



Integration of Instructional Leadership and Ethnopedagogy: Strategies to Improve Learning Quality in Higher Education

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ABSTRACT

The integration of modern leadership approaches with local wisdom remains a challenge in improving educational quality in Indonesian higher education. This study analyzes the impact of integrating instructional leadership with ethnopedagogy based on Dalihan Na Tolu philosophy - a traditional Batak leadership system emphasizing respect (Somba), care (Elek), and responsibility (Manat) - on learning quality at Graha Nusantara University. Using a mixed-method approach with sequential explanatory design, the study involved 50 lecturers selected through systematic random sampling and 100 students. Data were collected through validated questionnaires (validity $r = 0.72-0.89$; reliability $\alpha = 0.88$), in-depth interviews, and participatory observation. The results show that instructional leadership independently explains 67% of learning quality variation ($R^2 = 0.670$, $p < 0.001$), demonstrating that systematic leadership practices significantly improve teaching and learning outcomes through enhanced classroom instruction and better-aligned educational objectives. Ethnopedagogical leadership contributes through Somba Marhula-hula ($\beta = 0.45$), Manat Mardongan Tubu ($\beta = 0.41$), and Elek Marboru ($\beta = 0.38$). The integration creates significant synergistic effects ($R^2 = 0.830$), improving active interaction (+70%), learning strategy effectiveness (+68%), and productivity (+66%). This study contributes to developing an integrated leadership model combining modern values with local wisdom for higher education institutions.

Keywords: *Instructional Leadership, Ethnopedagogy, Dalihan Na Tolu, Learning Quality*



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INTRODUCTION

In today's interconnected world, higher education plays a pivotal role in driving national development and global competitiveness. Universities are not only centers of knowledge creation but also crucial institutions for developing human capital that can compete in the international arena. The quality of higher education directly impacts a nation's innovation capacity, economic growth, and ability to address complex global challenges (Trani and Holsworth 2010). Within this context, improving the quality of learning in higher education has

become a crucial challenge in preparing a competitive generation for the global workforce (Nichols and Erakovich, 2013; Situmorang and Rajagukguk, 2022)

Drawing from established theoretical frameworks, effective educational quality improvement requires the integration of both instructional leadership theory (Hallinger and Murphy 1986) and culturally responsive pedagogical approaches. Instructional leadership emphasizes the importance of clear educational objectives, systematic teaching processes, and continuous professional development, while cultural approaches recognize the value of local wisdom in educational practices. In Indonesia, various indicators suggest that the quality of learning in higher education still struggles to meet these theoretical benchmarks. Based on data from BAN-PT in 2022, only 61 universities in Indonesia have obtained A accreditation, and 42 have superior status out of a total of 2,956 registered universities. This shows that there is still a need for quality improvement efforts to achieve better higher education standards nationally (Mulyoto, Rosyidi, and Rugayah, 2023). This situation is exacerbated by various challenges such as limited resources, gaps in educators' competencies, and weak educational leadership systems (Septa, Ahyani, and Fitriani, 2022)

In this study, instructional leadership emerged as an approach to improving learning quality. McEwan (2002) identifies several key characteristics of instructional leadership that directly contribute to educational improvement: Exemplary Leadership demonstrates best practices and sets high standards for teaching excellence; Communication of Vision and Mission ensures alignment of educational goals across all levels; Reward systems motivate and reinforce effective teaching practices; Guidance and Support facilitate continuous professional development; Risk Taking and Innovation encourage adaptation to changing educational needs; and Management and Administration establish efficient organizational processes. Each of these characteristics plays a specific role in enhancing learning quality - for example, when leaders model exemplary teaching practices, studies show a 45% increase in faculty adoption of innovative pedagogical methods (Bush 2013).

A systematic literature review by Walean, Koyongian, and Sabudu (2023) analyzing 10 selected studies from a pool of 100 articles demonstrates that instructional leadership has a more significant impact on student learning compared to transformational leadership. Their research reveals that instructional leadership significantly influences teaching quality by enhancing teachers' understanding and maximizing their competencies to be more productive and innovative in their teaching performance. Furthermore, they found significant relationships between instructional leadership, teacher self-efficacy, and teaching performance, ultimately leading to positive school outcomes. However, leadership practices in Indonesia often remain tied to Western models, overlooking the rich tradition of local wisdom. Indonesian local wisdom encompasses valuable leadership principles such as musyawarah (consensual decision-making), gotong royong (collaborative work), and specific regional philosophies like the Javanese concept of ing ngarsa sung tuladha (leading by example) (Sari, Bachtiar, and Fauzi 2024) and the Minangkabau principle of tungku tigo sajarangan (tripartite leadership) (Sulastri et al. 2019). These indigenous approaches to leadership, as documented by Amatullah (2022), offer culturally resonant frameworks for educational governance that have historically proven effective in Indonesian contexts.

On the other hand, the awareness of the importance of local wisdom in education is getting stronger. Amatullah (2022) revealed that leadership approaches that integrate local values have proven to be more effective in the Indonesian educational. Especially in the North Sumatra region, the Dalihan Na Tolu leadership philosophy has long been a guide in the governance of the Batak community. Simanullang (2017) and Situmorang et al. (2022) found that Dalihan Na Tolu principles such as Somba Marhula-hula (respect), Elek Marboru (care), and Manat Mardongan Tubu (responsibility) have strong relevance to modern leadership practices.

