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## **TEACHER'S PROFESSIONAL DEVELOPMENT AND IT'S IMPACT ON STUDENT PERFORMANCE**

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### **ABSTRACT**

This research paper explores the impact of teacher professional development (PD) on student academic achievement. Professional development enhances teaching practices, content knowledge, and classroom management strategies, fostering a dynamic and supportive learning environment. The study examines key components such as evidence-based teaching practices, collaboration, differentiation, and data-informed instruction that contribute to improved student performance. Findings indicate that when teachers continuously engage in PD, their confidence, adaptability, and ability to address diverse learner needs significantly improve, leading to positive academic outcomes. The role of mentorship, personalized learning approaches, and effective classroom management is highlighted as crucial for maximizing instructional effectiveness. The study underscores the importance of sustained PD programs in fostering a culture of learning and growth for both teachers and students.

**Keywords:** Teacher professional development, student academic achievement, teaching practices, educational impact, classroom management, evidence-based instruction.

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### **1. INTRODUCTION**

Teacher Professional Development (PD) plays a pivotal role in enhancing educational quality and improving student learning outcomes. As the dynamics of education continuously evolve, teachers are required to adopt new strategies, integrate innovative technologies, and address diverse learner needs effectively. High-quality PD equips educators with the necessary skills to foster a supportive learning environment, improve instructional practices, and ultimately boost student academic performance.

Research demonstrates that sustained, collaborative, and content-specific PD programs yield significant improvements in both teaching efficacy and student achievement. Effective PD does not merely focus on technical know-how but also emphasizes reflective practices, peer collaboration, and problem-solving approaches to enhance classroom instruction. For students, this translates to better engagement, higher test scores, and improved critical thinking skills.

Despite these positive correlations, challenges persist in implementing impactful PD programs, including time constraints, resource limitations, and teacher motivation. Evaluating the

quantitative effects of PD on student performance remains critical to understanding its efficacy and refining future educational strategies.

## 2. OBJECTIVES OF THE STUDY

- 2.1 To examine the impact of teacher professional development on student academic achievement.
- 2.2 To evaluate the effectiveness of different professional development models in enhancing teacher competencies and instructional practice.
- 2.3 To examine about the importance of different theories for teacher's professional development.
- 2.4 To assess the relationship between teacher professional development and student academic achievement.

## 3. SIGNIFICANCE OF THE STUDY

This research paper holds significant value in the field of education by emphasizing the critical role teacher professional development (PD) plays in enhancing student academic achievement. It contributes to a deeper understanding of how sustained and well-structured PD initiatives empower teachers to adopt innovative instructional strategies, foster student engagement, and address diverse learner needs. By examining the relationship between teacher growth and student success, the study highlights the importance of investing in continuous learning opportunities for educators as a means to improve educational outcomes.

Furthermore, the research informs educational policymakers, school administrators, and curriculum designers about the effectiveness of evidence-based PD programs and their direct impact on teaching quality. It offers actionable insights on the need for ongoing assessment, tailored PD models, and feedback systems to ensure these programs remain effective and relevant.

Additionally, the findings advocate for the integration of collaborative learning communities, where teachers can exchange best practices and support one another's professional growth. In a rapidly evolving educational landscape, this research underscores PD as a vital tool not only for improving teacher competencies but also for fostering a culture of continuous improvement that benefits students, teachers, and educational institutions alike. Ultimately, the study reinforces the notion that teacher development is a cornerstone for achieving long-term educational success.

## 4. IMPORTANT THEORIES FOR TEACHER'S PROFESSIONAL DEVELOPMENT

Theory	Theorist(s)	Key Principles	Application in Teacher PD
Adult Learning Theory (Andragogy)	Malcolm Knowles	Adults are self-directed learners. Learning is problem-centred and experiential. Adults bring prior experiences to learning.	PD should be relevant to teachers' classroom needs. Encourage problem-solving and real-world application. Incorporate peer discussions and shared experiences.
Experiential Learning Theory	David Kolb	Learning occurs in a cyclical process: concrete	PD programs should include hands-on activities followed by

