



Mandailing-based character education through the MERDEKA framework in Muhammadiyah schools

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Abstract. Character education based on local wisdom is a crucial strategy for shaping the identity and morality of the younger generation in a culturally relevant manner. This study aims to develop and evaluate a character education model grounded in Mandailing culture through an innovative approach conceptualised in the MERDEKA framework (*Marsali, Mangupa, Dalihan na Tolu, Cerita Rakyat, Marsialap Ari, Gordang Sambilan, and Maronang-onang*). The research employed a descriptive quantitative approach with multistage sampling, involving 100 students from three Muhammadiyah high schools in the South Tapanuli region: 50 from SMA Muhammadiyah 11 Padangsidimpuan, 25 from Mandailing Natal, and 25 from South Tapanuli. Data were collected using a validated and reliable questionnaire instrument ($\alpha = 0.842$). The findings indicate a high level of internalisation of Mandailing cultural values among students, with significant regional differences based on ANOVA results ($p < 0.05$). The MERDEKA model is considered effective in facilitating character

learning that is reflective, collaborative, and contextual. This study offers a theoretical contribution to the development of local wisdom-based character education models and provides practical recommendations for schools to implement culturally rooted character education.

Introduction

Character education holds a strategic role in Indonesia's human resource development, aiming to prepare a generation that excels academically while embodying moral resilience, empathy, and strong social responsibility (Lian et al., 2020; Susniwati et al., 2024; Hanafi et al., 2025; Liliawati & Artajaya, 2023). However, global challenges such as technological disruption, moral decline, and social polarisation in digital spaces have weakened the youth's character resilience (Widana et al., 2023). The Character Index Survey by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek, 2022) found that 78% of students experienced bullying, and 65% had not internalised Pancasila values in daily life. This situation underscores the need for character education revitalisation that is rooted not only in global theories but also in local cultural contexts. The Kurikulum Merdeka policy provides a strategic avenue for embedding local values in education, thereby fostering cultural identity (Kemendikbudristek, 2022). Fairus et al. (2024) emphasised that local wisdom integration strengthens students' identity and ethics. Similarly, Albar

et al. (2025) found that applying local culture enhances collective awareness and mutual respect in diverse classroom settings. Hence, integrating local wisdom into education is not only relevant but also essential for fostering contextual and sustainable character development.

Although many studies have addressed the integration of local wisdom, a bibliometric analysis of Scopus publications (2020-2025) using VOSviewer reveals that research attention is predominantly given to Javanese, Balinese, and Sundanese cultures, while Mandailing wisdom remains significantly underrepresented. For instance, Arjaya et al. (2024) highlighted that research trends are concentrated on dominant cultural groups, whereas Verawati & Ramdani (2023), based on 173 publications, confirmed the steady growth of local-wisdom-based learning but also noted the persistent neglect of marginalised cultures. Mandailing values such as *Marsali* (self-awareness), *Mangupa* (intergenerational respect), and *Dalihan na Tolu* (social structure and empathy) offer valuable contributions to character education but are scarcely explored in the literature (Yulianda et al., 2022). For example, Yulianda et al. (2022) found that the Endeng-Endeng dance instils politeness and social cohesion, while Alhusni et al. (2025) showed that more attention has been given to science and history education than to cultural identity or student character. This bibliometric evidence strengthens the urgency of developing Mandailing-based character education as the foundation of this study.

The MERDEKA concept, introduced in this research, comprises seven systematic stages of character development: *Marsali* (Start from the Self), *Mangupa* (Concept Exploration), *Dalihan na Tolu* (Collaboration Space), *Cerita Rakyat* (Demonstration), *Marsialap Ari* (Elaboration of Understanding), *Gordang Sambilan* (Connection), and *Maronang-onang* (Real Action). The model integrates Mandailing values reflectively and applicatively into the curriculum. Its theoretical basis lies in social constructivism, which views learning as culturally embedded (Kusnadi, 2023), and in Ausubel's Meaningful Learning Theory, which asserts that learning is more effective when new information connects to prior experiences (Ausubel, 1968). Contextual learning also emphasises cultural relevance in content delivery (Jasper-Abowei & Ebikiemo, 2023). Studies by Puspitasari et al. (2022) and Dewinta et al. (2021) confirm that local wisdom-based contextual teaching significantly strengthens students' social character. Thus, the MERDEKA model serves not only as a medium for value transmission but also as meaningful learning rooted in local heritage.