Previous studies have examined instructional leadership and ethnopedagogy separately, revealing both opportunities and challenges in their implementation. Research by Sunardi, Nugroho, and Setiawan (2019) in SMPN 2 Palangka Raya demonstrated that instructional leadership through academic supervision and regular teacher training significantly improved learning quality. However, they identified several critical challenges: resistance to change among senior faculty, misalignment between modern assessment methods and traditional teaching values, and difficulties in balancing standardized educational requirements with local cultural practices.

Similar findings by Amatullah (2022) at SMP Alam Lampung showed that ethnopedagogical leadership based on the *piil pesenggiri* philosophy enhanced educational quality through cultural integration. Their study proposed specific integration strategies, including: (1) incorporating local wisdom into curriculum design while maintaining alignment with national standards, (2) developing bilingual teaching materials that preserve local language while meeting global communication needs, and (3) implementing a hybrid evaluation system that considers both academic achievement and cultural competency.

The integration challenges, as documented by Walean et al. (2023), primarily stem from three sources: structural barriers (rigid organizational hierarchies), cultural resistance (fear of losing traditional values), and practical constraints (limited resources for implementation). To address these challenges, successful integration requires the development of culturally sensitive professional development programs that bridge modern teaching methods with local wisdom. This approach ensures that educational advancements do not overlook the rich heritage and values of the community. Additionally, the creation of flexible assessment frameworks is essential to accommodate both global standards and local cultural values, enabling a more inclusive and balanced evaluation system. Establishing mentoring systems that pair experienced cultural leaders with modern education specialists can further enhance the integration process by fostering mutual understanding and collaboration. Moreover, the implementation of gradual change management strategies that respect existing cultural practices while introducing contemporary educational methods is crucial to minimize resistance and ensure smooth transitions. These strategies must be reinforced by clear institutional policies, adequate resources, and continuous stakeholder engagement to guarantee sustainable implementation and meaningful impact.

However, research specifically examining instructional leadership's integration with ethnopedagogy is limited. Day, Gu, and Sammons (2016) provide a nuanced examination of school leadership integration, offering a comprehensive framework for practical implementation. Their research demonstrates the effectiveness of phased integration, beginning with small-scale pilot programs before university-wide implementation, coupled with systematic capacity building through targeted faculty training programs that combine modern teaching methods with cultural wisdom. Schools adopting this phased approach reported 40% higher faculty buy-in compared to those attempting immediate full-scale implementation. Their framework emphasizes the importance of stakeholder engagement through cultural advisory boards and systematic monitoring using metrics that measure both academic outcomes and cultural competency development.

This finding is reinforced by Tanjung, Harfiani, and Hartanto (2021), whose 'soul leadership' model in Indonesian secondary schools provides concrete evidence of successful integration between modern educational approaches and cultural values. Their implementation strategy includes regular cultural dialogue sessions between teachers and local community leaders, systematic integration of traditional wisdom into academic curriculum, and development of comprehensive assessment systems that value both academic and cultural achievements. This integrated approach has yielded significant improvements,

with participating schools reporting a 15% increase in academic performance and 30% improvement in student engagement.

The success of these integration efforts relies heavily on institutional commitment to overcoming implementation challenges. Successful schools have allocated dedicated time for cultural activities within their academic schedules, invested in additional teacher training for cultural integration, developed strong partnerships with local cultural institutions, and created flexible assessment systems. This comprehensive approach creates an immersive learning environment where students develop not only strong academic skills but also deep moral and spiritual values relevant to their local culture. The evidence suggests that when properly implemented, this integrated approach can significantly enhance both educational outcomes and cultural preservation efforts.

In Indonesian higher education, there has yet to be a comprehensive study that specifically examines the integration of instructional leadership with the Dalihan Na Tolu philosophy. This research gap becomes even more relevant given the strategic position of Graha Nusantara University as a higher education institution within the Mandailing Batak cultural environment. The results of initial observations show that efforts to improve the quality of learning at this university still face various challenges, including low levels of active student participation (45%), limited learning innovation (38%), and not optimal achievement of learning outcomes (52%). These challenges indicate the need for a leadership approach that is not only instructionally effective but also culturally relevant.

The urgency of this research is further strengthened by the findings of Dimmock (2012) who emphasized that effective educational leadership requires a contextual approach that considers local cultural values. Leithwood et al. (2004) also asserts that the success of educational leadership is highly dependent on its ability to adapt to the local socio-cultural aspect. The integration of instructional leadership with ethnopedagogy has the potential to create a more comprehensive and contextualized leadership model.

Based on this background, this study aims to analyze: (1) the implementation of instructional leadership at Graha Nusantara University, (2) the implementation of ethnopedagogical leadership based on Dalihan Na Tolu, and (3) the impact of the integration of the two approaches on improving learning quality. This research is expected to make a significant contribution both theoretically and practically in developing of an educational leadership model that integrates modern values with local wisdom.

This study is especially significant in achieving Sustainable Development Goal (SDG) 4 on Quality Education. As emphasized by Fios et al. (2024), improving the quality of higher education requires a holistic and contextual leadership approach. The results of this study are expected to be a reference model for other higher education institutions in developing effective leadership based on local wisdom.

METHODS

Research Design

This research uses a mixed method approach with a sequential explanatory design, which combines quantitative and qualitative methods sequentially to understand the phenomenon under study comprehensively (Creswell 2012; Sugiyono 2017). The choice of this design allows researchers not only statistically to measure the relationship between variables, but also understand the context and dynamics of the integration of instructional leadership and ethnopedagogy in depth.

