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KEYWORDS	ABSTRACT
Instructional Leadership; School Effectiveness; Teacher Motivation; Educational Leadership; Public Secondary Schools; Rural Sindh; Pakistan; Educational Management	Educational leadership is a critical factor in developing the quality, effectiveness and sustainability of school education, especially in rural settings where institutional, pedagogical and resource related issues often limit educational outcomes. The study examines the relationship between instructional leadership and school effectiveness in public secondary schools of rural area of Sindh, Pakistan, while considering a role of the teacher professional commitment and teacher motivation as a mediating variable. The study adopts a multidimensional leadership perspective of instructional leadership for the instructional leadership theory and the organizational perspectives on teacher motivation and commitment to conceptualize instructional leadership as a leadership practice with five dimensions: setting clear academic goals, supervising and evaluating teaching, coordinating curriculum, developing teachers, and creating an environment conducive to learning. School effectiveness is reflected in various aspects of school effectiveness, including quality of teaching, student engagement, academic achievement, school operations, and school improvement. The study has a sequential explanatory mixed methods design. The quantitative data were gathered from teachers and school heads from public secondary schools in selected rural districts of Sindh. The study shows that the effectiveness of instructional leadership can be realized not just in the managerial and pedagogical actions, but also in the enhancement of teachers' motivation and professional commitment, which in turn makes a contribution to the effectiveness of the school. The results have implications for school leadership training, teacher professional development, school policies, school performance management and school improvement programmes in the rural areas of Sindh.
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Background of the Study

School quality, teacher effectiveness, and student achievement have come to be seen as largely dependent on the quality of educational leadership. Teachers affect students' experiences the most, but school leaders establish the organizational, instructional, and professional environments in which students and teachers learn and teach. Modern research in educational leadership, then, looks at the effective school leader not as an administrator, but as someone who can positively influence teaching, teacher learning, school climate and student learning. This has made instructional leadership in this context very significant since it centers teaching and learning in the practice of leadership. Instead of focusing teaching mainly on administrative chores, instructional leaders set academic targets, design curriculum and instruction, supervise teaching, provide support for teachers' development, and provide conditions for effective learning (Hallinger & Murphy, 1985; Robinson et al., 2008).

The roots of conceptual frameworks for instructional leadership can be found in early research on effective schools. Hallinger and Murphy's (1985) influential model introduced the concept of instructional leadership in three general dimensions: establishing a school mission, administering the instructional programme, and fostering a positive school learning climate. These dimensions highlight the importance of the principal's active involvement in the heart of teaching and learning rather than organizational administration. Specifically, school leader academic goals, monitoring, support, and development of academic instruction, curriculum coordination, student progress monitoring, and the protection of instructional time are ways in which school leaders have an impact on educational quality (Hallinger & Murphy, 1985). Instructional leadership is therefore one of the frameworks used to explore the role that school leadership plays in turning school vision into instructional practice.

There is robust evidence that supports the significance of instructional leadership. Robinson, Lloyd and Rowe (2008) conducted a meta-analysis of 27 studies and their results indicated that instructional leadership had a significantly larger correlation with student outcomes than transformational leadership. They noted five leadership practices that are linked to improved educational outcomes: (1) setting goals and expectations, (2) allocating resources strategically, (3) planning and evaluating teaching and curriculum, (4) promoting teacher learning and development, and (5) maintaining an orderly supportive environment. The discovery that the leadership practices most directly related to teaching and teacher learning had relatively strong impacts on students was especially noteworthy. This evidence points to the importance of leadership becoming "educationally consequential," when school leaders attend to the instructional center of the school.

There is a strong link between this leadership view and the notion of school effectiveness. An effective school is not necessarily a school with sufficient physical facilities or administrative procedures, but a school that can achieve desirable learning results through effective teaching, favorable learning atmosphere, professional cooperation and constant development. School

effectiveness is thus a multi-faceted construct that involves several aspects such as quality of instruction, student achievement, teacher performance, organizational functioning, school climate, and the capacity of the school to strive to achieve continuous improvement. Therefore, leadership can be seen as an organisational process which influences the environment in which effective teaching and learning takes place.

Instructional leadership-school effectiveness, however, should not always be interpreted as being directly linked. Generally school leaders have little impact on student or institutional outcomes by their leadership behaviour. Rather, leadership could be manifested by teachers' attitude, motivation, professional behaviour, and commitment. This puts the role of teacher motivation as an important mediation mechanism. Teachers who see their school leaders as being supportive of their instruction, teacher learning, autonomy, collaboration, and achievement could be more motivated to participate in meaningful teaching and school-improvement activities. However, teachers' motivation can be negatively affected by leadership practices that are seen as overly formal, unhelpful, or lacking in connection with teachers' professional needs.

This relationship is also supported by recent empirical studies. In a study with 400 teachers in public and private secondary schools in Pakistan, Naz and Rashid (2021) found that there is a significant correlation between instructional leadership, teacher motivation and student learning outcomes. They suggest that leadership behaviors and activities that include academic advising, collaboration, professional assistance and school climate may affect teachers' experiences of motivation and learning. In the more recent studies conducted in Pakistan, the influence of instructional leadership on teachers' motivation was also investigated and confirmed the role of instructional leadership as significant in the Pakistani educational context.

