Journal of Social & Organizational Matters

Vol 5 No 1 (2026): 275-296

Instructional Leadership and Teacher Effectiveness in Strengthening Students' Academic Resilience at Secondary Level

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Keywords: *Input Practices, Process Practices, Outcome Practices, Teacher Effectiveness, Students' Academic Resilience*

DOI No: https://doi.org/10.56976/jsom.v5i1.400

The purpose of the present study was to explore how instructional leadership can be used to improve the effectiveness of teachers and academic resilience of students especially how they are able to solve their academic problems and continue to forge ahead when facing challenges in their academic journey in the Pakistani public secondary schools of Karachi. School heads Instructional leadership practices includes practices related to school input, process, and outcomes in the school. A quantitative descriptive survey design was used in this study. The secondary school teachers in Karachi were the population of the study and a sample of 295 teachers was selected by using stratified random sampling technique. A structured survey questionnaire was used to collect data from the teachers. Data was collected by personally visiting the school and analysis was done through SMART-PLS and SPSS. The findings of the study revealed that instructional leadership practices of school heads have a positive significant effect on teacher effectiveness and teacher effectiveness has also significant effect on students' academic resilience. Findings of the study recommended that all school heads should adopt instructional leadership practices which improve performance of teachers in the school. Study also suggested that a motivated, professionally qualified teacher develop strong problem-solving skills and lifelong learning in students in the class.

1. Introduction

A school headmaster/headmistress or principal is a significant figure in the learning institution and he/she has the responsibility of spearheading the continuous improvement of the school climate, motivating the teachers to teach well and students to learn. Until the second half of the 20th century, school leadership was not a topic of great scholarly and educational interest. However, since that time its importance has been increasing. The inefficiency of bureaucratic leadership with the strict hierarchical structures and centralization of decision-making by the public authorities out of the school has been emphasized as the negative impact on the quality of teaching and learning (Ahmad & Hamid 2021; Louis et al., 2016). The 20th century was marked by the evolution of leadership theories whose evolution is traced back to the theory of traits, the theory about the styling of behavior, the situational contingency theories, and theories of transformational leadership to a new paradigm.

In the school performance, educational leadership is the major supporting frame of the school administration both in academic and non-academic responsibilities. Research has shown that perceived support has a positive impact on school-based self-esteem and citizenship attitudes, leading to improved performance among both students and staff (Ahmad et al., 2020; Ahmad et al., 2021). School success correlates with the enhancement of all the contextual elements of a school, including instruction, learning, administration, students, motivation, and community engagement. Edmonds (1979) proposed a five-factor model of school effectiveness that includes the following elements: purposeful educational leadership, challenging teaching and high expectations for student achievement, teacher involvement and consistency, a positive and orderly environment, and frequent evaluation of student progress (Ahmad et al., 2021).

Academic resilience is also defined as the capability of students to adapt, persevere, and excel in the challenge with the elements of self-efficacy, emotional regulation, social support, and a growth mindset. Higher self-efficacy students are also more engaged and more persistent, and students with a growth mindset approach challenges as a learning process (Agasisti et al., 2018). The importance of social support by peers, teachers and family is to lay down the much-needed foundation of the essential emotional and practical supplies, and positive regulation of emotions helps student's better handle stress and tops their performance in the academic field. Positive learning conditions along with the family contribution will provide an environment where students feel appreciated and will be driven to excel (Ye, Strietholt, & Blömeke, 2021). The research aims at exploring the role played by instructional leadership of heads of secondary schools in promoting teacher effectiveness and consequently academic resilience of students.

1.1 Objectives of the Study

This research is supposed to investigate the instructional leadership and its influence on both teacher effectiveness and students' academic resilience. Specifically, the study will pursue the following objectives:

1. To investigate the effect of instructional leadership practices of secondary school

heads on teacher effectiveness with mediating role of teacher effectiveness.

1.2 Research Questions

R.Q1: What is the effect of school heads instructional leadership practices on teacher effectiveness and students' academic resilience at secondary level in Karachi, Pakistan?

2. Literature Review

Leadership is an important factor determining the organizational performance and especially in the educational sector whereby the quality of teaching and learning is directly impacted by the leadership. Being a powerful leader, one creates an atmosphere where growth, innovation and continual improvement can take place and empower both the staff and the students. As applied to the educational field, leadership has the potential to influence the student achievement, teacher motivation and the culture of the institution (Leithwood & Seashore Louis, 2011). One particular type of leadership, instructional leadership which is concerned with the enhancement of teaching practices and learning outcomes has been found to be very useful in improving the performance of schools. Instructional leaders have a direct influence on the learning experiences of students by ensuring that they have clear goals, instructional support, and collaboration between educators (Robinson, Lloyd, & Rowe, 2008). This way, leadership has not only to lead in the management of resources but also to actively take part in the educational process to see to that both the teachers and the students develop.