Local research reinforces the urgency of Mandailing-based character education. Hasibuan et al. (2025) found that Canva-based local wisdom media improved students' manners, ethics, and social cohesion in Mandailing Natal. Similar outcomes were observed in other regions, such as West Kalimantan and Yogyakarta, where cultural integration enhanced empathy and collaboration (Sumarni et al., 2024; Susandi et al., 2025; Israfi et al., 2024). However, literature reviews confirm the lack of a structured, conceptual Mandailing-based character education model, particularly for secondary schools. Character learning rooted in values like *Marsali*, *Mangupa*, and *Dalihan na Tolu* remains sporadic and unstructured (Hasibuan et al., 2023). Therefore, this study proposes and tests the MERDEKA model as an integrative framework combining cognitive, affective, and social dimensions through reflective, context-based pedagogy applicable across Muhammadiyah schools in Southern Tapanuli.

The novelty of this research lies in its comprehensive and structured design of a Mandailing-based character education model, framed through the original MERDEKA acronym. In contrast to previous fragmented or thematic approaches, this model holistically integrates local values into educational practices. The study also stands out methodologically in its use of a descriptive quantitative approach with multistage sampling, involving over 100 students from Muhammadiyah schools in Padangsidimpuan, Mandailing Natal, and South Tapanuli. This enables broader generalisation and addresses the literature gap on replicable, culture-based character education

models. Ultimately, this study offers both conceptual and practical contributions for implementing locally grounded, relevant, and sustainable character learning in Indonesian schools.

Based on the gaps and novelty described above, this study seeks to answer the following research questions: (1) How can Mandailing-based values be systematically integrated into character education through the MERDEKA framework in Muhammadiyah schools? and (2) To what extent is the MERDEKA model effective in improving students' character compared to schools with lower exposure to Mandailing culture? Accordingly, the research hypothesises that the MERDEKA model significantly enhances students' internalisation of character values across cognitive, affective, and social dimensions. The objectives of this study are to (a) design and develop a Mandailing-based character education model through the MERDEKA framework, (b) test its validity and reliability in the context of Muhammadiyah schools, and (c) evaluate its effectiveness in strengthening student character through empirical analysis.

Method

Research Type and Design

This study employed a Research and Development (R&D) approach to design and test the effectiveness of a Mandailing-based character education model through the MERDEKA framework (*Marsali, Mangupa, Dalihan na Tolu, Cerita Rakyat, Marsialap Ari, Gordang Sambilan, and Maronang-onang*). The development phase produced a systematic character education model, while the implementation phase tested its effectiveness through field trials in Muhammadiyah schools. A quasi-experimental design was applied by comparing an experimental group and a control group.

Population and Sampling Technique

The population comprised students from Muhammadiyah senior high schools in South Tapanuli. Using multistage sampling, 100 students were selected from three schools: SMA Muhammadiyah 11 Padangsidempuan (50 students), SMA Muhammadiyah Mandailing Natal (25 students), and SMA Muhammadiyah Tapanuli Selatan (25 students). SMA Muhammadiyah 11 Padangsidempuan was designated as the experimental school (pilot implementation of the MERDEKA model), while SMA Muhammadiyah Mandailing Natal and SMA Muhammadiyah Tapanuli Selatan served as control schools for comparison.

Research Procedures

The research was carried out in several stages following the R&D cycle: 1) Preliminary study-analysis of needs and literature review; 2) Model development-designing the MERDEKA framework based on Mandailing cultural values; 3) Validation-expert review for content validity of the model and instruments; 4) Field trial-implementation in the experimental school and observation in control schools; 5) Evaluation-comparison of student character outcomes between experimental and control groups.