		experience, reflective observation, abstract conceptualization, and active experimentation.	reflection. Teachers experiment with new teaching strategies and reflect on their effectiveness.
<b>Social Constructivist Theory</b>	Lev Vygotsky	Learning is socially mediated through interaction. Knowledge is constructed through collaboration and discussion.	Foster collaborative environments like Professional Learning Communities (PLCs). Use mentorship and coaching to enhance learning through dialogue and practice.
<b>Reflective Practice Theory</b>	Donald Schön	Reflection on actions and experiences leads to professional growth. Ongoing self-assessment is essential for improvement.	Encourage reflective journals and peer feedback sessions. Use case studies and action research as PD tools to promote continuous learning.
<b>Situated Learning Theory</b>	Lave & Wenger	Learning takes place in authentic contexts. Participation in "communities of practice" is critical.	Engage teachers in collaborative lesson planning and real-world classroom problem-solving. Promote learning through job-embedded experiences and peer collaboration.
<b>Transformative Learning Theory</b>	Jack Mezirow	Learning involves critically reflecting on existing assumptions and transforming perspectives.	Encourage critical discussions on teaching beliefs. Use case studies and simulations to challenge existing thinking.
<b>Change Theory</b>	Michael Fullan	Change is a process, not an event. Successful change requires alignment between teacher practices and organizational goals.	Align PD with institutional reform goals. Provide continuous support, leadership engagement, and shared vision for improvement.
<b>Self-Determination Theory</b>	Edward Deci & Richard Ryan	Motivation depends on fulfilling needs for autonomy, competence, and relatedness.	Design PD that offers choice and promotes teacher agency. Create opportunities for collaboration and skill mastery to enhance motivation.
<b>Guskey's Model of Teacher Change</b>	Thomas Guskey	Teacher beliefs change when they see positive results in student learning. Support and feedback are key components.	Provide data-driven feedback to demonstrate student progress. Incorporate follow-up support for applying new teaching methods in classrooms.
<b>Technological Pedagogical Content</b>	Mishra & Koehler	Effective teaching with technology requires	Train teachers to use technology meaningfully within their subject

Knowledge (TPACK)		integrating technology, pedagogy, and subject knowledge.	areas. Provide ongoing support for technology integration in teaching practices.
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## 5. IMPORTANT MODELS FOR TEACHER'S PROFESSIONAL DEVELOPMENT

Model	Key Components	Core Principles	Application in Teacher PD
<b>Guskey's Model of Teacher Change</b>	PD outcomes (student achievement) Teacher beliefs and attitudes Teacher practices and experiences	Teacher change is a process that begins with changes in practice, leading to changes in beliefs. Positive impacts on student learning lead to sustained change in teaching.	PD should focus on improving instructional practices that result in measurable improvements in student outcomes. Provide data-driven evidence to support teacher practice changes. Continuous follow-up and support are necessary.
<b>The Four-Stage PD Model</b>	Orientation Practice Evaluation Reflection	PD should be structured and gradual, moving through stages. Ongoing evaluation and feedback are key for success.	Begin with theoretical knowledge and move toward real-life application. Teachers engage in practice, receive feedback, and reflect to refine their skills. Structured PD programs for continuous improvement.
<b>The Triad Model</b>	Collaboration between teachers, coaches, and administrators. Focus on reflection and practical application	Effective PD requires collaboration at multiple levels. Coaching and feedback are central to PD.	PD programs should include coaching sessions and regular feedback from peers and administrators. Teachers collaborate with peers to observe each other and implement new strategies in their classrooms.
<b>The Workshop Model</b>	Short, focused training sessions. Practical skills development Presentation followed by hands-on practice	PD should be engaging and provide practical solutions. Immediate application of new skills is essential for retention.	Offer concise and focused PD workshops that equip teachers with actionable strategies. PD sessions should be interactive, with teachers engaging in activities to practice what they learn.
<b>The Learning Community Model</b>	Collaborative learning	Collaboration enhances learning	Encourage the formation of professional learning communities

