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Impact of Professional Development Training on Teacher's Performance

Dr. Bushra Salahuddin
Assistant Professor, Institute of Education & Research, Quaid-E-Azam Campus, Gomal University, Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan.
bushrakhan0066@gmail.com
Syed Ahmad Raza Shah Gillani
HOD / Lecturer, Department of Advanced Studies in Education, University of Agriculture, Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan.
ahmadgillani996@gmail.com
Sultan Akbar Shah
Lecturer, Department of Advanced Studies in Education, University of Agriculture, Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan.
sultangureshidik718@gmail.com

Abstract
This study investigates the impact of professional development training on the performance of primary school teachers in District Dera Ismail Khan. It specifically assesses the influence of training focused on content knowledge, pedagogical skills, and assessment skills. A survey approach was employed, with data collected from a sample of 344 primary school teachers selected through stratified sampling. Two researcher-developed instruments, the Teachers' Professional Development Questionnaire (TPDQ) and the Teachers' Performance Questionnaire (TPQ), were used to measure the variables. The collected data were analyzed using linear regression to test the null hypotheses. The findings provide evidence-based insights for school administrators to design more effective and targeted professional development programs, thereby enhancing instructional quality and optimizing resource allocation for teacher growth.

Keywords: *Professional Development, Teacher Performance, Content Knowledge, Pedagogical Skills, Assessment Skills, Primary Education.*

Introduction

The institution is increasingly becoming a competitive world where the performance of employees is becoming increasingly difficult. The organization has numerous methods and approaches to enhance the performance and efficiency of the teachers. The employees must be more skilled, trained, competent, innovative, creative minds, and manage situations to demonstrate high efficiency with the available resources (Mahmood, 2012). In fact,

education has been a potent instrument in society and is regarded as a necessary weapon for introducing positive change in the economy, social, cultural, and political lifestyle of the people in the country. Different agents and teachers are involved in defining the entire process of education, and one of the significant agents is played by teachers. Undoubtedly, teachers play significant roles in the process of teaching and learning, and the role of teachers cannot be overlooked in the success of schools. Teacher training to meet the demands of the 21st century is ranked among the priorities of higher priority in any nation because the occupation is ranked as significant and demanding (Boudersa, 2016). Education is a significant point of strong society development, and a teacher is one of the best agents of view on the moral, social, and intellectual development of students. To achieve this, the teachers must be proficient, competent, and full of professional and content knowledge. Thus, there is a constant need that teachers must be given adequate professional training to develop knowledge and competencies that will enhance the quality of education and be committed to the teaching profession (Mahmood, 2012).

The professional growth of the teachers is of two significances. From an educational department perspective, professional growth of teachers has become a prerequisite for the school's functions and performance. On the part of teachers, professional development activities are essential in the development of skills and career advancement (Acton and Golden, 2002). Conversely, the deficiency of competencies and qualified teachers has compelled the department to investigate how it can retain their talented teachers. That is the reason why organizations are considering and focusing on enhancing their professional development programs and investments. Placing funds into professional development had a direct payback on workplace productivity (Mahmood, 2012). Professional development improves the proficiency of the teachers, enhances their skills, pedagogical knowledge, and content knowledge, strengthens the degree of commitment to the organization, and develops a sense of teamwork (Palo and Padhi, 2003). Professional development programs on a regular basis play a great role in influencing the performance of the teachers and enhancing the efficiency of the school (Srinivas, 2008). Education has been given central significance in any country, and a teacher is not only expected to be competent but also professional in his or her subject. Hence, teachers have the expertise in teaching and assessment in terms of professional and subject matter knowledge to achieve the standards and the educational goals. The teachers make progress positively when they are under quality professional development programs with a conducive and motivating environment. The teachers' training institutions and the educational department should consider the professional development programs to be provided by the teachers working at all levels, with professional development knowledge and competencies, to enhance a positive attitude towards teaching among teachers. Therefore, the professional development programs of teachers are perceived as the key tool for improvement of pedagogical skills and content knowledge of the teacher to reach the educational objectives (Mahmood, 2012). As time passes by, the quality imperative in learning and teaching is presently rising across all levels of learning to meet the academic standards, and this beckon the concern of an effective professional development program for teachers (Kulshrestha and Pandey, 2013).