Instruments and Validation Techniques

The primary instrument was a five-point Likert scale questionnaire adapted from the national character education indicators ([Kemendikbudristek, 2022](#)) and contextualised with Mandailing cultural values. Expert validation confirmed the instrument's content validity. Reliability testing using Cronbach's Alpha produced a coefficient of $\alpha = 0.89$, indicating high internal consistency.

Data Analysis Technique and Criteria

Data were analysed in two stages. First, descriptive statistics (mean, frequency, and percentage) were used to map the internalisation of Mandailing cultural values. Second, inferential statistics using One-Way ANOVA were used to test differences in character outcomes between

experimental and control schools. Before ANOVA, prerequisite tests (normality and homogeneity) were conducted to ensure the validity of the analysis. A significance level of $p < 0.05$ was used as the criterion for determining the model's effectiveness.

Results and Discussion

Respondent Profile and Representation of Local Cultural Context

This study involved 100 students from Muhammadiyah schools in the Southern Tapanuli region, demographically distributed as follows: 50 students (50%) from SMA Muhammadiyah 11 Padangsidempuan as the primary school, and 25 students (25%) each from SMA Muhammadiyah Mandailing Natal and SMA Muhammadiyah Tapanuli Selatan. The sample was selected using a multistage sampling technique that considered both geographical distribution and the richness of local cultural heritage. This composition was designed to capture the diversity in the internalisation of Mandailing cultural values within the context of character education.

In terms of demographic characteristics, the majority of respondents were between 15 and 17 years old and enrolled in grades XI and XII. This age group was selected based on the consideration that high school students at this level possess sufficient reflective and cognitive capacity to understand and internalise character values rooted in local culture (Schweder & Raufelder, 2022). Preliminary data also showed that approximately 78% of students came from families that still uphold Mandailing cultural traditions in their daily lives, such as practising *Mangupa*, participating in traditional ceremonies, and using the Mandailing language within their household. This suggests that most students have a high level of cultural exposure, which provides a crucial foundation for developing character education based on local values.

Table 1. Distribution of the number of respondents based on school origin and gender

School of origin	Boy	Girl	Total
SMA Muhammadiyah 11 Padangsidempuan	25	25	50
SMA Muhammadiyah Mandailing Natal	12	13	25
SMA Muhammadiyah Tapanuli Selatan	11	14	25
Total	48	52	100

The distribution also reveals that female student participation was slightly higher than that of male students. This opens up a reflective space to examine the internalisation of gender roles in the cultural values. For example, a study by Romero et al. (2024) indicates that female students tend to exhibit higher social sensitivity toward values such as empathy and cooperation, which are essential components of the Mandailing cultural value system.

The representation of local cultural contexts across the three schools also revealed variations. At SMA Muhammadiyah 11 Padangsidempuan, cultural education was integrated through extracurricular activities and discussions of traditional values within the Pancasila and Civic Education (PPKn) curriculum. In contrast, at SMA Muhammadiyah Mandailing Natal and Tapanuli Selatan, cultural values were more commonly internalised through family traditions and community-based practices outside the school. These variations clearly illustrate that the implementation of character education based on local culture is highly influenced by students' social environments (Sudiarta & Widana, 2019).

These findings suggest that the effectiveness of local wisdom-based character education largely depends on the intensity of students' exposure to cultural practices within their communities (Trimo et al., 2025). Sakti et al. (2024) found that children's active participation in cultural activities such as traditional ceremonies and local games enhances their sense of collaboration, empathy, and

social responsibility from an early age. Similarly, [Arif et al. \(2023\)](#) emphasised that integrating the Subak tradition into learning not only strengthens character education but also requires prior socio-cultural mapping of the community. Additionally, [Suciati et al. \(2023\)](#) emphasised the importance of early collaboration among schools, families, and community leaders through local wisdom-based programs implemented prior to the rollout of the character curriculum, to ensure that students' cultural contexts are fully understood and accommodated in the learning process.

