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ISLAMIC ENTREPRENEURIAL LEADERSHIP AND FACULTY INNOVATION IN ISLAMIC HIGHER EDUCATION

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Abstract

Islamic higher education institutions (IHEIs) are expected to innovate while maintaining their value commitments, yet evidence remains limited on how Islamic entrepreneurial leadership (IEL), psychological empowerment (PE), and institutional support (IS) are jointly associated with faculty innovation (FI). This study examines these relationships and evaluates whether the four constructs are empirically distinct. Survey data from 349 lecturers at three Islamic higher education institutions in Jambi, Indonesia, were analysed using partial least squares structural equation modelling (PLS-SEM) with 1,000 bootstrap resamples. The measurement model showed satisfactory reliability and convergent validity, and discriminant validity was supported by the Fornell–Larcker and HTMT criteria. IS showed the strongest association with FI (β = .457), followed by PE (β = .187) and IEL (β = .176). IEL was strongly associated with IS (β = .571), and its indirect association with FI through IS was significant (β = .261), consistent with complementary partial mediation. The model explained 48.8% of the variance in FI. These findings indicate that faculty innovation in IHEIs is closely associated with supportive institutional conditions and that value-based entrepreneurial leadership is linked to innovation largely through such support.

Keywords: Islamic entrepreneurial leadership, psychological empowerment, institutional support, innovative work behavior, PLS-SEM

Abstrak

Perguruan tinggi keagamaan Islam dituntut untuk berinovasi tanpa mengurangi komitmen nilai yang menjadi dasar kelembagaannya. Namun, bukti mengenai hubungan kepemimpinan kewirausahaan Islami (IEL), pemberdayaan psikologis (PE), dukungan institusional (IS), dan inovasi dosen (FI) masih terbatas. Penelitian ini menguji hubungan antarkonstruk tersebut sekaligus menilai keterpisahan empirisnya. Data survei dari 349 dosen pada tiga perguruan tinggi keagamaan Islam di Jambi dianalisis menggunakan partial least squares structural equation modelling (PLS-SEM) dengan 1.000 bootstrap resamples. Model pengukuran menunjukkan reliabilitas dan validitas konvergen yang memadai, sedangkan validitas diskriminan didukung oleh kriteria Fornell–Larcker dan HTMT. IS menunjukkan hubungan paling kuat dengan FI (β = 0,457), diikuti PE (β = 0,187) dan IEL (β = 0,176). IEL berhubungan kuat dengan IS (β = 0,571), dan hubungan tidak langsung IEL dengan FI melalui IS signifikan (β = 0,261), konsisten dengan mediasi parsial komplementer. Model menjelaskan 48,8% varians FI. Temuan ini menunjukkan bahwa inovasi dosen berkaitan erat dengan dukungan institusional, sementara kepemimpinan kewirausahaan Islami terutama berhubungan dengan inovasi melalui dukungan tersebut.

Kata kunci: *kepemimpinan kewirausahaan Islami, pemberdayaan psikologis, dukungan institusional, perilaku kerja inovatif, PLS-SEM*

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Introduction

Higher education in Muslim societies is under growing pressure to renew curricula, teaching practices, and research agendas while remaining faithful to the religious and moral mission on which its institutions were founded. In Indonesia, where Islamic universities, institutes, and pesantren-affiliated colleges form a large part of the tertiary sector, this pressure is felt most directly by lecturers. They are the people who must translate institutional aspirations into new courses, digital learning designs, community programmes, and publishable research. Innovative work behaviour, understood as the intentional generation, promotion, and realisation of new ideas within a work role (Janssen, 2000; Scott & Bruce, 1994), has therefore become a central concern for leaders of Islamic higher education institutions (IHEIs). Systematic reviews show that such behaviour depends on a combination of leadership, individual psychological states, and organisational conditions rather than on any single factor (Srirahayu et al., 2023).

Leadership has received the most attention among these antecedents. Transformational, inclusive, and entrepreneurial styles have all been linked to employees' innovative behaviour (Afsar & Umrani, 2020; Bagheri, 2017; Javed et al., 2019; Saif et al., 2024). In educational settings, school leaders' transformational practices and teachers' self-efficacy jointly predict teachers' innovative behaviour (Zainal & Mohd Matore, 2021), and self-leadership and digital competency contribute to the innovative work behaviour of Indonesian teachers (Sary et al., 2023). In Islamic education, a parallel stream of research argues that leadership grounded in Islamic values, such as trustworthiness (*amanah*), justice (*'adl*), consultation (*shura*), and excellence (*ihsan*), is a distinctive resource for institutional renewal (Purwati et al., 2025; Salim et al., 2024). Work on pesantren shows that value-based, consultative governance allows traditional institutions to reflect on and transform their own practices (Manaf, 2026), and that the leadership of the *kiai* together with institutional support are the strongest predictors of stakeholder satisfaction (Manaf et al., 2026).

Entrepreneurial leadership adds a specific emphasis to this picture. Renko et al. (2015) define it as leadership that influences and directs group members towards organisational goals that involve recognising and exploiting opportunities. When such leadership is framed within Islamic ethics, opportunity-seeking is tied to accountability before God, social benefit, and fair dealing (Anggadwita et al., 2017; Wu et al., 2025). We refer to this combination as Islamic entrepreneurial leadership (IEL). For IHEIs, IEL describes leaders who look for new academic and social opportunities, encourage calculated experimentation, and justify both through Islamic principles. Evidence on entrepreneurial leadership in general suggests that it raises innovative behaviour partly because it creates organisational support for innovation (Akbari et al., 2021). Whether this also holds when entrepreneurial leadership is anchored in Islamic values, and in academic rather than commercial organisations, is not yet clear. In one SME study, Islamic work ethic had a direct effect on innovative behaviour but did not moderate the effect of entrepreneurial leadership (Hussain et al., 2023).