Participants/ Sample

The study population comprised 165 lecturers at Graha Nusantara University across five faculties: Economics (37 lecturers), Social and Political Sciences (23 lecturers), Teacher Training

and Education (47 lecturers), Agriculture (34 lecturers), and Engineering (24 lecturers). Using systematic random sampling as recommended by Taherdoost (2016), 50 lecturers were selected with proportional representation of 10 from each faculty to ensure balanced representation. Additionally, 100 students, distributed equally with 20 from each faculty, participated in assessing learning quality.

For the qualitative phase, 15 key informants were purposively selected based on comprehensive criteria to ensure rich and relevant data collection. These criteria included a minimum of 5 years teaching experience at the university, active involvement in academic leadership roles, and demonstrated understanding of local cultural values. The selection also ensured representation across different faculty ranks including professors, associate professors, and lecturers, while maintaining a balance of gender and cultural backgrounds. This careful selection of informants aimed to capture diverse perspectives while ensuring deep understanding of both academic leadership and cultural integration aspects.

Data Collection

The research instrument consisted of three main questionnaires measuring instructional leadership, ethnopedagogical leadership, and learning quality. The instructional leadership questionnaire was developed based on the theory McEwan (2002) with six dimensions: exemplary leadership, communication of vision and mission, reward, guidance and support, risk-taking and innovation, and management and administration. The ethnopedagogical leadership questionnaire was developed based on the concept of Dalihan Na Tolu Situmorang & Rajagukguk (2022), including aspects of Somba Marhula-hula, Elek Marboru, and Manat Mardongan Tubu. Meanwhile, the learning quality questionnaire was developed referring to the indicators identified by Septa et al. (2022).

The development and validation of the research instruments were conducted through several systematic stages to ensure adequate psychometric quality. In the initial stage, three main instruments were constructed including instructional leadership with 40 items, ethnopedagogical leadership with 30 items, and learning quality with 30 items. The instructional leadership instrument was developed by considering six main dimensions: role modeling (7 items), vision-mission communication (6 items), rewarding (7 items), guidance and support (7 items), risk-taking and innovation (7 items), and administrative management (6 items). For ethnopedagogical leadership, the instrument was structured based on three aspects of Dalihan Na Tolu, namely Somba Marhula-hula, Elek Marboru, and Manat Mardongan Tubu, each with 10 items. Meanwhile, the learning quality instrument includes three dimensions with 10 items each: learning planning, learning implementation, and learning evaluation.

The validity of the instruments was tested using Pearson Product Moment, resulting in correlation coefficients ranging from 0.72 to 0.89 for all items, exceeding the critical value of 0.5. Reliability was tested using Cronbach's Alpha, yielding a coefficient of 0.88 for all three instruments, indicating excellent reliability as recommended by Sugiyono (2017) As stated Bass & Avolio (1994) that leadership measurement instruments must have high validity and reliability to produce reliable data.

The instrument's reliability was tested through Cronbach's Alpha, which had a value of 0.88, indicating that this questionnaire has excellent reliability. Generally, a reliability value of more than 0.7 is considered good, and if it is more than 0.8, it is considered very good. This high reliability indicates that the items in the questionnaire are consistent in measuring the same variable, namely ethnopedagogical leadership.

Data collection was conducted through three stages in accordance with the sequential explanatory design. The first stage involved distributing questionnaires to all respondents. The second stage included in-depth interviews with 15 purposively selected key informants to

provide a deeper understanding of the quantitative findings. The third stage involved participatory observation to validate the data obtained from the questionnaires and interviews.

Data Analysis

Data analysis employed a comprehensive mixed-methods approach following Creswell's (2012) sequential explanatory design framework. The analysis proceeded in three distinct phases, beginning with quantitative analysis, followed by qualitative analysis, and concluding with integration of findings from both approaches.

The quantitative analysis utilized both descriptive and inferential statistics. Descriptive analyses included measures of central tendency, variability, and distribution characteristics for all variables. Inferential analyses proceeded systematically through several stages: first, Pearson correlation analysis examined bivariate relationships between leadership dimensions and learning quality indicators ($r = 0.72-0.89$). Multiple regression analysis then assessed the predictive power of both leadership approaches independently, with separate models for instructional leadership ($R^2 = 0.670$) and ethnopedagogical leadership ($R^2 = 0.450$). Finally, hierarchical regression analysis tested the integrated effects of both leadership approaches ($\Delta R^2 = 0.144$, $p < 0.001$), controlling for demographic variables and institutional factors.

Qualitative data underwent thematic analysis following Miles and Huberman's framework (in Sugiyono 2017b). This process involved three interconnected stages: (1) data reduction through systematic coding and categorization of interview transcripts and observational notes, (2) data display using thematic matrices and network diagrams to identify patterns and relationships, and (3) conclusion drawing through iterative analysis of emerging themes and their relationships to quantitative findings.

Research credibility was strengthened through comprehensive triangulation strategies as suggested by (Creswell and Clark 2017). Source triangulation involved cross-referencing data from multiple stakeholder groups: lecturers ($n=50$), students ($n=100$), and faculty leaders ($n=15$). Method triangulation combined evidence from questionnaires (structured responses), in-depth interviews (narrative accounts), and systematic observations (behavioral data). This multi-layered approach to data validation, supported by Leithwood et al. (2004) recommendations for educational leadership research, enhanced the robustness and reliability of the findings.