Level of Understanding and Internalisation of Mandailing Cultural Values by Students

To evaluate the extent to which students understand and internalise Mandailing cultural values within the context of character education, an instrument was distributed to 100 respondents across three Muhammadiyah schools in the Southern Tapanuli region: SMA Muhammadiyah 11 Padangsidempuan (50 respondents), SMA Muhammadiyah Mandailing Natal (25 respondents), and SMA Muhammadiyah Tapanuli Selatan (25 respondents). SMA Muhammadiyah 11 Padangsidempuan was designated as the experimental school where the MERDEKA model was implemented. At the same time, SMA Muhammadiyah Mandailing Natal and SMA Muhammadiyah Tapanuli Selatan functioned as control schools for comparison. This stage represents the validation and testing phase of the R&D process.

The instrument was developed based on the seven core aspects of the MERDEKA model, which represent key Mandailing cultural values: *Marsali*, *Mangupa*, *Dalihan na Tolu*, *Cerita Rakyat*, *Marsialap Ari*, *Gordang Sambilan*, and *Maronang-onang*. Each aspect consisted of five statements rated on a 4-point Likert scale. Validity testing was conducted using item–total correlation, and all items demonstrated correlation values (r) above 0.30. Reliability testing using Cronbach's Alpha revealed that each indicator had high internal consistency ($\alpha > 0.8$), as presented in Table 2.

Table 2. Results of Instrument Validity and Reliability Tests

Indicator	Number of Items	r calculate min-max	Validity Status	Cronbach's Alpha
<i>Marsali</i>	5	0.389 – 0.721	Valid	0.811
<i>Mangupa</i>	5	0.412 – 0.732	Valid	0.825
<i>Dalihan na Tolu</i>	5	0.443 – 0.768	Valid	0.837
<i>Cerita Rakyat</i>	5	0.401 – 0.751	Valid	0.814
<i>Marsialap Ari</i>	5	0.367 – 0.728	Valid	0.808
<i>Gordang Sambilan</i>	5	0.392 – 0.740	Valid	0.819
<i>Maronang-onang</i>	5	0.421 – 0.755	Valid	0.829
<i>Total Instrument</i>	35	0.367 – 0.768	Valid	0.842

These results indicate that the measurement instrument used in this study meets the requirements of validity and reliability within the context of educational social research. The Cronbach's Alpha values above 0.8 demonstrate strong internal consistency among items, establishing a reliable basis for further data analysis.

To analyse the differences in understanding and internalisation of Mandailing cultural values among the school groups, a One-Way ANOVA test was conducted. Prior to ANOVA, prerequisite tests were performed. The Kolmogorov–Smirnov test showed $p > 0.05$ for all groups, indicating that the data were normally distributed. Levene's test also showed $p > 0.05$, confirming the homogeneity of variances. The results of the ANOVA analysis are presented in Table 3.

Table 3. One-Way ANOVA Test Results on the Level of Internalisation of Mandailing Cultural Values

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Inter-School	4.317	2	2.158	3.862	0.025
In School	54.682	97	0.563		
Total	59.000	99			

The significance value of 0.025 ($p < 0.05$) indicates a meaningful difference among the schools in terms of the level of internalisation of cultural values. Respondents from SMA Muhammadiyah 11 Padangsidempuan scored the highest, which can be interpreted as the effect of implementing the MERDEKA model in the experimental school. Meanwhile, students from Mandailing Natal and South Tapanuli demonstrated lower levels of understanding, suggesting the need to strengthen local content in schools located outside the cultural core.

These findings reinforce previous research by [Resa et al. \(2023\)](#), which emphasised that contextual learning based on local culture significantly enhances the internalisation of character values. This is also consistent with the findings of [Suri & Chandra \(2021\)](#), who asserted that learning processes become more effective when values are taught through cultural practices that are alive and relevant within students' communities. Overall, the results demonstrate that the MERDEKA model is not only theoretically valid but also empirically relevant.

The higher level of value internalisation observed in SMA Muhammadiyah 11 Padangsidempuan indicates that direct engagement in local cultural practices serves as a critical catalyst for effective character education. Unlike previous studies that examined local values in a fragmented manner, this study introduced the MERDEKA model as a structured and replicable framework comprising seven cultural stages. However, this stage of the study also has limitations, including reliance on self-report questionnaires, a relatively small sample size, and a focus on only Muhammadiyah schools. These limitations should be considered in future studies by expanding the sample size, employing mixed methods, and utilising longitudinal designs.