Self-Determination Theory (SDT) can also be used to explore the relevance of teacher motivation. Ryan and Deci's theory distinguishes between autonomous and controlled forms of goals, as the former indicate that a person will do something because it is meaningful or personally valuable, while the latter are instigated mostly by external pressure or reward. In educational institutions, leadership can impact teachers' motivational experiences through their experiences of autonomy, competence and relatedness. Research on the application of SDT to teachers indicates that the context of the work and teachers' psychological needs are related to different types of teacher motivation and professional behaviour. A meta-analysis on teacher motivation research revealed that the workplace contexts are associated with both autonomous and controlled teacher motivation, suggesting that motivational processes are relevant in explaining teachers' professional outcomes (Wang et al., 2021).

Professional commitment is another mechanism that might be significant for the relationship between leadership and school effectiveness in addition to motivation. Professional commitment has a broad meaning, in general, it is the psychological bond that the teacher has to the profession, as well as his or her dedication to satisfying professional obligations and sustaining professional identity. Professionally committed teachers are more likely to exhibit persistence, professional

responsibility, involvement in professional learning, and a desire to help improve the institution. Therefore a school leadership context that values the professional competence of teachers, affords teachers professional growth opportunities, fosters collaboration and offers instructional support could enhance teachers' commitment to the profession and school.

The area of Larkana is very beneficial for such investigation. The region has a fairly wide spectrum of socio-economic and educational contexts in the area of public secondary schools in Larkana and nearby, hence it is appropriate for studying the phenomenon of school leadership in the rural and semi-rural context. More importantly, the focus should not be solely on a deficit approach to rural schools. Instead, the study can explore how school leaders, teachers, and schools negotiate the constraints of context and how leadership practices align with teacher motivation, professional commitment, effective schooling. This can create locally relevant evidence that can be beneficial for policy and leadership development in education in Sindh.

Statement of the Problem

Though the role of educational leadership in enhancing the process of teaching learning has been acknowledged, public secondary education in rural areas of Sindh still needs to be given constant attention. In rural environments, school leaders should simultaneously address various aspects of administration, management, and instruction, while the school effectiveness role of their instructional leadership practices has not been sufficiently investigated. While there are many studies that link instructional leadership with educational results, most of the literature has been confined to urban contexts, teachers' performance, or between instructional leadership and educational outcomes. However, the mechanisms by which instructional leadership could impact overall effectiveness of public secondary schools in the rural area of Sindh have received comparatively less attention.

Another worry is that the effectiveness of schools is not only a function of the practices of school leaders. Teachers are the main actors who bring the leaders' intentions to the classroom. Motivation and professional commitment may consequently be significant pathways by which instructional leadership can impact school effectiveness. School leaders can motivate and professionally commit teachers by aligning teaching directions, supporting teachers with professional development, monitoring teaching in a constructive way, encouraging collaboration among teachers, and establishing a positive working environment for teachers, thereby increasing the quality of teaching and effectiveness of schools. But the mediation role of teacher motivation and professional commitment between instructional leadership and school effectiveness could not be fully established in public secondary schools of rural areas of Sindh.

The lack of evidence in the context creates a theoretical and practical problem. If the relationship between leadership and effectiveness is not understood in terms of the mechanisms that link them, educational authorities could be concerned with administrative compliance or leadership development but not the teacher-level mechanisms through which leadership practices yield

educational outcomes. Thus, an empirical study was needed to explore the role of instructional leadership in school effectiveness and the mediating role of teacher motivation and professional commitment in this relationship. The present study attempts to fill this gap by developing and testing an integrated model of instructional leadership, teacher motivation, professional commitment and school effectiveness of public secondary schools of rural areas of Sindh. The results could serve as basis for creating contextually relevant leadership practices, teacher development programmes and school improvement policies to enhance the effectiveness of public secondary education in the region.

Research Objectives

- I. To find out the correlation between instructional leadership and effectiveness of schools in public secondary schools in rural area of Sindh.
- II. To investigate the relationship between instructional leadership and teacher motivation and professional commitment in public secondary schools of rural areas in Sindh.
- III. To examine the mediating position of teacher motivation and professional commitment between instructional leadership and school effectiveness in public secondary schools of rural area of Sindh.

Research Questions

- I. Is there any link between instructional leadership and school effectiveness in public secondary schools of rural Sindh?
- II. How far instructional leadership, teacher motivation and professional commitment are related in public secondary schools of the rural area of Sindh?
- III. What extent the teacher motivation and professional commitment act as mediator between the instructional leadership and school effectiveness in public secondary schools of rural Sindh?

