

Training and Teacher Professional Development: A Correlational Study at a Public University in the Peruvian Amazon

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Resumen

La formación investigativa es un factor clave para fortalecer la calidad educativa y el desarrollo profesional en la educación superior. El presente estudio tuvo como objetivo analizar la relación entre la formación investigativa y el desarrollo profesional de docentes de pregrado de la Universidad Nacional de la Amazonia Peruana, ubicado en Iquitos. Se desarrolló una investigación con enfoque cuantitativo, con diseño no experimental, transversal y correlacional. La muestra estuvo conformada por 80 docentes universitarios, a quienes se aplicaron cuestionarios estructurados con escalas tipo Likert. El análisis de datos se realizó mediante estadística descriptiva y la prueba Rho de Spearman, considerando la no normalidad de los datos. Los resultados evidenciaron una relación positiva y estadísticamente significativa entre la formación investigativa y el desarrollo profesional docente ($Rho = 0,388$; $p < 0,001$), aunque de intensidad baja. Asimismo, se identificaron asociaciones significativas entre la formación investigativa y las dimensiones pedagógica, teleológica y deontológica del desarrollo profesional. Estos hallazgos indican que el fortalecimiento de competencias investigativas favorece el desempeño integral del docente universitario y contribuye a consolidar prácticas académicas orientadas a la mejora continua y la calidad educativa. Se concluye que la formación investigativa constituye un componente estratégico para el fortalecimiento del desarrollo profesional docente en universidades públicas latinoamericanas. El estudio aporta evidencia empírica relevante para el diseño de políticas institucionales dirigidas a la capacitación investigativa y la profesionalización docente en educación superior.

Palabras clave: Formación investigativa; desarrollo profesional docente; educación superior; investigación formativa; universidad pública.

Abstract

Research training is a key factor in strengthening educational quality and professional development in higher education. This study aimed to analyze the relationship between research training and the professional development of undergraduate faculty at the National University of the Peruvian Amazon, located in Iquitos. A quantitative, non-experimental, cross-sectional, and correlational study was conducted. The sample consisted of 80 university faculty members, who completed structured questionnaires with Likert-type scales. Data analysis was performed using descriptive statistics and Spearman's rho test, taking into account the non-normality of the data. The results showed a positive and statistically significant relationship between research training and faculty professional development ($Rho = 0.388$; $p < 0.001$), although of low intensity. Significant associations were also identified between research training and the pedagogical, teleological, and deontological dimensions of professional development. These findings indicate that strengthening research skills enhances the overall performance of university faculty and contributes to consolidating academic practices geared toward continuous improvement and educational quality. It is concluded that research training is a strategic component for strengthening faculty professional development in Latin American public universities. The study provides relevant empirical evidence for the design of institutional policies aimed at research training and faculty professionalization in higher education.

Keywords: Research training; faculty professional development; higher education; formative research; public university

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INTRODUCTION

Research training and teacher professional development constitute key components for strengthening higher education, especially in the context of public universities, where institutional, pedagogical, and social challenges demand teachers with strong and continuously updated research competencies. In this regard, the integration of research into teaching practice not only contributes to improving teaching and learning processes, but also promotes the professional growth of university teachers and the generation of knowledge relevant to their educational context.

Several studies have indicated that research training enables teachers to develop critical, reflective, and methodological capacities that positively impact their professional performance [43], [15], [25]. From this perspective, formative research is configured as a cross-cutting axis in higher education, as it promotes research competencies, analytical skills, and favorable attitudes toward scientific production, which are fundamental aspects for meeting the current demands of the university and the knowledge society.

Teacher professional development, in turn, is understood as a continuous process that involves pedagogical, teleological, and deontological dimensions, aimed at improving teaching performance, continuous updating, and ethical commitment to the educational function [1], [27], [22].

Although research highlights the relevance of research training and its link to teacher professional development, most studies have focused on international contexts or on educational levels other than Latin American public higher education [4], [5], [7] [6]. In the Peruvian case, and particularly in public universities located in Amazonian regions, empirical evidence on this relationship is still limited, making it difficult to understand how research training is linked to the professional development of university teachers in these specific contexts.

