

## THE INFLUENCE OF PROFESSIONAL EDUCATION EXPERIENCE ON INNOVATIVE WORK BEHAVIOR OF TEACHER PROFESSIONAL EDUCATION ALUMNI

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### ABSTRACT

This study aims to examine the effect of professional education experience on the innovative work behavior of teachers who are alumni of the Teacher Professional Education (PPG) program at Universitas Negeri Jakarta (UNJ). This study employed a quantitative approach using a survey method. Data were collected through questionnaires distributed to in-service PPG alumni at UNJ who had completed the program. The data were analyzed using Partial Least Square Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software. The results of the study indicate that professional education experience has influence on teachers' innovative work behavior. The greater the professional education experience gained during the PPG program, the higher the tendency for teachers to demonstrate innovative work behavior in their workplaces. These findings imply that the implementation of the PPG program can enhance teachers' abilities to address learning challenges through the application of new ideas that are relevant to students' needs.

**Keywords: Professional education experience, Innovative work behavior, Teacher professional education**

### ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh pengalaman pendidikan profesi terhadap perilaku kerja inovatif pada guru alumni Pendidikan Profesi Guru (PPG) di Universitas Negeri Jakarta (UNJ). Penelitian ini menggunakan pendekatan kuantitatif dengan metode survei. Pengumpulan data dilakukan melalui penyebaran kuesioner kepada alumni PPG Dalam Jabatan di UNJ yang telah menyelesaikan programnya. Teknik analisis data yang digunakan adalah Partial Least Square Structural Equation Modeling (PLS-SEM) dengan bantuan perangkat lunak SmartPLS. Hasil penelitian menunjukkan bahwa pengalaman pendidikan profesi berpengaruh terhadap perilaku kerja inovatif guru. Semakin tinggi pengalaman pendidikan profesi yang diperoleh guru selama mengikuti program PPG, maka semakin tinggi pula kecenderungan guru dalam menerapkan perilaku kerja yang inovatif di lingkungan kerjanya. Temuan ini memberikan implikasi bahwa pelaksanaan PPG mampu meningkatkan kemampuan guru dalam menghadapi tantangan pembelajaran melalui penerapan ide-ide baru yang relevan dengan kebutuhan peserta didik.

**Kata kunci: Pengalaman pendidikan profesi, Perilaku kerja inovatif, Pendidikan profesi guru**

## INTRODUCTION

Indonesian education still faces serious challenges in terms of quality, one of which is reflected in the low score in the 2022 PISA study, where Indonesia ranked 69th out of 80 countries (Goodstats, 2024). This low performance reflects weaknesses in various aspects of education, particularly teacher quality. Amidst digital transformation and the demands of the 21st century, teachers are required not only to be pedagogically competent but also to be able to innovate in the teaching and learning process. Teacher innovation is a crucial element in increasing the effectiveness of adaptive, creative, and technology-based learning. Therefore, it is important to examine the factors that can shape teachers' innovative work behavior, one of which is the experience gained during the Teacher Professional Education Program (PPG) (Siew, 2018).

This research focuses on alumni teachers of the In-Service Teacher Professional Education Program (PPG) at Jakarta State University (UNJ), specifically the second wave in 2024. UNJ was chosen because it has received A accreditation from BAN-PT and was named the best PPG organizer nationally (Harususilo, 2024). The respondents in this study were teachers with at least three years of teaching experience, who are considered to have sufficient professional experience in teaching practices. Against this background, this research is relevant to identify how professional education experiences during the PPG program contribute to the development of innovative work behaviors among teachers.

Several recent studies support the urgency of this research. For example, Sary et al. (2023) showed that digital literacy and teacher self-leadership contributed 58.4% to innovative work behavior. Meanwhile, Sahroni & Subroto (2022) emphasizes the importance of innovative learning in PPG in improving teacher professionalism. Other research by Bakri et al. (2024) identified that creativity, emotional intelligence, organizational support, and ICT literacy significantly influence teacher innovation. However, significant challenges remain, such as low teacher ICT literacy in Indonesia, as evidenced by Fitria (2023) which showed that approximately 60% of teachers were not yet tech-savvy, which further hampers the implementation of innovation in learning.