Professional development is a term that is widely applied to encompass all forms of learning that educators undertake outside the scope of the perception of the educators during the initial training. Professional

development is a term that is used as a process and activities aimed at enhancing the professional knowledge of the teachers, as well as skills of attitude towards teaching. (Guskey, 2002). Different skills, such as knowledge of the subject matter, pedagogical skills, communication skills, interpersonal skills, assessment skills, and students' guidance and counseling skills, are usually included in a professional development program. The fundamental purpose of the professional development programs is to keep the teachers informed of the knowledge that concerns the subject area and the skills (Giraldo, 2014).

Professional Development of the Teacher

Business Dictionary (2003) defines professional development to mean the increase of knowledge and skills of an individual through different development opportunities, which might be through a variety of structured activities, in order to be able to do the same job. Professional growth is beneficial for doing the specific job in a more appropriate manner. Guskey (2002) believes that the workshops can help the teacher to enhance his or her capacity building by training him or her. To ensure the teaching process is effective and to reach the goals of the teaching, a teacher is bound to develop professionally. It is only through giving him the opportunities of having professional training in the educational environment that the professional development of a teacher is possible. A teacher can never become professional without undergoing professional training, besides in-service training. A teacher needs to enhance his or her professional growth so that he or she can work in a superior manner. A teacher has a role in building his/her knowledge and skills and familiarizing him/herself with the new and contemporary teaching strategies and techniques. Professional training is crucial to the all-round development of a person (Whitworth and Chiu, 2015). If somebody receives professional education for his/her employment, he/she will be capable of doing his/her duties properly. The practitioners, pleaders, accountants, instructors, engineers, and doctors, etc., are nearly all professionals who require professional training to carry out their roles in an organized manner (Swennen & Bates, 2010).

Guskey (2002) argues that professional training can develop the capacity building of a teacher that is beneficial in developing knowledge and skills, in addition to implementing them in the class to make the learning process successful and help build a congenial environment. It is possible to accomplish learning objectives in case a teacher is a professional and uses his/her knowledge and skills in the classroom. The process of professional growth and development is continuous and consistent to complete the given task in a more professional way. Professional practices and professional training result in professional development in a certain area. Regarding the relevance of teacher professional development, it assists in mastering the subject and familiarizing oneself with new and recent methods that can be used in the classroom to achieve educational goals. Professional development aims at doing the given job and duties in a good manner and in a manner of utilizing the available resources, knowledge, and skills in a superior manner (Cheung, 2013).

Two terms, in-service training and professional development, are used interchangeably, and both are used to improve the knowledge of the teachers and also equip them with the latest techniques being utilized in this modern world (Shah 2013). As Khan and Afridi (2017) observe, in previous years, the professional abilities of the teachers have been strived to be developed. Professional training, according to the educators, is a milestone towards the acquisition of the standards of education. The primary objective of the professional and in-service

training, according to Guskey (2002), is to meet the education standards. Over the past twenty years, the educational programs of teachers have been restructured to offer quality training to teachers so as to deliver the objectives of education. The training programs of the teachers are restructured and refurbished in a bid to build the capacity of teachers, which culminates in the quality of the education.

The academic performances of students do rely on the professionalism, knowledge, and instruction methods that teachers use in the classroom. Factors can have direct impacts on the process of learning. To illustrate, the attitude of teachers, teaching approach, background of the learners, classroom environment, the content of the curriculum, co-curricular activities, teaching methodology, parent attitude, and personal differences of the students, among others, significantly affect academic achievements of the students (Marzano, 2003). He also adds that the professional growth of a teacher is important and plays a crucial part in the academic performance of the students. In his opinion, the role of professional development is significant as that of the soul in the human body. It is not possible that a teacher who has not been able to develop professionally can be capable of accomplishing learning outcomes. Professional development has no alternative. Professional development is not a process that is short, but; rather it is a long process, a continuous process, and a constant process.

