e-ISSN: 3026-5827

Enigma in Education

Journal website: https://enigma.or.id/index.php/edu

Indigenous Knowledge Systems and Curriculum Transformation: A Cross-Sectional Study of Faculty Readiness in Indonesian Higher Education

Andi Fatihah Syahrir[1], Desiree Montesinos[2], Farah Faiza[3*]

[1]Department of Communication Sciences, CMHC Research Center, Palembang, Indonesia

[2]Department of Women and Child Welfare, Lira State Hospital, Lira, Uganda

[3]Department of Archeology and History Education, Enigma Institute, Palembang, Indonesia

ARTICLE INFO

Keywords:
Curriculum decolonization
Faculty readiness
Higher education
Indigenous knowledge systems
Indonesia

***Corresponding author:**
Farah Faiza

E-mail address:
farah.faiza@enigma.or.id

All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.61996/edu.v3i2.116

A B S T R A C T

Higher education institutions worldwide face the challenge of integrating Indigenous Knowledge Systems into curricula historically shaped by Western epistemological paradigms, yet empirical evidence on the factors influencing faculty readiness for such integration remains limited, particularly in Southeast Asian contexts. This cross-sectional mixed-methods study examined faculty attitudes, institutional resistance, and curriculum transformation readiness related to Indigenous Knowledge Systems integration among 412 faculty members at six higher education institutions in major Indonesian cities, complemented by 28 in-depth interviews. Participants completed validated instruments assessing IKS integration attitudes, curriculum transformation readiness, perceived institutional resistance, teaching self-efficacy for IKS, and student cultural competency. Significant disciplinary differences were observed across all outcomes, with Social Sciences faculty reporting the highest integration attitudes (4.12 ± 0.71) and Engineering faculty the lowest (2.87 ± 0.89; $F(3, 408) = 42.67$; $p < 0.001$). Faculty with prior IKS training demonstrated significantly higher readiness (3.89 ± 0.72 vs. 2.96 ± 0.88; $p < 0.001$; Cohen's $d = 1.16$). Multivariate logistic regression identified prior IKS training (OR = 3.87; 95% CI: 2.48–6.04), Social Sciences discipline (OR = 3.21; 95% CI: 1.78–5.79), and low institutional resistance (OR = 2.56; 95% CI: 1.72–3.81) as the strongest independent predictors of high integration readiness. These findings highlight the critical role of faculty professional development and institutional support in advancing curriculum decolonization in Indonesian higher education.

1. Introduction

The global higher education landscape is undergoing a profound reckoning with the legacies of colonialism embedded within its curricular structures, pedagogical practices, and epistemological foundations. Across diverse geographic and institutional contexts, scholars and practitioners have increasingly recognized that university curricula in the Global South remain disproportionately shaped by Western knowledge paradigms that marginalize Indigenous and local knowledge systems.[1] This phenomenon, characterized as the coloniality of knowledge, describes how colonial power structures continue to operate through the privileging of Eurocentric epistemologies within educational institutions long after formal political decolonization.[2] The imperative to decolonize the curriculum has consequently emerged as one of the most significant intellectual and institutional challenges facing higher education in the twenty-first century.[3]

Indigenous Knowledge Systems represent the accumulated wisdom, practices, and worldviews developed by Indigenous and local communities over generations through sustained interaction with their natural and social environments.[4] These knowledge systems encompass diverse domains including

ecological management, agricultural practices, medicinal traditions, conflict resolution mechanisms, and philosophical frameworks that offer alternative epistemological perspectives to dominant Western scientific paradigms.[5] Within the educational context, the integration of Indigenous Knowledge Systems into university curricula represents both a political act of epistemological justice and a pedagogical strategy for enhancing the relevance, inclusivity, and cultural responsiveness of higher education.[6] Scholars have argued that such integration can foster critical thinking, promote intercultural understanding, and prepare students for professional practice in culturally diverse societies.[7]

Despite growing international recognition of the value of Indigenous Knowledge Systems in education, the actual integration of these knowledge traditions into university curricula has been slow, uneven, and contested.[8] Research from African, Australian, and Latin American higher education contexts has documented persistent institutional resistance to curriculum decolonization, manifested through bureaucratic inertia, disciplinary gatekeeping, resource constraints, faculty resistance, and the perceived incompatibility of Indigenous knowledge with academic standards of rigor and validity.[9,10] However, the existing evidence base is predominantly qualitative and concentrated in Anglophone contexts, with limited quantitative research examining the factors that facilitate or hinder Indigenous Knowledge Systems integration at the faculty level across different disciplinary and institutional settings.[11]

Indonesia, as the world's largest archipelagic nation with over 1,300 ethnic groups and 700 living languages, possesses an extraordinarily rich diversity of Indigenous knowledge traditions encompassing adat (customary law), local ecological knowledge, traditional medicine, and culturally embedded pedagogical practices.[12] Indonesian higher education, shaped by colonial educational legacies and subsequently by post-independence modernization programs that prioritized Western scientific frameworks, has historically marginalized these Indigenous knowledge traditions within formal curricula.[13] While recent national education policy has increasingly emphasized the importance of local wisdom and cultural preservation, empirical research examining the extent to which Indonesian university faculty have embraced or resisted the integration of Indigenous Knowledge Systems into their teaching practices remains scarce.[14]