From a theoretical perspective, various studies have shown that professional experience and training have a positive impact on teachers' innovative abilities. Research by Harun et al. (2021) have consistently found a significant relationship between work experience and innovative behavior. However, most previous studies have focused solely on improving pedagogical competence and have not explicitly examined the relationship between professional education experience and innovative work behavior directly, particularly in the context of PPG alumni. In fact, some research results have shown inconsistencies, where the effect of experience on teacher innovation can vary depending on the implementation context and work environment (Utamy, 2024). This state-of-the-art study enriches the literature by presenting a model of the direct relationship between professional education experience and innovative work behavior among teachers, a topic rarely explored specifically among PPG alumni in Indonesia, particularly at UNJ. This study combines the latest theoretical and empirical approaches in education and work psychology, and utilizes a cutting-edge analytical method, Partial Least Squares Structural Equation Modeling (PLS-SEM), to comprehensively examine the complex relationships between variables.

Therefore, the primary objective of this study is to examine the extent to which professional education experience impacts the innovative work behavior of teachers who are PPG alumni at UNJ. The novelty of this study lies in its focus on direct and contextual relationships, which have not been widely explored in previous research. Key contributions of this study include an empirical basis for developing a PPG curriculum that better supports innovation, strategic recommendations for national education policy, and practical guidance

for educational institutions and teachers in improving the quality of learning through strengthening professionalism and innovation.

## LITERATURE REVIEW

Experience in the Teacher Professional Education Program (PPG) plays a crucial role in shaping teacher competence and professionalism. PPG is designed to prepare prospective educators to possess four core competencies: pedagogical, personality, social, and professional. Professional education is explained by Karmini (2023) refers to a group of occupations that focuses on the process of educating, training and mentoring individuals to improve their knowledge, skills and development. Putra (2024) Further defining professional education experiences includes training, field practice, and academic interactions that provide teachers with opportunities to acquire new knowledge, skills, and behaviors, thereby improving student achievement. Furthermore, understanding the importance of experience in professional education can be explained through the Experiential Learning Theory (ELT) developed by David Kolb in the early 1980s. This theory emphasizes that effective learning is holistic and centered on experience as the primary foundation of the learning process. Within this framework, learning is an active process in which knowledge is created through the transformation of concrete experiences. Kolb (1984) emphasized that in-depth learning experiences not only enhance theoretical understanding but also develop practical skills essential for application in the workplace, including supporting innovative work behaviors in educational settings. To measure the quality of experience in professional education, (Nurmansyah, 2020) identified several indicators that can be used: the relevance of training materials, training facilities, instructor capabilities, methods used, and training evaluation.

According to Lee & Song (2020) innovative behavior is defined as actions such as planning and securing resources carried out to identify problems and generate ideas or solutions to solve them and turn them into reality. In the educational context, Acquah et al. (2024) asserted that teacher innovative behavior is defined as voluntary actions carried out by teachers to develop and/or adopt new ideas, processes, products, or procedures that are significant for improving learning practices. This understanding is in line with the Theory of Planned Behavior (Ajzen, 1991), which states that the intention to behave innovatively is not only determined by an individual's attitude towards the behavior and the subjective norms of their social environment, but also by the individual's perception of their ability to control the behavior (perceived behavioral control). Thus, teacher innovative behavior emerges as a result of the interaction between personal intentions, social support, and beliefs in one's own abilities in facing the challenges of innovation in the educational environment. According to Bakri et al. (2024), indicators of innovative work behavior are Exploring opportunities, Generating ideas, Searching for new ideas, Creating innovative ideas, Promoting ideas, Realizing ideas, and Reflecting on ideas.