According to [35] and [36], in the university context, professional development goes beyond the mere acquisition of disciplinary content, as it involves the strengthening of research competencies, innovation in pedagogical practice, and continuous critical reflection, aimed at improving the quality of educational processes. Within this framework, it is pertinent to empirically analyze the relationship between research training and teacher professional development, considering its main dimensions and providing contextualized evidence from a public university in Iquitos. The objective of this study is to analyze the relationship between research training and the professional development of undergraduate teachers at a public university in Iquitos, contributing to the academic debate on the role of formative research in strengthening teaching performance in higher education.

THEORETICAL FRAMEWORK

Research Training in Higher Education

Research training in higher education is conceived as a process aimed at the development of competencies, skills, and attitudes that enable teachers to actively participate in the generation of knowledge and the improvement of their educational practice. Various authors agree that formative research constitutes a cross-cutting axis in the contemporary university, as it promotes critical thinking, systematic reflection, and the ability to address educational problems through scientific approaches [44], [34], [13]. In the university context, research training is not limited to the acquisition of methodological knowledge, but rather integrates cognitive, procedural, and attitudinal dimensions that strengthen the professional performance of teachers [43], [2]. These dimensions include the knowledge and application of research methods, the appropriate use of techniques and instruments for the collection and analysis of information, as well as an ethical and critical attitude toward the generation of scientific knowledge [50], [47].

Likewise, recent studies highlight that the research training of university teachers is strengthened when there is an institutional culture that promotes research, continuous updating, and the integration of teaching and research [25], [30]. In this regard, research training is configured as a key component of professional development and educational quality in public universities.

Teacher Professional Development in the University

Teacher professional development is understood as a continuous and dynamic process that encompasses the updating of knowledge, the strengthening of pedagogical competencies, and ethical commitment to the educational function. In the university context, this development implies not only disciplinary mastery, but also the ability to innovate, reflect on practice, and respond to institutional and social challenges [1], [48]. Various approaches agree that teacher professional development is structured into multiple dimensions. Among the most relevant are the pedagogical dimension, aimed at improving teaching and learning strategies; the teleological dimension, related to the clarity of educational purposes and alignment with institutional objectives; and the deontological dimension, linked to the ethical and responsible practice of the teaching profession [27], [22].

Recent studies highlight that teacher professional development is enhanced when teachers participate in continuous training processes, educational research, and collaborative reflection, elements that contribute to improving their performance and their commitment to the quality of higher education [10], [46].

Relationship Between Research Training and Teacher Professional Development

The relationship between research training and teacher professional development has been addressed by various studies that demonstrate a positive association between these two variables. Research training enables teachers to strengthen competencies that directly impact their pedagogical performance, their capacity for innovation, and their ethical commitment to the profession [8], [42].

From this perspective, formative research is configured as a means of professional development, as it promotes processes of self-evaluation, continuous improvement, and continuous updating of university teachers. Studies conducted in Latin American contexts indicate that teachers with greater research training demonstrate higher levels of professional performance and greater involvement in academic and scientific activities [20], [32].

However, the magnitude of this relationship may vary depending on the institutional context, university policies, and existing professional development conditions, which justifies the need for empirical studies that analyze this relationship in public universities with specific characteristics.

Context of the Public University in Iquitos

Public universities located in Amazonian regions face particular challenges related to institutional limitations, access to research resources, and opportunities for continuous teacher training. In this context, research training acquires a relevant role in strengthening teacher professional development and contributing to the improvement of educational quality [15], [14].

The reality of the public university in Iquitos demands strategies that promote formative research and professional development, taking into account the sociocultural and educational characteristics of the environment. Analyzing the relationship between these two variables in this context makes it possible to provide empirical evidence that contributes to institutional decision-making and the strengthening of public higher education.

Approaches and Models Underpinning the Study

The study is based on approaches that conceive research training as a comprehensive process that integrates knowledge, skills, and attitudes, considering formative research as a key element for strengthening teaching practice and generating relevant knowledge [18], [39]. Likewise, teacher professional development is approached from a holistic perspective that integrates pedagogical, teleological, and deontological dimensions, and recognizes research as an articulating axis of professional growth. From these approaches, the relationship between research training and professional development is understood as a dynamic process that contributes to improving the quality of higher education and the performance of university teachers.

