

THE INFLUENCE OF ORGANIZATIONAL COMMITMENT, ORGANIZATIONAL SUPPORT, AND KNOWLEDGE SHARING ON INNOVATIVE BEHAVIOR MEDIATED BY SPIRITUAL EXTRA-ROLE BEHAVIOR (SERB) AMONG LECTURERS OF PESANTREN-BASED ISLAMIC HIGHER EDUCATION INSTITUTIONS (PTKI) IN EAST JAVA

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Abstrak

Artikel ini mengkaji pengaruh komitmen organisasi, persepsi dukungan organisasi (POS), dan berbagi pengetahuan terhadap perilaku inovatif dosen, dengan Perilaku Ekstra-Peran Spiritual (SERB) sebagai variabel mediasi, di Perguruan Tinggi Keagamaan Islam (PTKI) berbasis pesantren di Jawa Timur. Penelitian ini dilatarbelakangi oleh tantangan yang semakin besar yang dihadapi oleh PTKI dalam merespons globalisasi, transformasi digital, dan persaingan yang semakin ketat di bidang pendidikan tinggi, yang menuntut perilaku inovatif yang lebih kuat dari para dosen sebagai aktor utama dalam mengimplementasikan Tri Dharma Pendidikan Tinggi. Dengan mengacu pada Teori Pertukaran Sosial, Teori Dukungan Organisasi yang Dirasakan, Pandangan Berbasis Pengetahuan, Teori Perilaku Kewarganegaraan Organisasi, teori spiritualitas di tempat kerja, dan Teori Perilaku Kerja Inovatif, penelitian ini mengusulkan SERB sebagai konstruk mediasi baru yang mengintegrasikan perilaku di luar peran dengan nilai-nilai spiritualitas di tempat kerja. Desain penelitian kuantitatif diterapkan dengan menggunakan metode survei. Data dikumpulkan dari para dosen PTKI berbasis pesantren di Jawa Timur dan dianalisis menggunakan Partial Least Squares–Structural Equation Modeling (PLS-SEM) dengan perangkat lunak SmartPLS 4. Temuan penelitian menunjukkan bahwa komitmen organisasi, persepsi dukungan organisasi, dan berbagi pengetahuan memiliki pengaruh yang signifikan terhadap perilaku inovatif, baik secara langsung maupun tidak langsung melalui SERB. Selain itu, SERB memainkan peran mediasi yang sangat penting dalam memperkuat hubungan antara ketiga variabel pendahulu tersebut dan perilaku inovatif para dosen. Hasil ini menunjukkan bahwa perilaku inovatif di kalangan dosen PTKI tidak semata-mata didorong oleh faktor individu atau organisasi, melainkan juga oleh perilaku di luar peran yang berlandaskan spiritual dan berakar pada nilai-nilai kolektif serta pekerjaan yang bermakna. Penelitian ini memberikan kontribusi teoretis dengan memperkenalkan SERB sebagai konstruk mediasi baru dalam literatur inovasi, khususnya dalam konteks lembaga pendidikan tinggi Islam yang berlandaskan budaya pesantren. Secara praktis, temuan ini memberikan implikasi penting bagi para pemimpin dan pembuat kebijakan di PTKI dalam merancang strategi pengembangan sumber daya manusia yang mengintegrasikan dukungan organisasi, praktik berbagi pengetahuan, dan nilai-nilai spiritual guna mendorong inovasi akademik yang berkelanjutan.

Kata kunci: Komitmen Organisasi; Dukungan Organisasi; Berbagi Pengetahuan; Perilaku Inovatif; Perilaku Spiritual di Luar Tugas (SERB); Pendidikan Tinggi Islam Berbasis Pesantren; Dosen; Jawa Timur