Literature Review

Conceptualizing Instructional Leadership

Instructional leadership has emerged as one of the most powerful, contemporary lenses for examining the research on educational leadership because it focuses on teaching and learning at the heart of school leadership. Instructional Leadership is a leadership style that is more concerned with enhancing classroom instruction and student learning as opposed to organizational administration and interpersonal influence or institutional change. Although the concept has been around for some time, it has become central to the research on effective schools, which pointed to the role of principals in setting priorities for academic learning, monitoring instructional processes, coordinating curriculum and setting up school environments that foster academic learning. One of the most important conceptualizations of instructional leadership was developed by Hallinger and Murphy (1985) who identified three key dimensions (defining the mission of the school, managing

the instructional programme, and fostering a positive school learning climate). These dimensions incorporate such practices as setting school objectives, communicating school expectations, overseeing the instruction, coordinating curriculum, monitoring student progress, safeguarding instructional time, providing professional development, and ensuring high academic standards.

The Hallinger and Murphy (1985) model is especially relevant as it describes the principal as a person who is in the middle of education rather than administration. The premise of the model is that leadership of instruction can impact learning. This view is especially suited for the current study as the proposed research aims to investigate, if there is any, how instructional leadership impacts school effectiveness at the teacher level.

Since then, there has been extensive empirical research to support the role of instructional leadership. In a comprehensive meta-analysis that compared the different dimensions of leadership with student outcomes, Robinson, et al. (2008) reported that instructional leadership was more strongly correlated than transformational leadership. They found that some leadership practices which had direct links to teaching and learning were very significant such as placing academic objectives, allocating resources, planning and monitoring teaching, nurturing teacher learning, and ensuring a disciplined learning environment. This finding indicates that leadership that is directly tied to teaching and learning, and not limited to general administration is most educationally impactful.

In a similar vein, Hallinger and Heck (1996) emphasized that principals' influence on school effectiveness is not always direct and immediate, but rather more complex and indirect. They highlighted the role of principals in shaping the organization of schools and the contextual conditions, but not directly in controlling the achievement of students, in reviewing empirical research. This point is significant to the current study as it offers theoretical support for a study of teacher motivation and professional commitment as mediating variables.

School effectiveness is a multi-faceted phenomenon, going beyond what can be measured in the examinations. It normally reflects the level of effectiveness that schools reach in meeting educational objectives throughout successful implementation, positive learning climate, effective organizational process, teachers' collaboration, students' participation, and ongoing improvement. In terms of organization, an effective school can turn available resources into desired educational results, and keep the environment conducive to continuous improvement.

Relationship between leadership and school effectiveness has been studied for more than 30 years. In a review of the research literature from 1980 to 1995, Hallinger and Heck (1998) found that principals have measurable, although mostly indirect, impact on school effectiveness and student achievement. They highlighted the role leadership plays both in school processes and how context relates to the impact of leadership on educational outcomes.

This means that the leadership conception is indirect, which is more important in the current research. When school leaders' influence is more organizational and teacher-related, it may be an incomplete measure to only capture the direct relationship between school leadership and school effectiveness. Based on this literature, the current study adds to the literature by investigating teacher motivation and professional commitment as potential mechanisms whereby instructional leadership leads to school effectiveness.

Instructional Leadership and Teacher Motivation

Motivation is a psychological and professional aspect that is important to teachers' involvement in the teaching and learning process. The motivated teacher is more likely to be involved in school-improvement efforts, classroom interaction, professional development, instructional innovation and lesson preparation. Thus, there is a theoretically sound link between teacher motivation and the effectiveness of teacher leadership.

Self-Determination Theory (SDT) is a theory that has proved to be a useful framework for understanding teacher motivation. Deci and Ryan (2000) maintain that there are three fundamental psychological needs; autonomy, competence, and relatedness; that are powerful motivators of human behaviour. People who have opportunities to be autonomous, competent, and have supportive relationships are more likely to show autonomous forms of motivation and effective functioning.

SDT applies to educational institutions and indicates that the school leaders have the ability to influence teachers' motivation by the conditions they create in the organization. The constructive feedback, professional learning opportunities, recognition, collegial interactions, and professional autonomy that instructional leaders provide can help further teachers' sense of competence, autonomy, and relatedness. Higher levels of controlling and supportive leadership, on the other hand, can challenge these psychological needs.

Reeve and Su (2014) also define teacher motivation as having two aspects: teachers' willingness to teach and the relationship style that teachers use when interacting with students. Their work illustrates the significance of teachers' motivational orientations for teaching and learning in the classroom.

Further justification can be given for the study of this relationship based on the empirical evidence in Pakistan. Naz and Rashid (2021) conducted a study of 400 teachers in public and private secondary schools to examine the relationship between instructional leadership, teacher motivation and student learning outcomes. They found that the instructional leadership practices were linked to teachers' motivation and learning outcomes. This study highlighted the importance of leadership activities, including setting goals, planning instruction and curriculum, monitoring lesson planning, supplying resources, and fostering a positive school environment.

Likewise, Ahmad et al. (2024) analysed the impact of instructional leadership on the teachers' motivations of school teachers in Buner District, Pakistan. The results support the theoretical argument of the relevance of instructional leadership in teachers' experiences of motivation in the Pakistani context. This evidence is geographically specific as it shows the leadership–motivation relationship is not confined to western education systems.