METHODOLOGY

Research Approach

The study was conducted at the National University of the Peruvian Amazon (UNAP), under a quantitative approach, aimed at the collection and analysis of numerical data in order to identify the relationship between research training and teacher professional development. A non-experimental, cross-sectional, and correlational design was adopted, in which the variables were analyzed as they occurred in their natural context, without intentional manipulation by the researchers. This design, partially adapted from [31], made it possible to examine the existing association between the variables at a single point in time, providing empirical evidence of their behavior in the context of a public university.

a) Participants

The population consisted of 570 university teachers who teach undergraduate programs at a public university in Iquitos. The sample consisted of 80 teachers, selected through non-probability sampling, belonging to the Faculties of Education, Law, and Administration, corresponding to the final academic cycles.

b) Instruments

Structured questionnaires were used for data collection, designed to measure the study variables using Likert-type scales with four response categories: never (1), sometimes (2), often (3), and always (4).

The research training variable was assessed through a questionnaire that considers three dimensions: research competencies, research skills, and research attitudes. In turn, teacher professional development was measured through a questionnaire that includes the pedagogical, teleological, and deontological dimensions.

c) Procedure

Data collection was carried out through the administration of the questionnaires in both physical and digital formats. Prior to this, the participants were informed about the objectives of the study, and the confidentiality of the information, as well as voluntary participation through the signing of informed consent, was guaranteed. The questionnaires were completed in a controlled environment, with the necessary support provided to clarify any questions that arose during the process.

d) Data Analysis

The collected data were organized into a data matrix and analyzed using descriptive statistics, employing frequencies and percentages. Prior to this, the Kolmogorov–Smirnov normality test was applied, determining the non-normality of the data. Consequently, Spearman's rho correlation coefficient was used to analyze the relationship between the variables and their dimensions. Statistical processing was performed using SPSS version 27 software and Microsoft Excel.

e) Ethical Considerations

The study was conducted in accordance with the ethical principles established for scientific research. The confidentiality of the information, the responsible use of the data, and respect for the voluntary participation of

the teachers were guaranteed, in accordance with institutional ethical standards and the guidelines established for research in the field of education.

RESULTS

Table 1. Research Training

	Frequency	Percentage
Never	1	1.3
Sometimes	4	5.0
Often	27	33.8
Always	48	60.0
Total	80	100.0

Source: Prepared by the authors.

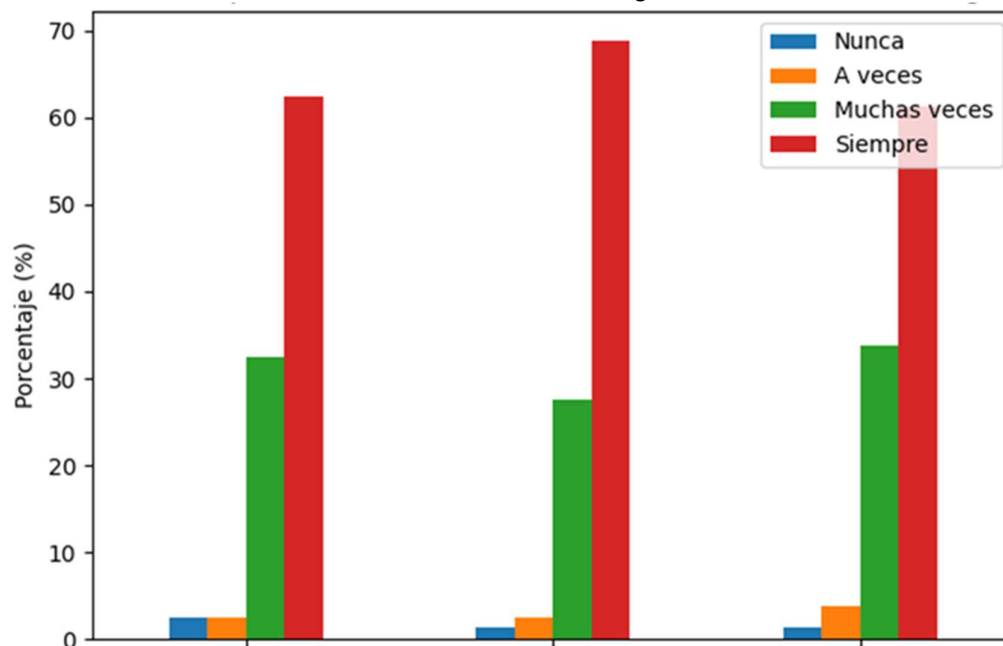
The descriptive results show that the majority of the teachers exhibit high levels of research training. As shown in Table 1, 60.0% of the teachers indicated that they always participate in research training activities, while 33.8% reported doing so often. These results demonstrate a favorable trend toward formative research among the teachers at the public university analyzed.