2.1 Instructional Leadership

School leaders can exhibit instructional leadership by enhancing teaching and learning through the provision of clear goals, aiding teachers, and promoting cooperation. It has been shown that effective instructional leadership can lead to teacher teaching practices being enhance student achievement on standardized tests. Furthermore, this type of leadership describes a quarter of the differences in student learning outcomes and minimizes teacher turnover by threefold. Collaborative leadership utilizing best practices between educators also enhanced student motivation and engagement which led to a more interesting learning experience (Akomodi, 2025; Ahmad et al., 2025).

During the early years of Effective Schools Movement, research was done to find out what the principals of the dominant school differed with the ineffective school principals. The further research focused on the role of the principal as an instructional leader and performance management of an organization as the movement advanced. Since 1980, numerous school administration leadership styles and methods have been researched over a long duration and with diverse features. Instructional leadership is offered in primary schools. Edmonds (1979) was supplemented with the role of the school principal in various settings (Kraft et al., 2015). The term instructional leadership was developed by ineffective primary schools in the 1970s. Also, the growth that largely took place in 1980s was characterized by robust institutions of learning that were under close and uncompromising supervision (Hallinger, 2005). Empirical antecedents of the instructional theory could be traced back to

the education studies conducted in low-income urban populations in the late 1970s and early 1980s where students overcame their disadvantages and were encouraged to do it (Edmonds, 1979). According to Bossert (2013), such schools were characterized by intense instructional leadership that incorporated high expectations of the teachers on the pupils, continuous learning process, and free pedagogic goals (Robinson et al., 2008). Instructional leaders are administrators who model some behaviour and influence others to follow suit (Zorlu & Arseven, 2016). Instructional leadership is based on instruction and school house establishment. Instructional leadership allows the school heads and leaders to pursue their objectives more effectively. During the school day, the education department can be elevated by emphasizing the instructional leadership practices of the school heads and giving the instructional leaders grandeur of their role in enhancing the performance of the teachers. Therefore, it is the outcome of decisions about the way to transition the school to its ideal state out of the present condition (Shaked, 2022).

2.2 Hallinger and Murphy Model (1985)

In order to construct their model of instructional management, Hallinger and Murphy (1985) analyzed the available literature pertaining to school effectiveness and analyzed the instructional leadership behaviors of 10 elementary administrators in one district. Hallinger and Murphy (1985) constructed an instructional management model, which is founded on their findings. They were able to collect data about central office administrator, teacher, and principal instructional leadership practices using a standardized questionnaire. These data were also improved by school records, such as the faculty meeting agendas and minutes, clinical evaluation notes by principals and narratives about the efforts to develop the curriculum and instruction in particular schools. The role of instructional leadership conceptual framework that Hallinger and Murphy (1985) have created remains popular. As per this model, the role of the principal is to supervise the curriculum, to create a cordial learning atmosphere to the learners and to communicate with the schools objectives. It can be achieved in a number of ways (Zheng et al., 2019). PIMRS was developed to measure the instructional leadership skills of principals (Hallinger et al., 2015). The activities of educational leaders influence classroom instruction and student development. Others were also included as: goal-setting, goal-communication, goal-monitoring, professional development, supervision and evaluation of instructional time, protection of instructional time, student progress monitoring, curriculum coordination, visibility, teacher and student incentives and other items (Hallinger & Murphy, 1985).

2.3 Input Practices of School heads

The practices of instructional leaders regarding the school input are threefold i.e. identification of the school objectives, communication of the same, and provision of the teacher's professional development opportunities within and between schools. These aspects are much related to the Hallinger & Murphy (1985) model of an effective school mission setting. These three dimensions were used to elaborate the instructional leadership of the school head. The criteria that were to be described were based on the input procedures of the school heads as follows. This feature of the school leader's policy as to school input defines

the school mission, which articulates school goals (Hallinger & Murphy, 1985). School leaders are instructional leaders and, in this regard, they present clear instructions by giving the description of the goals of the institution. One of the school leader's practices that are associated with school input is school goal communicating. To establish a dynamic vision of the school, the leader should make sure that the members of staff are engaged. Blasé and Blase (2000) further state that it is upon the leaders to make them be inspired by this shared goal and own the idea. One can use an image to influence people to take part in the duties of a group just in case they consider it essential. They also have discovered that principals who perform highly would usually remember all the relevant partners to the decision-making process.