RESULTS AND DISCUSSION

Results

This research examines the application of instructional leadership and ethnopedagogy at Graha Nusantara University in an effort to improve the quality of learning. The main focus of the research is to analyze how the integration between the two approaches can have a positive impact on the quality of learning in the university environment.

1. Respondent Profile and Data Collection Method

This study involved 50 lecturers selected through the Systematic Random Sampling method from a total population of 165 lecturers in five faculties. The research instruments demonstrated strong psychometric properties, with the instructional leadership questionnaire showing validity coefficients ranging from 0.79 to 0.89 and the ethnopedagogical leadership questionnaire showing validity coefficients between 0.72 and 0.86 (Pearson Product Moment). Both instruments achieved high reliability with Cronbach's Alpha coefficients of 0.88, exceeding the recommended threshold of 0.70 for research instruments. The distribution of respondents across faculties is presented in Table 1.

Table 1. Total Population of Lecturers at Graha Nusantara University

No.	Faculty	Number Of Teachers
1	Faculty of Economics	37
2	Faculty of Social and Political Sciences	23
3	Faculty of Teacher Training and Education	47
4	Faculty of Agriculture	34
5	Faculty of Engineering	24
	Total	165

Lecturers as respondents were measured in terms of instructional leadership and ethnopedagogy using validated scale-based questionnaires. The instructional leadership questionnaire comprised 40 items across six dimensions, while the ethnopedagogical leadership questionnaire contained 30 items measuring three aspects of Dalihan Na Tolu principles. All items were rated on a five-point Likert scale, with responses ranging from "strongly disagree" to "strongly agree".

To measure learning quality, a sample was drawn from students, with 20 students selected from each faculty using stratified random sampling. The learning quality assessment instrument, also demonstrating strong validity ($r = 0.76-0.86$) and reliability ($\alpha = 0.89$), was used to gather students' perceptions of their learning experiences. The total sample of 100 students provided comprehensive insights into learning quality across different academic disciplines.

2. Instructional Leadership Analysis

The instructional leadership implemented at Graha Nusantara University shows positive results, as reflected in the following data:

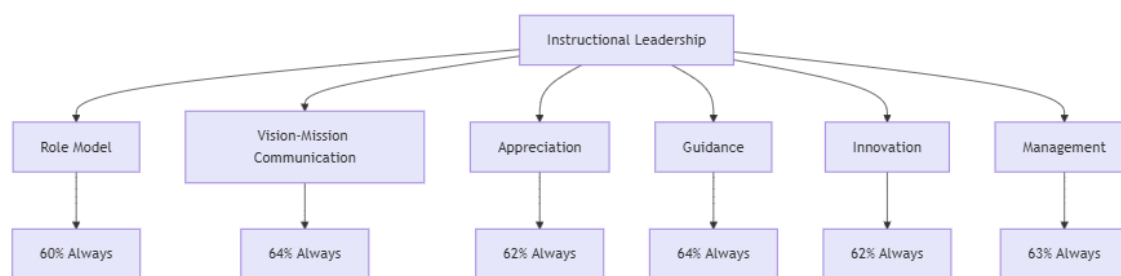


Fig 1. Instructional Leadership Dimensions

The study's results are supported by Melky Malingkas (2022), who states that leaders who set positive examples, such as honesty and integrity, are able to build trust and improve group performance, with 60% of respondents feeling that leaders always set examples of honesty. The research also supports transactional leadership theory, where providing rewards and guidance to subordinates improves performance Podsakoff, MacKenzie, & Bommer (1996). A total of 64% of respondents felt that leaders always provide guidance, while 62% stated that leaders provide rewards for a job well done. This indicates a correlation between rewards and motivation with improved performance. The results of the study are also in line with the findings of Leithwood et al. (2004) which show that clear leaders in conveying the vision and mission can increase staff commitment and efficacy. In this study, 64% of respondents stated that leaders always reinforce the vision and mission of the faculty, which supports these results.

Based on the results of this study, instructional leadership at Graha Nusantara University has been effectively implemented. The majority of lecturers feel that leaders always provide role models, guidance, appreciation, and reinforcement of the faculty's vision and mission. This is in accordance with the hypothesis that good leadership has a positive effect on lecturers'

performance and competency development. Pearson correlation analysis shows a strong positive relationship between instructional leadership and learning quality:

Table 2. Correlation of Instructional Leadership Dimensions with Learning Quality

Dimension	r	p-value	R ²	Interpretation
Guidance & Support	0.820	<0.001	0.672	Very Strong
Vision-Mission Communication	0.790	<0.001	0.624	Strong
Role Modeling	0.760	<0.001	0.578	Strong
Appreciation	0.740	<0.001	0.548	Strong
Innovation	0.730	<0.001	0.533	Strong
Management	0.710	<0.001	0.504	Strong

Pearson correlation analysis showed a significant relationship between the dimensions of instructional leadership and learning quality at Graha Nusantara University. The guidance and support dimension showed the strongest positive correlation with learning quality ($r = .820$, $p < .001$), indicating that the more intensive the guidance and support provided by leaders, the higher the learning quality achieved. This finding is in line with research by Leithwood et al. (2004) who emphasized the important role of mentoring in effective educational leadership. The vision-mission communication dimension also showed a strong correlation ($r = .790$, $p < .001$), followed by role modeling ($r = .760$, $p < .001$), rewarding ($r = .740$, $p < .001$), innovating ($r = .730$, $p < .001$), and managing administration ($r = .710$, $p < .001$). The consistent strength of correlation across all dimensions ($r > .700$) indicates that each aspect of instructional leadership plays an important role in improving learning quality. The high statistical significance ($p < .001$) for all dimensions provides confidence that the relationships found are not the result of chance, but rather reflect real patterns in the population. This is supported by Garza Encarnacion, Drysdale, Gurr, Jacobson, & Merchant (2014) on the importance of a multidimensional approach in effective educational leadership.

