

Impact of Teacher Training on Classroom Practices; Mediating Role of Instructional Leadership in Private Junior Schools of Karachi

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Abstract

This research studied the effects that teacher development training has on classroom practices and how instructional leadership helps to facilitate these practices in the context of private junior schools in Karachi, Pakistan. Consequently, this research investigated the relationship between the variables of teacher development training, instructional leadership, and teacher's classroom practices. A quantitative, cross-sectional survey method of data collection was used. Data were collected from 116 participants (114 teachers and 12 instructional leaders) from four private junior schools of Karachi district East, using an adapted tool from (Bada et al., 2025) and structured questionnaire based on a 5-point Likert scale. Data were analyzed using SPSS with descriptive statistics, reliability analysis, correlational and regression analysis. The outcome indicated there were strong, positive connections between teacher training and classroom practices through the support of instructional leadership. Teacher training had a very strong, positive relationship to classroom practices ($\beta = 0.832$, $p < 0.001$) while instructional leadership has had a large and statistically positive relationship with classroom practices ($\beta = 0.847$, $p < 0.001$). The correlation analysis found that instructional leadership mediated the relationship between teacher training and classroom practices, suggesting that by providing need based training and support to the teachers, the impact of professional development on actual classroom practices will be maximized. The study by (Mokhtar & Razak, 2024) found that teacher professional learning practices were influenced by both principal instructional leadership and teacher competency provides evidence for the necessity of having effective (continuous) teacher training as well as strong instructional leadership in order to improve the quality of teaching and the effectiveness of classroom instruction. Additionally, the results of this research will add to the existing body of knowledge on educational leadership and professional development, as well as provide school leaders, policy makers and educational institutions with practical implications for improving instructional quality and facilitating sustained improvement within their schools.

Keywords: Teacher Training, Instructional Leadership, Classroom Practices, Professional Development, Mediation Role.

Introduction

The overview forms the foundation of quantitative study that seeks to analyze the impact of teacher training on their classroom practices and analyze its relationship with the mediating role of instructional leadership. Hussain et al. (2025) asserted that teacher training should be

Received 07 July 2026; Revised 28 July 2026; Accepted 07 August 2026; Published (online) 12 August 2026



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DOI: <https://doi.org/10.69671/socialprism.3.6.2026.167>

considered as an ongoing process of professional development rather than just initial preparation to become teachers. The current study forms the setting in terms of professional development and academic supervision by instructional leadership. It also highlights the existing gap in knowledge as well as provides information about the research objectives, problems, questions, and hypotheses to address.

To improve teaching practices in the classrooms and enhance students learning outcomes, educational institutions are focusing on teacher professional development as a fundamental element (Erni et al., 2024; Mammadov, 2024). Teacher training equips teachers to elevate pedagogical knowledge, improve classroom strategies and adapt innovative teaching skills to uplift instructional effectiveness for effective (Singh, 2025; Sadiq et al., 2024), improved and student-centered classroom environment. Ajani, (2023) asserted that these trainings should be on going professional development for greater impact. Josephine et al. (2024) asserted that Continuous professional Development (CPD) improves teaching quality significantly by improving problem-solving abilities and refining pedagogical skills in classroom teaching (Imran, Akhtar, & Khan, 2026; Haider, et al., 2025). However, to bridge the gap between theoretical knowledge and classroom implementation, (Geroge et al., 2024) stated that effective instructional leaders play an important role as they create a clear vision for educational improvement, align school goals with teacher professional development, and cultivate collaboration and continuous learning environment for teachers.

In private schools these dynamics are different. Private junior schools often have explicit leadership structures, priorities, and expectations for stakeholders. While these schools do have training resources, the actual impact on the classroom depends mainly on leadership-driven support mechanisms. Instructional leaders set clear visions, monitor training and learning plans, and manage resources.

The purpose of this study is to examine the impact of teacher training in classroom practices and investigate the mediating role of instructional leadership. By exploring how leadership practices influence the effective implementation of teacher training outcomes, the study intends to contribute to dense insight to strengthen professional development programs in schools to improve instructional quality. This study gives one more reason to look closely at leadership as the missing link between training programs and what teachers end up doing in classrooms.

Research Objective

- 1) To determine the relationship between teacher training and instructional leadership in private junior schools Karachi.
- 2) To assess the effect of teacher training on classroom practices in private junior schools Karachi.
- 3) To assess the effect of instructional leadership on classroom practices in private junior schools Karachi.
- 4) To examine the mediating role of instructional leadership in the relationship between teacher training and classroom practices.

Research Questions

- 1) What is the relationship between teacher training and instructional leadership in private junior schools in Karachi?
- 2) What is the effect of teacher training on classroom practices in private junior schools in Karachi?
- 3) What is the effect instructional leadership on classroom practices in private schools in Karachi?
- 4) Does instructional leadership mediate the relationship between teacher training and classroom practices?

Research Hypotheses

H₀₁: There is no significant relationship between teacher training and instructional leadership.

H₀₂: Teacher training has no significant effect on classroom practices.

H₀₃: Instructional leadership has no significant effect on classroom practices.