Two further antecedents are central to the present study. The first is psychological empowerment, a motivational state made up of meaning, competence, self-determination, and impact (Spreitzer, 1995). Meta-analytic evidence links it consistently to innovative behaviour and performance (Llorente-Alonso et al., 2024), and studies in higher education show that it transmits the effects of leadership on faculty members' innovative behaviour (Alwali, 2024; Ismail et al.,

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2024). The second is institutional support, which we conceptualise through organisational support theory as lecturers' perception that their institution values their contributions and provides the resources, policies, and recognition needed to pursue new ideas (Eisenberger et al., 1986; Kurtessis et al., 2017). Perceived organisational support has been shown to foster the innovative behaviour of university teachers, both directly and via work engagement (Zargar et al., 2025), and via psychological empowerment (Park & Kim, 2022).

Despite these advances, three limitations remain in the literature. First, studies of Islamic leadership in education are mostly qualitative or examine leadership in isolation, so the relative weight of leadership, empowerment, and institutional support in explaining lecturers' innovation has rarely been estimated in a single model (Purwati et al., 2025; Salim et al., 2024). Second, the mechanism by which value-based leadership reaches individual innovation is under-specified. The entrepreneurial leadership literature points to support structures as a transmission channel (Akbari et al., 2021), but this pathway has not been tested in IHEIs. Third, and most important for this study, the constructs involved are conceptually close. Supportive institutions, empowering leaders, empowered staff, and innovative staff can all be described in overlapping language, and self-reported scales measuring them may share much of their variance. The organisational literature warns that such construct proliferation can produce measures that are empirically redundant even when they carry different labels (Le et al., 2010; Shaffer et al., 2016). Yet most studies in this field report only the Fornell–Larcker criterion (Fornell & Larcker, 1981), which is known to perform poorly at detecting discriminant validity problems (Henseler et al., 2015; Voorhees et al., 2016).

Theoretical Background and Hypotheses

Islamic entrepreneurial leadership and faculty innovation

Entrepreneurial leaders model opportunity-seeking, frame goals in terms of what could be achieved, and tolerate the uncertainty that experimentation involves (Renko et al., 2015). These behaviours signal to followers that proposing and testing new ideas is legitimate and valued, which has been shown to increase innovative work behaviour in both technology firms and service organisations (Bagheri, 2017; Hussain et al., 2023). In an Islamic frame, the leader's role as a steward (*khalifah*) and the obligation to pursue excellence (*ihsan*) and benefit to the community (*maslahah*) give entrepreneurial behaviour a moral justification that is likely to resonate with lecturers in faith-based institutions (Anggadwita et al., 2017; Wu et al., 2025). Studies in Islamic schools report that leadership grounded in Islamic values supports sustainable innovation (Purwati et al., 2025). We therefore expect: H1: Islamic entrepreneurial leadership has a positive effect on faculty innovation.

Islamic entrepreneurial leadership and institutional support

Leaders shape the conditions their staff work in. Through decisions on budgets, workload, recognition, and access to training, they determine whether employees experience the organisation as supportive (Kurtessis et al., 2017). Entrepreneurial leaders in particular tend to mobilise resources for new initiatives and to institutionalise support for innovation (Akbari et al., 2021). In pesantren-based institutions, where authority is concentrated in the leadership, the leader's orientation strongly influences how the institution allocates support (Manaf et al., 2026; Salim et al., 2024). Consultative, value-based governance also encourages the creation of feedback and

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learning structures that staff perceive as supportive (Manaf, 2026). Hence: H2: Islamic entrepreneurial leadership has a positive effect on institutional support.

Institutional support and faculty innovation

Organisational support theory holds that employees who feel valued and resourced reciprocate with effort that benefits the organisation, including discretionary behaviours such as innovation (Eisenberger et al., 1986; Kurtessis et al., 2017). Innovation is risky and resource-intensive, so lecturers are more likely to invest in it when they expect their institution to provide funding, time, infrastructure, and tolerance for failure. Recent studies of university teachers confirm that perceived organisational support predicts innovative work behaviour (Park & Kim, 2022; Zargar et al., 2025). We propose: H3: Institutional support has a positive effect on faculty innovation.

Psychological empowerment and faculty innovation

Empowered employees find their work meaningful, feel competent, experience autonomy over how they work, and believe they can influence outcomes (Spreitzer, 1995). Each of these cognitions lowers the perceived cost of innovation and raises its expected value. Empowerment predicts innovative work behaviour across sectors (Javed et al., 2019; Llorente-Alonso et al., 2024), including among university faculty (Alwali, 2024; Ismail et al., 2024), and it is associated with lower psychological withdrawal and higher engagement (Aggarwal et al., 2020). Teachers' self-efficacy, which is close to the competence dimension, is also a documented antecedent of innovative behaviour (Gkontelos et al., 2023; Zainal & Mohd Matore, 2021). Thus: H4: Psychological empowerment has a positive effect on faculty innovation.

The mediating role of institutional support

If IEL shapes the support structures of the institution (H2), and those structures in turn enable innovation (H3), part of the leadership effect should travel through institutional support. This reasoning agrees with evidence that support for innovation mediates the link between entrepreneurial leadership and innovative work behaviour (Akbari et al., 2021). It also distinguishes two routes by which leaders may matter: a direct, interpersonal route in which they inspire and legitimise innovation, and an indirect, structural route in which they build the conditions that make innovation feasible. Therefore: H5: Institutional support mediates the relationship between Islamic entrepreneurial leadership and faculty innovation.