Abstract

This study examines the effects of organizational commitment, perceived organizational support (POS), and knowledge sharing on lecturers' innovative behavior, with Spiritual Extra-Role Behavior (SERB) as a mediating variable, in pesantren-based Islamic Higher Education Institutions (Perguruan Tinggi Keagamaan Islam/PTKI) in East Java. The study is motivated by the growing challenges faced by PTKI in responding to globalization, digital transformation, and increasing competition in higher education,

which demand stronger innovative behavior from lecturers as the central actors in implementing the *Tri Dharma of Higher Education*. Drawing on Social Exchange Theory, Perceived Organizational Support Theory, Knowledge-Based View, Organizational Citizenship Behavior Theory, workplace spirituality theory, and Innovative Work Behavior Theory, this research proposes SERB as a novel mediating construct that integrates extra-role behavior with workplace spirituality values. A quantitative research design was employed using a survey method. Data were collected from lecturers of pesantren-based PTKI in East Java and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The findings reveal that organizational commitment, perceived organizational support, and knowledge sharing have significant effects on innovative behavior, both directly and indirectly through SERB. Moreover, SERB plays a crucial mediating role in strengthening the relationships between the three antecedent variables and lecturers' innovative behavior. These results indicate that innovative behavior among PTKI lecturers is not solely driven by individual or organizational factors, but also by spiritually grounded extra-role behaviors rooted in collective values and meaningful work. This study contributes theoretically by introducing SERB as a new mediating construct in the innovation literature, particularly within the context of Islamic higher education institutions based on pesantren culture. Practically, the findings provide important implications for PTKI leaders and policymakers in designing human resource development strategies that integrate organizational support, knowledge sharing practices, and spiritual values to foster sustainable academic innovation.

Keywords: Organizational Commitment; Organizational Support; Knowledge Sharing; Innovative Behavior; Spiritual Extra-Role Behavior (SERB); Pesantren-Based Islamic Higher Education; Lecturers; East Java.

PENDAHULUAN

The rapid globalization of knowledge and the acceleration of digital transformation have fundamentally reshaped higher education systems worldwide. Universities are increasingly required to demonstrate adaptability, innovation, and responsiveness to technological and societal changes. In this context, lecturers' innovative behavior has become a critical determinant of institutional sustainability and academic competitiveness, particularly in relation to teaching innovation, research productivity, and community engagement (Carvalho et al., 2020; Masserini et al., 2019).

In Indonesia, these challenges are especially pronounced within pesantren-based Islamic Higher Education Institutions (Perguruan Tinggi Keagamaan Islam/PTKI). These institutions are characterized by a unique integration of Islamic values, collective culture, and traditional pesantren norms, while simultaneously being expected to engage in progressive academic transformation. Although pesantren-based PTKI play a strategic role in producing graduates with strong religious and intellectual foundations, empirical data indicate declining student enrollment and fluctuating lecturer participation in scientific conferences, suggesting potential weaknesses in innovation capacity and academic attractiveness (BPS-Statistics, 2025; Kementerian Agama Republik Indonesia, 2023–2025).

Lecturers serve as central actors in the implementation of the *Tri Dharma of Higher Education*, encompassing teaching, research, and community service. Innovative behavior among lecturers enables the adoption of student-centered learning models, digital pedagogies, interdisciplinary research, and socially impactful community engagement (Wahyu et al., 2024; Otto et al., 2024). However, innovation in pesantren-based PTKI does not emerge automatically. Strong collective culture, hierarchical leadership, and normative religious values may simultaneously function as enablers and constraints, depending on organizational dynamics and individual motivation.

Previous studies have identified organizational commitment, perceived

organizational support (POS), and knowledge sharing as key antecedents of innovative behavior (Fiernaningsih et al., 2023; Wahyuni et al., 2021; Wulandari et al., 2025). Nevertheless, empirical findings remain inconsistent. Some studies report significant direct effects, while others suggest that these relationships depend on mediating psychological or behavioral mechanisms, such as self-efficacy, organizational learning, or Organizational Citizenship Behavior (OCB) (Atho'llah et al., 2025; Lambi & Budiman, 2024).

Moreover, recent literature highlights the growing relevance of workplace spirituality in shaping meaningful work, intrinsic motivation, and innovative behavior (Garg & Saini, 2023; Sode & Chenji, 2024). In pesantren-based PTKI, spirituality is not merely an individual belief system but a shared organizational value that frames work as both professional responsibility and religious devotion. Despite its relevance, no prior study has empirically integrated workplace spirituality and OCB into a single mediating construct.