Table 2. Frequency Analysis of the Dimensions of Research Training

Dimensions	Never		Sometimes		Often		Always		Total	
	n	%	n	%	n	%	n	%	n	%
Research Competencies Dimension	2	2.5	2	2.5	26	32.5	50	62.5	80	100.0
Research Skills Dimension	1	1.3	2	2.5	22	27.5	55	68.8	80	100.0
Research Attitudes Dimension	1	1.3	3	3.8	27	33.8	49	61.3	80	100.0

Source: Prepared by the authors.

Figure 1 illustrates the percentage distribution of the dimensions of research training, namely: research competencies, research skills, research attitudes, and the dimensions of research training.



Source: Prepared by the authors.

In relation to the dimensions of research training, the data presented in Table 2 indicate that the research competencies dimension reaches the highest percentage in the "always" category (62.5%), followed by research skills (68.8%) and research attitudes (61.3%). Taken together, these results reflect a high level of teacher commitment to the development of research-related capacities.

Table 3. Teacher Professional Development

	Frecuencia	Porcentaje
Never	1	1.3
Sometimes	1	1.3
Often	16	20.0
Always	62	77.5
Total	80	100.0

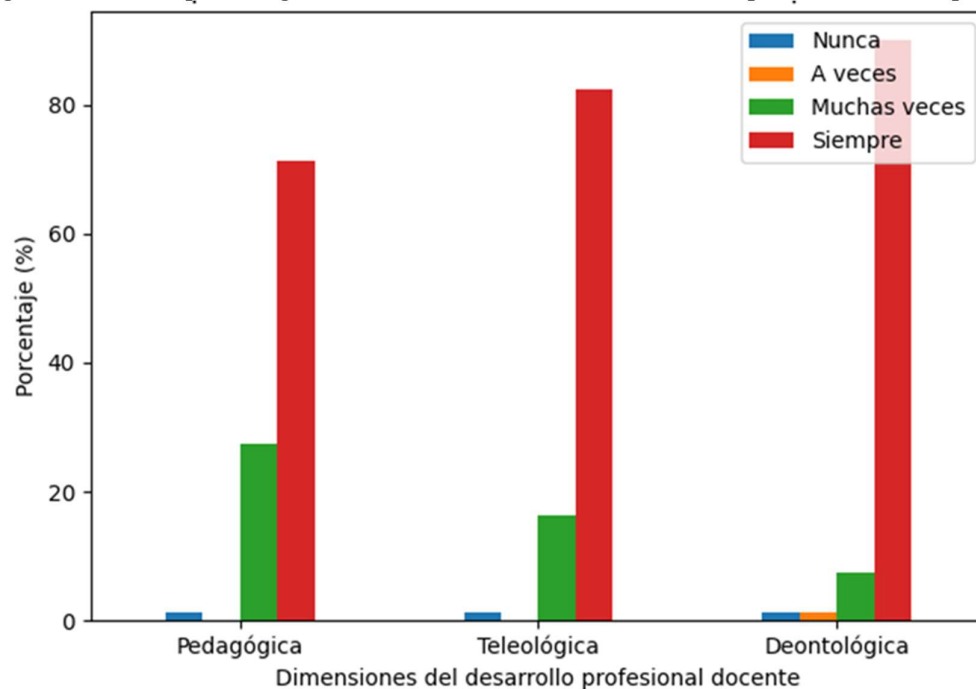
Source: Prepared by the authors.

With respect to teacher professional development, the results show a high frequency of responses at the higher levels. Table 3 shows that 77.5% of the teachers indicated that they always carry out activities aimed at their professional growth, while 20.0% stated that they do so often. This finding suggests that teachers maintain active participation in professional development processes.

Table 4. Frequency Analysis of the Dimensions of Teacher Professional Development

Dimensions	Never		Sometimes		Often		Always		Total	
	n	%	n	%	n	%	n	%	n	%
Pedagogical Dimension	1	1.3	0	0.0	22	27.5	57	71.3	80	100.0
Teleological Dimension	1	1.3	0	0.0	13	16.3	66	82.5	80	100.0
Deontological Dimension	1	1.3	1	1.3	6	7.5	72	90.0	80	100.0

Source: Prepared by the authors.