2.3 Process Practices of School Heads

School heads impact teaching and learning in their day to day activities. Monitoring and reviewing instruction is important since the leaders should observe the lessons and provide teachers with feedback on how they can do better. It has been found out that when school heads observe the classroom on a regular basis and their follow-up meetings with teachers, the quality of instruction improves, and student performance improves (O'Sullivan, 2002). Such supervision is used to assist teachers in the process of refining their practices and align their work with the school objectives.

Good school heads are also able to coordinate the curriculum in grades and subjects. They also make teachers employ the same standards, materials and expectations in such a way that a student does not repeat his/her idea or fail to learn important skills. As reported in recent investigations, the presence of leaders who coordinate curriculum content and speed support through the planning of lessons that develops out of each other (Mora-Ruano et al., 2021). Coordination provides a common plan to teachers and students get a seamless instruction throughout the school year (Kilag, & Sasan, 2023).

Instructional leadership involves monitoring student progress. Heads use test, classroom visits and portfolios to determine whether students have reached the learning targets or not. To the extent that leaders make this information available to teachers, they will facilitate specific assistance to struggling students (Kim & Lee, 2020). Leaders who ensure that data are visible to the teams enable teachers to observe patterns and make changes whenever necessary. The importance of guarding the instructional time is in the fact that learning suffers from interruptions. The heads of schools have to plan the activities in such a way that the teaching time is long and concentrated. Research indicates that schools with less disruption score more in terms of achievement (Shaked, 2025). Heads achieve this by restricting meetings during the core lessons, minimizing events out of schedule and ensuring there are start and finish times of the lesson. Routine consistency aids teachers to go through the vital content in great detail.

The practice of school heads is having high visibility in the school. Teachers feel that they can count on leaders rather than students wandering off when they are found in corridors and classrooms. Through visible leadership, there is a positive relationship between leadership and school climate and teacher commitment (Castillo, 2024). Teachers state that,

when leaders visit the classroom, they become more affiliated to school objectives and more responsible to quality of instructional processes.

These practices are associated with research that is associated with improved instruction. Curriculum-less supervision can have a positive impact on the individual lesson, but will not enhance the general coherence (Hallam et al., 2013). Observation of time without protection may drown teachers with information and leave them without room to take action. And visibility strengthens all other practices, developing relations of trust. School heads that combine lessons observation, shared curriculum planning, time management, and presence on campus develop stronger teaching as compared to school heads that prioritize one aspect (Gading, 2024; Ahmad & Hamid, 2021).

2.4 Outcome Practices of School Heads

Instructional leaders also implement incentive systems targeting educators to support quality of instruction. When teachers are paid to develop professionally and achieve student success, then they will become more willing to implement new teaching methods. The above motivators are synergistic and include monetary bonuses, career advancement, and public acknowledgment (Eren, 2019). By getting the school heads to harmonize incentives with visible performance standards, the educators will have a better idea of what is expected. Multisite studies show that professional learning incentives associated with teachers provide long-lasting improvements in the pedagogical practice (Leithwood, 2016). These rewards are an indication that the administrators appreciate teacher effort and creativity.

The combination of the learner and teacher incentive system enhances the outcome of the school level when both mechanisms are used in a synchronized way by the administrators. Student incentives keep the classroom active, and teacher incentives increase the capacity of instruction. Empirical studies have shown that in cases where such systems are running simultaneously, schools have better performance in standardized testing and have more enriched classroom dynamics (Jiang, & Nair, 2025). Rewarding effort and attainment in the leader activities create the behavioral patterns within the institution. Students who have been rewarded because of hard work shape classroom culture whereas instructors who are recognized as having improved their practice shape ongoing professional development (Fryer et al., 2022).

Best, incentive systems must be designed in a way that they do not encourage unhealthy competition. A study warns that improperly constructed rewards to learners like selective top-score rewards can reduce the cooperation of peers (Khan, 2024). Instructional leaders must develop standards that emphasize self-improvement and hard work. Similarly, teacher rewards must be able to encourage teamwork and joint learning as opposed to individual performance. Rewards linked to group performance, e.g. improvements in grade-level performance, support mutual problem-solving during instruction (Nguyen, & Prentice, 2022). The good leaders consult the teachers in the development of the incentive systems to make them agree with the common priorities.