Addressing this gap, the present study introduces Spiritual Extra-Role Behavior (SERB) as a novel mediating variable that conceptualizes extra-role behavior grounded in workplace spirituality. This study aims to examine the effects of organizational commitment, perceived organizational support, and knowledge sharing on lecturers' innovative behavior, with SERB as a mediator, within the context of pesantren-based PTKI in East Java. By integrating Social Exchange Theory, POS Theory, Knowledge-Based View, OCB Theory, workplace spirituality theory, and Innovative Work Behavior Theory, this research offers a comprehensive and context-sensitive model to explain innovative behavior in Islamic higher education institutions.

METODE

Research Design and Approach

This study employed a quantitative research design using a cross-sectional survey approach. The quantitative method was selected to test the proposed structural relationships among organizational commitment, perceived organizational support, knowledge sharing, Spiritual Extra-Role Behavior (SERB), and innovative behavior.

Population and Sample

The population comprised lecturers working at pesantren-based Islamic Higher Education Institutions (PTKI) in East Java, Indonesia. These institutions are formally managed under pesantren foundations and predominantly operate as private higher education institutions. A purposive sampling technique was applied, targeting lecturers who had actively participated in teaching, research, and community service activities. The final sample met the minimum requirements for Partial Least Squares–Structural Equation Modeling (PLS-SEM).

Measurement of Variables

All constructs were measured using validated indicators adapted from previous studies and adjusted to the PTKI context. Organizational commitment included affective, normative, and continuance dimensions (Meyer & Allen, 1991). Perceived organizational support reflected lecturers' perceptions of institutional care and appreciation (Eisenberger et al., 2020). Knowledge sharing captured both knowledge donating and collecting behaviors (Al-Kurdi et al., 2020). SERB was operationalized as extra-role behavior rooted in workplace spirituality values, integrating OCB dimensions with spiritual meaning at work. Innovative behavior encompassed idea generation, idea

promotion, and idea implementation (Janssen, 2000). All items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Data Analysis Technique

Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 4. This technique was chosen due to its suitability for predictive models, mediation analysis, and complex latent variable relationships. The analysis involved assessment of the measurement model (validity and reliability) and the structural model (path coefficients, mediation effects, and predictive relevance)

RESULTS AND DISCUSSION

Measurement Model Evaluation

The measurement model demonstrated satisfactory convergent and discriminant validity. All indicator loadings exceeded the recommended threshold, and composite reliability and Cronbach's alpha values confirmed internal consistency. Average Variance Extracted (AVE) values indicated adequate construct validity.

Structural Model Results

The structural model analysis revealed that organizational commitment, perceived organizational support, and knowledge sharing each had significant positive effects on lecturers' innovative behavior. These findings support prior research emphasizing the importance of emotional attachment, institutional support, and collaborative knowledge exchange in fostering innovation (Wahyuni et al., 2021; Fiernaningsih et al., 2023; Budur et al., 2023).

Furthermore, organizational commitment, perceived organizational support, and knowledge sharing significantly influenced Spiritual Extra-Role Behavior (SERB). This result confirms that lecturers who feel committed, supported, and engaged in knowledge sharing are more likely to exhibit spiritually grounded extra-role behaviors aligned with pesantren values.

Importantly, SERB was found to have a significant positive effect on innovative behavior and to mediate the relationships between the three antecedent variables and innovative behavior. This finding extends previous OCB research (Bastian & Widodo, 2022; Al-shami et al., 2023) by demonstrating that extra-role behavior becomes more effective in promoting innovation when it is driven by spiritual meaning rather than institutional pressure.

This study employed a research instrument in the form of a structured questionnaire consisting of closed-ended questions developed in accordance with the operational definitions of the research variables. Respondents' answers were subsequently converted into an ordinal measurement scale. The measurement used a five-point Likert scale with the following scoring categories: strongly agree (5), agree (4), moderately agree (3), disagree (2), and strongly disagree (1).

The use of a five-point scale was based on several considerations. First, it provides an adequate range of response options for respondents when answering the questionnaire (Malhotra, 2018). Second, this scale is easy for respondents to understand and complete (McDaniel Jr. & Gates, 2020). Third, from a visual perspective, the five-point interval scale is more appealing (Sugiyono, 2019). Fourth, a five-point scale is considered sufficient to assess the consistency of response distributions when the number of respondents exceeds 100. Moreover, the use of alternative scale intervals such as 4, 5, 6, 7, 10, or 11 points would yield comparable measurement quality

for the same research objectives (Leung, 2013). Each response option was assigned a specific weight, as presented in Table 3.2.