H₀₄: Instructional leadership does not significantly mediate the relationship between teacher training and classroom practices.

This study aims to offer data-based evidence on the significance of teacher training in improving classroom practices in private junior schools. Consistent with recent research, (Ambon et al., 2024) asserted that continuous professional development significantly improves pedagogical skills, and enhances teaching quality through student-centric approaches. The study highlights the role of instructional leadership as mediator in strengthening the impact of teacher training by ensuring continuous support, mentoring, monitoring, and feedback, as (George et al., 2024), also discovered that effective instructional leadership displays clear vision for educational improvement and aligns it with professional development. Additionally, the study leads to the present literature by using quantitative method approach on the mediating role of instructional leadership in educational contexts. Putri et al. (2025) demonstrated that instructional leadership possesses a major part in teacher performance.

Literature Review

Teachers are central to any education system, (Agustin et al., 2022) as they directly influence students' academic achievement, learning experiences, classroom engagement and success of any institution. Ambon et al. (2024) analyzed that teacher training enhances teaching quality significantly resulting in elevating teaching standards and students learning outcomes. Rozi et al. (2022) stated that supervision by the principal or instructional leadership is an effective way of improving teacher performance through academic and clinical supervision catering individual teachers' professional needs. Awaliyah and Purwanto (2025) commented that leadership who provide academics supervision, has a significant impact on teacher competencies in the classrooms hence they have a clear vision for educational improvement, promote a culture of collaboration, continuous learning and align teacher's professional development with school goals (George et al., 2024).

Wang et al. (2025) found similar patterns in their study that involved 755 primary school teachers in China. It was observed that the influence of instructional leadership improves instructional quality in the classrooms, improves teacher self-efficacy and develop better academic understanding. The impact of instructional leadership is primarily bulging in private schools (Imran, Akhtar, & Khan, 2026; Zaidi, et al., 2024). He et al. (2024) in Nigerian secondary school studied 304 teachers and stated that instructional leadership arose as an important predictor of teacher professional growth, who clearly shaped school missions, effectively managed instructional programs for teachers, and established a positive school learning environment for teacher professional growth. Dahiru and Kayode (2022) additional proved the mediating relationship between instructional leadership and school effectiveness, with a significant positive correlation, emphasizing the notion that school leaders who empower teachers through their instructional leadership create more effective school structures.

Teacher training and its impact in teaching practices

Teacher training offers a structured learning process through which educators gain the desired skills and knowledge that are necessary to improve their instructional strategies, manage effective classroom management, and support student academic success. It includes teaching webinars, seminars, workshops, and ongoing professional development programs designed to improve their pedagogical skills and content knowledge to refine their teaching. Modern scholarship emphasizes that teacher training should be viewed as a continuous process of professional growth rather than just an initial preparation for the profession needs (Darling-Hammond et al., 2022; OECD, 2023).

The primary importance of teacher training lies in its ability to uplift pedagogical knowledge and adapt innovative teaching skills for a student-centered environment. Research suggests that training also builds teacher confidence and broadens thinking skills, allowing educators to respond to classroom challenges in real time (Ambon et al., 2024). Furthermore, effective training is a strong predictor of student performance, with well-designed programs accounting for significant differences in classroom outcomes.

Classroom Practices for effective learning outcome

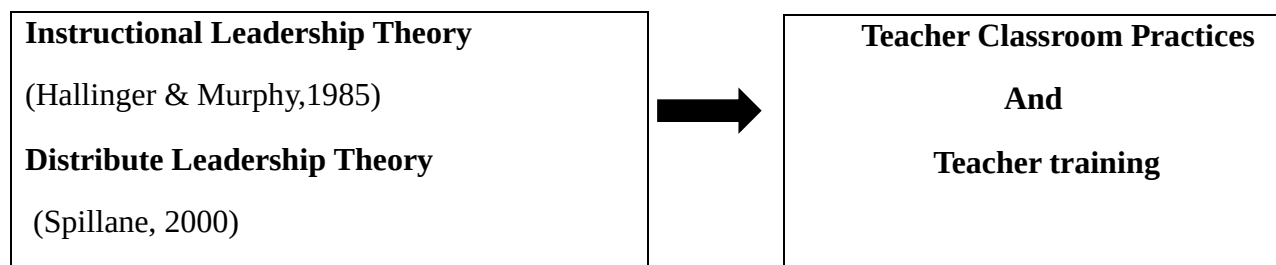
Classroom practices refer to the instructional methods, techniques, and strategies used by teachers during teaching lessons, including lesson delivery, student engagement, and assessment (OCED, 2022). According to the OECD (2022), teacher practices such as lesson delivery, student engagement, classroom management, and assessment directly shape student learning outcomes. UNESCO (2023) similarly emphasizes that teaching quality remains central to improving educational achievement. Classroom management explicitly has become a lot of attention in the recent literature. Salio-an et al. (2025) studied contemporary views and shared the fact that resonated across several research studies: effective classroom management is not centered to punishing inappropriate behavior or keeping students silent. Sadiq et al. (2024) in their study mentioned classroom management as an effective outcome of professional development, similarly, (Behnamnia & Hayati, 2025) found correlations between teacher's digital competencies and student engagement.