	environments Peer learning and feedback Group reflection and problem-solving	and teaching effectiveness. PD should be embedded in real-world practice.	(PLCs) where teachers can work together to solve challenges and reflect on their practices. PD should be integrated into teachers' daily work contexts.
<b>The Mentorship/Coaching Model</b>	Ongoing one-on-one or small group support Focus on individual teacher needs Feedback and guidance	Mentorship and coaching provide targeted support for teachers' development. PD is more effective when it is personalized.	Implement a system where experienced teachers or coaches provide continuous, individualized support to newer teachers. Coaches observe classroom practices and provide real-time feedback for improvement.
<b>The Reflective Practice Model</b>	Self-reflection on teaching practices Observation and journaling Feedback from peers and supervisors	Teacher self-assessment and reflection are essential for professional growth. Reflection should lead to action.	Teachers should regularly reflect on their teaching, document their experiences, and share reflections with colleagues for feedback. Incorporate journaling and peer reviews into PD practices.
<b>The Job-Embedded Model</b>	Learning through practical, on-the-job experience Collaborative problem-solving Immediate application of PD	PD is most effective when embedded in the teachers' day-to-day work. - Continuous support and feedback lead to sustained development.	Organize PD opportunities that occur during school hours, like peer observations, collaborative lesson planning, or team teaching. Focus on implementing new practices immediately in the classroom.
<b>The Inquiry-Based Model</b>	Action research Inquiry into teaching and learning practices Data collection and analysis	Teachers are researchers of their own practice. PD should be based on teachers' own questions and investigations.	Teachers investigate questions related to their teaching practices, gather data, and use findings to improve instruction. Promote action research as a PD tool to address real classroom challenges.
<b>The Collaborative Model</b>	Shared learning goals Collaborative planning and teaching Peer feedback	Teachers work together to enhance their practice and improve student learning. Collective efficacy	Create collaborative PD sessions where teachers can design lessons together, share best practices, and observe each other's teaching. Focus on peer collaboration and shared goal setting.



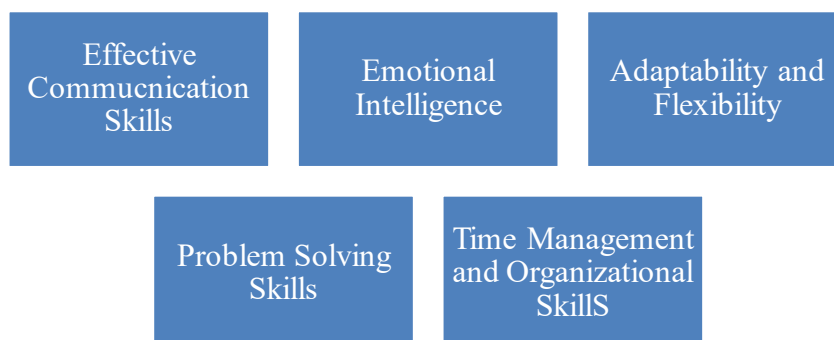
	and co-teaching	increases overall teaching quality.	
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## 6. TYPES OR FORMS OF TEACHERS PROFESSIONAL DEVELOPMENT

Type of PD Program	Description	Forms of PD Programs	Key Features/Focus
<b>Workshops and Seminars</b>	Short, focused sessions that provide teachers with practical skills and knowledge on specific topics.	In-person workshops Online webinars Hybrid formats	Typically, short-term (a few hours to a couple of days). Focus on specific skills or knowledge. Highly interactive.
<b>Mentorship and Coaching</b>	Personalized, one-on-one support to guide professional growth and improve teaching practices.	Peer mentoring Instructional coaching Induction programs	Focuses on continuous feedback and support. Targeted to meet individual teacher needs. Hands-on guidance.
<b>Collaborative Learning Communities</b>	Teachers work together in groups to share knowledge, solve problems, and reflect on practices.	Professional Learning Communities (PLCs) Learning Circles	Focus on collective learning and problem-solving. Teachers collaborate to enhance teaching and student outcomes.
<b>Action Research</b>	Teachers conduct research in their classrooms to address challenges and improve practices.	Individual action research Collaborative action research	Teachers identify a problem in their practice and systematically investigate it. Encourages reflection and innovation.
<b>Online Courses and eLearning</b>	Digital learning platforms that offer courses to develop knowledge and skills.	MOOCs (Massive Open Online Courses) Self-paced eLearning	Flexible learning options. Teachers can learn at their own pace. Focus on both content and pedagogical knowledge.
<b>Job-Embedded Learning</b>	Professional development integrated into the daily responsibilities of teaching.	Co-teaching Peer observation Lesson study	Learning occurs during regular teaching activities. Focus on practical application and immediate feedback.
<b>Conferences and Conventions</b>	Large-scale events that bring together educators for networking, sharing ideas, and gaining new insights.	National/international conferences Subject-specific conventions	Broad coverage of educational topics. Opportunities to network with peers and experts. Workshops and keynote presentations.
<b>Graduate</b>	Formal, academic	Master's degree	Long-term commitment.