Table 1.1. Likert Scale Scoring Scheme

No.	Response Option	Code	Score
1	Strongly Agree	SA	5
2	Agree	A	4
3	Moderately Agree	MA	3
4	Disagree	D	2
5	Strongly Disagree	SD	1

Source: Leung (2013)

Prior to further data processing, all responses collected for the SEM analysis were examined for completeness and consistency. Incomplete data, invalid responses, or questionnaires displaying abnormal response patterns (e.g., selecting the same midpoint option for all items) were excluded from the analysis.

1) Validity and Reliability Testing

a) Validity Test

According to Hair, Jr. et al. (2022), for reflectively measured variables, convergent validity refers to the extent to which a latent variable explains the variance of its indicators. Convergent validity is assessed by evaluating the outer loadings of indicators and the Average Variance Extracted (AVE). High outer loading values indicate that the indicators share a substantial amount of common variance captured by the latent construct. All indicator outer loadings must be statistically significant. The minimum acceptable value for outer loadings is ≥ 0.70 , indicating that the indicators are valid and meet convergent validity requirements.

Average Variance Extracted (AVE) represents the mean of the squared loadings of indicators associated with a construct, calculated as the sum of squared outer loadings divided by the number of indicators. An AVE value of at least 0.50 (≥ 0.50) indicates adequate convergent validity, meaning that the construct explains more than half of the variance of its indicators on average.

b) Reliability Test

Ghozali and Latan (2020) state that reliability testing is conducted to ensure the accuracy, consistency, and stability of the instrument in measuring variables. The most commonly used reliability measure is internal consistency reliability. According to Hair, Jr. et al. (2022), reliability can be assessed using Cronbach's alpha and composite reliability. Composite reliability values range from 0 to 1, with higher values indicating higher levels of reliability. Ghozali and Latan (2020) further note that both Cronbach's alpha and composite reliability values are considered acceptable if they exceed 0.70 (> 0.70).

Table 2.1. Validity and Reliability Assessment Criteria in the PLS-SEM Measurement Model

Parameter	Type of Validity	Assessment Criteria	Cut-off Value	Description
Outer Loading	Convergent Validity	Correlation between indicator and construct	≥ 0.70 (ideal), ≥ 0.60 (acceptable)	Indicates how strongly indicators represent the latent construct
Average Variance Extracted (AVE)	Convergent Validity	Average variance extracted from indicators	≥ 0.50	Indicates the proportion of indicator variance explained by the construct
Composite	Internal	Indicator consistency	≥ 0.70 (good), $\geq$	Alternative to Cronbach's alpha

Parameter	Type of Validity	Assessment Criteria	Cut-off Value	Description
Reliability (CR)	Reliability	in measuring constructs	0.60 (acceptable)	
Cronbach's Alpha	Internal Reliability	Internal consistency among indicators	≥ 0.70 (standard), ≥ 0.60 (minimum)	Classical and more conservative reliability measure
Cross Loading	Discriminant Validity	Indicator loading on intended construct vs. others	Highest loading on intended construct	Assesses whether indicators better represent their intended construct
Fornell–Larcker Criterion	Discriminant Validity	VAVE must exceed inter-construct correlations	VAVE > inter-construct correlation	Tests construct distinctiveness
HTMT (Heterotrait–Monotrait Ratio)	Discriminant Validity	Ratio of heterotrait to monotrait correlations	≤ 0.85 (strict), ≤ 0.90 (liberal)	Modern and sensitive method
VIF (Variance Inflation Factor)	Multicollinearity	Correlation among indicators	< 5.0 (ideal), < 10 (maximum)	Ensures absence of multicollinearity

Source: Hair, Jr. et al. (2022)

2) Data Analysis Method

Data analysis in this study was conducted using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) approach to examine causal relationships among latent variables based on the previously developed conceptual model. This method allows for the simultaneous evaluation of both direct and indirect effects among constructs and assesses the extent to which the model fits the empirical data (Kline, 2016). SEM is particularly effective for testing complex theoretical hypotheses because it can handle multiple variables and their measurement indicators simultaneously within a single analytical framework (Hair, Jr. et al., 2022). Moreover, SEM enables the inclusion of unobservable (latent) variables that are indirectly measured through observed indicators.