## METHOD

This study uses a quantitative approach. Data were collected through a survey using a questionnaire consisting of 26 statements on a Likert scale ranging from 1 to 5 (Sugiyono, 2023). This study only tests one main hypothesis, namely that Professional Education Experience has a positive and significant effect on Teachers' Innovative Work Behavior. The study population was all 4,692 alumni of the In-Service Teacher Professional Education Program (PPG) Wave 2 in 2024 at Universitas Negeri Jakarta (UNJ). The study sample consisted of 370 alumni of the In-Service PPG Wave 2 in 2024. The sample criteria were alumni who had attended and completed the PPG and had at least 3 years of teaching experience. The sampling technique used purposive sampling with the Yamane formula (1967) at a 5% error rate. The sample was selected specifically based on the criteria of teaching

experience and PPG alumni status. Table 1 shows that female respondents outnumber male respondents. Specifically, 196 participants (52.97%) were female, while 174 participants (47.03%) were male. Most In-Service PPG alumni at UNJ participating in this study, therefore, are women. The data analysis technique in this study used the Partial Least Square Structural Equation Modeling (PLS-SEM) method with Smart-PLS software, which includes descriptive analysis and Partial Least Square (PLS) analysis.

Table 1. Number of Respondents by Gender

Category	Number	Percentage
Male	174	47,03 %
Female	196	52,97 %
Total	370	100%

Source: data processed by researchers (2025)

## RESULTS AND DISCUSSION

### Descriptive Analysis

Based on Table 2, the data indicate that most participants rated their professional education experience as very good, with a mean score of 4.44. This suggests positive perceptions that are quite consistent across the sample, as shown by a standard deviation of 0.64. Similarly, teachers reported high scores on innovative work behavior, with an average of 4.37. This pattern implies that innovation is already embedded in their teaching practices. The consistency of these perceptions is evident in the standard deviation, which is only 0.62 with the lowest among all measured variables.

Table 2. Minimum, Maximum, Average, and STDEV Values

Variables	n	Minimum	Maximum	Average	STDEV
Professional Education Experience	370	1	5	4.443822394	0.6368749
Teachers' Innovative Work Behavior	370	1	5	4.366486486	0.619378056

Source: data processed by researchers (2025)

### Analisis Partial Least Square (PLS)

#### *Evaluation of Measurement Model (Outer Model)*

#### *Convergent Validity*

Based on Table 3, all indicators in this study achieved good convergent validity. Each item had an outer loading value of at least 0.70. Specifically, for the Professional Education Experience variable, there are 14 indicators with loadings ranging from 0.714 to 0.836. These results confirm that all related items are valid and warrant further analysis. For the Teacher Innovative Work Behavior variable, all ten indicators also met the convergent validity threshold. Outer loading values for these items varied between 0.754 and 0.882.

Table 3. Outer Loadings

Indicator	Professional Education Experience	Teachers' Innovative Work Behavior	Information
X1.1	0.714		Valid
X1.2	0.746		Valid
X1.3	0.792		Valid
X1.4	0.817		Valid
X1.5	0.827		Valid
X1.6	0.78		Valid

Indicator	Professional Education Experience	Teachers' Innovative Work Behavior	Information
X1.7	0.836		Valid
X1.8	0.812		Valid
X1.9	0.821		Valid
X1.10	0.828		Valid
X1.11	0.793		Valid
X1.12	0.794		Valid
X1.13	0.776		Valid
X1.14	0.755		Valid
Y.1		0.83	Valid
Y.2		0.852	Valid
Y.3		0.754	Valid
Y.4		0.882	Valid
Y.5		0.774	Valid
Y.6		0.842	Valid
Y.7		0.877	Valid
Y.8		0.849	Valid
Y.9		0.855	Valid
Y.10		0.866	Valid

Source: data processed by researchers (2025)

In addition to considering the outer loading value as a measure of indicator validity, researchers also assessed convergent validity through the Average Variance Extracted (AVE) value. The AVE value is considered valid if it has a value > 0.5. Based on the results of the AVE test (Table 4), the data show all indicators used to measure the variables in this study have AVE values above 0.5. This indicates that each construct meets the criteria for good convergent validity.

