder the development of evidence-based policies and contextually relevant educational interventions. Without robust empirical validation, the integration of local wisdom into character education risks remaining symbolic rather than transformative. Therefore, addressing these limitations is essential for advancing both theoretical understanding and practical implementation.

In response to these gaps, this study aims to examine the influence of Surakarta's local wisdom on the multidimensional character development of elementary school students, focusing on religiosity, responsibility, tolerance, and environmental concern. By employing a quantitative design with psychometrically validated instruments, this research seeks to provide robust empirical evidence on the effectiveness of culturally embedded character education. Theoretically, the study contributes to the advancement of character education literature by integrating cultural context into measurable constructs and offering a multidimensional framework for analyzing moral development. Practically, the findings are expected to inform educators and policymakers in designing culturally responsive and sustainable educational programs. In addition, this study positions local wisdom not merely as a cultural artifact but as an operationalizable and evaluative component of modern education systems. Ultimately, the research bridges the gap between cultural heritage and contemporary pedagogy, providing a foundation for developing contextually grounded and globally relevant models of character education.

## METHOD

This study adopted a quantitative research design using a cross-sectional survey approach to examine the influence of local wisdom on the multidimensional character development of elementary school students. The quantitative approach was selected because the study aimed to test theoretically grounded relationships between measurable constructs and to estimate the predictive contribution of local wisdom to specific character dimensions using statistical modeling. A cross-sectional design was considered appropriate as it allows the collection of empirical data at a single point in time to capture naturally occurring variations in students' exposure to cultural values and their corresponding character attributes. This design is widely used in educational research where experimental manipulation is not feasible due to ethical and institutional constraints (Klimova et al., 2023; Kooli, 2023; Nikolic et al., 2024). Furthermore, the study emphasizes predictive relationships rather than causal inference, which justifies the use of regression-based analysis within a non-experimental framework.

The research was conducted in Surakarta, Central Java, Indonesia, a city widely recognized as a center of Javanese cultural heritage. The study took place from January to March 2025, during the second semester of the academic year, when character education programs were actively implemented across schools. The selection of Surakarta was theoretically and contextually justified due to its strong preservation of cultural practices such as traditional arts, communal rituals, and social norms reflecting values of cooperation, tolerance, and harmony. These characteristics make Surakarta an appropriate empirical setting for investigating culturally embedded character education. The temporal scope of the study ensured that data were collected under stable academic conditions, minimizing disruptions that could affect students' responses.

The target population consisted of all elementary school students in grades IV to VI in Surakarta, with an estimated population size of approximately 5,000 students. A total of 300 students

were selected as participants using a stratified random sampling technique to ensure proportional representation across different sub-districts and school contexts. Stratification was based on geographic distribution to capture variations in socio-cultural exposure. The inclusion criteria required students to be actively enrolled in public elementary schools and to have participated in school-based character education activities. Students who provided incomplete responses or failed to meet the inclusion criteria were excluded from the analysis. The sample size of 300 was considered statistically adequate for multivariate analysis, exceeding the recommended minimum ratio of 10–15 participants per estimated parameter and ensuring sufficient statistical power for regression analysis (Jobst et al., 2023; Pate et al., 2023; Seabrook, 2025). This sample size also enhances the generalizability of the findings within the defined population.

Data were collected using two structured self-report instruments specifically designed for this study. The first instrument, the Surakarta Local Wisdom Scale, was developed based on an extensive review of local cultural values and ethnopedagogical principles. This scale consisted of 20 items representing four dimensions: cultural traditions, social values, local religiosity, and communal practices such as cooperation and togetherness. The second instrument, the Student Character Scale, also comprised 20 items measuring four dimensions of character: religiosity, responsibility, tolerance, and environmental concern. All items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The instruments were constructed to reflect both theoretical constructs of character education and context-specific cultural indicators, ensuring conceptual alignment between the independent and dependent variables.