SEM consists of two main approaches: covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM). According to Ghazali and Latan (2020), CB-SEM aims to estimate structural models grounded in strong theoretical foundations, test causal relationships among constructs, and assess overall model fit based on empirical data. CB-SEM is particularly suitable for theory testing and confirmation through complex analytical procedures. In contrast, PLS-SEM is more appropriate for research aimed at theory development. PLS-SEM focuses on examining predictive relationships among variables to determine whether and how constructs influence one another. It does not require strong theoretical assumptions, does not assume normally distributed data, and allows parameter estimation without strict goodness-of-fit (GoF) requirements. The predictive accuracy of the model is assessed primarily through the coefficient of determination (R^2).

3) Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide information regarding the tendencies and characteristics of the study's latent variables based on respondents' scores on the questionnaire items. The output of this analysis consists of frequency distribution tables, which are interpreted as antecedents of organizational citizenship behavior (OCB).

4) Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) Approach

Structural Equation Modeling (SEM) is a multivariate statistical analysis technique used to examine complex relationships among latent variables and their observed indicators. SEM enables the simultaneous analysis of causal relationships

within a single integrated model, encompassing both the measurement model and the structural model. One increasingly popular SEM approach is Partial Least Squares (PLS), commonly referred to as PLS-SEM.

Unlike covariance-based SEM approaches such as LISREL or AMOS, which require normally distributed data and large sample sizes, PLS-SEM is prediction-oriented, does not require data normality, and can be applied to complex models with relatively small sample sizes (Hair, Jr. et al., 2022). PLS-SEM is designed to maximize the explained variance of endogenous latent variables, making it particularly useful for developing new theories or exploring relationships that have not been extensively studied.

The measurement model in PLS-SEM explains the relationships between latent constructs and their indicators and is evaluated using parameters such as outer loadings, Average Variance Extracted (AVE), Composite Reliability (CR), and discriminant validity measures including the Fornell–Larcker Criterion and the Heterotrait–Monotrait Ratio (HTMT). The structural model examines relationships among latent constructs and is evaluated based on path coefficients, R^2 (coefficient of determination), f^2 (effect size), and Q^2 (predictive relevance) (Hair, Jr. et al., 2022).

Henseler et al. (2015) argue that PLS-SEM is particularly suitable for research contexts focused on prediction and the development of new theoretical models rather than theory confirmation. While CB-SEM is superior for testing well-established theories under strict statistical assumptions, PLS-SEM offers advantages in modeling exploratory phenomena or analyzing empirical data with practical limitations. In practice, PLS-SEM is often selected due to its simplicity in interpretation and visualization, flexibility in model specification, and minimal technical constraints such as sample size requirements. The following figure presents the research model analyzed using the PLS-SEM approach.

The data analysis in this study was conducted using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) approach to examine causal relationships among latent variables based on the previously formulated conceptual model. This method allows researchers to simultaneously evaluate both direct and indirect effects among constructs and to assess the extent to which the proposed model fits the empirical data (Kline, 2016). SEM is highly effective for testing complex theoretical hypotheses because it can accommodate multiple variables and their measurement indicators within a single analytical framework (Hair, Jr. et al., 2022). Moreover, SEM enables the inclusion of unobservable (latent) variables that are measured indirectly through observed indicators.