<b>Programs and Certification</b>	programs that provide in-depth knowledge and credentials.	programs Subject-specific certifications	Results in formal qualifications and academic credentials. Focus on advanced content knowledge and research.
<b>Teaching Exchanges and Fellowships</b>	Programs that allow teachers to experience different teaching environments or cultures.	Teacher exchange programs Fellowships with other schools or regions	Focus on broadening teaching perspectives. Exposure to diverse educational systems and practices.
<b>Professional Reading and Journals</b>	Engaging with current literature to stay informed about new trends, research, and best practices.	Reading academic journals Books and professional articles	Continuous learning through self-directed reading. Teachers stay updated on latest educational research and methodologies.

## 7. SOFT SKILLS REQUIRED FOR BECOMING PROFESSIONALLY DEVELOPED AS A TEACHER



## 8. CHALLENGES IN IMPLEMENTING PROFESSIONAL DEVELOPMENT PROGRAMS

**8.1 Barriers to Teacher Participation:** Many teachers face challenges when it comes to participating in PD programs, which can significantly affect their ability to improve their practice.

**8.2 Time Constraints and Workload Balance:** A common challenge for teachers is finding the time to participate in PD while balancing their regular classroom duties. The demands of lesson planning, grading, and managing classroom dynamics often leave little room for additional professional learning activities.

**8.3 Funding and Resource Allocation Issues:** Financial constraints are a significant barrier to the successful implementation of PD programs. Schools and districts may lack sufficient funds to provide high-quality PD, cover substitute teacher costs, or invest in necessary resources and materials.

## 9. LINK BETWEEN TEACHER PROFESSIONAL DEVELOPMENT AND STUDENT PERFORMANCE

Teacher professional development (PD) directly influences student performance by equipping educators with enhanced teaching strategies, deeper subject knowledge, and innovative classroom management techniques. When teachers continuously engage in skill-building programs, they are better prepared to address diverse learning needs, foster an inclusive classroom environment, and implement data-driven instructional practices. This development translates into higher student achievement and improved learning outcomes.

**9.1 Impact on Student Academic Achievements:** The research demonstrates that effective PD programs positively impact student academic achievements by improving teaching quality. Teachers who participate in such programs often adopt evidence-based instructional strategies, differentiated teaching methods, and effective assessment techniques that cater to diverse learner profiles. As a result, students show improvements in standardized test scores, comprehension levels, problem-solving abilities, and critical thinking skills.

**9.2 Influence on Students' Motivation and Engagement:** Effective PD not only enhances student academic performance but also positively influences student motivation and engagement. Teachers trained in interactive and student-centered instructional techniques often foster a more engaging and supportive learning environment. This leads to:

### **9.3 Case Studies Highlighting Successful Outcomes**

**9.3.1 The New Jersey Study on Professional Development:** In New Jersey, a study was conducted in which teachers participated in a multi-year professional development program focusing on improving content knowledge and pedagogical practices. The study found significant improvements in student test scores in schools where teachers received high-quality, ongoing PD. The teachers in these schools were able to apply new instructional strategies effectively, leading to increased student achievement in subjects like mathematics and reading.

- Student achievement in schools with PD participation increased by 12% over two years.
- Teachers demonstrated improved instructional techniques and confidence in using new materials.
- Collaborative learning environments (PLCs) contributed to the success of PD programs.