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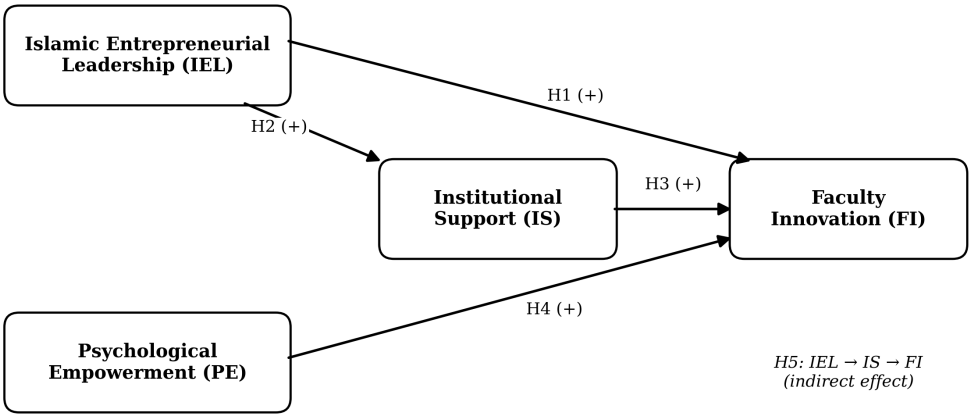

Figure 1. Conceptual model and hypotheses

Against this background, the study has two objectives. The first is diagnostic: to test whether IEL, PE, IS, and FI, measured with adapted self-report scales among lecturers in Indonesian IHEIs, are reliable, valid, and empirically distinct, using criteria that go beyond the Fornell–Larcker test. The second is substantive: to estimate the direct and indirect effects of IEL, PE, and IS on FI in a single model (Figure 1). The study contributes in three ways. First, it offers one of the first quantitative estimates of how an Islamic form of entrepreneurial leadership relates to faculty innovation. Second, it tests institutional support as an indirect pathway linking Islamic entrepreneurial leadership to faculty innovation. Third, it shows how a layered measurement diagnostic can expose which construct pairs in this research area deserve closer scrutiny before substantive conclusions are drawn.

Method

Research design and participants

The study used a cross-sectional, explanatory survey design. The study population comprised lecturers at three Islamic higher education institutions in Jambi Province, Indonesia: Institut Islam Ma'arif (IIM) Jambi, Institut Agama Islam (IAI) Muhammad Azim Jambi, and Sekolah Tinggi Agama Islam (STAI) Mau'izhah; data were collected from January to May 2025. Participants were selected by purposive sampling, with the criteria that respondents were permanent lecturers with at least one year of service at their current institution. The questionnaire was distributed online. Before analysis, responses were screened for incompleteness and for careless patterns such as straight-lining (Hair et al., 2022), which yielded 349 usable responses. The adequacy of this sample was checked with the inverse square root method (Kock & Hadaya, 2018). For the smallest path coefficient in the model (.176) at a 5% significance level, the minimum required sample is about 201, so the achieved sample of 349 provides adequate statistical power.

Measures

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All constructs were specified as reflective measurement models with items rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Islamic entrepreneurial leadership was measured with three items adapted from the entrepreneurial leadership scale of Renko et al. (2015) and contextualised for Islamic higher education by incorporating references to value-consistent vision, ethical decision-making, and spiritual motivation. Psychological empowerment was measured with four items based on Spreitzer (1995), one for each of the dimensions of meaning, competence, self-determination, and impact. Institutional support was measured with three items adapted from the perceived organisational support scale of Eisenberger et al. (1986), covering tangible, emotional, and informational support for lecturers' work. Faculty innovation was measured with four items adapted from Scott and Bruce (1994) and Janssen (2000), reflecting the generation, promotion, and implementation of new ideas in teaching and research. Items were adapted to the higher education context, a practice supported by recent validation work on innovative work behaviour scales in education (Ayoub et al., 2023; Lambriex-Schmitz et al., 2020).

Data analysis

Data were analysed with partial least squares structural equation modelling (PLS-SEM) using the SEMinR package in R (Ray et al., 2021). PLS-SEM was chosen because the study focuses on explaining variance in the endogenous constructs, includes a mediating path, and does not require multivariate normality (Hair et al., 2019, 2022). Path significance was evaluated using 1,000 bootstrap resamples. The indirect effect for H5 was evaluated using the delta method, while the reported 95% confidence intervals for the direct paths were calculated from the estimated standard errors using the normal approximation. The analysis proceeded in three stages.

In the first stage, the measurement model was evaluated. Indicator loadings of .708 or higher, Cronbach's alpha, ρ_A and composite reliability (ρ_C) between .70 and .95, and average variance extracted (AVE) of at least .50 were taken as evidence of reliability and convergent validity (Hair et al., 2019). Discriminant validity was assessed in layers. The Fornell–Larcker criterion was reported for comparability with earlier studies (Fornell & Larcker, 1981). The heterotrait–monotrait ratio (HTMT) was then evaluated against thresholds of .85 for conceptually distinct constructs and .90 for conceptually similar ones (Franke & Sarstedt, 2019; Henseler et al., 2015). Finally, following Rönkkö and Cho (2022), construct correlations were graded by severity (below .80, no problem; .80–.90, marginal; .90–1.00, moderate), and the pair with the highest HTMT was examined for possible empirical redundancy (Shaffer et al., 2016). This layered approach follows current best-practice recommendations for reporting validity in SEM (Cheung et al., 2024).