Table 4. Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)
Professional Education Experience	0.629
Teachers' Innovative Work Behavior	0.704

Source: data processed by researchers (2025)

### Discriminant Validity

Discriminant validity aims to test the extent to which each construct in a research model is unique and distinct from other constructs. In other words, each latent variable must be able to explain its own indicators better than the indicators of other constructs. Based on the analysis results in the Fornell-Larcker (Table 5), it can be concluded that both variables in this study have met the criteria for discriminant validity. This is evidenced by the square root of the AVE value, which is greater than the correlation between other constructs. Furthermore, to support this result, the researcher also evaluated discriminant validity through cross-loading analysis, namely by ensuring that each indicator has the highest loading on its original construct compared to loadings on other constructs. This means that the indicators in each latent variable more consistently represent the construct they measure.

Table 5. Fornell Lacker Criterion

	Teachers' Innovative Work Behavior	Professional Education Experience
Teachers' Innovative Work Behavior	0.839	
Professional Education Experience	0.68	0.793

Source: data processed by researchers (2025)

Table 6. Cross-loading

<b>Indicator</b>	<b>Teachers' Innovative Work Behavior</b>	<b>Professional Education Experience</b>
X1.1	0.500	<b>0.714</b>
X1.2	0.476	<b>0.746</b>
X1.3	0.473	<b>0.792</b>
X1.4	0.516	<b>0.817</b>
X1.5	0.580	<b>0.827</b>
X1.6	0.486	<b>0.780</b>
X1.7	0.587	<b>0.836</b>
X1.8	0.565	<b>0.812</b>
X1.9	0.525	<b>0.821</b>
X1.10	0.506	<b>0.828</b>
X1.11	0.594	<b>0.793</b>
X1.12	0.516	<b>0.794</b>
X1.13	0.488	<b>0.776</b>
X1.14	0.660	<b>0.755</b>
Y.1	<b>0.830</b>	0.602
Y.2	<b>0.852</b>	0.630
Y.3	<b>0.754</b>	0.506
Y.4	<b>0.882</b>	0.632
Y.5	<b>0.774</b>	0.490
Y.6	<b>0.842</b>	0.572
Y.7	<b>0.877</b>	0.586
Y.8	<b>0.849</b>	0.551
Y.9	<b>0.855</b>	0.537
Y.10	<b>0.866</b>	0.577

Source: data processed by researchers (2025)

The cross-loading test results show that all outer loadings of the indicators on the related constructs are greater than the cross-loadings on the other constructs (Table 6). It can be concluded that all constructs have good discriminant validity. To complement the discriminant validity test, a Heterotrait-Monotrait Ratio (HTMT) analysis was conducted. HTMT is known to be a more sensitive method for identifying discriminant validity compared to the Fornell-Larcker technique and cross-loading. According to Hair et al. (2021), discriminant validity is considered achieved if the HTMT value between two constructs does not exceed the maximum limit of 0.90. Based on Table 7, all pairs of constructs in the model have met the criteria for discriminant validity, as the HTMT value exceeds 0.90. Therefore, it can be concluded that the constructs in this study have clear differences and there are no discriminant problems.

Table 7. Heterotrait-Monotrait Ratio (HTMT)

<b>Variable</b>	<b>Teachers' Innovative Work Behavior</b>	<b>Professional Education Experience</b>
Teachers' Innovative Work Behavior		
Professional Education Experience	0.704	

Source: data processed by researchers (2025)

### *Reliability Test*

Reliability testing was conducted to demonstrate accuracy and precision in measuring all constructs. In this study, construct reliability was measured using two main indicators: Composite Reliability (CR) and Cronbach's Alpha. Composite reliability and Cronbach's alpha

values are considered reliable if they are greater than 0.7. Based on Table 8, both the Professional Education Experience and Teacher Innovative Work Behavior variables demonstrated excellent reliability. This is indicated by Cronbach's Alpha and Composite Reliability values exceeding 0.95 for both variables, well above the 0.70 threshold. Such results confirm that all indicators show strong internal consistency.