The National Staff Development Council prepared a set of nine standards, and to be professionally developed, it was necessary to act upon them. They featured the relevant subject knowledge, various learning requirements, learning excellence, classroom atmosphere, action research, instruction development, group work, parental engagement, data-based decision-making system evaluation, and assessment (Khan and Afridi, 2017). The development of teaching skills depends on professional practice. Alterations are being perpetrated in the very society of this modern world, and we are confronted with new challenges and issues. The former is inevitable for teachers with the latest skills and techniques, and introduces them to the latest technology (Hyslop-Margison & Sears, 2010).

Models of Teacher Professional Development

- **Cascade or Generational Model:** Cascade or Generational Model is a part of 1 first group of teachers. They undergo training in a specific area of teaching and go up to the first to fourth generation of educators (Heller et al., 2012).
- **Mentor model:** In the mentor model, an experienced teacher works in the classroom, as the trainee teacher follows his/her teaching to ensure that they develop his/her teaching skills. New teachers are guided by this model of teaching. The experienced teacher in this process of teaching plays an instructor-like role, hence it is referred to as the mentor model of teaching (Kennedy, 2005).
- **Reflective Model:** Under the reflective model of teaching, a teacher can reflect /their own teaching and pinpoint his/her own teaching strengths and weaknesses. It is a model that assists a teacher in not only to enhance his/her teaching methods and abilities but also preventing past errors and overcoming personal shortcomings (Kennedy, 2005).
- **School-Based Model:** Under School School-Based Model, the headmaster or the principal of the school adopts the roles of ensuring capacity building of his/her members of staff. The school administrator also makes research journals, related literature, and source material available to them to help them equip their

professional skills. The observability in the classroom, study circles, and group discussion is organized in a manner that facilitates the enhancement of professional development of the teachers (Kennedy, 2005).

- **Cluster-Based Professional Development Model:** In this type of teaching, a set of professional teachers was convened in a specific center in the name of developing their professional knowledge and skills through sharing the perceptions of one another. Pakistan has a clustered-based type of professional development programs, which include GIZ, DFID, UNICEF, and USAID/ESRA (Shah, 2013).

Professional Development Approaches

Cochran-Smith (2002) identifies three subsequent approaches to professional development;

- **Knowledge-for-practice:** The researchers develop the official knowledge in the school based which in turn is applied in the classroom, which not only enhances the performance but also is of assistance to develop practices.
- **Knowledge-in-practice:** As an instructional part of knowledge is utilized in instructions as well as in practice. Practical knowledge enhances performance and can be useful in the attainment of learning objectives.
- **Knowledge-of-practice:** There is no separation of knowledge, both practical and official. The teachers learn more knowledge and skills when they are requested to reflect on their knowledge.

Principles for Professional Development Program

Corcoran (1995) has come up with teacher and institutional principles.

- Encourage, inspire, energize, and appreciate site-based projects (instructional initiatives, circles, school, and district)
- Simple education and properly fitted with the current methods of teaching.
- Seek the teaching founded upon the constructivist model.
- Learning opportunities to be offered should include readings and mentoring.
- Respect for instructors as adults and professional learners should be illustrated.
- Opportunities and time should be given enough.
- The one ought to be broad and accessible.

Guidelines for Professional Development Program

Guskey (2002) has mentioned with guiding principles when it comes to designing and implementing programs for the professional development of teachers;

- It is to be mindful of renovation as an institutional process and also as a personal one.
- Simple high thinking (Socrates) should be the aim of our lives.
- To have the common prosperity, help one another, and be a team player.
- It should be observed to determine the areas of improvement.
- Feedback must be availed where necessary.
- Constant and regular practice, valued and affirmed where necessary.