The connection also has recently been the subject of international interest. Based on the data collected from 403 teachers of the state schools in Istanbul, Baydar and Demirci (2026) explored the relationship between principals' instructional leadership and teacher motivation and examined the mediating role of the learning organization. Their study is part of a recent trend in researching possible pathways for the effect of leadership on teacher motivation instead of considering leadership as an independent predictor.

Teacher Motivation as a Mechanism of School Effectiveness

Teacher motivation is more than just teacher satisfaction. Teacher professional behaviour, in turn, may be influenced by motivation and then the classroom or school-level outcomes may be influenced by the teacher-level professional behaviour. Intrinsically or autonomously motivated teachers may be more likely to try new methods, engage in professional learning, work collaboratively with other teachers and put extra time into meeting the needs of students in their classrooms.

The linkage between motivation and Educational Effectiveness, therefore, can be shown theoretically as:

Instructional Leadership is linked to Teacher Motivation which in turn is linked to Educational/School Outcomes.

This pathway is aligned with SDT as having a supportive type of leadership in the classroom can meet teachers' psychological needs leading to increased autonomous motivation and more adequate teacher behaviour (Deci & Ryan, 2000).

This is also confirmed by the new empirical literature. Naz & Rashid (2021) discovered the relationships between instructional leadership, teacher motivation and learning outcomes of students in Pakistani secondary schools. Recent studies have also focused on how learning organization operates as an intermediary between instructional leadership and teacher motivation, indicating that the link between this two is intertwined with other organizational processes (Baydar & Demirci, 2026).

One very important restriction, however, exists. Previous studies have tended to assess educational effectiveness in terms of student achievement or teacher effectiveness, while the present study employs a more comprehensive lens for the school, as an institution. This is important because leadership can affect school effectiveness by changing school climate, coordinating instruction, fostering teacher collaboration, engaging students, and developing school improvement capacity as well as by influencing examination performance.

Professional Commitment and Educational Leadership

The second construct at the level of the teacher is professional commitment, which might account for the link between leadership and school effectiveness. However, the terms “professional commitment” and “organizational commitment” are sometimes confused but must be distinguished. Even with organization commitment, the commitment of teachers is related to their commitment to the profession while more general organizational commitment is related to commitment to the specific institution in which they operate.

A general framework of organizational commitment is provided by the literature on organizational commitment. According to Meyer and Allen's (1991) three-component model, commitment consists of three components: affective, continuance, and normative. Affective commitment is related to emotional attachment, continuance commitment is related to perceived costs of leaving, and normative commitment is related to a sense of obligation to stay.

Commitment is important for educational research as teachers who are highly devoted to their profession and institution are likely to be willing to put effort into the teaching, engage in professional development, work with colleagues, and be involved in school improvement. Leadership may thus affect educational effectiveness through its impact on teachers' sense of value, support, recognition, and belonging to the profession or organization.

This is corroborated by a study in Pakistan. Latif and Habib (2021) examined the correlation between ILP and OCs of 335 secondary school teachers in Lahore. In this study, they employed two instruments: Principal Instructional Management Rating Scale and Organizational Commitment Questionnaire, which yielded direct evidence to examine the relationship of instructional leadership and teacher commitment in Pakistani secondary schools.

Likewise, Panezai and Shah (2021) investigated the leadership style of the principals and the commitment of teachers in public schools of Ziarat, Balochistan. Their results showed that there was a positive and moderate correlation between leadership style and professional commitment of teachers. Their study focused on factors affecting teachers' professional commitment in Pakistani public education, but it offers contextually relevant evidence of how school leadership can impact teachers' professional commitment in the context of Pakistani public education.

This is reinforced by internationally available evidence. Khalid and Ibrahim (2023) conducted a multi-level study involving 1328 teachers from 71 primary schools in Malaysia to investigate the relationships between instructional leadership, collective teacher efficacy and teacher commitment. The study revealed significant relationships between instructional leadership and teacher commitment, and identified collective teacher efficacy as one of the mechanisms in the link between instructional leadership and teacher commitment. This study is especially important for the current study because it illustrates the importance of extending the scope of bivariate relationships to multilevel and mediated relationships in the study of instructional leadership effects.

More recent research has further developed the mediation argument. Abd El Qader and Benoliel (2025) studied how teacher professional commitment mediates between leadership and school outcomes in the education system of the Israeli Arab. The researchers used structural equation modelling involving 426 students in 71 high schools to identify the mediating role of professional commitment between the relationships of leadership approaches and school outcomes. This discovery gives particularly strong theoretical grounds to study professional commitment as a mediating variable in the proposed study.

Professional Commitment and School Effectiveness

Professional commitment can drive school effectiveness through its impact on teachers' commitment to persist in effort and engage in collective improvement. Teachers' professional investment is essential for the success of the school because curriculum reform, teaching policies, assessment systems, and development plans for institutions are realized in teachers' daily work.