Studies also find incentive systems linked to teacher morale and retention. Teachers who believe that their efforts are rewarded with significant rewards experience high job

satisfaction and a commitment to school-level goals (Chi et al., 2023; Fulmer & Li, 2022). Leaders of schools who combine extrinsic rewards with professional development opportunities foster a culture in which the teachers feel supported. When teachers stay longer and improve on their teaching skills, the outcomes of learners are improved. Rewards that focus on both students and educators solidify instructional priorities and rewards coupled with definite instructional results inspire trust and responsibility among leaders (Meirinhos et al., 2023; Lavy, 2007).

2.5 Teacher Effectiveness

Effectiveness of teachers relies on several skills that they possess in the classroom. It is also confirmed through empirical data that subject-matter knowledge is the basis of constructive teaching: the better an instructor understands what should be taught, the more effectively they can explain ideas and correct misunderstandings (Stronge, 2018). The results of a recent investigation into the science educators indicated that subject knowledge had a great predictive value on student achievement and that when the educators were able to connect academic concepts with real-world contexts, the students were able to show improved learning outcomes thus reinforcing the fact that mastery of disciplinary content was indispensable to pedagogical effectiveness (Liakopoulou, 2011; Ahmad, Sewani, & Channa, 2025).

Instructional planning and strategies influence the way lessons are delivered. When teachers are careful in their planning, they are able to present materials in logical, digestible bits, to arrange activities in a scaffolder order to achieve understanding, and to choose teacher strategies that match the needs of a variety of learners (Karngbeae & Kennedy, 2022). Such preparation work allows educators to predict possible challenges and to balance their approach to it, thus increasing the interest and clarity of teaching. The results of the secondary classroom study are in line with the findings of previous research that systematic lesson planning combined with adaptive instruction can be associated with increased student achievement because it is an application of the content knowledge into practical learning activities (Hill & Jordan, 2021).

Assessment is one of the fundamentals of teaching. Good teachers use the assessment to ensure that the students have grasped the content and to help them to tune the future lesson. Consistent formative assessment, as well as prompt feedback and scoring rubrics, provide the instructors with information to customize the lessons and help struggling students (Mohan, 2023). Assessment practices as one of the most powerful predictors of student learning; especially when teachers are keen on incorporating results to fill learning gaps and affirm learning of concepts (Ahmad et al., 2025).

Effectiveness of teachers depends on communication skills as teachers should be able to present ideas clearly, provoke students into discussions and offer explanations that will appeal to everyone. Effective communication also implies listening carefully and encouraging participation in students, thus, creating a rapport in the classroom and enhancing the understanding (Muste, 2016). Studies of teacher performance point out communication as a critical factor of student perceptions of the quality of instruction and student achievement,

and confirm the importance of the way information is delivered and how the teacher interprets it (Jakhanwal, 2021; Kandel, 2022).

Teachers with a sound knowledge of their subjects, planning, use of assessment data to improve teaching, effective communication, and the use of ICT tools show excellent teaching performance (Wang et al., 2024). With the convergence of these competencies, students will have properly organized lessons, in which the content is clear, feedback guides improvement, and technology opens access to learning materials. Statistically significant correlations between subject knowledge, instructional planning, assessment, and communication were found in science classes, which supported the idea of synergy of these variables to facilitate teacher effectiveness and student achievement (Darling-Hammond, 2010).

Training in the use of ICT, in the design of assessment, and strategic planning provide teachers with the competencies that they later apply in practice, which enhances the connection between professional development and the effective teaching (Darling-Hammond et al., 2013). Overall, current studies indicate that successful teaching is based on the combination of thorough content understanding, careful planning, active evaluation, effective communication, and careful utilization of technology, which, in turn, will create the learning experiences that allow students to learn the fundamental principles, enjoy efficient feedback, and interact with the material in a manner that will lead to academic learning (Buabeng-Andoh, 2012).

2.6 Students' Academic Resilience

Academic resilience refers to the capacity of a student to be able to achieve in learning despite the challenges in schools or Universities. Strong students experience disappointments in their form of stress, failure or high demands and keep their goals. This notion has been increased in research since teachers are interested in enhancing student achievement and decreasing student dropouts. Academic resilience is defined variously by researchers, yet most of them agree that the concept is associated with success in case a student has undergone an academic challenge (Ye et al., 2024). Others describe it as the capacity to remain motivated and perform with a high level of activity despite stress and failure in schoolwork among students (Abdelrahman et al., 2025). In recent studies, these definitions have been extended to include the factors of resilience and how it is connected to academic performance.