Role of Instructional Leadership in student learning outcome

Instructional leadership focuses on the actions and practices as an important tool of educational leaders to improve and create teaching and learning environment in schools (Manaseh, 2016). As a mediating variable, it explains how teacher training influences classroom practices by supporting, guiding, and monitoring teachers' implementation of effective instructional strategies (Hallinger & Wang, 2022; Leithwood et al., 2023). There is a moderate to strong relationship between the effectiveness of training programs and the quality of teaching strategies employed in the classroom. Padasas and Escote (2025) brought this all together in a study that directly examined how school leadership shapes classroom practices. Analysis reflected that instructional leader was the robust and significant predictor of classroom practices, more so than an innovative leader. Principal who focused on curriculum enhancement, coordination among the team, goal-setting for shared vision, and instructional supervision scored higher for shaping leadership environment based on training, developing educational skills, enhancing classroom management, and contribute to subject matter mastery believing that classroom practices do not develop in isolation. Schools have their own structures of training programs. However, researches have acknowledged certain traits that play a vital role in improving teaching skills by offering the support of an instructional leader (Arendse, 2023).

Theoretical Framework of the study

Theoretical framework of this study provides the understanding of the relationship between the variables, that is grounded in the mediating model of instructional leadership. The framework determined the role of the instructional leader as a facilitator who oversees teacher training as an effective outcomes in the classroom practices. Below is the theoretical framework of this study.



Instructional Leadership Theory

Instructional leaders promote a positive learning environment by communicating a shared vision for learning, setting clear academic goals, establish sustainable professional development programs for teachers, mentor teachers while working closely with them, and offer constructive feedback through structured classroom monitoring and evaluation process. To improve instructional practices, instructional leaders encourage collaboration within the teachers and form professional learning communities (PLC) where they share best practices, learn from each other and are empowered as well.

Mediating role of Instructional Leadership

A recent study conducted by (Dorukbaşı & Cansoy, 2024) were able to demonstrate that instructional leadership had a significant and direct relationship with teacher instructional practices. Similarly, (Kılınç et al., 2023) confirmed the significant presence of a statistically significant direct correlation between instructional leadership and teaching. Therefore, examining the mediating effects of leadership will be significant in understanding instructional leadership influence on teacher practice.

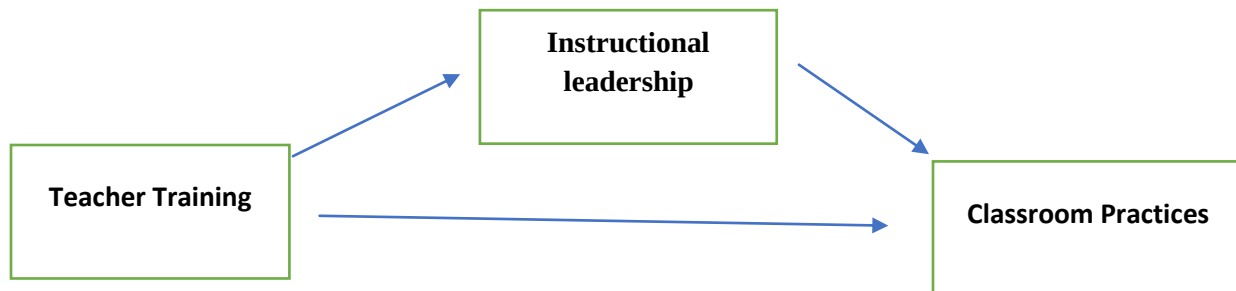
Distributed Leadership theory

This theory focuses on shared responsibilities. In education, it refers to the system where principal, teachers and staff members share work responsibilities and work for a common and shared goal. This kind of an environment creates a strong support system for robust professional development culture.

Similarity between Distributed and Instructional leadership

Xia and O'Shea (2022) explored that distributed leadership supports principal instructional leadership directly impacting teacher professional development. Syntheses from a comprehensive systematic review by (Alecida et al., 2025) revealed that instructional leadership develops focus on academics while distributed leadership establishes the collaborative procedures that are required to implement that focus. In considering the specific relationship between distributed and instructional leadership, it is evident that collaborative school-wide culture, sense of empowerment in all staff members, and shared vision support continuous growth and higher level of school performance.

Conceptual Framework



Instructional leadership, teacher training and classroom practices are the three interrelated variables that are discussed in this study and to observe the influence of professional development on classroom teaching. Teacher training being an independent variable, includes the workshops, seminars, and structured training programs that teachers participate to improve their content knowledge, sharpen pedagogical skills, and enhance instructional strategies. Research steadily shows that when such trainings are relevant, continued, and practically oriented, teachers are able to adopt improved classroom practices (Pinzón et al., 2023). Classroom practices, as a dependent variable, refer to the instructional strategies employed everyday by the teachers including lesson planning, student engagement in the activities, their assessment and effective classroom management. There is a moderate to strong positive relationship between training program effectiveness and both teaching strategies and classroom practices (Rosario, 2026).