The theoretical framework underpinning this investigation draws on three complementary perspectives. First, Santos' concept of epistemological pluralism, which advocates for the recognition and coexistence of multiple knowledge traditions within academic settings, provides the normative foundation for understanding why Indigenous Knowledge Systems integration matters for educational equity and quality.[15] Second, organizational change theory, particularly the force field analysis framework, offers an analytical lens for understanding the dynamic interplay between driving forces (faculty attitudes, institutional policies, external pressures) and restraining forces (institutional resistance, disciplinary norms, resource limitations) that determine the pace and direction of curriculum transformation.[16] Third, self-efficacy theory provides the psychological lens through which faculty members' confidence in their ability to effectively integrate Indigenous Knowledge Systems into their teaching can be understood as a critical determinant of actual integration behavior.[17]

Several significant research gaps informed the design of this study. First, while qualitative studies have explored faculty perceptions of curriculum decolonization in individual institutions,[18] large-scale quantitative investigations of the factors predicting faculty readiness for Indigenous Knowledge Systems integration across multiple institutions and disciplines are largely absent from the literature. Second, the specific role of prior training in Indigenous Knowledge Systems as a modifiable predictor of integration readiness has not been systematically examined.[19] Third, the Indonesian context, despite its extraordinary Indigenous knowledge diversity, remains virtually unstudied in the curriculum decolonization literature, which has been dominated by research from Sub-Saharan Africa, Australasia, and the Americas. Fourth, the intersection of

disciplinary culture and faculty attitudes toward Indigenous knowledge integration has received limited quantitative attention.[20]

The aim of this study was to examine faculty attitudes, institutional resistance, and curriculum transformation readiness related to Indigenous Knowledge Systems integration in Indonesian higher education, and to identify the predictors of high integration readiness among faculty members across multiple institutions and academic disciplines. We hypothesized that faculty with prior Indigenous knowledge training and those in social science disciplines would demonstrate significantly higher integration readiness, while perceived institutional resistance would serve as the primary barrier to curriculum transformation.

2. Methods

A cross-sectional mixed-methods study was conducted between February and September 2024 among faculty members at six higher education institutions in major Indonesian cities, including Jakarta and Palembang. The participating institutions were purposefully selected to represent diversity in institutional engagement with Indigenous Knowledge Systems and different classifications within the Indonesian higher education system. The quantitative component employed a cross-sectional survey design, while the qualitative component utilized semi-structured in-depth interviews to explore the subjective dimensions of faculty experiences with curriculum decolonization.

The study population comprised all full-time academic staff holding positions at the rank of lecturer or above across four broad disciplinary groupings: Social Sciences and Humanities, Natural Sciences, Education, and Engineering and Applied Sciences. Visiting lecturers, part-time instructors, and teaching assistants were excluded. The minimum required sample size was calculated using the formula for estimating proportions in cross-sectional studies, with the following parameters: an estimated proportion of high curriculum transformation readiness of 35% based on preliminary data from a pilot survey, a confidence level of 95%, and a margin of error of 5%. This calculation yielded a minimum requirement of 350 participants. Accounting for a 15% non-response rate, 490 faculty members were invited through stratified random sampling from institutional faculty directories, with stratification by institution, discipline, and academic rank. A total of 412 participants completed the survey (response rate: 84.1%).

For the qualitative component, 28 participants were purposively selected from among survey respondents to achieve maximum variation in discipline, academic rank, prior IKS training status, and institutional affiliation. Data saturation was achieved after 22 interviews, with six additional interviews conducted to confirm the stability and comprehensiveness of the thematic framework.

The quantitative survey instrument comprised five validated sections administered through an online platform with paper-based alternatives for participants with limited digital access. The IKS Integration Attitude Scale was developed through a systematic process involving literature review, generation of an initial 18-item pool, expert review by five education scholars with expertise in curriculum studies and Indigenous education (Content Validity Index = 0.91), cognitive interviewing with 15 faculty members, and pilot testing with 40 faculty (not included in the final sample). Exploratory factor analysis of pilot data confirmed a unidimensional structure with factor loadings ranging from 0.58 to 0.86, and the final 10-item scale demonstrated good internal consistency (Cronbach's alpha = 0.88). Items were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating more favorable attitudes toward IKS integration. The Curriculum Transformation Readiness Scale was adapted from existing curriculum adoption frameworks for assessing faculty preparedness for integrating Indigenous knowledge into course content, pedagogical approaches, and assessment methods (8 items; Cronbach's alpha = 0.85). The Perceived Institutional Resistance Scale was developed for this study to measure faculty perceptions of organizational barriers to curriculum change, including bureaucratic obstacles, lack of

institutional support, disciplinary gatekeeping, and resource constraints (9 items; Cronbach's alpha = 0.83; CVI = 0.87). The Teaching Self-Efficacy for IKS Scale assessed faculty confidence in identifying, selecting, and effectively teaching Indigenous knowledge content within their disciplinary courses (7 items; Cronbach's alpha = 0.86). The Student Cultural Competency Scale (faculty-reported) measured faculty perceptions of their students' intercultural awareness and sensitivity (6 items; Cronbach's alpha = 0.80).