The validity and reliability of the instruments were rigorously evaluated using a multi-step procedure. Construct validity was assessed through Confirmatory Factor Analysis (CFA) using AMOS software. The evaluation criteria included standardized factor loadings greater than 0.60, Average Variance Extracted (AVE) values above 0.50, and Composite Reliability (CR) values exceeding 0.70, indicating adequate convergent validity and internal consistency (Gebremedhin et al., 2022; Jiang et al., 2023). Model fit was evaluated using multiple indices, including chi-square/degrees of freedom ratio ( $\chi^2/df < 3$ ), Comparative Fit Index ( $CFI \geq 0.90$ ), Tucker-Lewis Index ( $TLI \geq 0.90$ ), and Root Mean Square Error of Approximation ( $RMSEA \leq 0.08$ ), all of which met recommended thresholds. Cronbach's alpha coefficients ranged from 0.82 to 0.92, confirming high reliability of the scales. To address potential common method bias arising from the use of self-report instruments, Harman's single-factor test was conducted, and the results indicated that no single factor accounted for the majority of variance, suggesting that common method bias was not a significant concern. Additionally, procedural remedies such as ensuring anonymity and reducing evaluation apprehension were implemented during data collection.

The data collection procedure was conducted systematically to ensure consistency and minimize bias. Prior to data collection, formal approval was obtained from school authorities, followed by coordination with teachers to schedule administration sessions. The questionnaires were distributed directly to students in classroom settings under supervised conditions to ensure clarity and completeness of responses. Students were provided with standardized instructions and brief explanations to reduce misunderstanding and response variability. Participation was voluntary, and students were encouraged to respond honestly without fear of evaluation. Completed questionnaires were collected immediately after completion, checked for completeness, and documented for analysis. This structured approach ensured high response quality and reduced the likelihood of missing or inconsistent data.

Data analysis was performed using SPSS software and followed a structured sequence of statistical procedures. Initially, descriptive statistics, including means and standard deviations, were calculated to summarize each character dimension. Prior to hypothesis testing, classical assumption tests were conducted, including tests of normality, multicollinearity, and heteroscedasticity, to verify the suitability of the data for regression analysis. Multiple regression analysis was then employed to estimate the predictive effect of local wisdom on each character dimension. Regression was selected instead of full structural equation modeling because the study focused on examining direct predictive relationships rather than testing a complex structural model with mediating or moderating variables. The significance of relationships was evaluated at a threshold of  $p < 0.05$ , and the strength of effects was interpreted using standardized beta coefficients and coefficients of determination ( $R^2$ ). This

analytical approach allowed for a clear and interpretable assessment of the contribution of local wisdom to multidimensional character outcomes.

Ethical considerations were strictly observed throughout the research process. Informed consent was obtained from school authorities and participants prior to data collection, ensuring that participation was voluntary. Students were assured that their responses would remain anonymous and confidential, and no personally identifiable information was collected. The study adhered to principles of academic integrity, data protection, and respect for participants' rights. Additionally, the research design minimized potential risks to participants by ensuring a non-intrusive data collection process conducted within normal school activities. These measures ensured compliance with established ethical standards in educational research and enhanced the credibility of the study.

## RESULTS AND DISCUSSION

### Results

The empirical analysis was conducted in three sequential stages, comprising descriptive statistics, regression analysis, and measurement model evaluation. This structured approach provides a comprehensive and statistically robust understanding of the role of local wisdom in shaping the multidimensional character of elementary school students in Surakarta.

The descriptive findings indicate that students demonstrate relatively high levels of character development across all measured dimensions, although the strength of each dimension varies. Religiosity emerges as the most prominent dimension, followed by responsibility, tolerance, and environmental concern. This distribution suggests that values closely associated with cultural and spiritual practices are more strongly internalized than those requiring behavioral translation into everyday ecological actions. The observed pattern also indicates that while moral awareness is well established, the consistency of its application varies depending on the nature of the value. Furthermore, the gradual increase in variability across dimensions reflects a widening dispersion of student responses, particularly in areas that require active behavioral engagement rather than passive value recognition.

**Table 1.** Descriptive Statistics of Character Dimensions

Character Dimensions	Mean	SD
Religiosity	4.32	0.55
Responsibility	4.10	0.60
Tolerance	3.96	0.70
Environmental Concern	3.85	0.75

Table 1 shows that religiosity has the highest mean score ( $M = 4.32$ ), indicating strong internalization of spiritual values among students. Responsibility also demonstrates a high level ( $M = 4.10$ ), reflecting the influence of collective cultural norms such as cooperation and social obligation. Tolerance ( $M = 3.96$ ) and environmental concern ( $M = 3.85$ ) show comparatively lower means, suggesting that these dimensions are less consistently practiced. The increasing standard deviation from religiosity to environmental concern indicates greater heterogeneity in students' responses, highlighting uneven internalization across character dimensions.