Instructional leadership serves as the mediating variable in this study. School principals who actively mentor, guide, monitor, and support their teachers by providing feedback, and learning platforms can amplify the benefits of training. Dorukbaşı and Cansoy (2024), asserted that teachers professional learning positively and significantly mediates the affiliation between principals' instructional leader and teacher teaching practices in the classrooms. Considering the above research, the framework recommends that teacher training directly improves classroom practices, and that instructional leadership supports this relationship by motivating, inspiring, providing the mentoring, feedback, and confidence teachers need to apply new skills in their teaching.

Methodology

Research Design

The study adopted a cross-sectional survey design, where data was collected from the participants at a single time point. This design is particularly suitable for the existing study as it helped to capture existing conditions and relationships without manipulating variables. These designs helped to investigate the relationship between the variables under study. In this quantitative study, the cross-sectional design helped to analyze the direct and indirect effect of teacher training on classroom practices through instructional leadership support. Moreover, this method included the mediation analysis, which is the vital component to understand the relationship between teacher training and classroom learning outcomes within private junior schools in Karachi district East.

Population

Teachers working in private junior schools and schools' instructional leaders that included principals, vice-principals, academic coordinators and subject leads were the population for this study. The purpose to select this group was based on their positions that play an important role in the entire teaching and learning procedure. Where teachers are directly responsible for classroom instruction, there, instructional leaders' practices such as policy implementation, curriculum supervision and feedback influenced teachers teaching practices. Studying these groups provided a complete understanding of how teacher training executes into effective classroom practices.

Sample Size

To determine the sample size, formula suggested by Yamane (1967) was used to generate the size of the sample and to get 95% confidence level with margin error of 5%. As the current population of teachers in four private junior schools in Karachi district East, a sample of 104 teachers was chosen through purposive sampling. Whereas, 12 instructional leaders, including principals, vice principals, and coordinators were selected from the same schools because of their leadership roles and direct involvement in instructional supervision and teacher development. This sample size was adequate for conducting statistical analyses, followed by correlation and regression processes. This sample sizes improved the accuracy of findings and results.

Sampling Technique

Teachers' selection from four junior private schools was done through random sampling technique. This method guaranteed receiving data from the experienced respondents who have rele-

vant knowledge and their responses are context-specific. Similarly, data collection from the leadership team ensured receiving their firsthand experience and their insight is relevant also. The main advantage to prefer this type of sampling was to target respondents who possess relevant criteria and characteristics required for the study, it was also time and resources effective during the study.

Data Collection Tool

The adoption and development of the tool was guided by existing scholarship in the area by (Bada et al., 2025). Answers were captured on a 5-point Likert Scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The tools used to collect quantitative data were Teacher Training Questionnaire (Likert Scale) to measure the effectiveness of teaching training programs, its frequency and duration of these sessions, relevance to their subject content, and their application in the classroom practice. Another tool was of Instructional Leadership Practices Questionnaire (Likert Scale) to assesses leadership support, guidance, mentoring, monitoring, inspiration for professional growth, creating growth opportunities and their communication with the teachers.

Instrumentation and Data collection technique

An adapted questionnaire was used to collect data, which captured responses on a five-point Likert scale. However, the development of the tool was guided by existing scholarship in the area by (Bada et al., 2025) with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The Likert scale is extensively used in quantitative research as it is most simple to create, effective to administer large sample size. It is simple for the respondents to comprehend and quick to complete the responses. It is also helpful to measure attitudes, assess beliefs perceptions, and opinions specially in educational research. Due to its standardized format to response, it is suitable for statistical analysis, comparing scores, and identify patterns within the dataset. The questionnaire was designed to gather information about the three variables instructional leadership, teacher training g, and classroom practices that were required to study. Questionnaire was divided into three sections where each section addressed the specific construct. The questions were framed using clear, concise and simple language for the respondent to ensure accuracy in understanding and avoiding confusion while providing answers. This approach enhanced the reliability and also the validity of the gathered data that was collected and also minimized the measurement errors.

The items in the dataset measured the availability of teacher training, evaluated its relevance, assessed its frequent, need-based structure, and whether applicable to the classroom needs. Second section of the items in the dataset investigated the role of instructional leaders, it examined how principals as instructional leader and academic coordinators, offer guidance, provide support, and create professional development opportunities for teachers. As each variable was characterized by multiple items, it ensured comprehensive reporting of the constructs. This approach of including multi-item, improved the reliability and captured different dimensions of each. Lastly, the dataset was carefully organized by assigning numerical code to each response. To carry out correlation and regression analysis composite scores were calculated for each variable.

Analysis of Data

The unit of analysis included individual teachers and instructional leaders. Each participant's response was considered separately to better understand their personal views and experiences. This helped in analyzing how teacher training, instructional leadership, and classroom practices are connected at the individual level. Once data was collected from the respondent, it was analyzed using Statistical Package for Social Sciences (SPSS) software. This software is a comprehensive platform to manage and conduct complex statistical data analysis. To examine the relationships among variables, inferential statistics was performed. As asserted by (Mumtaz et al., 2024; Tep, 2022), Pearson Correlation test was performed to determine the direction and strength of relationships between instructional leadership, teacher training, and classroom practices.