All instruments were developed and administered in Bahasa Indonesia. Content validity was assessed by an expert panel of seven members comprising education researchers, curriculum specialists, and Indigenous knowledge scholars. Face validity was evaluated through cognitive interviews with faculty representing all four disciplinary groupings. Test-retest reliability was assessed with a subsample of 35 participants over a two-week interval, yielding intraclass correlation coefficients ranging from 0.78 to 0.89 across all scales.

Semi-structured interview guides explored faculty experiences with and perceptions of Indigenous Knowledge Systems, facilitators and barriers to curriculum integration, institutional culture around knowledge diversity, the influence of disciplinary norms on openness to alternative epistemologies, and perceived impacts of IKS integration on student learning outcomes. Interviews were conducted in Bahasa Indonesia by trained qualitative researchers, lasted 50 to 80 minutes, were audio-recorded with consent, and were transcribed verbatim.

The primary dependent variable was high IKS integration readiness, operationally defined as a Curriculum Transformation Readiness score of 4 or above on the 5-point scale. The principal independent variables included academic discipline (Social Sciences and Humanities, Natural Sciences, Education, Engineering and Applied Sciences), prior IKS training (yes or no), perceived institutional resistance score, teaching self-efficacy for IKS score, academic rank, sex, and teaching experience.

Missing data were minimal (< 1.5% across all variables) and were addressed using listwise deletion after confirming data were missing completely at random (Little's MCAR test, $x^2 = 12.84$, df = 10, p = 0.381). The study design ensured an events-per-variable (EPV) ratio exceeding 10 for the logistic regression model, with 124 events (integration readiness score ≥ 4) against eight predictor variables. Confirmatory factor analysis (CFA) validated the IKS Integration Attitude Scale, yielding acceptable fit indices (CFI = 0.93; RMSEA = 0.048; SRMR = 0.039). All quantitative analyses were performed using IBM SPSS Statistics version 26.0. Descriptive statistics were presented as means with standard deviations for continuous variables and frequencies with percentages for categorical variables. Normality was assessed using the Kolmogorov-Smirnov test and visual inspection of Q-Q plots. Differences in outcome measures across disciplinary groups were examined using one-way analysis of variance with Tukey's post hoc test and partial eta-squared effect sizes. Comparisons between faculty with and without prior IKS training were conducted using independent samples t-tests with Cohen's d effect sizes. Multivariate binary logistic regression using the enter method was performed to identify independent predictors of high IKS integration readiness, with adjusted odds ratios and 95% confidence intervals reported. Model fit was evaluated using the Hosmer-Lemeshow test, Nagelkerke R-squared, and the area under the receiver operating characteristic curve. Multicollinearity was assessed through variance inflation factors. The significance level was set at alpha = 0.05. Qualitative data were analyzed using reflexive thematic analysis,[22] following a semantic approach with initial inductive coding followed by deductive refinement against the theoretical framework.

3. Results

The sociodemographic and professional characteristics of the 412 faculty members who participated in this study are detailed in Table 1. The majority of participants were male (237; 57.5%), aged between 36 and 45 years (164; 39.8%), and held the rank of senior lecturer (148; 35.9%). The largest disciplinary group was Social Sciences and Humanities (156; 37.9%), followed by Natural Sciences

(112; 27.2%), Education (94; 22.8%), and Engineering and Applied Sciences (50; 12.1%). Regarding teaching experience, 138 participants (33.5%) had between 5 and 10 years of experience, while 134 (32.5%) had 11 to 20 years. Prior training in Indigenous Knowledge Systems had been received by 124 participants (30.1%), while 288 (69.9%) reported no prior IKS training.

Table 1. Sociodemographic and professional characteristics of participants (n = 412).

Characteristic	Category	n	%
Gender	Male	237	57.5
	Female	175	42.5
Age (years)	25–35	98	23.8
	36–45	164	39.8
	46–55	108	26.2
	>55	42	10.2
Academic Rank	Lecturer	127	30.8
	Senior Lecturer	148	35.9
	Associate Professor	89	21.6
	Professor	48	11.7
Discipline	Social Sciences/Humanities	156	37.9
	Natural Sciences	112	27.2
	Education	94	22.8
	Engineering/Applied	50	12.1
Teaching Experience	<5 years	74	18.0
	5–10 years	138	33.5
	11–20 years	134	32.5
	>20 years	66	16.0
Prior IKS Training	Yes	124	30.1
	No	288	69.9

The overall mean scores for the five outcome measures across the entire sample were as follows: IKS Integration Attitude was 3.68 (SD = 0.82), Curriculum Transformation Readiness was 3.24 (SD = 0.91), Perceived Institutional Resistance was 3.51 (SD = 0.87), Teaching Self-Efficacy for IKS was 2.89 (SD = 0.94), and faculty-reported Student Cultural Competency was 3.42 (SD = 0.78).