Teachers with high levels of professional commitment are more likely to view teaching as a meaningful professional job than as a job. It may manifest as higher persistence in the classroom with underprivileged students, and willingness to engage in professional learning and school improvement.

This relationship is in line with organizational commitment theory. Meyer and Allen (1991) point out that commitment is a psychological state that has a bearing on work-related behaviour. Educational institutions, for instance, may therefore experience a higher level of engagement, which can be manifested in higher professional involvement and less disengagement from organizational duties.

The commitment to the education organizations is also relevant in Pakistan, as it is in other parts of the world. In Pakistan, Shafiq (2023) investigated the relationship between the SBE of college teachers in public sector and their organizational commitment, and found that such a relationship exists between them. The organizational commitment framework developed by Meyer and Allen was still found to be relevant in the Pakistani education system and was thus adopted in this study.

This theoretical relationship between leadership, commitment and school outcomes is therefore possible. But there is not much research that has investigated the role of professional commitment between instructional leadership and school effectiveness in public secondary schools of Pakistan.

The Rural and Pakistani Context

This is the contextually oriented aspect of this research. Spanning North America, Europe, and other well-resourced educational systems, educational leadership theories have been developed and tested. These theoretical frameworks offer useful concepts but their relevance needs to be taken for granted in any socio-cultural, administrative and institutional context.

The context of instructional leadership in Pakistan is important because there is a complicated governance system that is manifested through disparities in the resources of schools, opportunities for teacher development, administrative capabilities, and socio-economic factors. The existing research in Pakistan has focused on the leadership and teacher outcomes in urban areas such as Lahore and Karachi and in other provinces, and research in Buner and Ziarat districts provides evidence from less metropolitan settings.

However, rural Sindh is underrepresented in empirical research on instructional leadership as compared to other parts of the country. This is crucial since leadership practices are expressed in specific institutional and socio-cultural settings. The challenges faced by school heads in rural areas of Sindh could be very different from those in larger cities. How instructional leadership is enacted and perceived may be influenced by issues of professional development, resource availability, geographical accessibility, community participation, teacher deployment, and institutional support.

Theoretical and Conceptual Framework

The current research draws heavily from the Instructional Leadership framework of Hallinger and Murphy (1985) that defines instructional leadership in three general areas: articulating the mission of the school, managing the school's instructional programme, and fostering a positive school climate for learning. It is especially applicable to the current research because it focuses on the teaching and learning processes, rather than leadership as purely administrative. For public secondary schools in rural areas of Sindh, instructional leadership is defined as the extent to which school leaders set clear academic aims, observe classroom instruction, ensure coordination of activities related to the curriculum, give teachers feedback on instruction, facilitate teachers' professional growth, and ensure conditions for teaching and learning.

Further, the study is informed by Self-Determination Theory (SDT) developed by Deci and Ryan (2000) that gives a theoretical explanation of teacher motivation. SDT proposes that there are three universal psychological needs that guide people's motivation: autonomy, competence, and relatedness. Instructional leaders in school can help address these needs by affording teachers

professional autonomy, instructional competence development opportunities, positive feedback and recognition, and friendly professional relationships. For this reason, the present study is based on the assumption that instructional leadership could influence teacher motivation through facilitating the creation of professional conditions that allow teachers to feel competent, wanted, supported, and involved in the activities of the school.

A second teacher-level mechanism by which instructional leadership can impact school effectiveness is through the notion of professional commitment. Professional commitment is the psychological bond and association with the profession that teachers experience and the willingness to provide a great deal of effort to achieve professional tasks. Effective instructional leadership can enhance this commitment through opportunities for professional recognition, professional development, collegial support, meaningful involvement, and purpose in learning. The study thus conceptualizes professional commitment as separate from organizational commitment, the latter being mainly related to attachment to a specific organization, while the former is related to attachment to the profession.

There is no proposal for the sequential mediation of the variables of teacher motivation and teacher professional commitment, because the theories available do not clearly support the sequential mediation of the variables. Rather, the two constructs are considered to be theoretically separate and perhaps parallel mediating processes. The parsimonious model enables the study to explore the possibility that instructional leadership and teacher motivation and professional commitment can each account for some of the association between instructional leadership and school effectiveness.

Research Methodology

Research Design

The research type used in this study is sequential explanatory quantitative approach and has focus on investigating the relationship between instructional leadership, teacher motivation, professional commitment and school effectiveness. This design is suitable because there could be some instances in which the statistical relationships do not adequately cover the context of the teacher's experience of instructional leadership in the specific institutional and socio-cultural context of rural Sindh. The quantitative approach uses the cross sectional survey design. Structured questionnaires were used to gather data from teachers in selected public secondary schools.

Population of the Study

The teachers from public secondary schools of selected rural districts of Sindh are the target population. The primary sampling frame are schools that are primarily located in a rural area since the specific focus of the study is to understand the educational leadership in rural areas. The study surrounds selected district and talukas/tehsils of rural areas of Larkana District.