Figure 2 shows the percentage distribution of the dimensions of teacher professional development.

Source: Prepared by the authors.

Regarding the dimensions of teacher professional development (Table 4), the deontological dimension presents the highest percentage in the "always" category (90.0%), followed by the teleological dimension (82.5%) and the pedagogical dimension (71.3%). These results indicate that teachers not only prioritize pedagogical updating, but also adherence to ethical principles and clarity of educational purposes.

Table 5. Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Competencies research	.180	80	<,.001	.884	80	<,.001

Research skills	.155	80	<,001	.856	80	<,001
Research attitudes	.162	80	<,001	.863	80	<,001
Pedagogical	.189	80	<,001	.859	80	<,001
Teleological	.161	80	<,001	.829	80	<,001
Deontological	.262	80	<,001	.692	80	<,001
Research training	.158	80	<,001	.862	80	<,001
Teacher Professional Development	.149	80	<,001	.809	80	<,001

Source: Prepared by the authors.

Prior to the correlational analysis, the Kolmogorov–Smirnov normality test (Table 5) was applied, the results of which showed significance values lower than 0.05 for all the variables analyzed. Consequently, it was determined that the data do not follow a normal distribution, justifying the use of non-parametric statistical tests.

Table 6. Relationship Between Research Training and Teacher Professional Development.

			Research Training	Teacher Professional Development
Rho de Spearman	Research Training	Correlation coefficient	1.000	.388**
		Sig. (bilateral)	.	<,001
		N	80	80
	Teacher Professional Development	Correlation coefficient	.388**	1.000
		Sig. (bilateral)	<,001	.
		N	80	80

** The correlation is significant at the 0.01 level (bilateral).

Source: Prepared by the authors.

The relationship between research training and teacher professional development was analyzed using Spearman's rho correlation coefficient. The results showed a significant, weak, and positive relationship between the two variables (Rho = 0.388; $p < 0.001$), as presented in Table 6. This result confirms the existence of a statistically significant association between research training and teacher professional development.

Table 7. Relationship Between Research Training and the Pedagogical Dimension.

			Research Training	Pedagogical dimension
Rho de Spearman	Research Training	Correlation coefficient	1.000	.276*
		Sig. (bilateral)	.	.013
		N	80	80
	Dimension Pedagogical	Correlation coefficient	.276*	1.000
		Sig. (bilateral)	.013	.
		N	80	80

*. The correlation is significant at the 0.05 level (bilateral).

Source: Prepared by the authors.

Regarding the specific hypotheses, the results indicate a significant relationship between research training and the pedagogical dimension of teacher professional development (Rho = 0.276; $p = 0.013$), demonstrating a weak and positive association (Table 7).

Table 8. Relationship Between Research Training and the Teleological Dimension.

			Research Training	Pedagogical dimension
Rho de Spearman	Research Training	Correlation coefficient	1.000	.276*
		Sig. (bilateral)	.	.013
		N	80	80
	Dimension Pedagogical	Correlation coefficient	.276*	1.000
		Sig. (bilateral)	.013	.
		N	80	80

*. The correlation is significant at the 0.05 level (bilateral).

Source: Prepared by the authors.

Likewise, a significant relationship was identified between research training and the teleological dimension ($Rho = 0.398$; $p < 0.001$), representing the strongest association among the dimensions analyzed (Table 8).

Table 9. Relationship Between Research Training and the Deontological Dimension.

		Research Training		Deontological dimension
Rho de Spearman	Research Training	Correlation coefficient	1.000	.282*
		Sig. (bilateral)	.	.011
		N	80	80
	Dimension Deontological	Correlation coefficient	.282*	1.000
		Sig. (bilateral)	.011	.
		N	80	80

*. The correlation is significant at the 0.05 level (bilateral).

Source: Prepared by the authors.

Finally, the results show a significant relationship between research training and the deontological dimension ($Rho = 0.282$; $p = 0.011$), indicating a weak and positive association between the two variables (Table 9).

DISCUSSION

The results indicate that the majority of teachers demonstrate high levels of research training, with 60% always participating in training activities and 33.8% participating frequently. Regarding the dimensions of research training, research competencies recorded the highest proportion in the "always" category (62.5%), followed by research skills (68.8%) and research attitudes (61.3%).