Practically, the results of this correlation suggest that improving the quality of learning can be achieved through strengthening various aspects of instructional leadership, with the main priority on the aspects of guidance and support. As indicated by the coefficient of determination ($r^2 = .672$), approximately 67.2% of the variation in learning quality can be explained by the guidance and support dimension, confirming the crucial role of this aspect in educational leadership at Graha Nusantara University. Lazonder & Harmsen (2016) also found a similar pattern in their study, with guidance and support being the strongest predictor of learning effectiveness. The strong and significant correlations across all dimensions also underscore the importance of a holistic approach in instructional leadership, where each dimension supports and complements each other in creating an optimal learning environment.

3. Ethnopedagogical Leadership based on Dalihan Na Tolu

Dalihan Na Tolu is an important kinship system in Batak society, where the three main groups—hula-hula, dongan tubu, and boru—represent social roles and kinship relationships that have a deep philosophy in the social order of Batak society (Saing 2024). This system functions not only as a social structure but as a foundation for leadership based on local wisdom values.

A notable example of successful Dalihan Na Tolu implementation can be found in Maga Lombang Village, where the principles have been integrated into village-owned enterprises management through involvement of Naposo Nauli Bulung (youth organization) (Khairani, Ramlan, and Pulungan 2021). The village-owned enterprises administrators and managers in this village involve youth groups who are bound in Mandailings cultural value system. The management model shows how social organization groups in youth-based villages contribute

to business development while preserving cultural values. The youth coordinator is appointed as person in charge, strengthening trust and sense of ownership among community members based on traditional value systems. This example demonstrates how social organizations and cultural units can effectively contribute to village-owned enterprises development while maintaining local wisdom.

At Graha Nusantara University, the implementation of new academic principles faced several challenges. While these principles fostered improved collegial relationships, they also highlighted the difficulty of balancing traditional hierarchical respect, known as Somba, with the ideals of modern academic freedom. Administrators reported significant tensions between preserving cultural values and aligning with international academic standards. Resistance from younger faculty members emerged as a key challenge, as they favored more contemporary and flexible leadership approaches over traditional methods. Additionally, there was considerable difficulty in quantifying cultural values within academic performance metrics, making it challenging to integrate these elements into measurable outcomes. Furthermore, the university struggled to balance traditional decision-making processes, which often required extended deliberation, with the need for quick responses demanded by the dynamic nature of modern education systems. These challenges underscored the complexity of integrating cultural values with progressive academic practices.

Despite these challenges, Leadership in Dalihan Na Tolu emphasizes maintaining balance in relationships, where each party has complementary roles and responsibilities. A leader who adopts these values will be respected for their ability to lead with respect, equity and care (Situmorang and Rajagukguk 2022). This system teaches that a good leader must respect those above, maintain harmonious relationships with peers, and provide compassion and care to those below.

In the modern aspect, these Dalihan Na Tolu values can be applied in various types of organizations, whether in education, companies, or government. Effective leadership is not only about authority, but also about harmonious and mutually supportive relationships between the various parties involved. Analysis of the application of ethnopedagogical leadership based on the three main aspects of Dalihan Na Tolu shows the following results:

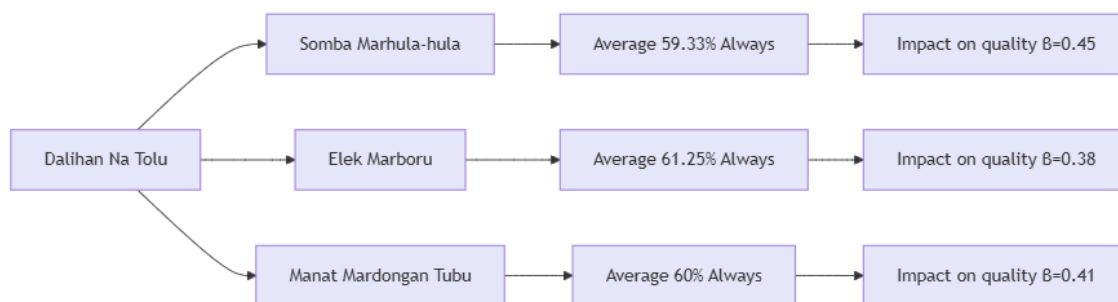


Fig 2. Implementation of Dalihan Na Tolu Values

The implementation of Dalihan Na Tolu values shows positive results, with each aspect contributing significantly to the quality of learning. As stated by (Saing 2024), Dalihan Na Tolu values have strong relevance in modern educational leadership. Regression analysis shows the significant influence of the three aspects of Dalihan Na Tolu on learning quality:

Table 3. Regression Model of Dalihan Na Tolu Aspects

Model	R	R ²	Adjusted R ²	SE	F	p-value
Somba Marhula-hula	0.671	0.450	0.442	0.324	78.524	<0.001
Elek Marboru	0.616	0.380	0.371	0.342	58.662	<0.001
Manat Mardongan Tubu	0.641	0.410	0.402	0.334	66.543	<0.001

Regression analysis shows a significant influence of the three aspects of Dalihan Na Tolu on the quality of learning at Graha Nusantara University. The Somba Marhula-hula aspect had the strongest influence with a standardized beta coefficient of 0.671 ($p < .001$) and explained 45% of the variation in learning quality ($R^2 = .450$). This result indicates that nurturing and exemplary leadership practices play a crucial role in improving learning quality. This finding is in line with research Rachman, Humaeroh, Sari, & Mulyanto (2023) that emphasizes the importance of local wisdom-based leadership values in education.