The regression analysis provides further insight into the predictive strength of local wisdom on each dimension of character. The results confirm that local wisdom significantly influences all four dimensions, although the magnitude of its effect varies substantially. Religiosity exhibits the strongest predictive relationship, followed by responsibility and tolerance, while environmental concern shows the weakest effect. These findings indicate that local wisdom operates more effectively in domains closely aligned with cultural rituals and social interactions than in domains requiring ecological behavioral transformation.

**Table 2.** Multiple Regression Results

Character Dimensions	$\beta$	t	p-value	$R^2$
Religiosity	0.55	8.90	<0.001	0.30
Responsibility	0.48	7.20	<0.001	0.24
Tolerance	0.40	5.80	<0.001	0.16
Environmental Concern	0.32	4.50	<0.01	0.10

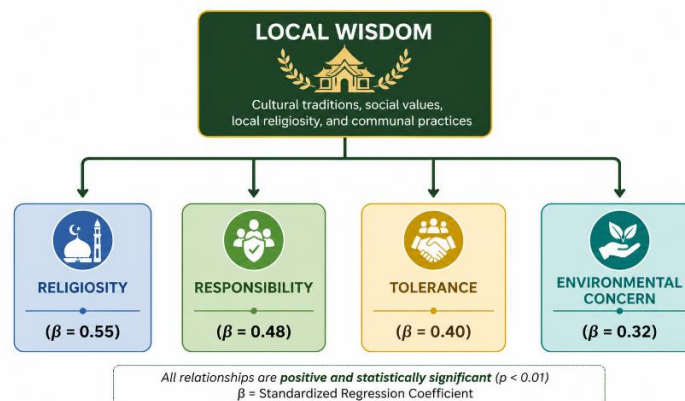
Table 2 demonstrates that local wisdom has a statistically significant and positive influence on all character dimensions. The standardized coefficient for religiosity ( $\beta = 0.55$ ) indicates a strong effect size, suggesting that cultural values play a dominant role in shaping students' spiritual and moral orientation. Responsibility ( $\beta = 0.48$ ) also shows a substantial effect, reflecting the internalization of collective norms embedded in local practices. The effect on tolerance ( $\beta = 0.40$ ) can be interpreted as moderate, indicating that while cultural values support social harmony, their impact is influenced by contextual variability. Environmental concern ( $\beta = 0.32$ ) exhibits the weakest but still meaningful effect, suggesting that ecological values embedded in local wisdom are less directly translated into observable behavior. The coefficient of determination ( $R^2$ ) further confirms that local wisdom explains 30% of the variance in religiosity, 24% in responsibility, 16% in tolerance, and 10% in environmental concern. Overall, the model demonstrates substantial explanatory power, with local wisdom accounting for nearly half of the combined variance in students' character development, indicating its central role as a predictive factor.

To ensure that the regression findings are based on statistically sound constructs, the measurement model was evaluated using confirmatory factor analysis. The results confirm that all constructs meet the required thresholds for validity and reliability, indicating that the instruments provide an accurate representation of the underlying variables.

**Table 3.** Measurement Model Evaluation

Construct	Indicators	Loading Range	AVE	CR	$\alpha$
Cultural Traditions	5	0.62–0.81	0.58	0.87	0.85
Social Values	5	0.65–0.84	0.60	0.88	0.86
Local Religiosity	5	0.68–0.83	0.61	0.89	0.87
Communal Practices	5	0.70–0.85	0.63	0.90	0.88
Religiosity (Character)	5	0.66–0.82	0.59	0.87	0.85
Responsibility	5	0.64–0.80	0.57	0.86	0.84
Tolerance	5	0.61–0.78	0.55	0.85	0.83
Environmental Concern	5	0.60–0.79	0.54	0.84	0.82

Table 3 confirms that all constructs exhibit strong psychometric properties. Factor loadings exceed the recommended threshold, indicating a strong relationship between indicators and constructs. AVE values above 0.50 confirm convergent validity, while composite reliability values above 0.70 indicate internal consistency. Cronbach's alpha values further support reliability across all constructs. These results validate the measurement framework and strengthen the credibility of the regression analysis.