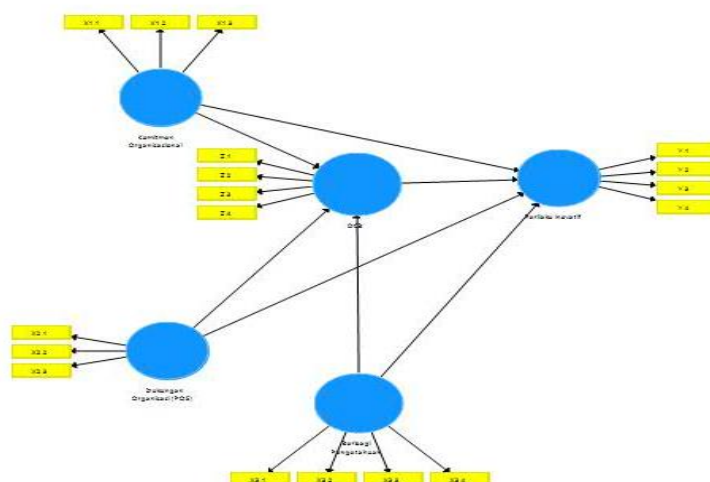


Figure 1. Research Structural Model

SEM consists of two main approaches: covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM). According to Ghazali and Latan (2020), CB-SEM aims to estimate structural models grounded in strong theoretical foundations, test causal relationships among constructs, and assess overall model fit based on empirical data. CB-SEM is particularly suitable for theory confirmation and rigorous hypothesis testing through complex analytical procedures. In contrast, PLS-SEM is more appropriate for studies oriented toward theory development and prediction. PLS-SEM focuses on examining predictive relationships among variables to determine whether and how constructs influence one another.

PLS-SEM can be applied without requiring a strong theoretical foundation, does not assume normally distributed data, and allows parameter estimation without strict goodness-of-fit (GoF) criteria. The predictive accuracy of the model is primarily assessed through the coefficient of determination (R^2).

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide an overview of the tendencies and characteristics of the study's latent variables based on respondents' answers to the questionnaire items. The output of this analysis consists of frequency distribution tables that describe respondents' perceptions and serve as antecedents of organizational citizenship behavior (OCB).

Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) Approach

Structural Equation Modeling (SEM) is a multivariate statistical analysis technique used to examine complex relationships among latent variables and their observed indicators. SEM allows for the simultaneous analysis of causal relationships within an integrated model that includes both the measurement model and the structural model. One increasingly popular SEM approach is Partial Least Squares (PLS), commonly referred to as PLS-SEM.

Unlike covariance-based SEM approaches such as LISREL or AMOS, which require normally distributed data and large sample sizes, PLS-SEM is more prediction-oriented, does not require data normality, and is suitable for complex models with relatively small sample sizes (Hair, Jr. et al., 2022). PLS-SEM is designed to maximize the explained variance of endogenous latent variables and is therefore particularly useful for developing new theories or exploring relationships that have not been extensively studied.

The measurement model in PLS-SEM explains the relationships between latent constructs and their indicators and is evaluated using parameters such as outer loadings, Average Variance Extracted (AVE), Composite Reliability (CR), and discriminant validity measures including the Fornell–Larcker Criterion and the Heterotrait–Monotrait Ratio (HTMT). The structural model, in contrast, examines the relationships among latent constructs and is evaluated based on path coefficients, R^2 (coefficient of determination), f^2 (effect size), and Q^2 (predictive relevance) (Hair, Jr. et al., 2022).

Henseler et al. (2015) argue that PLS-SEM is particularly appropriate for research contexts that emphasize prediction and the development of new theoretical models rather than mere theory confirmation. While CB-SEM excels in testing well-established theories under strict statistical assumptions, PLS-SEM offers advantages in modeling exploratory phenomena or analyzing empirical data with practical limitations. In practice, PLS-SEM is often preferred due to its ease of interpretation and visualization,

flexibility in model modification, and minimal technical constraints such as sample size requirements.

Stages of SEM Analysis Using the PLS Approach

1. Measurement Model Evaluation (Outer Model)

Outer loadings indicate the strength of the relationship between indicators (questionnaire items) and their respective latent constructs. Higher loading values reflect greater indicator contributions to the construct. An ideal loading value is ≥ 0.70 ; however, in exploratory research, values of 0.60 are still acceptable (Hair, Jr. et al., 2022). Indicators with loading values below 0.40 should be eliminated because they do not adequately represent the construct.

a. Construct Reliability

Construct reliability assesses the internal consistency among indicators within the same construct. Two commonly used measures are:

Composite Reliability (CR).