In the second stage, collinearity and common method bias were checked. Inner-model variance inflation factors (VIF) below 3 were taken to indicate no critical collinearity (Hair et al., 2019). Because all data came from a single self-report source, full-collinearity VIFs were computed by regressing each latent variable on all others; values below 3.3 suggest that the model is free of pathological common method variance (Kock, 2015; Podsakoff et al., 2012).

In the third stage, the structural model was assessed through path coefficients (β), t-values, p-values, effect sizes (f^2; .02, .15, and .35 as small, medium, and large), and the coefficient of determination (R^2) (Hair et al., 2022). Mediation (H5) was evaluated following Zhao et al. (2010)

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by testing the indirect effect and classifying the mediation type from the joint significance and signs of the indirect and direct effects.

Results and Discussion

Results

Measurement Model

Table 1 reports the results of the measurement model. All fourteen loadings exceeded the .708 threshold, ranging from .711 to .881. This means each indicator shares more than half of its variance with its construct (Hair et al., 2019). The weakest indicator was FI4 (.711), whose indicator reliability (.506) only just meets the criterion. Its retention is justified because removing it would narrow the content domain of faculty innovation, which Scott and Bruce (1994) and Janssen (2000) define as a multi-stage process, and because composite reliability and AVE for the construct were already satisfactory (Hair et al., 2022). Cronbach's alpha ranged from .800 (FI) to .888 (PE), ρ_A from .804 to .898, and ρ_C from .870 to .922. All values fall within the recommended .70–.95 band, so the scales are internally consistent without the item redundancy that values above .95 would suggest. AVE values ranged from .627 (FI) to .747 (PE), confirming convergent validity.

Table 1. Measurement Model: Loadings, Reliability, and Convergent Validity

Construct	Item	Loading	α	ρ_A	ρ_C	AVE
Islamic entrepreneurial leadership (IEL)	IEL1	.846	.812	.812	.889	.727
	IEL2	.876				
	IEL3	.835				
Psychological empowerment (PE)	PE1	.871	.888	.898	.922	.747
	PE2	.866				
	PE3	.881				
	PE4	.840				
Institutional support (IS)	IS1	.817	.814	.816	.890	.729
	IS2	.877				
	IS3	.866				
Faculty innovation (FI)	FI1	.793	.800	.804	.870	.627
	FI2	.833				
	FI3	.825				
	FI4	.711				

Note. α = Cronbach's alpha; ρ_A = reliability coefficient rho_A; ρ_C = composite reliability; AVE = average variance extracted. Criteria: loading ≥ .708; α, ρ_A, ρ_C between .70 and .95; AVE ≥ .50 (Hair et al., 2019).

The pattern of reliability indices is also informative. For every construct, ρ_A lies between alpha and ρ_C, as expected when loadings are not equal (Hair et al., 2019). The gap between alpha and ρ_C is largest for faculty innovation (.800 vs .870), which again reflects the lower loading of FI4. Faculty innovation is thus the construct with the least homogeneous indicators, a point that becomes relevant in the discriminant validity analysis below.

Discriminant validity and construct redundancy diagnostic

Table 2 presents the Fornell–Larcker matrix below the diagonal and the HTMT ratios above it. Under the Fornell–Larcker criterion, the square root of each construct's AVE (diagonal) exceeds its correlations with all other constructs, so discriminant validity is established in the conventional

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sense. The HTMT ratios range from .556 (IS–PE) to .796 (IS–FI). All are below the conservative .85 threshold, which supports discriminant validity under the criterion that simulation studies recommend (Franke & Sarstedt, 2019; Henseler et al., 2015).

Table 2. Discriminant Validity: Fornell–Larcker Criterion (lower triangle) and HTMT (upper triangle)

Construct	IEL	PE	IS	FI
IEL	**.852**	.718	.703	.685
PE	.611	**.864**	.556	.605
IS	.571	.477	**.854**	.796
FI	.551	.513	.646	**.792**

Note. Bold diagonal values are the square roots of AVE. Values below the diagonal are construct correlations; values above the diagonal are HTMT ratios (threshold .85; Henseler et al., 2015).

A measurement diagnostic, however, should do more than report that thresholds are passed; it should indicate where the evidence is thin (Cheung et al., 2024; Voorhees et al., 2016). Three observations follow from Table 2. First, the IS–FI pair has the highest HTMT (.796) and the highest composite correlation (.646) in the model. On the severity scale of Rönkkö and Cho (2022), the point estimate lies just below the .80 boundary of the marginal range. The bootstrapped 95% confidence interval was not available in the supplied analysis output. Second, the pair is not conceptually symmetrical. Institutional support describes what the institution provides, whereas faculty innovation describes what the lecturer does, so the high correlation is more plausibly a substantive association, the largest structural path in the model, than a sign that both scales tap the same construct. Third, because both constructs were rated by the same respondents, part of their shared variance may reflect a common evaluative tendency: lecturers who view their institution favourably may also describe their own conduct favourably (Podsakoff et al., 2003).

The next highest ratios were IEL–PE (.718) and IEL–IS (.703). These values fit the theoretical expectation that leadership shapes both how empowered lecturers feel and how supportive they perceive their institution to be (Aggarwal et al., 2020; Kurtessis et al., 2017), while remaining far enough from the thresholds to rule out redundancy. The lowest ratio, IS–PE (.556), shows that perceiving institutional support is clearly distinct from feeling psychologically empowered, even though both are sometimes treated in the literature as parts of a single "supportive climate" (Park & Kim, 2022). Overall, the diagnostic confirms that the four constructs are empirically distinguishable, and it identifies IS–FI as the pair that future studies should monitor with interval-based tests and semantic checks of item overlap (Rosenbusch et al., 2020).