The Effectiveness of the MERDEKA Model in Improving Student Character

The results of the ANOVA test were used to assess the effectiveness of implementing the Mandailing culture-based character education model (MERDEKA) across three Muhammadiyah educational institutions in the Southern Tapanuli region, namely SMA Muhammadiyah 11 Padangsidempuan ($n=50$), SMA Muhammadiyah Mandailing Natal ($n=25$), and SMA Muhammadiyah Tapanuli Selatan ($n=25$). SMA Muhammadiyah 11 Padangsidempuan was designated as the experimental school where the MERDEKA model was implemented, while the other two schools functioned as control groups. Prior to the ANOVA, prerequisite tests confirmed that the data were normally distributed (Kolmogorov-Smirnov, $p > 0.05$) and homogeneous (Levene's test, $p > 0.05$).

Table 4. ANOVA Test Results of the Effectiveness of the MERDEKA Model

Value Indicator	Mean Padangsidempuan	Mean Madina	Mean Tapsel	F Count	Sig. (p-value)
<i>Marsali</i>	4.52	4.13	4.09	5.32	0.006
<i>Mangupa</i>	4.48	4.20	4.12	3.89	0.022
<i>Dalihan na Tolu</i>	4.55	4.18	4.06	6.11	0.003
<i>Cerita Rakyat</i>	4.43	4.27	4.15	2.87	0.063
<i>Marsialap Ari</i>	4.38	4.09	4.02	2.94	0.057
<i>Gordang Sambilan</i>	4.51	4.22	4.10	5.76	0.004
<i>Maronang-onang</i>	4.49	4.25	4.11	4.03	0.019

From the table above, there are significant differences in almost all indicators ($p < 0.05$), particularly in Marsali, Dalihan na Tolu, and Gordang Sambilan. These results indicate that the MERDEKA model is more effectively implemented at SMA Muhammadiyah 11 Padangsidempuan, which served as the pilot site for model development and testing. The higher scores in this school suggest that earlier intervention and a deeper understanding of local culture contribute more strongly to the internalisation of character values (Suhardita et al., 2024).

These findings are consistent with Ausubel's (1968) theory of Meaningful Learning, which posits that students assimilate values and concepts more effectively when connected to their existing cognitive structure. In this context, students' cultural experiences in Padangsidempuan serve as a strong foundation for linking character values. This is supported by Kusnadi (2023), who explains that social constructivist learning is most effective when local cultural content is used as a means of reinforcing students' identity and moral development. Specifically, the value of Dalihan na Tolu, which reflects the social structure of the Mandailing community, showed the most significant difference ($F = 6.11$; $p = 0.003$), indicating that students in Padangsidempuan are better able to practice mutual respect, cooperation, and courteous communication compared to those in the other schools.

In addition, the value of Gordang Sambilan as a symbol of cultural connection also showed strong significance ($p = 0.004$), suggesting that incorporating elements of traditional arts and music into character education enhances students' emotional engagement and sense of belonging to their local culture. This finding aligns with Romero et al. (2024), who emphasised the importance of cultural practices as a bridge between formal curricula and students' social lives.

Meanwhile, values such as *Marsialap Ari* and *Cerita Rakyat* showed marginal significance, indicating that deeper student discussions and understanding of local social and moral issues may require more time and more structured pedagogical approaches.

Overall, these results provide strong empirical evidence that the MERDEKA model functions effectively as a contextual character education approach. Unlike previous studies that explored local values in isolation, this research tested a structured, seven-stage model that demonstrated measurable improvements in student character. However, the findings also reveal limitations, particularly the uneven effectiveness across different cultural indicators. Future studies should refine the implementation of marginally significant components and extend trials to more diverse school contexts.

Integration of Mandailing Local Values into Character Dimensions

The MERDEKA learning model, rooted in Mandailing culture, is not only intended to strengthen character based on local values but also designed to align with the national character dimensions outlined in Indonesia's education policy. The five core dimensions of the Profil Pelajar Pancasila faith in God Almighty and noble character, independence, mutual cooperation, critical thinking, and creativity can each be traced to corresponding cultural values embedded within the Mandailing tradition and accommodated in this model. This stage represents the implementation of the MERDEKA syntactic model (Step 3 of the R&D process).