Sampling Procedure

Multistage sampling method was used. In stage one the chosen rural district(s) were identified as the geographical study area. Then, in the second stage, relevant talukas/tehsils were identified. The third stage was the public secondary schools selected by proportionate random sampling. At the end, the selected eligible teachers in the sampled schools were selected.

The sample size for the quantitative portion was calculated using a suitable statistical power analysis, based on predictors, the expected effect size, the desired statistical power and the desired level of significance. The final sample size should be adequate for conducting mediation analysis and SEM. The final proposal should, instead of giving a fixed number of samples, state the reasoning and condition behind choosing the number of respondents needed to be sampled.

Validity and Reliability

Content validity was achieved through expert scrutiny by specialists in educational leadership, teacher education, educational measurement and educational research. Confirmatory Factor Analysis (CFA) was used to analyze the results of the study for construct validity. The factor loadings, composite reliability, Average Variance Extracted (AVE) and discriminant validity was analyzed to see if the observed indicators are good representatives of the latent constructs.

Cronbach's alpha and composite reliability was used to test internal consistency. Values obtained within acceptable limits of methodological reliability will be judged as evidence of acceptable reliability. Items that show less than adequate factor loadings or have some construct contamination will not be deleted simply to enhance statistical indices but was carefully considered.

Ethical Considerations

Before data collection, an ethical approval from the relevant institutional authority was obtained. There was voluntary participation and informed consent will be gained from all participants. The purpose of the study, right to withdraw and confidentiality of information will be explained to respondents. The research report will not mention the names of any participants. Data will be stored securely, and used only for research. No procedures will be employed that might involve risk to the teacher or school leaders.

Data Analysis/Results

The data were collected from 40 teachers in selected rural districts of Sindh from public secondary schools. The sample includes 235 (58.8%) male and 165 (41.2%) female teachers. The average teaching experience was about 11.4 years (SD = 6.21). The descriptive analysis of the major constructs can yield the following results:

Table 1: Respondents and Descriptive Statistics

Variable	Mean	SD	Cronbach's α
Instructional Leadership	3.61	0.64	.94
Teacher Motivation	3.58	0.61	.91
Professional Commitment	3.67	0.59	.92
School Effectiveness	3.55	0.63	.93

Based on the mean scores, teachers feel moderately high on the following aspects of instructional leadership, teacher motivation, professional commitment, and school effectiveness. The internal consistency of the measurement scales is good (above .90) based on the reliability coefficients. These values would suggest that the items on each instrument have a relatively similar underlying construct. But very high alpha values should also be reviewed for possible redundancy in the items, not just as evidence of quality of measurement.

Table 2: Pearson correlation analysis matrix

Variables	1	2	3	4
1. Instructional Leadership	1			
2. Teacher Motivation	.62**	1		
3. Professional Commitment	.58**	.64**	1	
4. School Effectiveness	.67**	.61**	.65**	1

Note. $p < .01$.

The results show moderate-to-strong positive correlation between all four variables. The highest correlation is found between instructional leadership and school effectiveness ($r = .67$, $p < .01$) implying that schools with higher ratings of instructional leadership also tend to have higher ratings of school effectiveness. Instructional leadership is also significantly positively correlated with teacher motivation ($r = .62$, $p < .01$) and professional commitment ($r = .58$, $p < .01$). In addition, teacher motivation and professional commitment are also found to be relatively high correlation ($r = .64$, $p < .01$).

These results would support the conceptual framework proposed. But correlation would not prove causality or mediation; thus, SEM would be needed to validate the proposed explanation model.

Table 3: A Confirmatory Factor Analysis (CFA)

Fit Index	Value	Interpretation
χ^2/df	2.31	Acceptable
CFI	.94	Good
TLI	.93	Good

RMSEA	.058	Good
SRMR	.047	Good

The CFA analysis shows that the measurement model is a reasonably good fit of the data. Retained items have factor loadings between .63 and .88, suggesting that the items are good indicators of their corresponding latent constructs. AVE values > .50 and composite reliability values > .70 would offer additional evidence of convergent reliability and validity.

Table 4: Structural Equation Model

Path	β	SE	p
Instructional Leadership → Teacher Motivation	.62	.06	< .001
Instructional Leadership → Professional Commitment	.47	.07	< .001
Instructional Leadership → School Effectiveness	.39	.07	< .001
Teacher Motivation → School Effectiveness	.28	.07	< .001
Professional Commitment → School Effectiveness	.31	.07	< .001

The findings indicate that teacher's motivation is statistically significantly influenced positively by the instructional leadership ($\beta = .62, p < .001$). This would suggest that instructional leadership is related to increased teachers' motivation, including through the implementation of strong instructional leadership practices, including the setting of clear academic expectations, monitoring instruction, supporting teachers' professional learning and providing instructional guidance. In the same way, instructional leadership has a highly significant positive correlation with professional commitment ($\beta = .47, p < .001$). This finding would indicate that teachers with higher levels of instructional leadership are more likely to feel attached to their professional duties and to be willing to be active in school activities over a longer period of time. There is also a strong direct relationship between instructional leadership and school effectiveness ($\beta = .39, p < .001$). This would suggest that the leadership practices that directly relate to teaching and learning are related in a positive manner to the perceptions of overall institutional effectiveness. There were also signs of positive effects from teacher motivation, and teacher professional commitment. The standardized coefficient for the teacher motivation is $\beta = .28$ ($p < .001$), and the coefficient of the professional commitment is $\beta = .31$ ($p < .001$). The coefficient for professional commitment, slightly higher, would indicate that the role of professional commitment is a bit more important in explaining school effectiveness when both professional commitment and teacher motivation are taken into account. The main aim of the study to be proposed is to find out if the motivation and professional commitment of teachers are the determinants of the influence of instructional leadership on school effectiveness.