Table 8. Composite Reliability (CR) dan Cronbach's Alpha

Variable	Cronbach's Alpha	Composite Reliability
Teachers' Innovative Work Behavior	0.953	0.96
Professional Education Experience	0.954	0.959

Source: data processed by researchers (2025)

### Evaluation of of Structural Model (Inner Model)

#### *R-Square (R<sup>2</sup>)*

The coefficient of determination (R<sup>2</sup>) is the most commonly used measure to assess the suitability of an inner model. R<sup>2</sup> describes the model's predictive ability, calculated as the square of the correlation between the actual and predicted values of a particular endogenous construct. Based on Table 9, it is known that the R-square value for the variable Teacher Innovative Work Behavior is 0.611, which means that 61.1% of the variability in teacher innovative work behavior can be explained by Professional Education Experience, while the remaining 38.9% is explained by other variables not included in the model. Based on the same guidelines, this R-square value is included in the strong category, because it exceeds the limit of 0.50. Thus, the structural model in this study has quite good predictive power, especially in explaining the variable Teacher Innovative Work Behavior, which indicates that the exogenous constructs in the model are able to explain the variance of the endogenous construct significantly.

Table 9. R-square

Variable	R Square	R Square Adjusted
Teachers' Innovative Work Behavior	0.611	0.609

Source: data processed by researchers (2025)

#### *F Square (f<sup>2</sup>) or Effect Size*

The f-square (f<sup>2</sup>) test is used to evaluate the influence of each independent latent variable on the dependent latent variable in a structural model. This analysis aims to determine the contribution of each exogenous construct to the change in the R-square value of the endogenous construct when one construct is removed from the model. Based on the Table 10, it was obtained that the variable Professional Education Experience on Teachers' Innovative Work Behavior had an f<sup>2</sup> value of 0.226, which is included in the moderate influence category, because it is in the range between 0.15 and 0.35.

Tabel 10. F-square

	F Square
Professional Education Experience => Teachers' Innovative Work Behavior	0.226

Source: data processed by researchers (2025)

#### *Predictive Relevance (Q<sup>2</sup>)*

The Q<sup>2</sup> (Stone-Geisser) test is used to assess the predictive ability of a model. If the Q<sup>2</sup> value is > 0, the model is considered to have good predictive ability (predictive relevance). Conversely, if the Q<sup>2</sup> value is < 0, the model is considered to have inadequate predictive

relevance. Based on the results of the  $Q^2$  test in the table above, it is known that the variable Teacher Innovative Work Behavior obtained a  $Q^2$  value of 0.425. Because this value is greater than 0, it can be concluded that this research model has quite good predictive ability for both endogenous variables. Meanwhile, for the Professional Education Experience variable, the  $Q^2$  value was not calculated because this variable acts as an exogenous variable, so it is not the object of prediction in this model. Thus, the structural model developed in this study is considered to have feasibility in terms of predictive relevance.

Table 11. Predictive Relevance ( $Q^2$ )

Variable	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Teachers' Innovative Work Behavior	3700	2128.061	0.425
Professional Education Experience	5180	5180	

Source: data processed by researchers (2025)

### Path Coefficients

Path coefficients are used to identify the direction and strength of relationships in hypothesis testing. These coefficient values typically range from -1 to +1, although in some cases they can exceed this limit. A value closer to +1 indicates a stronger positive relationship between the variables. Conversely, a value closer to -1 indicates a stronger negative relationship. Based on the path coefficient in Table 12, the relationship between variables in this model shows a positive direction. This indicates that an increase in one variable will be followed by an increase in the other related variables.