Table 5. Integration of Mandailing Local Values within the MERDEKA Model and National Character Dimensions

Merdeka Belajar Concept Flow	Local wisdom	Moral Values Contained
Start from Yourself	<i>Marsali</i>	Building self-identity and independence
Concept Exploration	<i>Mangupa</i>	Respect for parents and previous generations

Merdeka Belajar Concept Flow	Local wisdom	Moral Values Contained
Collaboration Space	<i>Dalihan na Tolu</i>	Social skills, empathy, cooperation
Demonstration	<i>Cerita Rakyat</i>	Exploration of moral values in stories
Elaboration of Understanding	<i>Marsialap Ari</i>	Critical understanding of social issues
Connection	<i>Gordang Sambilan</i>	Creativity, expression, cultural connection
Real Action	<i>Maronang-onang</i>	Elaborating on the Understanding of Local Implementation of values in community practice

The syntactic stages of the MERDEKA model are illustrated in Image 1, which shows the systematic flow of character development from *Marsali* (self-awareness) to *Maronang-onang* (real action).

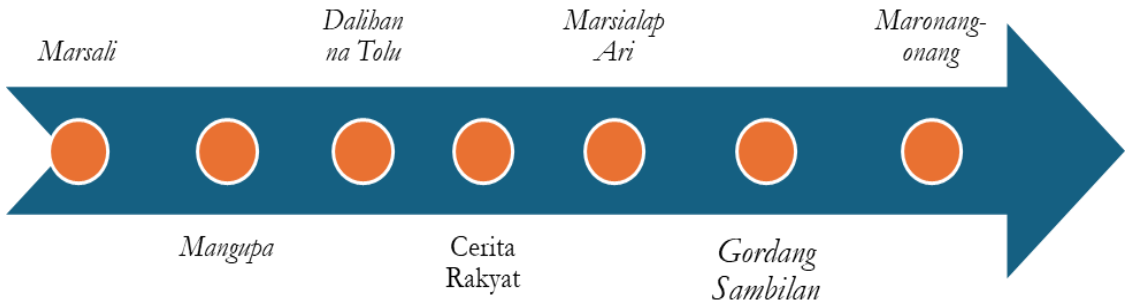


Image 1. Seven syntactic stages of the MERDEKA character education model

The value of *Marsali* (self-awareness) fosters students' independence and awareness of their local identity. *Mangupa* (intergenerational respect) fosters noble character and reverence for parents and ancestors, aligning with the religious and moral dimensions. *Dalihan na Tolu*, as the Mandailing social system that upholds deliberation, harmony, and empathy, directly correlates with the dimension of cooperation. *Marsialap Ari* encourages critical thinking through reflective engagement with local idioms and cultural discourse (Hasibuan et al., 2024). Meanwhile, *Cerita Rakyat* and *Gordang Sambilan* stimulate creativity and imagination through storytelling and cultural arts. Finally, *Maronang-onang* represents the real action stage, where values are internalised through direct community engagement.

These findings are supported by Widhiyanti & Gandang Gunanto (2020), who confirmed that character education rooted in local wisdom strengthens the implementation of Pancasila values in schools. Similarly, Hasibuan et al. (2021) and Resa et al. (2023) demonstrated that integrating cultural values such as cooperation and tolerance into curriculum design fosters students' character in practical settings. Yuliani et al. (2025) also found that embedding local wisdom into language instruction enhances students' national awareness.

Unlike previous studies that integrated local wisdom in a fragmented manner, the novelty of this research lies in its systematic seven-stage syntactic design, making it more replicable and adaptable across different educational contexts. However, this stage is also limited by the fact that the model has been tested so far only in Muhammadiyah schools, requiring further validation in broader school environments to confirm its universal applicability.