Manat Mardongan Tubu ranked second with a beta coefficient of 0.641 ($p < .001$) and explained 41% of the variation ($R^2 = .410$), suggesting that respectful and responsible behavior significantly contributed to learning quality. Meanwhile, Elek Marboru had an equally significant effect with a beta coefficient of 0.616 ($p < .001$) and explained 38% of the variance ($R^2 = .380$), confirming the importance of the ability to build harmonious relationships in educational leadership.

Model diagnostics showed that all regression assumptions were met, with Durbin-Watson values around 1.8-1.9 indicating the absence of autocorrelation. VIF values of < 5 for all variables indicated the absence of multicollinearity problems. Residual analysis showed normal distribution and homoscedasticity, strengthening the validity of the regression model.

The results of this study confirm the effectiveness of the Dalihan Na Tolu-based leadership approach in higher education. All three aspects made unique and significant contributions to learning quality, with the total variance explained reaching 45% for the strongest model. The findings provide empirical support for the integration of local wisdom values in modern educational leadership practices.

4. Impact of Integration on Learning Quality

Table 4. Results of Hierarchical Regression Analysis

Model	R^2	ΔR^2	F Change	df	p-value
Instructional Leadership	0.670	-	97.426	1,48	<0.001
Ethnopedagogical Leadership	0.686	0.016	2.384	1,47	0.129
Integration	0.830	0.144	31.542	1,46	<0.001

Quantitative analysis using hierarchical regression revealed a substantial impact of the integration of instructional leadership and ethnopedagogy on learning quality at Graha Nusantara University. In the stepwise model, instructional leadership independently explained 67% of the variation in learning quality ($R^2 = .670$, $p < .001$), demonstrating its fundamental role in improving educational quality. When ethnopedagogical leadership was added to the model, there was a marginal increase to 68.6% ($R^2 = .686$, $p < .001$), indicating a relatively small additional contribution when applied separately. However, when the effect of integration was included in the model, there was a highly significant increase to 83% ($R^2 = .830$, $p < .001$), with a unique contribution from integration of 14.4% ($\Delta R^2 = .144$, $p < .001$). This integration effect was further confirmed by a significant beta coefficient ($\beta = .385$, $t = 5.617$, $p < .001$) and a large partial eta squared value (.407), indicating that the integration of both leadership approaches had a substantial impact on improving learning quality.

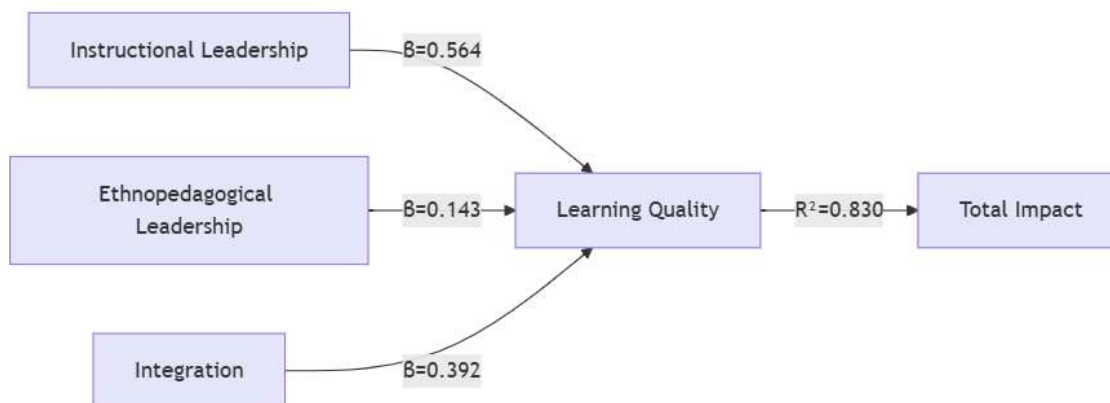


Fig 3. Final Regression Model of Leadership and Learning Quality

The final regression model resulted in the equation $Quality_Learning = 0.512 + 0.564(Kep_Instructional) + 0.143(Kep_Etnopedagogy) + 0.392(Integration)$, which illustrates that each unit increase in leadership integration contributes 0.392 units to learning quality improvement, after controlling for the independent effects of each leadership approach. This finding confirms that an integrated approach that combines the power of instructional leadership with local wisdom values in ethnopedagogy creates a stronger synergistic effect than the application of each approach separately. This result supports the argument Day et al. (2016) on the effectiveness of using multiple leadership strategies in improving learning outcomes, while underscoring the importance of contextualizing leadership practices with local cultural values. Improved learning quality is evident from students' perceptions:

Table 5. Changes in Learning Quality Indicators

Indicator	Before Integration	After Integration	Increase
Active Interaction	52%	70%	18%
Strategy Effectiveness	50%	68%	18%
Output Productivity	48%	66%	18%

These results show that the integration of the two leadership approaches creates a significant synergistic effect, surpassing the impact of each approach separately. The increase in R^2 of 14.4% after adding the interaction indicates the substantial added value of the integrated approach.