Regarding teacher professional development, it was observed that 77.5% of teachers always engage in activities aimed at their professional growth, while 20% do so frequently. The dimensions of teacher professional development show that the deontological dimension is the most prioritized (90%), followed by the teleological (82.5%) and pedagogical (71.3%) dimensions. The Kolmogorov-Smirnov normality test showed that the data do not follow a normal distribution, justifying the use of non-parametric tests. Correlational analysis using Spearman's rho revealed a significant, weak, and positive relationship between research training and teacher professional development ($Rho = 0.388$; $p < 0.001$). Among the dimensions, the strongest association was found with the teleological dimension ($Rho = 0.398$; $p < 0.001$), followed by the deontological ($Rho = 0.282$; $p = 0.011$) and pedagogical ($Rho = 0.276$; $p = 0.013$) dimensions.

According to [42] and [8], the correlation found ($Rho = 0.388$) is consistent with previous research indicating that research training contributes to teacher professional development but does not operate in isolation. In this regard, various authors argue that formative research should be integrated into a broader process that includes favorable institutional conditions, continuing professional development policies, and genuine opportunities for academic and scientific participation [9], [11], [12].

According to [3], [43], [16], and [19], research training strengthens critical thinking and the competencies

required to support teaching practice with scientific evidence. However, the moderate relationship with teacher professional development indicates that these advances do not always translate directly into improvements in performance, highlighting the need for greater integration among research, teaching, and university management [40], [41].

Regarding teacher professional development, the results show high levels across its pedagogical, teleological, and deontological dimensions, reflecting a significant commitment among teachers to their professional growth and the ethical practice of their work. These findings are consistent with those reported by [1], [22], and [21], who state that teacher professional development is not limited to pedagogical updating but also includes the clear definition of educational purposes and adherence to ethical principles in the practice of university teaching.

The dimensional analysis provides a more precise understanding of the relationship between research training and teacher professional development, revealing a significant and moderate association with the pedagogical dimension. This indicates that research contributes to improving teaching strategies, promoting reflection on teaching practice, and fostering innovation, in accordance with [27], [23], and [24].

The strongest relationship was observed with the teleological dimension, indicating that research training contributes more directly to the clarity of educational purposes, alignment with institutional objectives, and understanding of the teacher's role in achieving university goals, consistent with [29], [38], and [33]. In turn, a significant, although weak, relationship was identified with the deontological dimension, suggesting that research also strengthens teachers' ethical commitment, as reported by [27], [26], and [28]. In agreement with [37], [45], [49], [50], [17], and [47], research training constitutes a fundamental component of teacher professional development, as it promotes processes of critical reflection, collaborative work, and continuous improvement supported by scientific evidence.

CONCLUSIONS

There is a significant, weak, and positive relationship between research training and teacher professional development among undergraduate teachers at a public university in Iquitos. This result confirms that research training is associated with the strengthening of teacher professional development, although its influence is not determinant and depends on other institutional and contextual factors. Research training is significantly related to the pedagogical dimension of teacher professional development, indicating that the strengthening of research competencies contributes to improving teaching practices, reflection on teaching practice, and educational innovation, although with moderate intensity. A significant, weak, and positive relationship was also found between research training and the teleological dimension, representing the strongest association among the dimensions analyzed. This finding suggests that research training promotes greater clarity regarding educational purposes, alignment with institutional objectives, and a better understanding of the teacher's role within the university. Likewise, a significant, weak, and positive relationship was identified between research training and the deontological dimension of teacher professional development, indicating that formative research is associated with strengthening the ethical commitment and professional responsibility of university teachers. Overall, the results allow the conclusion that research training constitutes a relevant component of teacher professional development in the context of public universities, providing empirical evidence from an institution located in the Peruvian Amazon region and contributing to the understanding of this relationship in educational contexts that have received limited attention.

RECOMMENDATIONS

It is recommended that public universities strengthen teacher research training programs by systematically integrating formative research into training and professional development processes, with the aim of enhancing not only research competencies but also pedagogical performance, clarity of educational purposes, and the ethical commitment of university teachers.

It is advisable to promote institutional policies that integrate teaching and research by creating spaces and conditions that facilitate teachers' active participation in research projects, academic networks, and scientific activities, so that research training has a more significant impact on their professional development.

It is suggested that future research further examine the relationship between research training and teacher professional development by incorporating additional institutional and organizational factors, as well as the use of mixed-methods approaches to provide a more comprehensive understanding of the processes that influence the professional growth of university teachers.

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