CR is preferred over Cronbach's alpha because it accounts for the individual contribution of each indicator based on its loading. A CR value of ≥ 0.70 is considered acceptable for established constructs, while values ≥ 0.60 are acceptable for exploratory research.

Outer Model Equations

• Organizational		Commitment		(OC)	
X1.1	=	λ_1	•	OC	+ ϵ_1
X1.2	=	λ_2	•	OC	+ ϵ_2
$X1.3 = \lambda_3 \cdot OC + \epsilon_3$					
• Perceived		Organizational		Support	
X2.1	=	λ_4	•	POS	+ ϵ_4
X2.2	=	λ_5	•	POS	+ ϵ_5
$X2.3 = \lambda_6 \cdot POS + \epsilon_6$					
• Knowledge		Sharing		(KS)	
X3.1	=	λ_7	•	KS	+ ϵ_7
X3.2	=	λ_8	•	KS	+ ϵ_8
X3.3	=	λ_9	•	KS	+ ϵ_9
$X3.4 = \lambda_{10} \cdot KS + \epsilon_{10}$					
• Spiritual		Extra-Role		Behavior	
Z1	=	λ_{11}	•	SERB	+ ϵ_{11}
Z2	=	λ_{12}	•	SERB	+ ϵ_{12}
Z3	=	λ_{13}	•	SERB	+ ϵ_{13}
Z4	=	λ_{14}	•	SERB	+ ϵ_{14}
$Z5 = \lambda_{15} \cdot SERB + \epsilon_{15}$					
• Innovative		Behavior		(IB)	
Y1	=	λ_{16}	•	IB	+ ϵ_{16}
Y2	=	λ_{17}	•	IB	+ ϵ_{17}
$Y3 = \lambda_{18} \cdot IB + \epsilon_{18}$					

Notes:

λ (lambda): factor loading coefficient between indicators and latent constructs

β (beta): path coefficient indicating direct effects among latent constructs

ϵ (epsilon): measurement error

ζ (zeta): residual term of endogenous latent constructs

(2) Cronbach's Alpha (α).

Cronbach's alpha is a classical measure of internal consistency. Values ≥ 0.70 indicate good reliability, although values between 0.60 and 0.70 are acceptable in early-stage research.

b. Convergent Validity

Convergent validity evaluates the strength of the relationship between latent constructs and their indicators. This is commonly assessed through indicator loading values. Ideally, loadings should exceed 0.70, indicating strong indicator contributions to the latent construct. However, in empirical research contexts, loadings above 0.50 may still be acceptable, provided the indicators are theoretically relevant and the AVE value meets the minimum threshold.

Indicator loadings reflect not only the strength of the association between constructs and indicators but also the proportion of indicator variance explained by the latent construct (Hair, Jr. et al., 2022). Adequate convergent validity is achieved when most indicators exhibit high loadings on their respective constructs and low loadings on other constructs.

c. Discriminant Validity

Discriminant validity ensures that each construct is empirically distinct from other constructs in the model. One method used to assess discriminant validity is cross-loading analysis. An indicator demonstrates adequate discriminant validity if its loading on its intended construct is higher than its loadings on other constructs and exceeds 0.70 (Ghozali & Latan, 2020).

Structural Model Evaluation (Inner Model)

According to Hair, Jr. et al. (2022), the structural model—also referred to as the inner model—illustrates the relationships among latent constructs. The evaluation of the structural model focuses on the explanatory and predictive power of the model, assessed through the following criteria:

a. Coefficient of Determination (R^2)

R^2 indicates the proportion of variance in endogenous constructs explained by exogenous constructs. Higher R^2 values reflect stronger explanatory power. Common interpretations are:

- $R^2 = 0.25$: weak
- $R^2 = 0.50$: moderate
- $R^2 = 0.75$: strong

R^2 is calculated only for endogenous latent constructs.

b. Predictive Relevance (Q^2)

Predictive relevance is assessed using the Q^2 value, which evaluates the model's ability to predict observed values of endogenous variables. A Q^2 value greater than zero indicates adequate predictive relevance, whereas values equal to or below zero indicate poor predictive capability (Hair, Jr. et al., 2022).