**Figure 1.** Structural Relationship Between Local Wisdom and Character Dimensions

Figure 1 illustrates the structural relationship between local wisdom and each character dimension. The diagram highlights a descending gradient of influence, where religiosity receives the strongest contribution, followed by responsibility, tolerance, and environmental concern. This pattern indicates that cultural values are more effectively internalized in domains that are frequently

practiced within social and religious contexts, while ecological values require more structured reinforcement. The figure provides a visual synthesis of the regression findings, making the relative strength of each relationship more interpretable.

Overall, the results demonstrate that local wisdom serves as a significant and multidimensional predictor of student character, with varying levels of influence across different domains. The findings reveal a consistent pattern in which culturally embedded values strongly shape internal moral dimensions while showing relatively weaker effects on behaviorally driven dimensions such as environmental concern. This imbalance suggests that the translation of cultural values into practical action remains uneven, highlighting an important area for further investigation. The observed relationships provide a strong empirical foundation for advancing the discussion on how local wisdom can be more effectively operationalized within formal education systems to achieve balanced character development.

## Discussion

The findings of this study demonstrate that local wisdom exerts a disproportionately strong influence on students' religiosity, positioning it as the most responsive dimension of character formation. This pattern indicates that values embedded in ritualized and repeatedly enacted cultural practices are more readily internalized than those requiring situational judgment or behavioral adaptation. From the standpoint of Social Learning Theory, such an outcome is theoretically coherent, as frequent exposure to culturally sanctioned religious behaviors strengthens observational learning and reinforces moral schemas. However, this study advances the theory by showing that not all observed behaviors are internalized equally; rather, internalization is contingent upon the degree of symbolic repetition and social reinforcement within a given cultural system. While prior studies (Nurmaya et al., 2026; Mohd Hashim et al., 2026) emphasize the role of ethnopedagogy in fostering moral reasoning, the present findings suggest a more immediate and direct pathway between cultural immersion and religiosity, thereby extending existing models of value acquisition. At the same time, this result subtly challenges the assumption that pedagogical mediation is always necessary for moral internalization, indicating that in culturally cohesive environments, lived experience may function as a primary instructional mechanism. The implication is that religiosity is not merely taught but socially reproduced through sustained cultural participation, a nuance that refines contemporary understandings of character education.

A similarly strong, though slightly attenuated, effect is observed in the domain of responsibility, where local wisdom significantly predicts students' sense of obligation and social accountability. This finding underscores the role of culturally embedded practices, such as collective labor and communal cooperation, in shaping behavioral norms. Within the framework of Cultural Capital Theory, these practices can be interpreted as forms of embodied capital that structure individual dispositions over time. Yet, this study moves beyond conventional interpretations by demonstrating that cultural capital operates not only as a background condition but as an active and measurable predictor of character outcomes. While Sudirman et al. (2025) similarly report enhanced responsibility through local wisdom integration, the present findings reveal a more stable and statistically robust relationship, suggesting that repeated participation in communal practices produces durable behavioral tendencies. In contrast to Druker-Ibáñez and Cáceres-Jensen (2022), who argue for the necessity of structured curricular integration, this study indicates that informal cultural exposure may achieve comparable outcomes under conditions of strong cultural continuity. This divergence highlights a critical contextual factor often underexplored in global literature, namely the density of cultural transmission within a community. Consequently, the study contributes to theoretical refinement by positioning responsibility as a hybrid construct shaped by both institutional and non-institutional learning processes.

In contrast, the influence of local wisdom on tolerance appears more moderate, revealing the multidimensional and context-sensitive nature of this construct. Unlike religiosity and responsibility, tolerance is inherently relational and contingent upon interaction with diverse perspectives, making it less susceptible to unilateral cultural transmission. This finding aligns with Ecological Systems Theory, which conceptualizes individual development as the outcome of interactions across multiple environmental layers. While local wisdom provides foundational norms of respect and harmony, the enactment of tolerance depends on dynamic engagement within broader social contexts, including

peer groups and media environments. Empirical studies by Ngiu et al. (2023) and Suhaeb et al. (2024) support the role of culturally responsive education in promoting social cohesion, yet the present study reveals that such influence is neither uniform nor sufficient in isolation. This partially contradicts Najafov (2025), who attributes tolerance primarily to socio-psychological determinants, by demonstrating that cultural factors, although significant, exert only moderate influence when not complemented by interactive learning experiences. The implication is that tolerance requires dialogical and experiential reinforcement, rather than passive cultural exposure alone. This insight challenges simplified models of character education and calls for more integrative pedagogical approaches.