Recent studies have researched the aspects that cushion or sustain academic endurance. In a systematic review conducted, individual, family, school, peer, and community factors were found to increase resilience. As an example, supportive teachers and favorable school climate assist students to adjust to challenges in a more successful way. Studies have indicated that the measurement of resilience used in studies differs generally, and it is challenging to compare findings across contexts (Ye et al., 2024). The other current research involved the disadvantaged setting learners in South Africa. It discovered that optimism, determination, family support, and sense of control were critical issues that

enabled students to be resilient throughout the COVID period (Nuha et al., 2024). These personal and environmental resources play a role in the development of resilience.

Guided students tend to report having an enhanced capability of handling academic requirements. The support that teachers have is a powerful variable in resilience research. A few recent researches were conducted to determine the influence of emotional and instructional support provided by teachers on the engagement and persistence of students. A research study on high school students revealed that students who felt that the teachers had greater emotional support were more engaged in school work. Partial explanation of the relationship between resilience and school engagement was also supported by teacher support (Romano et al., 2021). This demonstrates that student motivation and persistence are influenced by the behavior of the teacher.

Figure No 1: Conceptual Framework

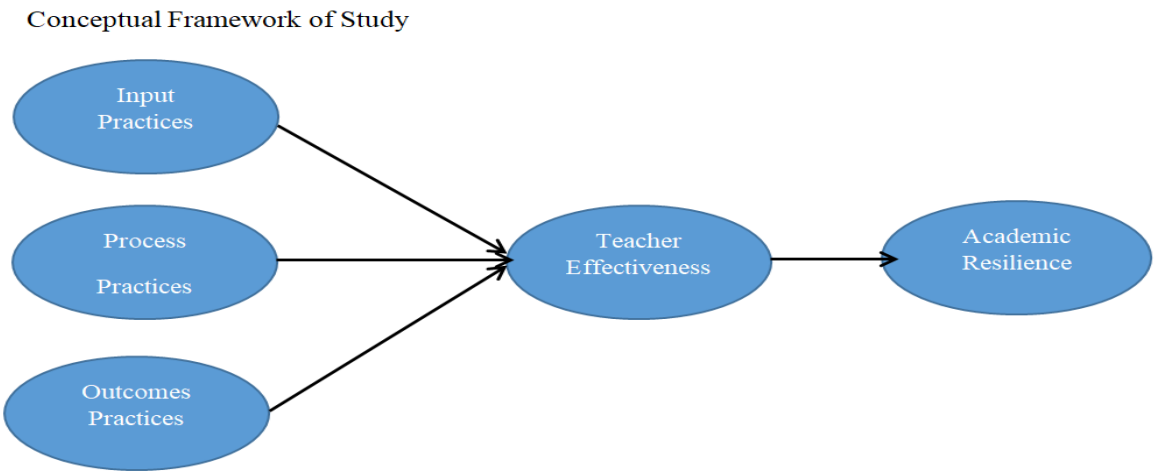

Figure 1

3. Methodology

This methodology section covers several components, including research instrument techniques, population sampling size, sample procedure, design, data collection strategies, and data processing approaches. This study employed a quantitative research strategy to collect data through a survey distributed to teachers employed in public secondary schools in Korangi, Karachi (Ahmad & Hamid, 2021). The researcher used a stratified random sampling technique to select 295 teachers from secondary level which was the 10% (2995) of population (Creswell, & Creswell, 2014). The study population consisted of male and female secondary school teachers from Korangi district Karachi, Pakistan. The major tool used in this study to explore educators' perceptions regarding their school heads instructional leadership, teachers own effectiveness which enhances students' academic resilience with 22 items for school heads instructional leadership, 11 items for teacher effectiveness and 04 items for student's academic resilience in survey research questionnaire. 300 questionnaires were distributed to teachers. They were instructed to carefully read the statements and mark their selection on a five-point Likert scale. There were four sections in the research

instrument. First one was demographics of the participants, second was about their school heads instructional leadership practices, third one was about their own teacher effectiveness and last one was about their students' academic resilience. 295 people responded, and some chose not to participate in the study. Ninety eight percent was the response rate. Before data collection, a pilot test was carried out, and the results indicated that the scale was reliable at 0.941 Cronch's Bach Alpha with 42 items. 04 items in the students' academic resilience scale and 01 from teacher effectiveness were eliminated due to low factor loading in data analysis process in Smart-PLS. Ultimately, there are still 37 items in the current study. The overall reliability rose when low-factor loading elements were removed.