Collinearity and common method bias

Table 3 shows that the inner-model VIFs for the predictors of faculty innovation ranged from 1.544 to 1.905, well below the threshold of 3, so the path estimates are not distorted by collinearity. The full-collinearity VIFs for all four latent variables ranged from 1.730 to 1.965, below Kock's (2015) cut-off of 3.3. Common method bias is therefore unlikely to account for the observed relationships. This test detects only severe method contamination, however, and procedural remedies such as temporal separation of predictor and criterion measures were not used in this study (Podsakoff et al., 2012). The results should be read with this in mind.

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Table 3. Collinearity and Common Method Bias Assessment

Latent variable	Inner VIF (predictor of FI)	Full-collinearity VIF
Islamic entrepreneurial leadership	1.905	1.965
Psychological empowerment	1.661	1.730
Institutional support	1.544	1.951
Faculty innovation	–	1.953

Note. Inner VIF threshold < 3 (Hair et al., 2019); full-collinearity VIF threshold < 3.3 (Kock, 2015). IEL is the sole predictor of IS (inner VIF = 1.000).

Structural model and hypothesis testing

Figure 2 and Table 4 present the estimated structural model. All four direct hypotheses were supported. Islamic entrepreneurial leadership had a positive and significant effect on faculty innovation (H1: β = .176, t = 2.893, p = .004), although the effect size was small (f^2 = .032). IEL had a strong effect on institutional support (H2: β = .571, t = 14.629, p < .001) with a large effect size (f^2 = .484). Institutional support was the strongest predictor of faculty innovation (H3: β = .457, t = 9.383, p < .001; f^2 = .264, medium). Psychological empowerment also had a positive and significant effect on faculty innovation (H4: β = .187, t = 3.123, p = .002; f^2 = .041, small).

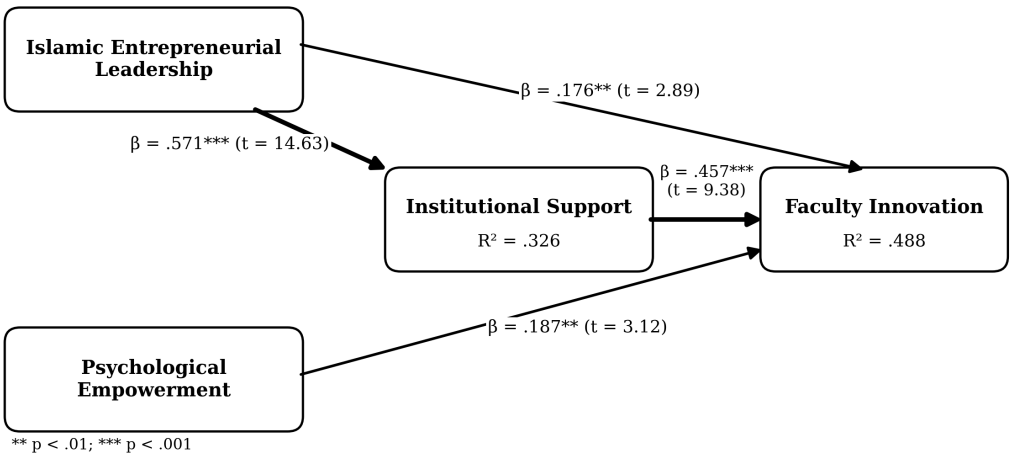

Figure 2. Estimated Structural Model

Table 4. Structural Model and Hypothesis Testing

H	Path	β	SD	t	p	95% CI[a]	f^2	Decision
H1	IEL → FI	.176	.061	2.893	.004	[.057, .295]	.032	Supported
H2	IEL → IS	.571	.039	14.629	< .001	[.495, .648]	.484	Supported
H3	IS → FI	.457	.049	9.383	< .001	[.361, .552]	.264	Supported
H4	PE → FI	.187	.060	3.123	.002	[.070, .305]	.041	Supported
H5	IEL → IS → FI	.261	.033[b]	7.890[b]	< .001	[.196, .326]	–	Supported

Note. Path significance was evaluated using 1,000 bootstrap resamples. a 95% confidence intervals for H1–H4 were calculated using the normal approximation (β ± 1.96 SD). b The indirect effect was evaluated using the delta-method standard error and z-value. Total effect of IEL on FI = .436; VAF = 59.7% (complementary partial mediation; Zhao et al., 2010).

The indirect effect of IEL on FI through IS was .261 (.571 × .457). Using the delta-method standard error (.033), the indirect effect was significant (z = 7.89, p < .001; 95% CI [.196, .326]).

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Since the direct effect of IEL on FI also remained significant and had the same sign, the pattern represents complementary partial mediation (Zhao et al., 2010), and H5 was supported. The total effect of IEL on FI was .436, of which about 60% (VAF = .597) was transmitted through institutional support.

Table 5 reports the explanatory power of the model. IEL, IS, and PE together explained 48.8% of the variance in faculty innovation (adjusted R^2 = .483), and IEL explained 32.6% of the variance in institutional support (adjusted R^2 = .324). By the benchmarks of Hair et al. (2019), these values indicate weak-to-moderate explanatory power, approaching moderate for faculty innovation, which is typical for behavioural outcomes that have many antecedents (Srirahayu et al., 2023).

Table 5. Explanatory Power of the Structural Model

Endogenous construct	R^2	Adjusted R^2
Faculty innovation	.488	.483
Institutional support	.326	.324

Note. R^2 benchmarks of .25, .50, and .75 indicate weak, moderate, and substantial explanatory power (Hair et al., 2019).