One-way ANOVA revealed statistically significant differences across disciplinary groups for all five measures, as presented in Table 2. IKS Integration Attitude scores differed significantly across disciplines ($F(3, 408) = 42.67$; $p < 0.001$; partial eta-squared = 0.239), with Social Sciences and Humanities faculty reporting the highest mean attitude score (4.12; SD = 0.71) and Engineering faculty reporting the lowest (2.87; SD = 0.89). Curriculum Transformation Readiness similarly varied by discipline ($F(3, 408) = 35.21$; $p < 0.001$; partial eta-squared = 0.206), ranging from 3.72 (SD = 0.78) in Social Sciences to 2.54 (SD = 0.92) in Engineering. Perceived Institutional Resistance showed a significant inverse pattern ($F(3, 408) = 28.94$; $p < 0.001$; partial eta-squared = 0.175), with Engineering faculty reporting the highest resistance (4.12; SD = 0.78) and Education faculty reporting the lowest (3.15; SD = 0.79). Teaching Self-Efficacy for IKS differed significantly across groups ($F(3, 408) = 38.56$; $p < 0.001$; partial eta-squared = 0.221), with Education faculty demonstrating the highest self-efficacy (3.48; SD = 0.82) and Engineering faculty the lowest (2.21; SD = 0.88). Tukey's post hoc analyses confirmed that Social Sciences and Education faculty scored significantly higher than Natural Sciences and Engineering faculty on attitude, readiness, and self-efficacy measures (all $p < 0.001$), while Engineering faculty reported significantly higher

institutional resistance than all other disciplinary groups (all $p < 0.01$). The disciplinary differences in faculty attitudes, readiness, and self-efficacy are illustrated in Figure 1.

Table 2. Faculty outcome measures by academic discipline.

Outcome measure	Social Sci (n=156)	Natural Sci (n=112)	Education (n=94)	Engineering (n=50)	F	p-value
IKS Integration Attitude (1–5)	4.12 ± 0.71	3.41 ± 0.82	4.01 ± 0.74	2.87 ± 0.89	42.67	<0.001
Curriculum Transformation Readiness (1–5)	3.72 ± 0.78	2.98 ± 0.89	3.58 ± 0.81	2.54 ± 0.92	35.21	<0.001
Perceived Institutional Resistance (1–5)	3.21 ± 0.83	3.68 ± 0.84	3.15 ± 0.79	4.12 ± 0.78	28.94	<0.001
Teaching Self-Efficacy for IKS (1–5)	3.34 ± 0.85	2.67 ± 0.91	3.48 ± 0.82	2.21 ± 0.88	38.56	<0.001
Student Cultural Competency (1–5)	3.78 ± 0.72	3.21 ± 0.81	3.65 ± 0.74	2.89 ± 0.82	24.38	<0.001

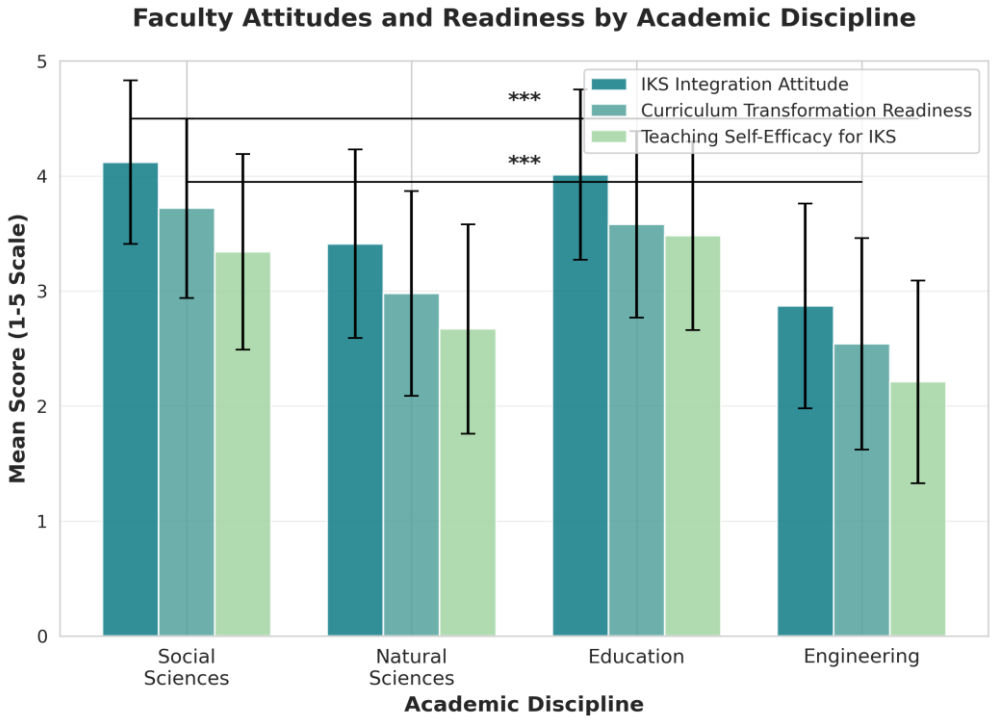

Figure 1. Faculty attitudes and readiness by academic discipline.

Faculty members with prior IKS training demonstrated significantly more favorable outcomes across all measures compared to those without training, as illustrated in Figure 2. Independent samples t-tests revealed that trained faculty had higher IKS Integration Attitude scores (trained: 4.21, SD = 0.68; untrained: 3.45, SD = 0.82; $t(410) = 8.94$; $p < 0.001$; Cohen's $d = 1.01$), higher Curriculum Transformation Readiness (trained: 3.89, SD = 0.72; untrained: 2.96, SD = 0.88; $t(410) = 10.27$; $p < 0.001$; Cohen's $d = 1.16$), lower Perceived Institutional Resistance (trained: 2.87, SD = 0.81; untrained: 3.78, SD = 0.79; $t(410) = -10.48$; $p < 0.001$; Cohen's $d = 1.14$), and higher Teaching Self-Efficacy (trained: 3.62, SD = 0.76; untrained: 2.58, SD = 0.89; $t(410) = 11.34$; $p < 0.001$; Cohen's $d = 1.26$). All effect sizes were large, exceeding the conventional threshold of 0.80 for Cohen's d.