The weakest, though still significant, effect is found in the dimension of environmental concern, highlighting a critical gap between cultural values and behavioral enactment. Although local wisdom often contains ecological principles, these values do not automatically translate into consistent pro-environmental actions. This finding corroborates theoretical perspectives in Environmental Education, which emphasize the distinction between environmental awareness and behavioral commitment. However, the present study extends this perspective by demonstrating that even culturally embedded ecological values require explicit operationalization to influence behavior. While Bianchi et al. (2022) argue that experiential learning is essential for sustainability-oriented behavior, the relatively low explanatory power observed here suggests that cultural narratives alone are insufficient to drive ecological action. This contrasts with Sudirman et al. (2025), where structured ethnoconservation interventions yielded stronger outcomes, indicating that pedagogical design plays a decisive role. An alternative interpretation is that environmental concern, as a construct, demands higher levels of cognitive integration and behavioral consistency, making it less responsive to symbolic cultural reinforcement. This finding exposes a theoretical limitation in assuming that all dimensions of character are equally influenced by cultural context, thereby inviting a re-examination of how environmental values are embedded within educational systems.

Taken together, the differential pattern of influence across character dimensions reveals a systematic gradient, wherein local wisdom more strongly affects internalized moral orientations than externally manifested behaviors. This pattern provides empirical support for the multidimensional framework of character development proposed by Lerner et al. (2021), while simultaneously extending it by introducing cultural intensity as a moderating factor. Specifically, the findings suggest that the effectiveness of cultural transmission diminishes as the behavioral complexity of a character dimension increases. This insight advances existing theory by proposing that character development operates along a continuum from symbolic internalization to behavioral enactment, each requiring distinct mechanisms of reinforcement. While Asghar et al. (2025) highlight the complexity of multidimensional constructs, this study offers a more nuanced explanation by identifying the uneven distribution of cultural influence across dimensions. Importantly, this challenges the implicit assumption in many character education models that values, once internalized, will naturally translate into behavior. Instead, the findings suggest that behavioral enactment requires additional structural and experiential support, thereby redefining the relationship between cognition, affect, and action in character formation.

A further contribution of this study lies in its rigorous operationalization and validation of culturally grounded constructs, addressing a longstanding methodological gap in the literature. As noted by Mahaswa and Syaja (2025), many studies on local wisdom fail to capture its contextual specificity, resulting in constructs that lack empirical precision. By developing and validating multidimensional measures of local wisdom and character, this study demonstrates that culturally embedded values can be systematically quantified without losing conceptual depth. The strong psychometric properties reported in not only enhance the credibility of the findings but also establish a replicable framework for future research. This methodological advancement has broader implications for the field, as it bridges the divide between qualitative richness and quantitative rigor in cultural studies. Moreover, it challenges the prevailing notion that cultural constructs are inherently resistant to measurement, thereby opening new avenues for empirical investigation. In doing so, the study contributes not only substantively but also methodologically to the advancement of character education research.

Despite its strengths, the study also invites critical reflection on its contextual and theoretical boundaries. The cross-sectional design limits the ability to establish causal relationships, and the

reliance on self-reported data raises the possibility of social desirability bias. Furthermore, the strong influence of local wisdom observed in this study may be contingent upon the cultural cohesion of Surakarta, a context characterized by sustained traditional practices. As argued by Houser (2023) and Haq (2024), processes such as urbanization and digitalization can disrupt traditional value transmission, potentially weakening the role of local wisdom in more heterogeneous settings. This raises an important question regarding the scalability of culturally grounded models of character education in increasingly globalized societies. An alternative explanation is that students' responses reflect normative conformity rather than genuine internalization, particularly in socially desirable domains such as religiosity. These considerations do not diminish the validity of the findings but rather highlight the need for longitudinal and mixed-methods approaches to capture deeper developmental processes. Such critical reflection strengthens the study's contribution by situating its findings within a broader epistemological context.