To test the study hypotheses and find the predicted relationship between the variable regression was carried out. This test helped to examine influence of teacher training over classroom practices and to inspect the mediating role of instructional leadership in supporting teacher training..

Reliability

Reliability is essential in quantitative research as it ensures that the study instrument produces steady and trustworthy results. A reliable instrument increases the accuracy of data collection by minimizing measurement errors. To draw valid conclusion, reliability is essential as it improves the credibility and trustworthiness of the findings of the research confirming that the findings can be comparable under similar conditions. In this study, reliability was gauged by using Cronbach's Alpha. A threshold of 0.70 considered acceptable, indicating adequate internal consistency (Hussey et al., 2025; Campo-Arias & Oviedo, 2008).

Ethical Considerations

Prior to the collection of data an informed consent was taken from all participants. Simple explanation of the purpose and objective of the study was shared with the teachers and school leaders clearly defining the timeline, their involvement and how would their participation support the study. They were informed about their voluntary participation and they had all rights to withdraw from the process at any point-in-time without any consequences.

Data Analysis

Demographics of the Study

The study was conducted in 4 private junior schools in Karachi district East. It included a total of 115 respondents participated, including 103 female teachers and 12 instructional leaders that included principals, vice-principal, academic coordinators. The participants had 2 to 5 years of teaching experience and were between 25 to 35 years of age.

Descriptive Statistics

To examine participants responses descriptive statistics was conducted. This included teacher training, instructional leadership, and classroom practices. The statistics provide a summary of the respondents' perceptions. Below is the table

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mean CP	115	1.00	5.00	4.3148	.91988
Mean TT	115	1.00	5.00	4.1835	.96007
Mean IL	115	1.00	5.00	4.3009	.92986

The descriptive statistics demonstrated that the respondents mostly had positive perceptions regarding teacher training, instructional leadership, and classroom practices in private junior schools in Karachi. The mean score for teacher training was 4.18 (SD = 0.96), revealed that respondents agreed that teacher training practices were effectively implemented within their schools. Similarly, instructional leadership had a mean score of 4.30 (SD = 0.93), signifying strong perceptions about leadership support for teaching and learning processes. Moreover, classroom practices verified the highest mean score of 4.31 (SD = 0.92), indicating positive implementation of classroom practices by the teachers. Furthermore, the value of standard deviation for all variables were observed below 1, indicating consistency in respondents' opinions and comparatively low variability in responses.

Reliability

Internal consistency of the questionnaire was assessed through reliability analysis. Reliability analyses were conducted for classroom practices, teacher training, and instructional leadership. To determine the reliability of the items for these variables, Cronbach's Alpha coefficient was employed. Based on the standards, a Cronbach's Alpha value of 0.70 or above specifies acceptable reliability, whereas values above 0.90 indicates excellent internal consistency. The table below shows the results of the reliability analysis for classroom practices, teacher training, and instructional leadership.

Table 2: Reliability table

Variables	Cronbach Alpha
Classroom practice	0.979
Teacher training	0.976
Instructional leadership	0.979

Interpretation of Reliability Analysis of Classroom Practices

The classroom practices construct verified outstanding reliability with a Cronbach's alpha value of 0.979. The attained reliability coefficient indicated that the items used to measure classroom practices were highly consistent and reliable. The high Cronbach's alpha value indicated that the questionnaire items efficiently recorded the concept of classroom practices and generated stable responses among participants. Therefore, the classroom practices scale was considered reliable for conducting further quantitative analyses.

Interpretation for Reliability Analysis of Teacher Training

To determine the internal consistency of the questionnaire items for the teacher training scale, the reliability was conducted using Cronbach's alpha. The revealed value of Cronbach's alpha 0.976

for the teacher training construct exceeded the recommended threshold of 0.70, the scale confirmed excellent reliability. This showed that all items measuring teacher training were highly consistent and effectively measured the same fundamental construct. Furthermore, the high value of alpha suggested that respondents answered the items in a steady and consistent manner. Therefore, the result interpreted the teacher training instrument as a reliable and appropriate for further statistical analysis.

Interpretation of Reliability Analysis of Instructional Leadership

The reliability analysis for instructional leadership also reflected the Cronbach's alpha value of 0.979. This value is considerably higher than the accepted standard of 0.70, demonstrating that the instructional leadership items had excellent internal consistency. The result proved that the instructional leadership questionnaire items were highly reliable and measured the construct consistently across all respondents. The obtained strong reliability coefficient confirmed that the instrument was appropriate for assessing instructional leadership practices within private junior schools in Karach.

Correlation Analysis between teacher training and instructional leadership

H₀₁: There is no significant relationship between teacher training and instructional leadership.

To examine the relationship between teacher training and instructional leadership, Pearson correlation analysis was conducted. This statistical test was employed to measure the strength and direction of the relationship between these two variables. The findings of this correlation analysis were applied to test Hypothesis 1, which specified that there is a significant positive relationship between teacher training and instructional leadership. The findings are mentioned in the table below.