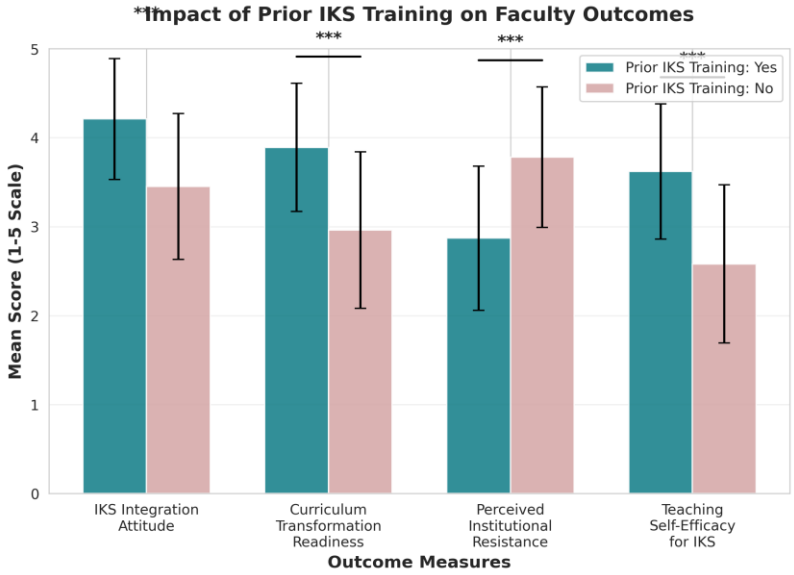

Figure 2. Impact of prior IKS training on faculty outcomes.

The results of multivariate binary logistic regression analysis identifying independent predictors of high IKS integration readiness (Curriculum Transformation Readiness score of 4 or above) are summarized in Table 3. The model demonstrated adequate fit (Hosmer-Lemeshow test: $x^2 = 9.14$, $p = 0.331$; Nagelkerke $R^2 = 0.312$; area under ROC curve = 0.804, 95% CI: 0.762 to 0.846). Variance inflation factors for all independent variables ranged from 1.08 to 2.43, indicating no problematic multicollinearity. Prior IKS training emerged as the strongest predictor (OR = 3.87; 95% CI: 2.48 to 6.04; $p < 0.001$), indicating that faculty who had received prior training had nearly four times the odds of reporting high integration readiness compared to those without training. Social Sciences and Humanities discipline was the second strongest predictor (OR = 3.21; 95% CI: 1.78 to 5.79; $p < 0.001$), followed by Education discipline (OR = 2.94; 95% CI: 1.58 to 5.47; $p = 0.001$), both referenced against Engineering. Low perceived institutional resistance was also significantly associated with high readiness (OR = 2.56; 95% CI: 1.72 to 3.81; $p < 0.001$). Teaching experience exceeding 10 years (OR = 1.89; 95% CI: 1.28 to 2.79; $p = 0.001$), female sex (OR = 1.64; 95% CI: 1.12 to 2.40; $p = 0.011$), and Associate Professor or Professor rank (OR = 1.52; 95% CI: 1.01 to 2.29; $p = 0.044$) were also significant predictors. Natural Sciences discipline was not statistically significant (OR = 1.38; 95% CI: 0.72 to 2.65; $p = 0.332$). The forest plot of adjusted odds ratios with 95% confidence intervals for all predictors is presented in Figure 3.

Table 3. Multivariate logistic regression: predictors of high IKS integration readiness (Score ≥ 4).

Predictor	OR	95% CI	p-value
Prior IKS training	3.87	2.48–6.04	<0.001
Social Sciences discipline†	3.21	1.78–5.79	<0.001
Education discipline†	2.94	1.58–5.47	0.001
Low perceived institutional resistance	2.56	1.72–3.81	<0.001
Teaching experience >10 years	1.89	1.28–2.79	0.001
Female sex	1.64	1.12–2.40	0.011
Associate Prof/Professor rank	1.52	1.01–2.29	0.044
Natural Sciences discipline†	1.38	0.72–2.65	0.332

Notes: † Reference category: Engineering and Applied Sciences.