Rationale of the Study

The current state of professionalism in the country is quite promising. In their observational study, Khan and Afridi (2017) established that just one out of a hundred or more schools of teachers exercised their pedagogical skills partly, which had evolved in the course of their training programs. It is noted that most teachers use the traditional way of teaching in their classrooms. The primary strategy used by the teachers is imparting pure textual information presented in the textbooks, and students as passive learners and commit the information verbatim during the examination, especially at the primary level. Thus, there is a direct impact of teacher performance and an indirect impact on the performance of students. In addition, regrettably, the teachers once selected have few opportunities to attend professional development training programs. Most of the training programs were done under the guidance and financial assistance of foreign donors such as the United States Agency for International Development (USAID) and the Canadian International Development Agency (CIDA), etc., and there are almost no chances of participation. In an effort to improve the competency of teachers in primary schools, the Government of Khyber Pakhtunkhwa initiated in-service teachers' training referred to as Professional Development Day (PD-Day) applicable at the primary level. It is compulsory for all the teachers at the primary level. The PD-day is planned and held at the end of the same month, whereby subject experts train in Science, English, Urdu, and mathematics. Professional training helps teachers acquire professional and content knowledge. The current research paper set out to examine how Professional Development Day (PD-Day) affects the performance of primary school teachers. Much of the literature has been researched on professional development, but no such empirical research has been conducted, especially on PD-Day, which was created specifically to focus on primary teachers, which was the primary logical rationale of this study. The paper delved into the PD-day outcome from the perspective of the performance of primary school teachers and provided a substantial contribution to the existing literature.

Statement of the Problem

Despite ongoing investment in teacher professional development, a significant gap often exists between the training provided and its practical application in the classroom. This raises a critical problem: the failure of many programs to consistently translate into improved instructional practices and enhanced student learning outcomes, questioning their overall effectiveness and return on investment.

Research Objectives

1. To assess the impact of professional development training regarding content knowledge on teachers' performance.
2. To determine the impact of professional development training regarding pedagogical skills on teachers' performance.
3. To examine the impact of professional development training regarding assessment skills on teachers' performance.

Research Hypotheses

H_{01}: There is no significant impact of professional development training regarding content knowledge on teachers' performance. (Align with Obj # 1)

H_{02}: There is no significant impact of professional development training regarding pedagogical skills on teachers' performance. (Align with Obj # 2)

H_{03}: There is no significant impact of professional development training regarding assessment skills on teachers' performance. (Align with Obj # 3)

Significance of the Study

This study is crucial as it provides school leaders with evidence-based insights to design effective professional development programs. By demonstrating the direct link between targeted training and enhanced teaching skills, it empowers informed decision-making on resource allocation. Ultimately, the findings aim to improve instructional quality and boost student achievement by ensuring teacher growth initiatives are both strategic and impactful.

Limitations

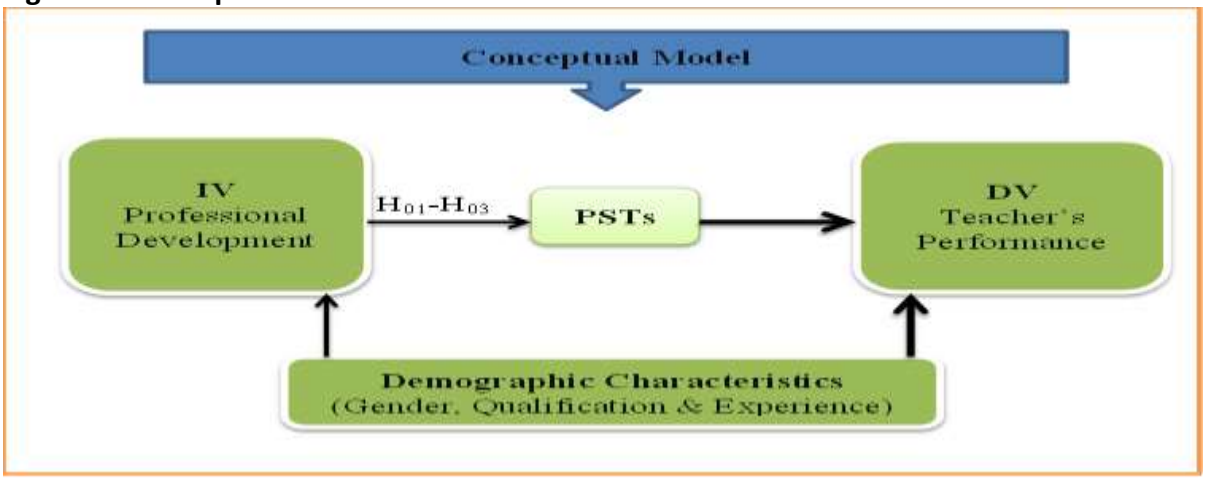
The research was done at the primary school level; thus, the outcome of the research could not be extrapolated to other districts and other levels (secondary and tertiary levels). The research could not be conducted on a large scale due to time and resources.