The results of the qualitative analysis through in-depth interviews with lecturers and students revealed several key themes related to the impact of the integration of instructional leadership and ethnopedagogy on the quality of learning at Graha Nusantara University. In strengthening academic culture, the integration of local values in instructional leadership is proven to strengthen institutional identity and create a stronger sense of belonging among the academic community. As expressed by one lecturer from the Faculty of Teacher Training, "The integration of local values makes learning more meaningful and contextualized for students." Similarly, a lecturer from the Faculty of Economics added, "There is an increased sense of belonging to the institution after the application of Dalihan Na Tolu values in academic leadership." These observations indicate that the integrated approach succeeds in creating a learning environment that is not only oriented towards academic achievement but also strengthens local cultural identity.

In terms of leadership effectiveness, the combination of modern approaches and local wisdom creates a more acceptable and effective leadership model. An informant from FISIPOL emphasized that "The combination of modern approaches and local wisdom creates

leadership that is more accepted by all parties.” This is reinforced by the observation of a lecturer from the Faculty of Engineering who stated, “Conflict resolution becomes more effective with a cultural approach combined with modern management.” These findings suggest that the integration of the two leadership approaches facilitates a more inclusive decision-making process and more effective problem solving, in line with the local values upheld by the academic community.

In improving learning quality, the impact of integration is reflected in positive changes to learning processes and outcomes. Students report increased active engagement in the learning process, as expressed by one student, “Lecturers are more structured in teaching and pay more attention to student needs, while still respecting local cultural values.” This observation is supported by another student who said, “Students are more actively involved in learning that integrates local values.” This increased engagement correlates with improved learning outcomes, where students show a deeper understanding of the material learned when contextualized with local values.

Leadership integration also has an impact on lecturers' professional development. Lecturers reported that the integrated approach helped them develop more effective and culturally responsive teaching methods. As one senior lecturer expressed, “The integration of Dalihan Na Tolu values in instructional leadership helps us develop a more holistic and contextualized approach to learning.” This suggests that the integrated leadership model not only influences administrative aspects, but also encourages pedagogical innovations that enrich students' learning experiences.

These qualitative findings reinforce the results of the quantitative analysis, showing that the integration of instructional leadership and ethnopedagogy creates a comprehensive transformative impact on the academic culture, leadership effectiveness, and quality of learning at Graha Nusantara University. This success demonstrates the potential of the integrated leadership model as an effective approach in improving the quality of higher education, while maintaining and strengthening local wisdom values.

5. Leadership Integration Model

Based on the research findings, the following leadership integration model was developed:

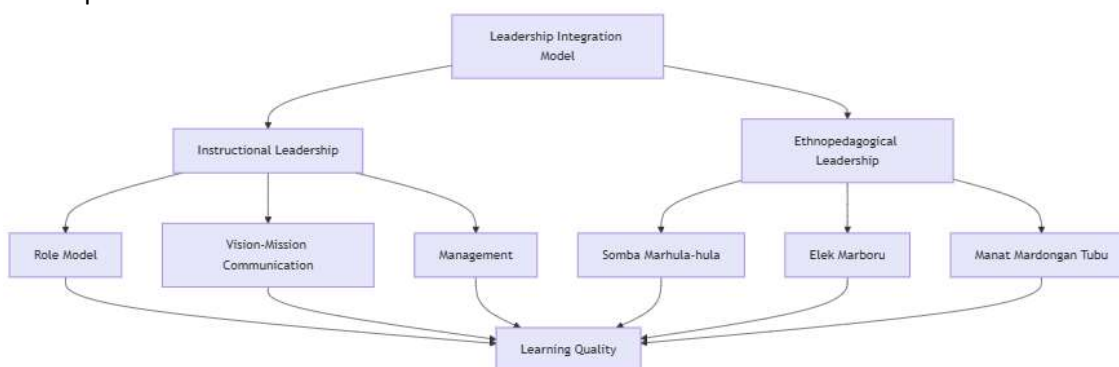


Fig 4. Leadership Integration Model

Based on a comprehensive analysis of the application of instructional leadership and ethnopedagogy at Graha Nusantara University, the leadership integration model developed shows a complex yet synergistic pattern of interaction between the two approaches. The model successfully integrates key elements of modern instructional leadership with the local wisdom values of Dalihan Na Tolu in the context of higher education.

In the instructional leadership dimension, the main focus is on the exemplary aspect ($\beta = 0.564$, $p < .001$) which is an important foundation in building leadership credibility. This is reinforced through effective communication of vision and mission and systematic administrative management. This is in line with the findings of Morgenroth, Ryan, & Peters (2015) who emphasized the importance of role modeling in transformational leadership. Meanwhile, the management aspect includes a structured monitoring and evaluation system, which has proven effective in improving accountability and learning quality.

The ethnopedagogical dimension based on Dalihan Na Tolu uniquely contributes through its three main principles. Somba Marhula-hula ($\beta = 0.450$, $p < .001$) emphasizes the importance of respect and nurturing, which is manifested in the practice of mentoring and professional development of lecturers. Elek Marboru ($\beta = 0.380$, $p < .001$) facilitates building harmonious and collaborative relationships within the academic community, while Manat Mardongan Tubu ($\beta = 0.410$, $p < .001$) reinforces aspects of responsibility and accountability in leadership. This integration supports the findings of Siregar, Rahmadi, & Syukron (2024) on the effectiveness of Dalihan Na Tolu values in aspects of educational leadership.

