

The Relationship Between Research Abilities and Professional Development of Teachers with the Mediating Role of Motivation and Research Self-Efficacy

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Abstract

Purpose: This study investigates the relationship between teachers' research abilities and their professional development, with particular emphasis on the mediating roles of research motivation and research self-efficacy among primary school teachers.

Methodology: A descriptive-analytical, correlational design was employed using variance-based structural equation modeling (PLS-SEM). The statistical population consisted of 4,269 primary school teachers in Kermanshah during the 2023–2024 academic year, from which 352 participants were selected through convenience sampling. Standardized questionnaires were used to measure the key variables, and reliability was confirmed through Cronbach's alpha: professional development (0.959), research self-efficacy (0.987), research abilities (0.986), and research motivation (0.922). Data were analyzed using SPSS and SmartPLS software.

Findings: Results indicated that research abilities exerted a significant direct effect on professional development, as well as indirect effects via research motivation and research self-efficacy. Moreover, research abilities significantly influenced both motivation and self-efficacy, which in turn positively affected professional development.

Conclusion: Strengthening teachers' research skills, motivation, and self-efficacy substantially enhances their professional development. These findings underscore the importance of fostering a research-oriented mindset to support sustainable professional growth in educational contexts.

Value: The study provides empirical evidence on the pivotal role of research capabilities in shaping effective and sustained professional development among teachers.

KeyWords: *Research Capabilities, Research Motivation, Research Self-Efficacy, Professional Development*

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Extended Abstract

Introduction: One of the crucial processes in human resource management within educational organizations is the professional development of teachers. Professional development helps teachers achieve greater effectiveness in the teaching and learning process and contributes to educational quality. Hence, identifying the variables associated with teachers' professional growth is of paramount importance. In this regard, the present research investigates the relationships between teachers' research capabilities and professional development, with a particular focus on the mediating roles of research motivation and research self-efficacy among elementary school teachers.



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Methodology: This research was quantitative in approach, developmental in objective, and correlational in terms of data collection. A variance-based structural equation modeling (PLS-SEM) method was applied to examine the relationships between the dependent, independent, and mediating variables. The study population comprised 4,269 elementary school teachers in Kermanshah during the 2023–2024 academic year. From this group, 352 teachers were selected through convenience sampling.

Data collection instruments included:

Professional Development Questionnaire (Ayobi, 2014),

Research Self-Efficacy Questionnaire (Salehi, 2011),

Research Capabilities Questionnaire (Aramon, Sadeghi Arani, & Ardeirani, 2009), and

Research Motivation Questionnaire (Salehi, 2011).

Data were analyzed using SPSS and SmartPLS software. Reliability and validity of the measurement instruments were confirmed through Cronbach's alpha, composite reliability, factor loading coefficients, convergent validity, and discriminant validity.

Findings: The findings showed that the professional development model based on research capabilities, with the mediating role of research motivation and research self-efficacy, demonstrated good fit with the empirical data. All path coefficients between variables were statistically significant at the 95% confidence level, and model fit indices supported the alignment of the conceptual and empirical models (Figures 1 and 2).

Reliability and validity tests: Cronbach's alpha values for all constructs were above the acceptable threshold of 0.70 (except for the "fishing" component). Composite reliability values were also above 0.70 for most components, indicating strong internal consistency. Convergent validity (measured by AVE) was acceptable, with values of 0.594 for research motivation, 0.571 for research capabilities, 0.581 for self-efficacy, and 0.574 for professional development. Discriminant validity was also within acceptable limits.

Structural model evaluation: Four criteria were examined: multicollinearity, path coefficients, effect size (f^2), and importance-performance analysis.

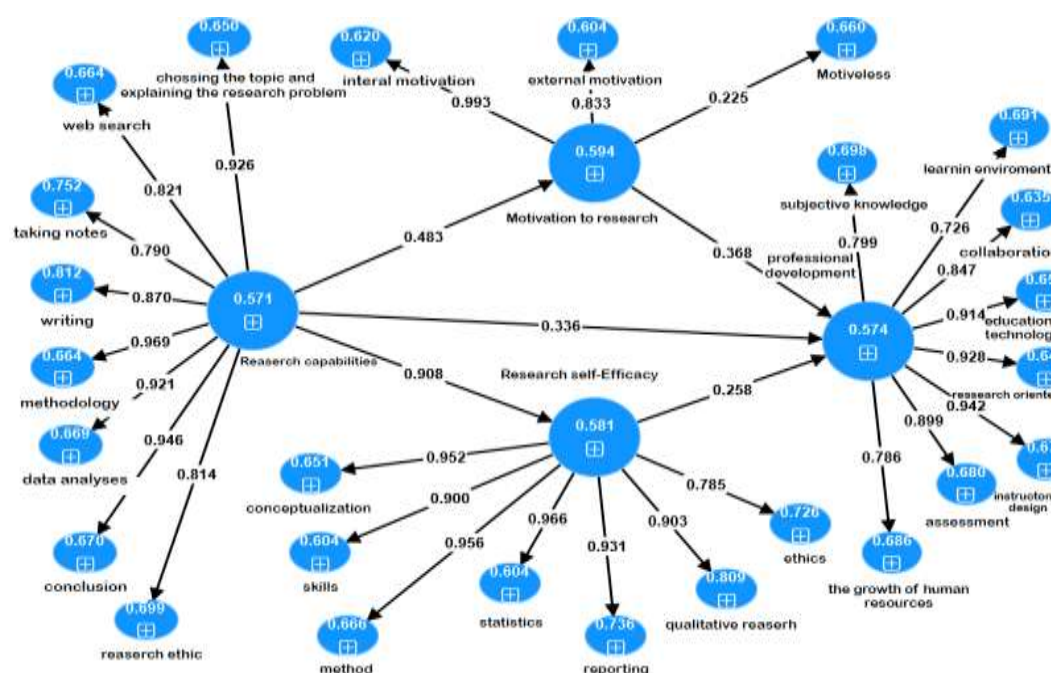


Figure 1: Final Structural Model of the Research Based on the Conceptual Model with Significant Path Coefficients