Delimitations

The delimitations of the study were:

1. Only district Dera Ismail Khan.
2. Only Primary Schools.
3. Only PTCs.
4. The following variables of the Professional Development Training:
   - i. Content Knowledge
   - ii. Pedagogical Skills
   - iii. Assessment Skills

Figure#1: Conceptual Model



Research Methodology

Employing a positivist research philosophy, this study utilized a survey approach to investigate its objectives within the district of Dera Ismail Khan, where the target population was 2,461 primary school teachers. A sample of 344 teachers was determined using Yamane's formula and selected through a disproportionate stratified sampling technique, resulting in 219 male and 125 female participants to ensure representation from both strata. For data collection, two researcher-developed instruments on a five-point Likert scale were administered. The Teacher's Professional Development Questionnaire (TPDQ), informed by prior studies and a provincial manual, contained 23 items measuring content knowledge, pedagogical skills, and assessment skills. The Teachers Performance Questionnaire (TPQ) contained 41 items assessing five dimensions of job performance, including subject knowledge and instructional planning. The collected data were subsequently analyzed using linear regression to examine the causal relationship and association between the independent and dependent variables.

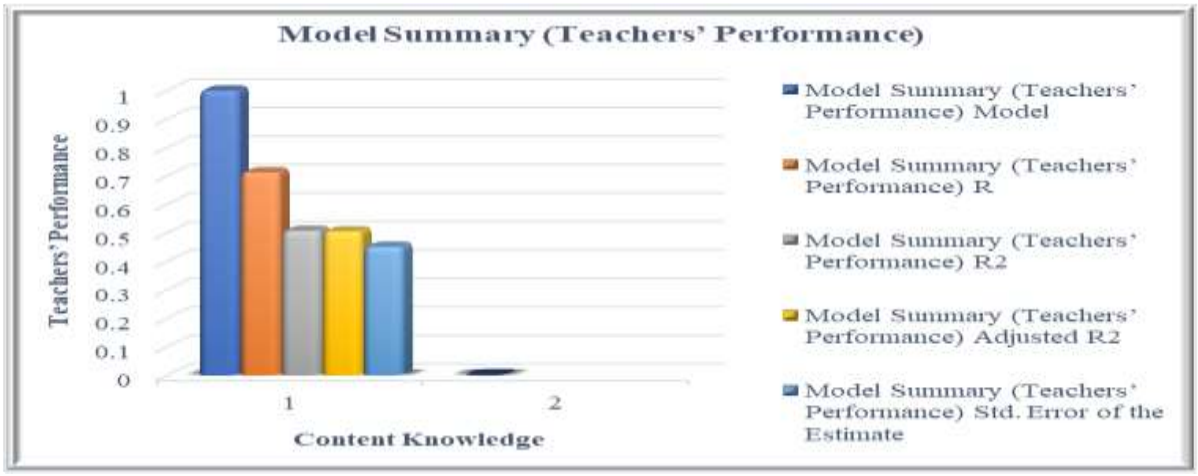
Results and Discussions

Table#1: Impact of Content Knowledge on Teachers' Performance (Align with Hypothesis # 1)

Model Summary (Teachers' Performance)				
Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.712	.507	.505	0.451
a. Predictor: (Constant), Content Knowledge				

The model summary indicates that content knowledge is a strong and meaningful predictor of teachers' performance. The R value of 0.712 demonstrates a strong positive relationship between these two variables. Furthermore, the R^2 value of 0.507 reveals that a teacher's content knowledge accounts for approximately 50.7% of the observed variation in their performance.