Table 3: Correlation Analysis between teacher training and instructional leadership

Variables	Pearson Correlation r	Sig. (2-tailed)
TT vs IL	.901	< .001

The findings of the result from Pearson correlation analysis shows the value of r is between 0.80 – 1.00 which indicates a strong positive relationship between teacher training and instructional leadership ($r = 0.901$). This shows that as instructional leadership practices improve, teacher training also tend to improve significantly in private junior schools in Karachi. The correlation value is $<.05$ which is statistically significant at the 0.01 level, demonstrating that the relationship is not due to chance. Hence, Hypothesis 1 is verified and accepted by the findings of the study. Therefore, the result from the above table explained that teacher training has a strong positive relationship with instructional leadership ($r = 0.901$, $p < .001$).

Regression Analysis on teacher training on improved classroom practices

H₀₂: Teacher training has no significant effect on classroom practices.

In this study teacher training is treated as an independent variable and classroom practices is a dependent variable. Regression analysis is applied to measure the extent to which teacher training influenced the classroom practices. To examine the effect of teacher training on classroom

practices simple linear regression analysis was performed. This regression was carried out to test the second hypothesis of this study, which stated that there is a significant positive effect of teacher training on improved classroom practices in private junior schools in Karachi. The result of this analysis is shown in the table below.

Table 4: Model Summary of teacher training

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Mean_ TT	.868 ^a	.754	.751	.45867

Table 5: Coefficients^a Dependent Variable: Classroom practices

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.835	.192		4.350	< .001
Mean_ TT	.832	.045	.868	18.589	< .001

The above findings from a regression analysis demonstrated a strong and statistically significant positive relationship between teacher training and classroom practices. The value of correlation coefficient ($R = 0.868$) shows a strong correlation between the dependent and independent variables. The value of coefficient of determination ($R^2 = 0.754$) reveals that 75.4% of the variance in the classroom practices (dependent variable) is defined by teacher training (the independent variable), signifying significant explanatory power of the model. The value of standardized regression coefficient ($\beta = 0.832$) explains a strong positive effect, meaning a positive influence between the two variables and an increase of one standard deviation in the independent variable results with an increase of 0.832 standard deviations in the dependent variable. Moreover, the relationship is statistically significant as the t-value ($t = 18.589$) is very high and the significance level ($p < .001$). Hence, teacher training has a strong and meaningful positive influence on the classroom practices and the hypothesis is therefore accepted.

Regression analysis on the influence of Instructional leadership on classroom

H₀₃: Instructional leadership has no significant effect on classroom practices.

This hypothesis treats instructional leadership as an independent variable and classroom practices is a dependent variable. Regression analysis is applied to measure the extent to which instructional leadership influenced the classroom practices. To examine the effect of instructional leadership on classroom practices simple linear regression analysis was performed. This regression was carried out to test the third hypothesis of this study, which stated that there is a significant influence of Instructional leadership on classroom practices. The result of this analysis is shown in the table below.

Table 6: Model Summary for Instructional Leadership (predictor)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Mean_IL	.856 ^a	.733	.731	.47752

Table 7: Coefficients^a Classroom Practices as Dependent Variable

Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
	.672	.212		3.178	.002		
Mean_IL	.847	.048	.856	17.608	<.001	1.000	1.000

The results from the above regression analysis demonstrated that instructional leadership has a significant positive influence on classroom practices. The model summary depicted a strong relationship between instructional leadership and classroom practices ($R = 0.856$). The coefficient of determination ($R^2 = 0.733$) highlighted that instructional leadership explained 73.3% of the variance in classroom practices, indicating considerable predictive influence.

Furthermore, the standardized beta coefficient ($\beta = 0.856$) revealed a strong positive effect of instructional leadership on classroom practices. The t-value ($t = 17.608$) depicted statistically significant, and the significance level ($p < .001$) fall much below the accepted threshold of 0.05. The result from the regression analysis indicated that there is a significant influence of Instructional leadership on classroom practices. Hence, the third hypothesis that is instructional leadership has a significant positive influence on classroom practices in private junior schools in Karachi is accepted.

Regression and Correlation Analysis between Instructional leadership and teacher training

H₀₄: Instructional leadership does not significantly mediate the relationship between teacher training and classroom practices.

To investigate the mediating role of instructional leadership in the relationship between teacher training and classroom practices, regression and correlation analyses were performed. These analyses provided in-depth information about the mediating role and helped to determine the strength and significance of the relationship between teacher training and instructional leadership. The table below represent the findings of the regression and correlation analyses.