Ultimately, this study offers a substantive and conceptual contribution by repositioning local wisdom as a measurable, multidimensional, and theoretically generative construct within character education. It challenges reductionist models that treat culture as a supplementary component and instead demonstrates its central role in shaping moral development. By revealing the uneven translation of cultural values into behavior, the study provides a more differentiated understanding of character formation and identifies key areas for pedagogical intervention. In the global literature, where character education is often framed within universalist paradigms, this research introduces a culturally grounded alternative that is both contextually sensitive and empirically robust. It thereby contributes to ongoing debates on how education systems can reconcile local identity with global competencies. More importantly, it establishes a foundation for future research to explore how culturally embedded values can be transformed into sustainable behavioral practices, a challenge that remains central to contemporary education.

## CONCLUSION

The present study provides robust empirical evidence that local wisdom functions as a multidimensional and contextually embedded driver of character development, exerting differentiated effects across religiosity, responsibility, tolerance, and environmental concern. The findings reveal a systematic gradient in which culturally reinforced and symbolically practiced values are more effectively internalized, while domains requiring complex behavioral enactment demonstrate comparatively weaker influence. This indicates that character formation is not a linear process but operates through distinct layers of internalization and action, each shaped by varying degrees of cultural exposure and reinforcement. In this regard, the study challenges the prevailing assumption that value internalization naturally leads to consistent behavioral expression, demonstrating instead that the translation from moral cognition to action requires additional pedagogical and structural mediation.

From a theoretical perspective, this research advances the literature by explicitly positioning local wisdom as an operationalizable and empirically verifiable construct within contemporary character education frameworks. Unlike prior studies that treat culture as a supplementary or contextual factor, this study demonstrates that local wisdom can function as a primary explanatory variable with measurable predictive power across multiple dimensions of character. This study is among the first to empirically validate a multidimensional model that integrates culturally specific constructs with statistically rigorous measurement, thereby extending existing theories of character development by introducing cultural intensity and behavioral complexity as critical explanatory mechanisms. By doing so, it not only supports but also refines established theoretical perspectives, offering a more differentiated understanding of how values are internalized and enacted within culturally grounded environments.

At the practical level, the findings underscore the necessity of rethinking how character education is designed and implemented within formal schooling systems. While the strong influence of local wisdom on religiosity and responsibility highlights the effectiveness of culturally embedded learning environments, the relatively weaker effects on tolerance and environmental concern indicate that cultural exposure alone is insufficient to ensure behavioral consistency. This suggests that educators and policymakers must move beyond symbolic incorporation of cultural values and

toward integrative pedagogical models that combine cultural immersion with experiential, dialogical, and action-oriented learning strategies. In particular, domains that require active behavioral engagement demand structured interventions that facilitate the transition from value recognition to sustained practice. Accordingly, this study provides a strategic foundation for developing culturally responsive education systems that are both contextually relevant and behaviorally impactful.

Nevertheless, the study acknowledges its limitations, particularly in relation to its cross-sectional design and reliance on self-reported data, which may constrain causal interpretation and introduce potential response bias. Furthermore, the strong effects observed may be context-specific, reflecting the relatively high cultural cohesion of the research setting. As contemporary societies increasingly experience cultural fragmentation due to globalization, urbanization, and digital transformation, the transferability of these findings requires careful consideration. Future research should therefore adopt longitudinal and mixed-method approaches to capture the dynamic processes of character development over time, as well as comparative studies across diverse cultural contexts to assess the scalability of culturally grounded educational models.

In conclusion, this study redefines the role of local wisdom in character education by demonstrating that it is not merely a cultural artifact, but a powerful and measurable mechanism for shaping moral development. By uncovering the uneven pathways through which cultural values are internalized and enacted, the research offers a nuanced and theoretically enriched perspective that bridges the gap between cultural heritage and modern educational demands. Ultimately, it affirms that sustainable character education in the twenty-first century must be rooted in culturally meaningful frameworks while simultaneously incorporating pedagogical innovations that ensure the translation of values into real-world behavior.

### AUTHOR CONTRIBUTIONS STATEMENT

Waluyo conceptualized the study, developed the research framework, and led the overall writing of the manuscript. Firdaus Himawan Raharjo contributed to the research design, coordinated data collection, and performed preliminary data analysis. M. Nurkhafiq was responsible for instrument development, validation procedures, and statistical analysis, including regression modeling and measurement model evaluation. Ridwan Abdul Wahab contributed to the theoretical framework, literature review development, and critical interpretation of the findings. Irhamuddin Mahmud assisted in data curation, manuscript editing, and final review to ensure coherence, clarity, and academic rigor.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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