Discussion

Institutional Support as the Strongest Correlate of Faculty Innovation

The most consistent finding is the central position of institutional support. It showed the largest structural association with faculty innovation, a medium effect size, and accounted for most of the estimated indirect association between leadership and innovation. This agrees with organisational support theory, which predicts that employees reciprocate perceived support with discretionary effort (Eisenberger et al., 1986; Kurtessis et al., 2017), and with recent evidence from university teachers (Park & Kim, 2022; Zargar et al., 2025). It also mirrors findings from Indonesian pesantren, where institutional support was among the strongest predictors of stakeholder outcomes (Manaf et al., 2026). In IHEIs, where research funding, teaching loads, and access to digital infrastructure vary widely, lecturers appear to treat support as a precondition for innovation rather than as a bonus. Innovation in teaching and research requires time and resources that individual lecturers cannot provide for themselves, and the data suggest they innovate more when they believe the institution will supply them.

The magnitude of this association deserves comment. A standardised coefficient of .457 with a medium effect size indicates that institutional support makes a meaningful unique contribution to faculty innovation in the model, even after leadership and empowerment are controlled. Studies in commercial settings more often find leadership to be the dominant predictor, with organisational support acting as a secondary or moderating condition (Afsar & Umrani, 2020; Saif et al., 2024). The reversal observed here is plausibly a feature of the academic context. University lecturers enjoy considerable formal autonomy over their teaching and research, so the binding constraint on innovation is less often permission than capacity: time released from teaching, funds for pilot projects, access to laboratories, software and data, and recognition of innovative work in career evaluation. When these conditions are missing, even empowered lecturers led by entrepreneurial leaders may find it rational to repeat established routines. When they are present, innovation becomes a feasible investment. This reading agrees with the view of Kurtessis et al. (2017) that

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perceived support signals both the organisation's goodwill and its readiness to reward extra-role effort.

The finding also has a specific meaning in Islamic institutions. In many IHEIs, particularly private ones associated with pesantren foundations, resources are allocated through a combination of formal bureaucratic procedures and personal relationships with the leadership (Salim et al., 2024). Lecturers' perceptions of institutional support may therefore capture not only material resources but also a sense of being trusted (*amanah*) and consulted (*shura*) by the institution. Pesantren studies indicate that consultative feedback structures are a key element of how these institutions learn and change (Manaf, 2026). Institutional support in this setting is thus both a material and a relational resource, which may explain why it is such a strong predictor of whether lecturers are willing to take the risks that innovation involves.

The Indonesian context sharpens the practical relevance of this result. IHEIs operate under national accreditation and research-performance regimes that increasingly reward publications, grants, curriculum innovation, and community engagement. Many private IHEIs, however, depend on tuition income and foundation budgets that leave little room for discretionary investment in innovation. In such institutions, the difference between lecturers who innovate and those who do not may depend less on their attitudes than on whether the institution protects time and funds for new initiatives. The results therefore suggest that organisational conditions are an important part of the explanation for faculty innovation in these institutions, alongside individual motivation and leadership.

Islamic Entrepreneurial Leadership: a Mostly Indirect Route

Islamic entrepreneurial leadership was associated with faculty innovation primarily through its relationship with institutional support. Its direct association with faculty innovation was significant but small, whereas its association with institutional support was large, and around 60% of its estimated total association with innovation was indirect through support. This pattern is consistent with Akbari et al. (2021), who found that support for innovation mediated the relationship between entrepreneurial leadership and innovative work behaviour in commercial firms. It also qualifies accounts that attribute innovation in Islamic educational institutions mainly to the personal charisma or exemplary conduct of the leader (Salim et al., 2024). The results suggest that the entrepreneurial and Islamic elements of leadership are most productive when they are institutionalised in policies, resource allocation, and recognition systems. This interpretation fits the notion of values-based reflective governance, in which leaders embed consultation and feedback into organisational structures rather than relying on personal authority alone (Manaf, 2026).

The small direct effect of IEL ($\hat{f}^2$ = .032) is lower than the direct effects of entrepreneurial leadership on innovative work behaviour reported in SMEs (Bagheri, 2017; Hussain et al., 2023). Three features of the present study may account for the difference. First, earlier studies usually estimated leadership effects without controlling for institutional support, so part of what they attributed to leadership would, in this model, be carried by the support path. Second, in universities, the leader whom lecturers evaluate is often a dean, a rector, or the head of a foundation, who is further removed from daily work than a manager in a small firm, so direct interpersonal influence is weaker. Third, the Islamic dimension of the construct may express itself mainly through

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the institution's moral climate and resource decisions, not through individual supervision. Each of these explanations can be tested in future studies by separating immediate supervisors from top leadership and by measuring leadership at the unit level.

The complementary nature of the mediation is also noteworthy. Because the direct path remained significant, leadership retains an influence that does not pass through institutional support. This residual effect is consistent with the role-modelling and legitimising functions of entrepreneurial leaders (Bagheri, 2017; Renko et al., 2015), and with evidence that value-based leadership encourages staff to experiment in Islamic schools (Purwati et al., 2025). An Islamic framing of entrepreneurial action as stewardship and service may lend innovative initiatives a moral legitimacy that is independent of the resources attached to them (Anggadwita et al., 2017; Wu et al., 2025).

The strength of the IEL→IS path (β = .571) is itself notable, since it indicates that about a third of the variance in perceived institutional support is associated with how lecturers perceive their leaders. Two interpretations are possible, and they are not mutually exclusive. The first is structural: leaders in IHEIs control budgets, workload allocation, and promotion recommendations, so their entrepreneurial orientation directly shapes the support that lecturers receive (Akbari et al., 2021). The second is perceptual: lecturers may attribute the support they receive to the leader who represents the institution, so that favourable views of the leader and of the institution reinforce each other (Kurtessis et al., 2017). Distinguishing these interpretations would require multilevel data linking leaders to units, or objective indicators of resource allocation. The present data show only that the two perceptions are strongly associated and that both are linked to faculty innovation in the estimated model.