Table 8: Model Summary for predictor Instructional leadership

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Mean_IL	.901 ^a	.812	.810	.41844

Table 9: Coefficients^a Teacher training as dependent variable

Model	B	Std. Error	Beta	t	Sig.
	.183	.185		.985	.326
Mean_IL	.930	.042	.901	22.071	<.001

Table 10: Correlation between Instructional leadership and Teacher Training

		Mean_TT	Mean_IL
Mean_TT	Pearson Correlation	1	.901
	Sig. (2-tailed)		<.001
	N	115	115
Mean_IL	Pearson Correlation	.901	1

Sig. (2-tailed)	<.001	
N	115	115

From the above regression and correlation analyses the findings revealed a strong and statistically significant relationship between teacher training and instructional leadership. The above regression results showed a strong relationship between the variables ($R = 0.901$), with an R^2 value of 0.812, demonstrating that 81.2% of the variance in instructional leadership was described by teacher training. The standardized beta coefficient ($\beta = 0.901$) and t-value ($t = 22.071$) established a strong positive effect, and which was statistically significant ($p < .001$).

Similarly, the results from Pearson correlation analysis indicated a very strong positive relationship between teacher training and instructional leadership ($r = 0.901$, $p < .001$). The high value of correlation coefficient suggested that teacher training improvement are strongly correlated with instructional leadership improvement.

Results from all the previous analyses explained that teacher training has a significant relationship with instructional leadership, and both teacher training and instructional leadership were identified strong variables to significantly influence classroom practices, the findings validate the mediating role of instructional leadership in the relationship between teacher training and classroom practices. Hence, fourth hypothesis is accepted indicating that instructional leadership significantly mediates the relationship between teacher training and classroom practices in private junior schools in Karachi.

Conclusion

Summary of the Study

The aim of this comprehensive study was to inspect the relationship between instructional leadership, teacher training, and classroom practices in private junior schools in Karachi district East. The study explicitly examined and investigated the predicted significance of instructional leadership on teacher training and classroom practices and to further observe the instructional leadership mediating relationship between teacher training and classroom practices. This study adapted a survey research method demonstrated by (Bada et al., 2025) who used Likert-scale tools to measure instructional leadership and professional development practices. By adapting these instruments, the study confirmed that the reliability and validity of the data collected. Data was gathered from 115 respondents that included teachers, principals, vice principals, subject leaders, and academic coordinators working in four private junior schools in Karachi. A well-structured questionnaire was self-developed including three major constructs of instructional leadership, teacher training, and classroom practices. Each construct contained ten items to be measured on a five-point Likert scale ranging from 1 (strongly disagreed) 5 to (Strongly agreed).

Reliability was determined by performing analyses on Cronbach's alpha to find the internal consistency of the instrument. Through descriptive statistics, analyses revealed that respondents had positive insights about instructional leadership, teacher training, and classroom practices. Pearson correlation analysis verified strong positive relationships among all variables. Regression analysis further demonstrated that teacher training significantly predicted instructional leadership and classroom practices. Additionally, instructional leadership significantly influenced classroom practices. The analyses of the study supported significant to all proposed hypotheses and empha-

sized the importance of teacher training and instructional leadership in improving classroom practices in private junior schools in Karachi.

Conclusion

This quantitative study aimed to explore the relationship between teacher training, instructional leadership, and classroom practices in private junior schools in Karachi district East. The findings illustrated that teacher training significantly influences instructional leadership and classroom practices. Additionally, through mediating mechanism instructional leadership significantly contributes toward improved classroom practices. The mediation analysis further demonstrated that instructional leadership partially mediates but still significant in creating the relationship between teacher training and classroom practices. These findings highlighted that teacher training improves classroom effectiveness both directly and indirectly through instructional leadership support and guidance. The study highlights the importance of continuous professional development and effective instructional leadership in endorsing educational quality and effective classroom improvement. Alone teacher training may not yield maximum effectiveness in teaching unless supported and guided by strong instructional leadership practices that enable and facilitate the implementation of professional learning and help teachers improve classroom practices. The findings emphasized to create integrated systems in schools that combine teacher training, leadership development, mentoring, and instructional support to create a learning culture for all. Schools and educational institutions should invest in both professional development and instructional leadership to achieve and maintain sustainable improvements in teaching quality and classroom effectiveness. In-short, the study contributed significantly to the recognize that teacher development and educational leadership play important roles in students' achievement within the context of private junior schools in Karachi district East. The findings demonstrated valuable understandings for school leaders, teachers, policymakers, and scholars to look forward and take necessary measures to improve instructional quality and educational outcomes through improved instructional leadership practices and planning effective and continuous training programs.

Discussion on findings

In this section discussion on the major findings of the study based on the research objectives, hypotheses, theoretical framework, and previous literature is gathered. This segment of the study focuses on the relationship between the variables and their impact on each other is discussed.

Relationship between teacher training and instructional leadership

The study proposed its first hypothesis guessed was that there is a significant positive relationship between teacher training and instructional leadership in private junior schools in Karachi. The findings from the respondent's data and their analysis positively supported this hypothesis. A positive strong relationship between teacher training and instructional leadership was revealed from Correlation analysis ($r = .9009$, $p < .001$). Furthermore, results from regression analysis verified that teacher training significantly predicted instructional leadership support ($B = .8726$, $p < .001$).

Relationship between teacher training and classroom practices

The second hypothesis of this study recommended that teacher training has a significant positive effect on classroom practices in private junior schools in Karachi. The results from Correlation analysis showed a strong positive relationship between teacher training and classroom practices ($r = .8681$, $p < .001$). Similarly, regression analysis explained that teacher training significantly predicted classroom practices ($B = .8317$, $p < .001$).