Figure#2:

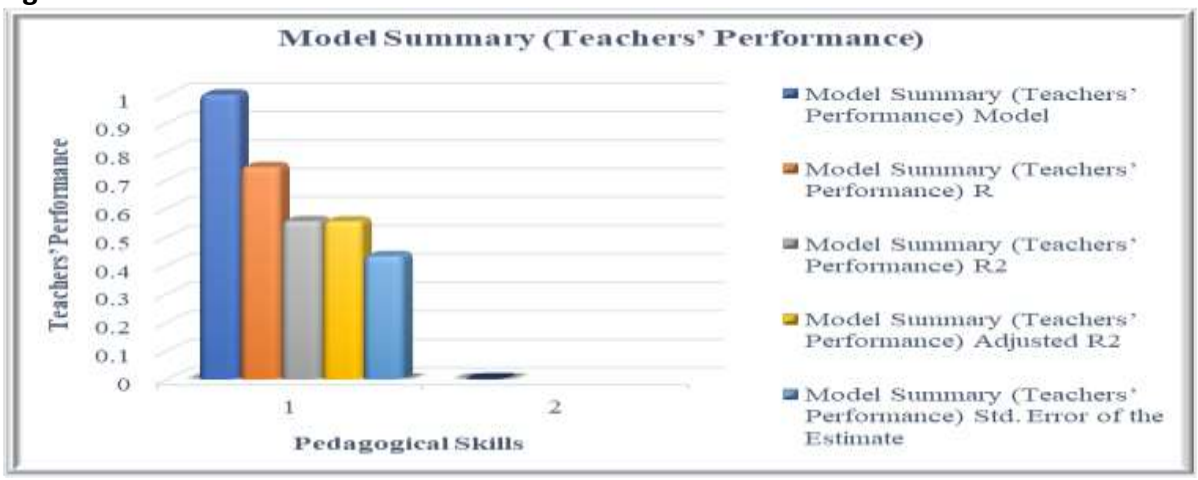


Table#2: Impact of Pedagogical Skills on Teachers' Performance (Align with Hypothesis # 2)

Model Summary (Teachers' Performance)				
Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.745	.555	.554	0.432
a. Predictor: (Constant), Pedagogical Skills				

Based on the analysis, pedagogical skills demonstrate a substantial impact on teachers' performance. The model shows a strong positive correlation, with an R value of 0.745. Crucially, the R^2 value of 0.555 indicates that a teacher's pedagogical skills explain approximately 55.5% of the variance in their performance.

Figure#3:

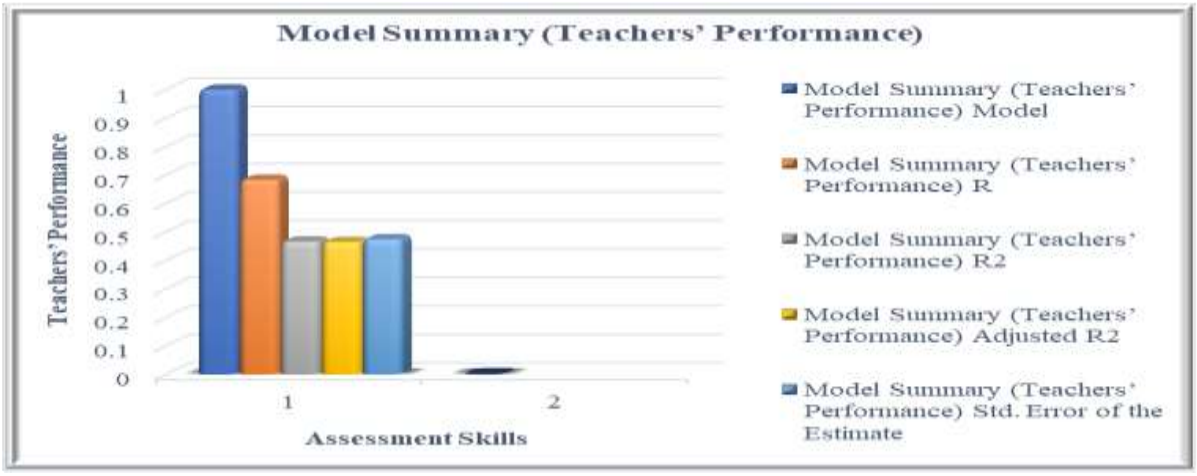


Table#3: Impact of Assessment Skills on Teachers' Performance (Align with Hypothesis # 3)

Model Summary (Teachers' Performance)				
Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.683	.466	.464	0.474
a. Predictor: (Constant), Assessment Skills				

Based on the model summary, assessment skills are a significant predictor of teachers' performance. The R value of 0.683 indicates a strong positive relationship between these variables. Furthermore, the R-squared value of 0.466 shows that a teacher's assessment skills account for approximately 46.6% of the variation in their performance.