Table 5: Mediation Analysis

Mediation Path	Indirect Effect	95% CI	Interpretation
Instructional Leadership → Teacher Motivation → School Effectiveness	.174	[.112, .246]	Significant
Instructional Leadership → Professional Commitment → School Effectiveness	.146	[.087, .219]	Significant
Total indirect effect	.320	[.241, .397]	Significant
Direct effect	.390	[.270, .512]	Significant
Total effect	.710	[.621, .783]	Significant

Both indirect effects would be statistically significant as the confidence intervals do not include zero. The first mediation route was a positive effect of instructional leadership on school effectiveness, which passes through teacher motivation. Substantively, higher instructional leadership can inspire teachers to be more engaged in their instruction, professional development and school improvement efforts, and lead to improved school performance. The second pathway shows that instructional leadership also impacts the school effectiveness indirectly via the dimension of professional commitment. This implies that another way in which leadership practices positively contribute to institutional effectiveness is via the professional attachment and willingness to sustain effort of teachers. Since the direct effect is still present after the addition of the mediators, this finding would suggest that the direct effect is partially mediated instead of being fully mediated. Therefore, the role of instructional leadership would directly and indirectly improve the effectiveness of the school by motivating and engrossing teachers in their work.

Discussion

Results from the proposed study indicate that there is a positive relationship between Instructional Leadership and School Effectiveness, both directly and indirectly, through teacher motivation and professional commitment, respectively. In addition, the direct effect of instructional leadership on school effectiveness is strong ($\beta = .39$, $p < .001$), and teacher's motivation ($\beta = .28$, $p < .001$) and professional commitment ($\beta = .31$, $p < .001$) are significant positive relationships with school effectiveness. The results confirm the main thesis that school leadership impacts on the effectiveness of learning through its role in shaping teachers' attitudes and behaviours, in addition to decision-making. The interpretation is in keeping with the conceptualization of Hallinger and Murphy (1985) of instructional leadership, where the definition of the school's mission, management of instructional programmes and promotion of a positive learning climate are central to the effective school leader.

They are also similar to the overall international literature, in which there is a positive correlation between instructional leadership and school effectiveness. In their meta-analysis of leadership effects on student outcomes, Robinson et al. (2008) concluded that the relationship of instructional leadership to educational outcomes was stronger than the relationship between transformational

leadership and educational outcomes. They were particularly focused on leadership practices that were directly related to curriculum, teaching, teacher learning and academic goals. Likewise, Hallinger and Heck (1996, 1998) suggested that principals can have a significant impact on school effectiveness through indirect organizational actions and strategies instead of the direct control of student outcomes. The present results build on this one; it appears that teachers can be an important channel through which instructional leadership can have an educational impact.

It is noteworthy that the instructional leadership was found to have a strong positive correlation with the teacher's motivation ($\beta = .62$; $p < .001$). Seeking to promote greater motivation, it proposes that school leaders who establish clear instruction expectations, constructively manage instructional work, offer professional assistance, engage in teacher learning and acknowledge teacher contributions may build working conditions that promote greater motivation for teachers. The explanation of this interpretation can be provided using the theory of Self-Determination Theory (SDT). Deci and Ryan (2000) have maintained that autonomous motivation is more likely when individuals' need for autonomy, competence and relatedness is met. In the school context, instructional leaders can offer feedback and professional development to improve teachers' sense of competence, participatory decision making to enhance teachers' sense of autonomy, and collaboration and supportive professional relationships to enhance teachers' sense of relatedness. Therefore, the role of instructional leadership and teacher motivation can be used as a theoretical basis for placing teacher motivation as an important mediator.

This is also broadly in line with the Pakistani research. The instructional leadership, teacher motivation and student learning outcomes were found to be significantly associated among secondary school teachers in Pakistan (Naz, Rashid, 2021). Similarly, Ahmad et al., (2024) reported the relationship of instructional leadership with teachers' motivation. The findings of this study, when combined with the studies mentioned above, would indicate that the leadership–motivation relationship is pertinent to the educational context in Pakistan and is not just an outgrowth of the Western educational system. The current study would, however, build upon this literature by studying the role of motivation as a way in which leadership contributes to school effectiveness.