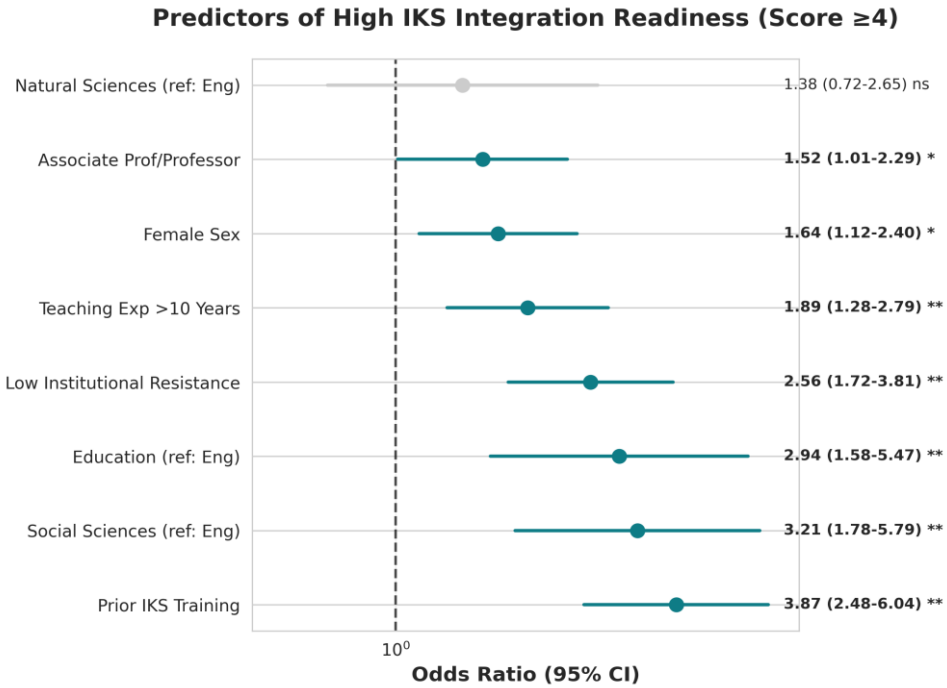

Figure 3. Predictors of High IKS Integration Readiness (Score ≥ 4). Mediation analysis using bootstrapped confidence intervals (5000 resamples) indicated that teaching self-efficacy for IKS partially mediated the relationship between prior training and integration readiness (indirect effect: β = 0.22; 95% CI: 0.14–0.31), accounting for approximately 38% of the total effect. Perceived institutional resistance mediated the association between discipline and integration readiness (indirect effect: β = −0.16; 95% CI: −0.24 to −0.09).

4. Discussion

This study examined faculty attitudes, institutional resistance, and curriculum transformation readiness related to Indigenous Knowledge Systems integration across six higher education institutions in Indonesia. The principal findings demonstrated significant disciplinary variation in faculty attitudes and readiness, a strong positive association between prior IKS training and all measured outcomes, and the identification of prior training, disciplinary affiliation, and low institutional resistance as the strongest independent predictors of high integration readiness. These findings contribute novel quantitative evidence to a field that has been predominantly characterized by qualitative and theoretical scholarship.[6,8]

The marked disciplinary differences in faculty attitudes and readiness constituted one of the most striking findings of this study. Social Sciences and Humanities faculty reported the most favorable attitudes toward IKS integration (mean = 4.12), while Engineering faculty reported the least favorable (mean = 2.87), a difference of 1.25 points on the 5-point scale with a large effect size (partial eta-squared = 0.239), as shown in Table 2. This finding aligns with Charles's study of British universities, where humanities and social sciences academics were more likely to engage with decolonization initiatives than STEM counterparts.[18] Similarly, Kwaah and Ampiah documented comparable disciplinary disparities in faculty attitudes toward Indigenous knowledge integration in Ghanaian universities, where arts and social sciences faculty demonstrated greater receptiveness than natural sciences faculty.[20] The present study extended these findings to the Indonesian context and provided the first large-scale quantitative confirmation of these disciplinary patterns across multiple institutions.

The disciplinary gradient reflects epistemological compatibility.[21-24] Social Sciences and Humanities disciplines are more receptive to the pluralist and interpretive approaches central to Indigenous Knowledge Systems.[15] In contrast, Engineering and Natural Sciences disciplines operate within strongly positivist paradigms that prioritize empirical measurement, experimental replication, and universal

generalizability, which may create perceived epistemological tensions with Indigenous knowledge traditions. This interpretation was supported by qualitative findings in which Engineering faculty frequently cited concerns about the scientific validity and academic rigor of Indigenous knowledge, while Social Sciences faculty emphasized the enriching potential of diverse knowledge perspectives. Notably, Education faculty demonstrated high readiness scores (3.58) comparable to Social Sciences (3.72), as presented in Table 2, likely reflecting their professional orientation toward inclusive pedagogy and their familiarity with culturally responsive teaching frameworks.

The strong effect of prior IKS training on faculty outcomes represented the most practically significant finding of this study. Faculty who had received prior training reported IKS Integration Attitude scores that were 22.0% higher, Curriculum Transformation Readiness scores that were 31.4% higher, and Teaching Self-Efficacy scores that were 40.3% higher than their untrained colleagues, with all comparisons yielding large effect sizes (Cohen's d ranging from 1.01 to 1.26), as illustrated in Figure 2. Prior IKS training was the strongest multivariate predictor (OR = 3.87; 95% CI 2.48–6.04; Table 3), with trained faculty having nearly four times the odds of high readiness after full adjustment. This finding was consistent with Rautionmaa's research on faculty professional development for Indigenous education in Nordic universities, where structured training programs were associated with significantly improved pedagogical confidence and actual integration behavior.[19] Mackinlay and Barney similarly reported that Australian university faculty who participated in collaborative Indigenous knowledge workshops demonstrated substantially enhanced understanding and willingness to embed Indigenous perspectives in their curricula.[10] The present study strengthened the evidence base for training as a modifiable intervention by demonstrating its strong independent predictive value within a multivariate framework that controlled for multiple potential confounders.