Psychological Empowerment as a Parallel, Individual-Level Resource

Psychological empowerment had a small but significant effect on faculty innovation over and above leadership and institutional support. This supports the view that innovation requires both favourable conditions and a motivated individual who feels competent and autonomous enough to act on them (Llorente-Alonso et al., 2024; Spreitzer, 1995). The effect is smaller than in studies in which empowerment was the only or main mediator (Alwali, 2024; Javed et al., 2019). This difference is expected, because the present model estimates the effect of empowerment while controlling for institutional support, and the two share variance (r = .477). In this model, PE was specified as an exogenous predictor. Its substantial correlation with IEL (r = .611; HTMT = .718), however, suggests that leadership may also work through empowerment, as found in higher education in Iraq and Malaysia (Alwali, 2024; Ismail et al., 2024). That path was not part of the hypothesised model, and testing it is a clear next step.

The modest size of the empowerment effect should not be read as evidence that empowerment is unimportant. In PLS-SEM, when predictors are correlated, the coefficient of each one reflects only its unique contribution (Hair et al., 2022). Psychological empowerment correlates .513 with faculty innovation on its own, but much of that association overlaps with leadership and institutional support. This suggests that empowerment is partly a product of the same conditions that foster innovation. Lecturers who work under entrepreneurial leaders and receive institutional support are also more likely to feel competent and autonomous, which is consistent with the

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antecedents identified in meta-analytic work (Llorente-Alonso et al., 2024). The unique effect that remains, $\beta = .187$, represents the part of empowerment that is not explained by the other constructs in the model, such as individual self-efficacy and intrinsic motivation, which are known to drive teachers' innovative behaviour (Gkontelos et al., 2023; Zainal & Mohd Matore, 2021).

Unexplained Variance and Omitted Antecedents

Although the model explains almost half of the variance in faculty innovation, 51.2% remains unexplained, as does 67.4% of the variance in institutional support. This is expected for a parsimonious model of a complex behaviour (Srirahayu et al., 2023), and it points to specific candidates for extension. At the individual level, digital competency and self-leadership have been shown to drive the innovative behaviour of Indonesian teachers (Sary et al., 2023), and work engagement transmits the effect of organisational support on the innovation of university teachers (Zargar et al., 2025). At the interpersonal level, knowledge sharing mediates the effect of leadership on innovative behaviour (Saif et al., 2024), and the quality of the leader–member exchange shapes empowerment and engagement (Aggarwal et al., 2020). At the organisational level, an innovation climate strengthens the effect of leadership on innovative behaviour (Afsar & Umrani, 2020). Institutional support itself is likely to depend on factors beyond leadership perception, such as the financial capacity of the foundation, accreditation status, and public or private ownership (Manaf et al., 2026). Adding these variables would allow future studies to establish whether the dominant role of institutional support holds when richer individual and organisational mechanisms are modelled.

What the Measurement Diagnostic Adds

Beyond the hypotheses, the study shows that the constructs used in this research area can be separated empirically, but not all pairs are equally distinct. Studies of leadership and innovation in Islamic education routinely report a Fornell–Larcker table and treat discriminant validity as settled. The layered diagnostic applied here, combining the Fornell–Larcker criterion, HTMT, severity grading, and conceptual reasoning about each pair, identified IS–FI as the relationship that most needs scrutiny, while also showing that its closeness is more plausibly substantive than artefactual. This distinction matters because the IS→FI path carries the main substantive conclusion of the study. If the two scales were partly redundant, the dominance of institutional support would be overstated (Le et al., 2010; Shaffer et al., 2016). Reporting the diagnostic openly allows readers to judge the strength of that conclusion, as recommended in the discriminant validity literature (Campbell & Fiske, 1959; Rönkkö & Cho, 2022; Voorhees et al., 2016).

The diagnostic also clarifies what the reported reliability values do and do not show. High reliability ($\rho_C = .870–.922$) establishes that the items of each scale move together. It does not establish that they measure the intended concept rather than a neighbouring one (MacKenzie et al., 2011). This is why convergent validity, reliability, and discriminant validity must be read together (Campbell & Fiske, 1959; Cheung et al., 2024). In the present data, the construct with the lowest AVE and the least homogeneous indicators, faculty innovation, is also the construct involved in the closest pair, IS–FI. Future scale development in this area should therefore give priority to faculty innovation, for example by separating idea generation from implementation, as in multidimensional instruments developed for educational settings (Ayoub et al., 2023; Lambriex-

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Schmitz et al., 2020), and by using behavioural anchors that refer to concrete outputs rather than general dispositions.

A final methodological point concerns the reporting of these diagnostics in Islamic education research. PLS-SEM is now widely used in the field, and Sinta-indexed journals publish many studies of leadership, support, and performance in madrasah, pesantren, and IHEIs. Reports often present loadings, AVE, and a Fornell–Larcker table, and move directly to hypothesis testing. The experience of this study suggests a minimal extension: report α, ρ_A, and ρ_C together; report HTMT with bootstrapped confidence intervals; grade the highest construct correlations by severity; state which constructs are theoretically expected to correlate highly and why; and report full-collinearity VIFs alongside an honest account of procedural remedies for method bias (Hair et al., 2019; Podsakoff et al., 2012; Rönkkö & Cho, 2022). These steps add little length to a manuscript but considerably strengthen the credibility of its substantive conclusions.