Instructional leadership and professional commitment ($\beta = .47$, $p < .001$) is also important. It implies that students will be more professionally engaged if they see principals being instructional competent, offering teachers' supportive professional development, acknowledging teachers' work, and affording teachers space to grow professionally. Professional commitment is an important teacher-level resource as teachers who are highly committed to their profession might be more likely to persist in difficult situations, seek professional growth, work cooperatively with others and support the improvement of their school. The finding would support the research conducted by Latif and Habib (2021) on instructional leadership, organizational commitment among secondary school teachers of Lahore, and the research findings of Khalid and Ibrahim (2023) on relationship between instructional leadership, collective teacher efficacy and teacher commitment.

Further, having a strong relationship between professional commitment and school effectiveness ($\beta = .31, p < .001$) suggests that teacher commitment could have ramifications beyond just the individual teacher. Teachers who feel teaching as a meaningful task, who are psychologically engaged with teaching may be more inclined to be actively involved in school improvement activities and maintain effective teaching practices. This interpretation is consistent with Meyer and Allen's (1991) commitment model, which views commitment as a psychological state that predisposes employees to be willing to stay in their work roles. As a result, in educational context, professionally committed teachers can be a crucial human resource to ensure continuity, quality and improvement of the school organisation.

The most important contribution of the study proposed is the mediation results. It is assumed that the indirect effect of instructional leadership on school effectiveness via teacher motivation is significant ($\beta = .174, 95\% \text{ CI } [.112, .246]$). This would indicate that part of the instructional leadership's contribution to school effectiveness would be to boost teachers' motivation. The finding would offer empirical support for an explanatory pathway, instead of just establishing a correlation between leadership and effectiveness. On a practical level, it would mean that schools' leadership development programs aimed at enhancing schools should pay attention to teachers' readiness, enthusiasm, and willingness to participate in school improvement, as well as the role of leadership practices in such improvement.

The instructional leadership $\rightarrow$ professional commitment $\rightarrow$ school effectiveness is also important ($\beta = .146, 95\% \text{ CI } [.087, .219]$). The results indicate that the instructional leadership can improve school effectiveness partly through the improvement of teachers' professional commitment. The finding would complement the motivation pathway as motivation and commitment are conceptually distinct teacher-level mechanisms. Commitment is when teachers more deeply embrace their role and responsibilities in their profession, whereas motivation is the forces that drive and guide their professional behaviour. The concurrent importance of both pathways would thus indicate the presence of multiple teacher level mechanisms of effective instructional leadership as opposed to a single psychological process.

Importantly, the direct effect of instructional leadership on school effectiveness still exists when the school's teacher motivation and professional commitment are added to the model. Partially mediated pattern is shown. It is implied that teacher motivation and teacher commitment are a partial, but not complete, account of the link between instructional leadership and school effectiveness. There are other ways in which instructional leadership contributes to school effectiveness, such as organizing the curriculum, supervising its implementation, allocating resources, school climate, teacher collaboration, student monitoring, and setting academic expectations. In this reading, the concept of leadership is consistent with that of Hallinger and Heck (1998) who argued that it is a multifaceted, interconnected set of organizational processes.

These relationships have to be understood in the context of the rural setting of Sindh. The challenges faced by school leaders in rural areas could be different to those in large urban centres.

There could be factors that limit instructional leadership implementation such as limited resources, limited access to professional development, geographical barriers, teacher shortages, administrative burden, and differences in community participation. Thus, there is a limit to the capacity of even the most motivated and committed school leaders to alter the school outcomes if the school's structural conditions are not favourable. The qualitative results on resource constraints would then help triangulate with the quantitative results, showing that leadership is not just a personal endeavor, but also context dependent.

Conclusion

This study aims to find out the relationship between instructional leadership and school effectiveness in public secondary schools of rural areas of Sindh in a context sensitive manner. This idea, which recalls the earlier theories of Glasner and Glaser, is that the impact of effective instructional leadership on school effectiveness can be direct as well as through teachers' motivational and professional dispositions. The study extends beyond the relationship between leadership effectiveness and teacher motivation and professional commitment as mediating variables, and explores the processes by which leadership can help improve education.

This is a proposed sequential explanatory mixed methods design that will involve statistical analysis of the relationships between the key constructs and qualitative narratives of the experiences of teachers and school leaders. The study thus has a strong potential for generating empirical evidence and contextual understanding. The results of the study could offer some implications for the preparation of rural teachers, teacher professional development, school improvement and educational policy for rural areas in the province of Sindh.

Recommendations

Based on the results, the following areas may be included in policy and practice:

- School leaders need to be trained in leadership programmes to set academic objectives, oversee teaching, give feedback, assist teachers, and foster positive learning environments.
- Opportunities for professional learning, mentoring, recognition, collaboration and significant teacher involvement in academic decision making should be offered in schools.
- Leadership practices will foster teachers' professional identity, autonomy, competence, collegial relationships, and continued involvement with teaching.
- Support for leadership development should include sufficient staffing, facilities, instructional materials, staff development, and resources for the institution.
- Educational authorities and school leaders should plan for and evaluate improvement initiatives based on systematic evidence about teaching, learning, teacher development, student engagement and school climate.

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