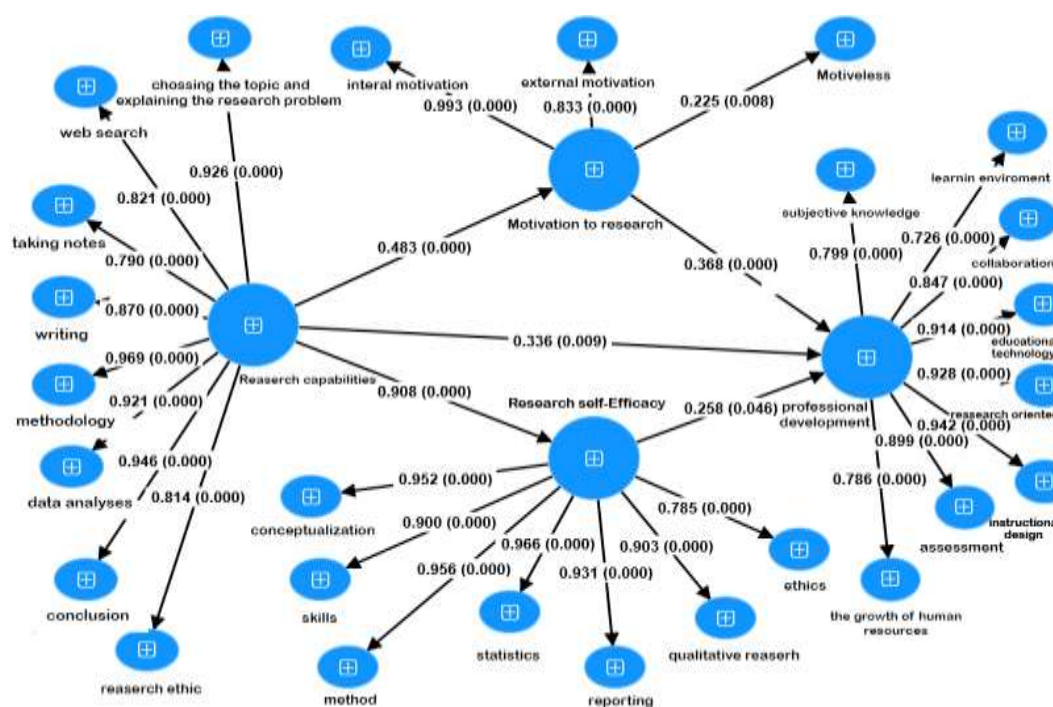


Figure 2: Final Structural Model of the Research Based on the Conceptual Model with Values

Table 1 presents direct and indirect effects, effect sizes, and VIF values. The non-collinearity condition was satisfied, with tolerance values below 0.20 and VIF values greater than 5.

Table 1. Multicollinearity, Direct and Indirect Effects, and Effect Size of the Inner Model in the Research

				Direct effect			Confidence interval		effect size(f ²)	
path				VIF	Values					
Source destination					β	T	Sig	2.5%	97.5%	
Research motivation	->	Professional development		1.342	0.368	7.495	0.000	0.259	0.462	0.323
Self-efficacy	->	Professional development		5.891	0.258	2.001	0.046	0.001	0.488	0.036
Research capabilities	->	Research motivation		1.000	0.483	10.152	0.000	0.390	0.576	0.304
Research capabilities	->	Professional development		5.760	0.336	2.636	0.009	0.102	0.589	0.063
Research capabilities	->	Self-efficacy		1.000	0.908	69.574	0.000	0.881	0.933	4.724
				Indirect Effect						
Research capabilities	->	Research motivation	->	Professional development	0.178	6.268	0.000	0.001	0.440	-
Research capabilities	->	Self-efficacy	->	Professional development	0.234	2.015	0.044	0.126	0.239	

Indirect effects:

Research capabilities → Research motivation → Professional development ($\beta = 0.178$, $T = 6.268$, $p < 0.001$).

Research capabilities → Self-efficacy → Professional development ($\beta = 0.234$, $T = 2.015$, $p = 0.044$).

Effect sizes (f^2) indicated that research capabilities had a large effect on self-efficacy ($f^2 = 4.724$), medium effects on research motivation ($f^2 = 0.304$) and professional development via motivation ($f^2 = 0.232$), and small effects on professional development ($f^2 = 0.063$) and self-efficacy's impact on professional development ($f^2 = 0.036$).

Conclusion: The results suggest that enhancing research capabilities, research motivation, and research self-efficacy significantly contributes to the professional development of teachers. Teachers with stronger research skills and higher motivation and self-efficacy are better positioned to continuously adapt to evolving educational systems and seize opportunities for professional advancement. The acquisition of research competencies allows teachers to engage in reflective practice, generate innovative solutions, and move beyond traditional “one-size-fits-all” professional development models.

Value: This study highlights the foundational role of research capabilities in promoting sustainable teacher development. By integrating research-oriented skills, motivation, and self-efficacy into professional development programs, educational policymakers and school administrators can create more effective strategies for building teachers' long-term capacity and resilience.

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