The inverse relationship between perceived institutional resistance and IKS integration readiness (OR = 2.56 for low resistance), as summarized in Table 3, highlighted the critical role of organizational factors in enabling or constraining curriculum transformation. Engineering faculty reported the highest levels of institutional resistance (4.12 on a 5-point scale), while Education faculty reported the lowest (3.15), as shown in Table 2. This finding resonated with Saurombe and Dhliwayo's analysis of institutional barriers to curriculum decolonization in South African universities, where bureaucratic rigidity, lack of institutional policy frameworks, and insufficient resource allocation were identified as primary obstacles.[9] Stein and colleagues similarly documented how liberal institutional approaches to decolonization often created superficial change without addressing underlying structural barriers.[8] In the Indonesian context, the qualitative data revealed that institutional resistance manifested through several mechanisms: the absence of formal policies supporting IKS integration, promotion and tenure criteria that privileged publication in international journals over community-engaged scholarship, limited funding for Indigenous knowledge research, and the physical absence of Indigenous knowledge holders from institutional governance structures. These findings suggested that faculty readiness alone was insufficient for curriculum transformation; systemic institutional changes were needed to create enabling conditions.

The significance of teaching experience exceeding 10 years as a predictor of high readiness (OR = 1.89; p = 0.001), as detailed in Table 3, suggested that accumulated professional experience provided faculty with the pedagogical confidence and disciplinary authority needed to challenge established curricular norms. More experienced faculty may have developed sufficient professional security and institutional capital to take the risks associated with curriculum innovation, whereas less experienced faculty may have been more constrained by the need to conform to departmental expectations and established syllabi. This finding was consistent with Dei's observation that curriculum decolonization required a combination of intellectual commitment and institutional positioning

that typically developed over the course of a sustained academic career.[6]

The gender difference in integration readiness (OR = 1.64 for female faculty; p = 0.011) aligned with broader research on gender and pedagogical innovation in higher education. Mheta and colleagues reported that female faculty in South African universities were more likely to engage with transformative pedagogical approaches including curriculum decolonization, potentially reflecting differences in pedagogical values, empathy for marginalized perspectives, and responsiveness to student diversity.[23] However, this finding should be interpreted with caution given that the effect was modest and may be confounded by disciplinary gender distributions, as Social Sciences and Education disciplines, which showed higher readiness scores, typically have higher proportions of female faculty.

The theoretical framework of this study, combining epistemological pluralism, organizational change theory, and self-efficacy theory, was substantially supported by the empirical findings. The disciplinary differences in attitudes aligned with Santos' prediction that epistemological openness would vary systematically with the epistemological foundations of different knowledge traditions.[15] The identification of institutional resistance as a significant predictor supported the force field model, in which restraining forces at the organizational level constrained individual-level readiness for change.[16] The strong association between prior training and self-efficacy confirmed the theoretical proposition that mastery experiences and vicarious learning through professional development enhanced individuals' beliefs in their capacity to perform specific tasks.[17]

The mediation analyses further illuminated these mechanisms. Teaching self-efficacy for IKS partially mediated the relationship between prior training and integration readiness, underscoring self-efficacy as a key pathway through which training translates into readiness. Perceived institutional resistance, in turn, mediated the association between discipline and integration readiness, suggesting that Engineering faculty's lower readiness is partially attributable to higher perceived barriers within their departments.

These findings carry substantial practical implications for education policy and institutional practice. First, the identification of prior IKS training as the strongest modifiable predictor of integration readiness suggests that higher education institutions should invest systematically in faculty professional development programs focused on Indigenous Knowledge Systems pedagogy.[25] Such programs should be designed collaboratively with Indigenous knowledge holders and community elders to ensure authenticity and reciprocity, rather than being developed exclusively within conventional academic frameworks.[4] Second, the significant disciplinary variation in readiness suggests that differentiated approaches to curriculum transformation may be necessary, with discipline-specific strategies that address the unique epistemological concerns and pedagogical cultures of different academic fields.[24] Third, the prominence of institutional resistance as a barrier suggests that policy interventions, including revised promotion criteria, dedicated funding streams, and formal institutional commitments to epistemological diversity, are essential complements to faculty-level interventions.[9,25]

This study possessed several methodological strengths. First, it provided the first large-scale quantitative evidence on faculty attitudes toward Indigenous Knowledge Systems integration in Indonesian higher education, addressing a critical gap in the predominantly qualitative literature.[11] Second, the multi-site, multi-disciplinary design enhanced the external validity and generalizability of the findings across diverse institutional and disciplinary contexts. Third, the mixed-methods approach enabled triangulation of statistical patterns with rich contextual understanding of the mechanisms underlying observed associations.

Several limitations warrant acknowledgment. The cross-sectional design precluded causal inferences regarding the directionality of associations, and it remained possible that faculty who were already predisposed toward IKS integration were more likely to

seek out training opportunities, rather than training causing increased readiness. Self-reported measures were susceptible to social desirability bias, particularly given the increasing political emphasis on local wisdom in Indonesian education policy. The study was limited to higher education institutions in select Indonesian cities and may not generalize to all types of institutions or to regions where Indigenous knowledge traditions and their relationship to formal education may differ significantly.