The strength of predictive relevance is classified as follows:

- $Q^2 = 0.02$: weak
- $Q^2 = 0.15$: moderate

- $Q^2 \geq 0.35$: strong

Q^2 values are obtained through the blindfolding procedure, which systematically omits portions of the data and predicts them to assess model accuracy.

c. Goodness of Fit (SRMR)

Goodness of Fit (GoF) is an index used to evaluate the overall fit of the PLS-SEM model by integrating the assessment of both the measurement and structural models. GoF is calculated as the square root of the product of Average Variance Extracted (AVE) and R^2 of the endogenous variables.

GoF values are interpreted as:

- 0.10: small fit
- 0.25: medium fit
- 0.36 or higher: large (strong) fit

GoF provides a comprehensive assessment of whether the model is both structurally sound and empirically representative.

Hypothesis Testing

a. Bootstrapping Procedure

Hypothesis testing was conducted by examining statistical significance using the bootstrapping procedure. According to Hair, Jr. et al. (2022), bootstrapping generates t-statistics and p-values to assess the significance of path coefficients. A coefficient is considered statistically significant when the t-statistic exceeds the critical value or when the p-value is below the specified significance level.

Common critical t-values include 1.65 (10%), 1.96 (5%), and 2.57 (1%) for two-tailed tests, and 1.28 (10%), 1.65 (5%), and 2.33 (1%) for one-tailed tests. In this study, a significance level of 5% ($p < 0.05$) was applied.

b. Mediation Analysis in PLS-SEM

Ghozali and Latan (2020) propose a three-step procedure to test mediation effects. First, the direct effect of the independent variable (X) on the dependent variable (Y) must be significant. Second, the effect of X on the mediator (M) must also be significant. Third, both X and M are included simultaneously in the model to assess their effects on Y.

If the direct effect of X on Y becomes insignificant after including the mediator, full mediation is indicated. If the effect remains significant but is reduced, partial mediation is present. Because the Baron and Kenny approach does not directly test the significance of indirect effects, modern PLS-SEM analysis complements this procedure with bootstrapping to directly evaluate indirect path coefficients (Hair, Jr. et al., 2022).

Structural Model Equations (Inner Model)

$$OCB = \beta_1 \cdot OC + \beta_2 \cdot POS + \beta_3 \cdot KS + \zeta_1$$

$$IB = \beta_4 \cdot OC + \beta_5 \cdot POS + \beta_6 \cdot KS + \beta_7 \cdot OCB + \zeta_2$$

Abbreviations:

OC: Organizational Commitment

POS: Perceived Organizational Support

KS: Knowledge Sharing
SERB: Spiritual Extra-Role Behavior
IB: Innovative Behavior

Discussion

The findings suggest that innovative behavior among lecturers in pesantren-based PTKI is shaped by a complex interaction between organizational factors and spiritual values. While organizational commitment, support, and knowledge sharing provide structural and relational foundations, SERB functions as a motivational mechanism that transforms these factors into sustained innovation. This explains why previous studies reported inconsistent results when spiritual dimensions were excluded.

In line with workplace spirituality theory (Giacalone & Jurkiewicz, 2015), SERB enhances intrinsic motivation, sense of purpose, and collective responsibility, which are crucial in pesantren-based institutions. The results also address concerns regarding compulsory citizenship behavior (Abukhait et al., 2023), showing that spiritually grounded extra-role behavior strengthens rather than undermines innovative capacity.

Conclusion

This study demonstrates that organizational commitment, perceived organizational support, and knowledge sharing significantly influence lecturers' innovative behavior, both directly and indirectly through Spiritual Extra-Role Behavior (SERB). The introduction of SERB as a mediating construct represents a key theoretical contribution by integrating organizational citizenship behavior with workplace spirituality within the context of pesantren-based Islamic higher education institutions.

The findings highlight that innovation in PTKI is not merely a technical or managerial process, but a value-driven phenomenon rooted in spiritual meaning, collective culture, and organizational relationships. Practically, PTKI leaders should foster supportive organizational climates, strengthen collaborative knowledge-sharing practices, and cultivate spiritually meaningful work environments to enhance sustainable academic innovation.

Future research is encouraged to test the SERB construct in other cultural and institutional contexts and to employ longitudinal designs to capture dynamic changes in innovative behavior over time.

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