Figure#4:



Findings

1. The analysis reveals that content knowledge is a significant predictor of teacher performance, with a strong positive correlation (R = 0.712). The model explains that approximately 50.7% of the variance in teacher performance is accounted for by their content knowledge, establishing it as a primary influencing factor. (Align with Table # 1)
2. Based on the analysis, pedagogical skills are a substantial determinant of teacher performance, demonstrating a strong positive correlation (R = 0.745). The model indicates that these skills account for approximately 55.5% of the variance observed in performance, establishing them as a highly influential factor. (Align with Table # 2)
3. Based on the analysis, assessment skills significantly predict teacher performance, showing a strong positive relationship (R = 0.683). The model reveals that these skills explain approximately 46.6% of the variance in performance, confirming their substantial influence. (Align with Table # 3)

Discussions

1. The finding aligns directly with the conclusions of Weyers, Kramer, Kaspar, & König, (2024), whose large-scale study affirmed that a teacher's deep content knowledge is a critical determinant of instructional quality. Their research demonstrated that such knowledge directly enables more accurate and effective classroom practices. The strong predictive power of content knowledge in the current analysis, therefore, reinforces the established view that it is a fundamental, non-negotiable component of teacher competence and a primary driver of performance. (Align with Finding # 1)
2. The result is strongly supported by the seminal work of Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher (2020), whose comprehensive analysis established that effective pedagogical skills such as classroom management and differentiated instruction are among the most significant contributors to student outcomes. Their research concluded that these skills allow teachers to translate their content knowledge into accessible learning, directly impacting instructional quality. The finding that pedagogical skills explain over half the variance in performance powerfully validates their assertion that how teachers teach is equally as critical as what they know, underscoring the necessity of robust training in teaching methodologies. (Align with Finding # 2)
3. The finding is consistent with the research of Wyse, Baumfield, Mockler, Reardon, Correia, & Wiliam (2025), who emphasize that formative assessment, or the practice of using evidence of student learning to adjust instruction, is a core component of effective teaching. The analysis confirms that a teacher's skill in gathering and interpreting this evidence to inform pedagogical decisions is a powerful driver of their overall performance. The substantial variance explained underscores Wiliam's central thesis that assessment is not merely for evaluation but is, in fact, fundamental to the process of teaching itself. (Align with Finding # 3)

Conclusions

1. It can be concluded that a teacher's mastery of their subject matter is fundamentally crucial for their effectiveness in the classroom. The analysis strongly affirms that the depth of a teacher's content knowledge is a principal and powerful determinant of their overall professional performance. Therefore, enhancing this specific knowledge base is essential for achieving superior educational outcomes. (Align with Obj # 1)
2. It can be concluded that a teacher's skill in the art of teaching itself is a cornerstone of professional effectiveness. The findings confirm that the ability to instruct and engage students is a primary driver of overall performance. This underscores the critical importance of cultivating and refining these practical teaching methods to ensure high-quality education. (Align with Obj # 2)
3. Consequently, the capacity to effectively evaluate student learning is a vital component of a teacher's overall effectiveness. The finding confirms that proficiency in designing and using assessments is a key factor influencing performance. It highlights the necessity of prioritizing the development of these evaluative skills to enhance educational quality and student achievement. (Align with Obj # 3)

Recommendations

- Provide training in subject-specific teaching methods to better translate content knowledge. (Align with Finding # 1)

- Launch targeted training to strengthen assessment design and data analysis. (Align with Finding # 3)
- Create professional learning communities for teachers to collaboratively develop and critique assessments. (Align with Finding # 3)

Guidelines for Future Researchers

1. Investigate qualitative factors like school leadership, teacher motivation, and school culture to understand their role in sustaining training outcomes.
2. Expand the geographical and institutional scope to other districts, higher grade levels (e.g., secondary school), and different training programs to improve generalizability.
3. Use a longitudinal mixed-methods design to track long-term impacts on teacher performance and student outcomes, supplemented by interviews and observations for deeper context.

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