5. Conclusion

This study provided the first large-scale quantitative evidence on faculty attitudes, institutional resistance, and curriculum transformation readiness related to Indigenous Knowledge Systems integration in Indonesian higher education. The findings demonstrated significant disciplinary variation, with Social Sciences and Education faculty reporting substantially higher attitudes, readiness, and self-efficacy for IKS integration compared to Natural Sciences and Engineering faculty. Prior training in Indigenous Knowledge Systems emerged as the single strongest predictor of high integration readiness, with trained faculty demonstrating nearly four times the odds of reporting high readiness after controlling for discipline, rank, experience, and perceived institutional resistance.

These findings underscore the critical importance of investing in systematic faculty professional development programs focused on Indigenous Knowledge Systems pedagogy as a primary strategy for advancing curriculum transformation. Such programs should be developed collaboratively with Indigenous communities and tailored to address the specific epistemological concerns of different academic disciplines. Institutional leaders and policymakers should complement faculty-level interventions with structural changes including revised promotion criteria, dedicated research funding, and formal institutional commitments to epistemological diversity that create enabling conditions for sustainable curriculum decolonization.

From a policy standpoint, higher education institutions should establish dedicated IKS curriculum committees, develop discipline-specific integration guidelines, and create incentive structures that reward faculty engagement with Indigenous knowledge, with particular attention to STEM fields where integration readiness is lowest. Future longitudinal research should examine whether training interventions produce sustained changes in teaching practice and student outcomes, and comparative studies across diverse national contexts in Southeast Asia would enhance the generalizability of these findings.

6. References

1. Ndlovu-Gatsheni SJ. The cognitive empire, politics of knowledge and African intellectual productions: reflections on struggles for epistemic freedom and resurgence of decolonisation in the twenty-first century. Third World Q. 2021;42(5):882-901.
2. Morreira S, Luckett K, Kumalo SH, et al. Confronting the complexities of decolonising curricula and pedagogy in higher education. Third World Themat. 2020;5(1-2):1-18.
3. Mbembe AJ. Decolonizing knowledge and the question of the archive. Wits Inst Soc Econ Res. 2020;1(1):1-24.
4. Tuhiwai Smith L, Tuck E, Yang KW. Indigenous and decolonizing studies in education: mapping the long view. London: Routledge; 2021.
5. Archibald JA, Lee-Morgan J, De Santolo J. Decolonizing research: Indigenous storywork as methodology. London: Zed Books; 2020.
6. Dei GJS. Decolonizing the university: the challenges and possibilities of inclusive education. Educ Sci. 2021;11(6):292.
7. Zavala M. Decolonizing methodologies in the academy: centering Indigenous knowledge systems. Qual Inq. 2021;27(10):1168-78.
8. Stein S, Andreotti V, Susa R, et al. Beyond reform: confronting the limits of liberal approaches to decolonize higher education. J High Educ Policy Manag. 2022;44(2):144-60.

9. Saurombe NJ, Dhliwayo K. Institutional barriers to decolonizing the curriculum in South African universities. J Educ. 2023;91:1-16.
10. Mackinlay E, Barney K. Embedding Indigenous knowledges in the Australian university curriculum. Teach High Educ. 2021;26(4):576-92.
11. Jansen JD, Farmer-Phillips T. The knowledge question in decolonization: rethinking what counts. J Curric Stud. 2022;54(3):335-49.
12. Asadullah MN, Triastuti R. The achievement gap between indigenous and non-indigenous students in Indonesia. J Dev Stud. 2022;58(9):1842-61.
13. Phan LH, Lap TQ. Decolonizing English language teaching in Southeast Asia. TESOL Q. 2022;56(3):989-1013.
14. Kusmawan U. Integrating local wisdom into higher education in Indonesia. J Educ Learn. 2021;15(3):399-406.
15. Santos BS. The end of the cognitive empire: the coming of age of epistemologies of the South. Durham: Duke University Press; 2020.
16. Battiste M, Henderson JY. Compulsory schooling and cognitive imperialism: a case for cognitive justice. Int Rev Educ. 2021;67:483-505.
17. Breidlid A. Education, Indigenous Knowledges, and Development in the Global South. 2nd ed. London: Routledge; 2020.
18. Charles E. Decolonizing the curriculum in theory and practice: faculty motivations and experiences. J Furth High Educ. 2021;45(10):1342-58.
19. Rautionmaa H. Faculty perceptions of integrating indigenous knowledge in higher education curriculum. High Educ Res Dev. 2023;42(3):612-27.
20. Kwaah CY, Ampiah JG. Indigenous knowledge integration in higher education: faculty attitudes in Ghana. Afr J Educ Stud Math Sci. 2020;16(1):1-15.
21. Zembylas M. Affect and the politics of decolonizing the curriculum in higher education. Teach High Educ. 2023;28(4):813-28.
22. Braun V, Clarke V. Thematic analysis: a practical guide. London: SAGE; 2022.
23. Mheta G, Lungu BN, Govender T. Decolonisation of the curriculum: a case study of Durban University of Technology. S Afr J Educ. 2021;41(1):1-8.
24. Zidny R, Sjostrom J, Eilks I. A multi-perspective reflection on how indigenous knowledge can improve science education. Sci Educ. 2020;29(1):145-185.
25. Mato D. Indigenous peoples and higher education in Latin America: experiences, interpellations and challenges. J Intercult Stud. 2020;41(3):275-290.