Table 12. Path Coefficients

Variable	Teachers' Innovative Work Behavior	Professional Education Experience
Teachers' Innovative Work Behavior		
Professional Education Experience	0.377	

Source: data processed by researchers (2025)

### Model Fit (SRMR)

SRMR measures the average standardized difference between the empirically obtained data covariances and the covariances estimated by the model. The lower the SRMR value, the better the model fits the analyzed data. Based on the output results in the SRMR in Table 13, the Standardized Root Mean Square Residual (SRMR) value for both the Saturated Model and the Estimated Model is 0.052. This value is smaller than the threshold of 0.08, indicating that the structural model in this study has a good level of feasibility (model fit).

Table 13. SRMR

	Saturated Model	Estimated Model
SRMR	0.052	0.052
d_ ULS	1.519	1.519
d_ G	0.649	0.649
Chi-Square	1309.232	1309.232
NFI	0.871	0.871

Source: data processed by researchers (2025)

## Hypothesis Testing

### Direct Effect Hypothesis Testing

Based on the results of direct hypothesis testing (Table 14), all T-statistic values in the model have passed the minimum threshold of 1.960 according to the standard one-way

significance test at a significance level of 5%. In the hypothesis test, the variable Professional Education Experience → Teacher Innovative Work Behavior has a positive influence with a coefficient value of 0.377, a T-statistic of 5.915, and a p-value of 0.000. Thus, this hypothesis is accepted. These results indicate that the better the professional education experience a teacher has, the more likely they are to demonstrate innovative work behavior in their teaching activities.

Table 14. Direct Effect Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Professional Education Experience => Teachers' Innovative Work Behavior	0.377	0.373	0.064	5.915	0

Source: data processed by researchers (2025)

## Discussion

Professional education experience is a crucial factor shaping teachers' innovative behavior in the workplace. This professional education includes teacher participation in training, certification, workshops, competency development activities, and involvement in continuing education programs (Acquah et al. 2024). Through these experiences, teachers gain new insights, develop cutting-edge pedagogical skills, and access to best practices relevant to today's learning challenges. Exposure to collaborative and transformative learning environments encourages teachers to reevaluate their teaching methods and is motivated to try new approaches (Lee & Song, 2020). Thus, professional education experience not only enhances knowledge but also fosters awareness of the importance of innovation in enhancing the effectiveness of the teaching and learning process.

Furthermore, this experience also strengthens teachers' capacity to become agents of change in their educational institutions. Teachers who regularly participate in professional development programs tend to be more open to technology, more responsive to student needs, and better prepared to conduct pedagogical experiments that support the achievement of better learning outcomes. This is reflected in innovative work behaviors, such as creating creative teaching materials, modifying learning strategies according to the context, and contributing to school system improvement through new ideas. Previous research also shows that teachers with more extensive professional experience are more likely to demonstrate initiative, flexibility, and resilience in facing educational dynamics (Sahroni & Subroto, 2022). Therefore, it can be concluded that professional educational experience plays a significant role in facilitating and encouraging teachers' innovative behavior in the workplace.

## CONCLUSION AND RECOMMENDATION

This study found that professional education experience has a positive and significant influence on teachers' innovative work behavior. This means that teachers with good professional education experience tend to be more capable of demonstrating innovative attitudes and actions in carrying out their duties. The results of the SEM-PLS analysis also indicate that the research model used is valid and statistically accountable. PPG organizers are expected to continue refining their curriculum and learning methods to enrich the experiences of participants, particularly in instilling professional values and encouraging innovation. Future researchers are advised to explore other variables such as organizational support, work motivation, or the school environment, and to expand the research locations to make the results more general and applicable across various educational contexts.

This study makes an important contribution to the development of teacher professional education. PPG program organizers are expected to improve the quality of the learning experience, particularly in strengthening professional competencies. Furthermore, these findings encourage educational institutions to build a culture of innovation among teachers as part of efforts to continuously improve the quality of education. This study is limited by the sample size, which only involved alumni of the In-Service PPG program at UNJ, so the results cannot be widely generalized. In addition, the research only focused on one variable, whereas there are many other factors that have the potential to influence teachers' innovative work behavior that have not been studied.

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