**9.3.2 A Case Study from the Chicago Public Schools:** A case study from Chicago Public Schools examined the impact of a district-wide PD program on student performance in high-poverty schools. The program focused on improving teachers' use of data to inform instruction and incorporating evidence-based practices into the classroom. The findings showed that teachers who participated in the PD program demonstrated a substantial increase in their ability to meet students' academic needs, leading to improved student outcomes.

- Students taught by PD-trained teachers showed a 10% improvement in reading scores.
- Teachers who participated in data-driven instruction PD were better at targeting individual student needs.
- Teachers reported higher levels of job satisfaction and student engagement following PD participation.

**9.3.3 The MET Project (Measures of Effective Teaching):** The MET Project, a large-scale study, investigated various teaching practices and their effects on student achievement across



several school districts in the U.S. The project included a component on PD, where teachers engaged in professional learning focused on enhancing instructional techniques and student engagement strategies. The findings revealed that teachers who received PD in differentiated instruction and formative assessment showed significant improvements in student academic performance.

- There was a 15% improvement in student math scores in classrooms where teachers received PD on formative assessment.
- Teachers who used differentiated instruction strategies from PD saw increased student engagement and participation.
- Student achievement in classrooms with PD-trained teachers improved by an average of 10%.

**9.3.4 The International Society for Technology in Education (ISTE) Professional Development Programs:** The ISTE program, focused on integrating technology into the classroom, was evaluated across several school districts in the U.S. Teachers participated in PD workshops on using technology for personalized learning and student-centered classrooms. The evaluation found that PD programs that integrated technology significantly enhanced both teacher and student performance.

- Teachers who received PD in technology integration saw a 20% improvement in student engagement with digital learning tools.
- Student academic achievement improved by 8% in schools where PD focused on technology integration for differentiated learning.
- Teachers reported higher confidence levels in using technology to enhance instruction and student outcomes.

## 10. FINDINGS OF THE STUDY

The research highlights a significant positive relationship between teacher professional development (PD) and student academic achievement. Teachers who engaged in comprehensive PD programs demonstrated improved instructional practices, enhanced subject knowledge, and effective classroom management strategies, directly benefiting student learning outcomes. The findings reveal that evidence-based teaching approaches learned through PD significantly improved student engagement and comprehension levels. Teachers who participated in PD also displayed greater adaptability and creativity in addressing diverse learner needs, leading to better performance across different student demographics.

Moreover, sustained professional learning communities (PLCs) fostered collaboration among teachers, allowing for continuous refinement of teaching strategies and sharing best practices. This collaborative environment contributed to improved teacher motivation and confidence. Classroom observations indicated that PD-trained teachers employed more innovative and student-centered instructional techniques, which led to a noticeable improvement in students' critical thinking skills and problem-solving abilities.

Student performance data supported these observations, showing higher test scores and increased participation in classroom activities in classes taught by PD participants. However, the research also highlighted the need for ongoing feedback mechanisms and tailored PD programs to ensure

that teachers' professional growth aligns with evolving educational challenges. Continuous evaluation and adaptation of PD initiatives were found essential for maximizing their impact on both teaching quality and student academic performance. These findings underscore the importance of investing in teacher professional development as a key strategy for educational improvement.

## 11. CONCLUSION

The research paper underscores the critical role of teacher professional development (PD) in enhancing student academic achievement. The findings reveal a strong link between well-designed PD programs and improved teaching practices, which directly impact student performance. Teachers who participated in PD programs exhibited improved instructional strategies, better classroom management, and a deeper understanding of subject content, leading to increased student engagement and academic success. Additionally, PD initiatives focusing on technology integration, differentiated instruction, and data-driven teaching were found to be particularly effective in fostering student-centered learning environments. The study highlights the importance of continuous evaluation and feedback mechanisms to ensure PD programs remain relevant and impactful. Overall, the research emphasizes the need for ongoing investment in teacher development as a key strategy for educational improvement, ultimately benefiting both teachers and students by fostering a culture of continuous growth and learning.

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