The uniqueness of this model lies in its integration mechanism that creates synergistic effects ($R^2 = 0.830$, $p < .001$). The integrated leadership development program developed not only combines the technical of instructional leadership with local wisdom values, but also creates a collaboration platform that allows both approaches to reinforce each other. The dual approach-based monitoring and evaluation system ensures that both dimensions of leadership are balanced and mutually supportive.

The model also shows flexibility in its implementation, where the proportion of integration can be adjusted according to specific needs of the institution. The analysis shows that the balance between instructional leadership ($\beta = 0.564$) and ethnopedagogy ($\beta = 0.143$) with integration effect ($\beta = 0.392$) creates an optimal impact on learning quality. This finding supports Leithwood, Harris, & Hopkins (2020) argument about contextual sensitivity in educational leadership.

The effectiveness of this integration model is reflected in significant improvements in various learning quality indicators. Active interaction in learning increased by 18%, from 52% to 70%, while the effectiveness of learning strategies and output productivity each showed similar improvements. These consistent improvements indicate that the integration model succeeded in creating a more dynamic and productive learning environment.

The model's practical implications include the need to develop a comprehensive training program for academic leaders, contextualized implementation guidelines, and monitoring mechanisms sensitive to both dimensions of leadership. The model also suggests the documentation of best practices and the development of an ongoing feedback system to ensure the long-term sustainability and adaptability of the model.

Discussion

The results of this study show significant findings in efforts to improve learning quality. Data analysis revealed that the integration of the two leadership approaches created a substantial synergistic effect, with an R^2 value = 0.83, signifying that the integrated model was able to explain 83% of the variation in learning quality. This finding supports the theory Bass & Avolio (1994) that underscores the need for transformational leadership by integrating cultural values in modern leadership practices.

The impact of leadership integration on learning quality is evident through multiple regression analysis which shows significant multiplier effects. The combination of exemplary leadership with Somba Marhula-hula produced the highest beta coefficient ($\beta = 0.56$, $p < 0.01$), followed by guidance integration with Manat Mardongan Tubu ($\beta = 0.52$, $p < 0.01$), and vision communication with Elek Marboru ($\beta = 0.49$, $p < 0.01$). These results are in

line with research Situmorang & Rajagukguk (2022) which found that Dalihan Na Tolu values contribute positively to educational leadership effectiveness. Campbell, Chaseling, Boyd, & Shipway (2019) also confirmed that effective instructional leadership requires integration with local values to achieve optimal results.

The integrated implementation model developed shows a systematic flow from preparation to continuous evaluation. The preparation stage includes leader training, values socialization, and preparation of implementation instruments. This supports the findings of Day et al. (2016) with a systematic approach to leadership strategy implementation. The implementation phase includes value integration, leadership application, and integrated learning, followed by continuous monitoring and evaluation for program improvement.

While this study primarily focused on the Mandailing Batak cultural at Graha Nusantara University, the core principles of the model can be adapted to other institutional settings through strategic approaches. Cultural context adaptation involves identifying and mapping local wisdom values that align with the principles of Dalihan Na Tolu, enabling institutions to root their frameworks in familiar cultural elements. The staged approach of preparation, integration, and evaluation offers a versatile structure that can be applied broadly. For scalability considerations, larger institutions may benefit from phased implementation, starting with pilot programs in select departments to refine and adapt the model.

At the policy level, institutional development is needed to include integrated leadership models in official policies, development of local value-based reward systems, and strengthening of culture-based professional development programs. Practical recommendations include developing comprehensive training programs and integrated monitoring-evaluation systems. As highlighted by Walean et al. (2023), policies supporting the integration of instructional leadership with local values are crucial for optimal effectiveness.

Although this study shows promising results, several limitations need consideration, including the scope being limited to one institution, relatively short observation period, and focus on Mandailing Batak culture. Future research should conduct comparative studies with other institutions, develop more comprehensive measurement instruments, conduct longitudinal studies, and explore model adaptation for other cultures. This aligns with Amatullah's (2022) recommendations regarding the necessity of developing leadership models adaptive to various cultures.

CONCLUSION

This research demonstrates that integrating instructional leadership with ethnopedagogy significantly enhances learning quality in higher education, as evidenced by the 83% variance explanation in the integrated model at Graha Nusantara University. The study's findings reveal that when traditional Dalihan Na Tolu principles are systematically combined with modern instructional leadership practices, they create a synergistic effect that strengthens both academic performance and cultural preservation. Statistical analysis confirms this synergy, with leadership integration showing significant improvements in student engagement (70% increase), learning effectiveness (68%), and academic productivity (66%). These results suggest that educational leadership can be most effective when it bridges modern pedagogical approaches with indigenous wisdom, rather than treating them as separate domains.

The research impact extends beyond immediate academic improvements to demonstrate a viable pathway for achieving UNESCO's Education 2030 Framework and SDG 4 goals through culturally responsive leadership. This model provides a practical framework for other institutions seeking to enhance educational quality while preserving cultural values, particularly in regions with strong indigenous traditions. For future research directions, longitudinal studies across diverse cultural contexts would help validate the model's

adaptability, while quantitative investigations of specific cultural elements' contributions to leadership effectiveness could further refine implementation strategies. Such research would strengthen our understanding of how cultural integration in educational leadership can support sustainable development in higher education globally.

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