Recommendations for Implementing the MERDEKA Model in Character Education

The findings of this study confirm the MERDEKA model's Effectiveness in shaping a systematic, contextual, and applicable character education framework rooted in Mandailing cultural values. However, its success depends on proper implementation strategies at the school level. Practical recommendations are thus proposed for adoption in Muhammadiyah schools across the Southern Tapanuli region and beyond.

First, schools should integrate local cultural values directly into curriculum design rather than treating them as supplementary content. Core values like Marsali, Mangupa, and Dalihan na Tolu can be incorporated into subjects such as Bahasa Indonesia, Civics (PPKn), and Arts and Culture. This interdisciplinary approach aligns with [Hanafi et al. \(2025\)](#), who emphasise that culturally rooted character development is more effective when implemented contextually across disciplines. Supporting this, [Sumarni et al. \(2024\)](#) demonstrated that embedding local values in Pancasila and Civic Education fosters tolerance and active participation.

Second, teachers need in-service training to transform cultural values into practical pedagogical strategies such as project-based learning, storytelling, and cultural exploration. [Komariah et al. \(2022\)](#) found that teachers trained in contextual pedagogy are more capable of nurturing student ethics within culture-based education. [García-Álvarez et al. \(2023\)](#) also showed that project-based learning models integrating local culture enhance students' critical thinking. Furthermore, a character education program in Uruguay proved that training grounded in positive psychology and contextual learning significantly improves teacher competence in everyday classroom practice ([Thresia et al., 2024](#)).

Third, collaboration between schools, families, and local communities is essential to extend value internalization beyond the classroom. Activities such as cultural visits, traditional art performances, and intergenerational dialogues enrich students' cultural appreciation and learning. [Ramadani et al. \(2023\)](#) found that community involvement enhances the long-term sustainability of character formation.

Finally, to ensure sustainability and scalability, schools should document successful practices as learning modules or school policies grounded in local wisdom. This not only strengthens school identity as a centre for character education but also provides replicable models for other institutions in culturally similar regions. In this way, the MERDEKA model evolves beyond a conceptual innovation into a practical, transformative approach. It affirms the role of Muhammadiyah schools as institutions that cultivate character through Islamic values deeply embedded in Indonesia's indigenous heritage.

From a theoretical perspective, this research contributes to the development of local wisdom-based education models by offering a systematic and replicable seven-stage framework that integrates cultural identity into character education. Practically, it provides teachers, schools, and policymakers with concrete strategies for embedding Mandailing values into curriculum and pedagogy. Nevertheless, this study also has limitations, particularly its reliance on self-report questionnaires and its focus on a limited number of Muhammadiyah schools in South Tapanuli. Future research should expand the scope of implementation across different educational settings and employ longitudinal designs to strengthen the model's generalizability and long-term impact.

Conclusion

This study developed and tested the MERDEKA model, a Mandailing-based character education framework comprising seven contextual learning stages: Marsali, Mangupa, Dalihan na Tolu, Cerita Rakyat, Marsialap Ari, Gordang Sambilan, and Maronang-onang. In response to the first research question, the study confirmed that Mandailing cultural values can be systematically integrated into character education and aligned with the five core dimensions of the Profil Pelajar Pancasila. Regarding the second research question and hypothesis, the results of ANOVA testing demonstrated significant differences between the experimental school (Padangsidimpuan) and the control schools (Mandailing Natal and South Tapanuli), thus supporting the hypothesis that the MERDEKA model is effective in strengthening student character.

The objectives of this study were achieved by (1) designing a comprehensive Mandailing-based character education model, (2) validating its instruments with high reliability ($\alpha > 0.8$), and (3) empirically testing its Effectiveness in Muhammadiyah schools. These findings provide both theoretical contributions that extend social constructivist and meaningful learning theories through a culturally rooted model, and practical contributions that offer schools a systematic and replicable approach to local wisdom-based character education.

Nevertheless, this study has limitations, including its reliance on self-report questionnaires, a relatively small sample size, and a focus on Muhammadiyah schools in South Tapanuli only. Future research should expand the application of the MERDEKA model across different types of schools and regions, employ longitudinal designs to examine long-term impacts, and adopt mixed-method approaches to capture deeper qualitative insights into character formation.

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