Impact of instructional leadership on classroom practices

The third hypothesis of the study proposed that instructional leadership significantly influences classroom practices in private junior schools in Karachi. The findings significantly supported this hypothesis. Correlation analysis proved a strong positive relationship between instructional leadership and classroom practices ($r = .8561$, $p < .001$). Multiple regression analysis also demonstrated that instructional leadership significantly predicted classroom practices ($B = .3887$, $p < .001$).

Implications of the Study

This study identified some important suggestions for educational leaders, educational organizations, researchers and for policy considerations.

Practical Implications

Schools are required to promote continuous professional development programs to elevate teaching pedagogies, improve instructional approaches, strengthen classroom management practices, and implement effective assessment strategies. Schools should design need-based training programs, aligned with the school vision, are subject relevant, and meet the classroom needs. The study also suggested that private schools in Karachi should create safe professional learning groups for teachers to share best practices, discuss instructional challenges, and together find solutions to resolve them.

Theoretical Implications

The findings from the data analysis support Continuous Professional Development Theory by emphasizing that ongoing teacher training leads to positive learning environment, contributes to instructional improvement and effective classroom practices. Moreover, the mediation role of instructional leaders works as a mechanism and strengthen the theoretical understanding through which continuous teacher training influences skill development for improved and effective classroom practices. Therefore, the study contributes to educational leadership research to develop educational systems within the context of private schools in Karachi.

Limitations of the Study

Although the study attained its objectives and hypothesis are successfully proven significant, few limitations that were experienced should also be acknowledged. Firstly, the study was only limited to private junior schools in Karachi district East. Therefore, the findings may not be generalized to public and other school systems or educational institutions situated in other districts and regions of Pakistan. Secondly, the study focused on a quantitative research design based on sur-

vey questionnaire responses. Respondents were restricted to respond to the required options, with more opportunities they may have provided socially desirable answers, which could have influenced the accuracy of the findings. Thirdly, the study used a cross-sectional research design, where-in data was collected at a snapshot. Therefore, the study did identify the relationships among variables but could not maintain long-term causal relationships with the variables. Fourthly, sample size added to its limitation. Although the sample size was acceptable for statistical analysis, but for broader, deeper insight and to enhance generalizability, a larger sample from various cities may have provided better results and improved findings. Lastly, the study aimed to focus explicitly on teacher training, instructional leadership, and classroom practices. Other important variables such as resources, teacher burnout, motivation, job satisfaction, school culture and organizational climate, and most important student achievement were not examined.

Delimitations of the Study

The study was delimited to only four private junior schools functioning within Karachi district East. Only 104 teachers and 12 principals, vice principals, subject leaders, and academic coordinators were included as respondents. The study focused explicitly on three constructs, teacher training, instructional leadership, and classroom practices. Only instructional leadership was examined as a mediating variable, whereas, other possible moderators or mediators were not involved in the study. Furthermore, the study focused to quantitative statistical techniques following the analyses sequence as reliability test, validity analysis, correlation, regression analysis, and mediation analysis. In-depth responses by using mixed method could have added more valuable responses from the respondents that could have enriched the data analysis process.

Recommendation

Built on the conclusions and findings of the study, few recommendations are proposed to other school systems, educational leaders, policymakers, and future researchers.

Recommendations for school systems and educational institutions

Schools need to establish continuous professional development programs and provide regular learning opportunities, skill enhancement and pedagogical improvement for teachers to gain confidence in teaching and applying new skills. Teacher training should be need-based, subject specific and focus on instructional strategies, teaching pedagogies, classroom management skills, advance assessment techniques, technology integration in lesson planning, and learner-centered teaching approaches to address differentiated learning. This recommendation is also supported by the existing study by (Akram et al., 2022; Kilag & Sasan, 2023). Educational institutions should reinforce and emphasize on instructional leadership practices by encouraging principals, vice principals, and subject leaders to participate, actively involve in supervising and supporting teaching and learning processes in the classroom (Joseph & Sultana, 2025; Imran et al., 2025).

Additionally, schools should further establish co-teaching, mentor-mentee mentoring and supportive coaching systems where experienced educators support, train and coach newly hired and untrained teachers in applying effective professional learning within classroom environment.

Recommendations for Future Researchers

Recommendation for future researchers is to expand the study and include, other school systems, public schools and educational institutions from different districts, cities and provinces of Pakistan to improve the generalizability of findings (Noor & Nawab, 2022; Ahmad, 2021; Imran et al., 2025). Future studies should investigate and address additional variables such as teacher motivation, school climate, organizational culture, job satisfaction, and student academic achievement which are important elements of academic success in schools (Imran et al., 2025; Ahmad, 2021; Akram et al., 2022; Joseph & Sultana, 2025). To examine the long-term effects of teacher training and instructional leadership on classroom practices and educational outcomes longitudinal studies may help to enhance the findings and provide various possibilities to improve the system across the country (Tahir & Fatima, 2023; Kilg & Sasan, 2023; Noor & Nawab, 2022).

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