Theoretical and Practical Implications

The study makes three theoretical contributions. First, it integrates entrepreneurial leadership theory (Renko et al., 2015), organisational support theory (Eisenberger et al., 1986), and empowerment theory (Spreitzer, 1995) in an Islamic higher education setting and shows that the three perspectives are complementary rather than competing. The estimated association between leadership and innovation was largely indirect through institutional support, while empowerment made an independent individual-level contribution. Second, it specifies the mechanism linking Islamic value-based leadership to innovation. Much of the literature on Islamic educational leadership describes the leader's character and exemplary conduct (Salim et al., 2024); the present results suggest that this form of leadership is most clearly associated with innovation when it is accompanied by supportive institutional structures. Third, the findings show that an entrepreneurial leadership construct contextualised with Islamic values can remain empirically distinguishable from institutional support, psychological empowerment, and faculty innovation. This agrees with studies that find Islamic ethics to be a resource for entrepreneurship in Muslim societies (Anggadwita et al., 2017; Wu et al., 2025).

For leaders and managers of IHEIs, the results identify institutional support as the strongest organisational correlate of faculty innovation in the model. Practical priorities may include protected time and internal grants for teaching and research innovation, clear recognition of innovative work in promotion and performance systems, and reliable digital infrastructure. Leaders may translate their Islamic and entrepreneurial commitments into these institutional arrangements rather than relying only on personal example. Because psychological empowerment also showed an independent positive association with innovation, institutions may also widen lecturers' autonomy over course design and research agendas and involve them in decisions that affect their work. For policymakers, the findings suggest that accreditation and funding schemes that recognise institutional support systems, alongside individual outputs, may help create conditions that are more conducive to innovation across the Islamic higher education sector.

The measurement results also have practical uses. The four scales, which proved reliable and distinguishable, can serve as a short diagnostic instrument that quality assurance units in IHEIs can administer periodically. Tracking institutional support and psychological empowerment at faculty

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or department level would allow leaders to identify units where lecturers feel under-resourced or constrained before this shows up in weak innovation outputs. Because the IS–FI pair was the closest in the model, institutions using the instrument should complement self-reported innovation with records such as new courses developed, teaching grants obtained, or community programmes initiated.

Several limitations should be considered. The cross-sectional design precludes causal claims, and the reversed direction, in which innovative lecturers attract more support, cannot be excluded; longitudinal or multi-wave designs are needed. All constructs were self-reported by the same respondents. Although full-collinearity VIFs did not indicate method bias, future studies should separate sources, for example by using supervisor ratings or objective records of innovation outputs (Podsakoff et al., 2012). Each construct was measured with three or four items, which limits content coverage (MacKenzie et al., 2011), and psychological empowerment and faculty innovation were modelled as unidimensional despite their theoretical multidimensionality (Lambriex-Schmitz et al., 2020; Spreitzer, 1995). The purposive sample from three IHEIs in Jambi Province also limits generalisation to other Indonesian IHEIs and to other Muslim societies. Future research should test PE as a second mediator of leadership, examine institutional type (public vs private, pesantren-affiliated vs not) as a moderator, and apply interval-based discriminant validity tests and semantic analyses of item overlap to the IS–FI pair (Rosenbusch et al., 2020; Rönkkö & Cho, 2022).

Conclusion

This study set out to test whether Islamic entrepreneurial leadership, psychological empowerment, and institutional support are empirically distinct constructs and to estimate their associations with the innovative behaviour of lecturers in Indonesian Islamic higher education institutions. On the diagnostic question, all four constructs showed satisfactory reliability and convergent validity, and they could be distinguished from one another under both the Fornell–Larcker and the HTMT criteria. The layered diagnostic also showed that institutional support and faculty innovation form the closest pair in the model. Their proximity is better explained as a strong substantive relationship than as measurement redundancy, but it should be monitored in future work. On the substantive question, the results support all five hypotheses. Institutional support showed the strongest direct association with faculty innovation. Islamic entrepreneurial leadership was strongly associated with institutional support and showed a smaller direct association with innovation; approximately 60% of its estimated total association with innovation was indirect through institutional support. Psychological empowerment showed an additional, independent positive association. Together, the three antecedents explained almost half of the variance in faculty innovation. These conclusions remain bounded by the study design: the cross-sectional, single-source data support associations consistent with the proposed model, not definitive causal effects, and the purposive sample from three institutions in Jambi limits generalisation to other settings.

These findings advance the field in two ways. They provide quantitative evidence that value-based entrepreneurial leadership in Islamic academic institutions is associated with faculty innovation largely through institutional support, linking the literature on Islamic educational leadership with research on organisational support and innovation. They also show that the

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constructs commonly used in this research can be separated empirically, and that studies should say how they know this rather than assume it. In practice, leaders of IHEIs who wish to encourage innovation may strengthen concrete support systems while also expanding lecturers' autonomy. Future studies should use longitudinal and multi-source designs, test psychological empowerment as an additional mediator, and extend the model to other Muslim societies and types of institutions.

Declaration

MN, Z, MKNA, EP, and R contributed to the conceptual development of the study, refinement of the research framework, interpretation of the findings, and preparation and critical review of the manuscript. The authors jointly reviewed the methodological approach, discussed the results, and contributed to the revision and finalization of the article. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for the accuracy and integrity of the work. The authors declare that they have no conflicts of interest related to this study. ChatGPT by OpenAI was used solely to assist with language editing and reference-format checking. All AI-assisted revisions were critically reviewed, verified, and approved by the authors, who remain fully responsible for the accuracy, originality, and integrity of the manuscript.

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