3.1 Data Analysis of Study

After obtaining the data, it was screened, and the frequency and percentage distribution were calculated using SPSS version 22. Smart PLS version 4 employed structural equation modeling as one of the numerous approaches for the data analysis.

4. Data Analysis and Results

4.1 Demographics

Table 1 presents data about the demographic characteristics of the secondary school teachers. According to the table, 36.9% of female teachers and 63.1% of male instructors participated in the study. In addition, a respectable proportion of instructors (34.9%) had one to ten years of experience in the classroom, and the majority (33.9%) met the requirements to graduate.

Table No 1: Demographic Information

Demographics		Frequency.	Percent.
Gender	Male	186	63.1%
	Female	109	36.9%
	Total	2955	100%
Experience	1_10yrs	103	34.9%
	11_20yrs	43	14.6%
	21_25years	98	33.2%
	More than26yrs	51	17.3%
	Total	295	100%
Academic Qualification	Graduation	100	33.9%
	Masters	98	33.2%
	M Phil.	97	32.9%
	Total	295	100%

4.2 Data Analysis

Smart PLS was utilized to analyze the data. Smart PLS was employed to assess the research hypothesis and validate the validity and reliability of the external model (Ringle et al., 2015). One of the advanced statistical instruments extensively employed in structural equation modelling is the partial least square method (PLS-SEM).

4.3 The Measurement Model (Outer Model)

Measurements of content validity, convergent validity, and discriminant validity were made to guarantee sufficient validity and reliability of the measurement or outer model. The model's content validity was established because factor loading (see Table 2) was in threshold value (Hair, Ringle, & Sarstedt, 2011). For the internal consistency reliability of the research model, Cronbach's alpha is the lower bound, and the composite reliability (CR) is the upper bound (Hair, et al., 2019). According to Table 3, all of the components' Cronbach's alpha and CR values are over the cut off value. This explains how the validity and construct reliability of the present study were determined. The convergent validity is maintained since all factor loadings were in the threshold range (Table 2) and the average variance extracted (AVE) values were more significant than 0.5 (Table 3). These results show that the group of items for each component measures the corresponding factor.

Table No 2: Factor Loadings

Factor Loadings	IP	PP	OP	TE	SAR
IP1	0.673				
IP2	0.669				
IP3	0.732				
IP4	0.801				
IP5	0.742				
IP6	0.655				
IP7	0.744				
IP8	0.686				
PP1		0.726			
PP2		0.735			
PP3		0.696			
PP4		0.714			
PP5		0.749			
PP6		0.686			
PP7		0.755			
PP8		0.672			
PP9		0.663			
OP1			0.724		
OP2			0.872		
OP3			0.866		
OP4			0.906		
OP5			0.895		
TE1				0.837	

TE2	0.832	
TE3	0.712	
TE4	0.770	
TE5	0.856	
TE7	0.779	
TE8	0.737	
TE9	0.775	
TE10	0.684	
TE11	0.631	
TE12	0.591	
SAR2		0.804
SAR4		0.780
SAR5		0.884
SAR6		0.822

IP= Input Practices; PP= Process Practices; OP= Outcome Practices; TE= Teacher Effectiveness; SAR= Student's Academic Resilience

Table No 3: Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
IP	0.863	0.867	0.510
PP	0.881	0.888	0.506
OP	0.907	0.924	0.731
TE	0.921	0.933	0.563
SAR	0.842	0.850	0.678

Three results were analyzed to confirm that a set of items can discriminate a factor from other factors. (1) All items strongly loaded against their perspective domain (Refer to Table 4) when compared with cross-loadings of the items in factors in rows and columns (Fornell & Larcker, 1981); and (2) All values of Heterotrait-Monotrait (HTMT) ratios (Refer to Table 5) are < 1. Thus, the discriminant validity test (HTMT rejects the null hypothesis (H0: HTMT ≥ 1) against the alternative hypothesis (H1: HTMT < 1) (Henseler, Ringle, & Sarstedt, 2015).

Table 4: Cross Loading and Loadings

Factor Loadings	IP	PP	OP	TE	SAR
IP1	**0.673**	0.394	0.536	0.232	0.408
IP2	**0.669**	0.382	0.427	0.284	0.514
IP3	**0.732**	0.324	0.224	0.284	0.321
IP4	**0.801**	0.408	0.314	0.282	0.404
IP5	**0.742**	0.543	0.296	0.316	0.412
IP6	**0.655**	0.394	0.183	0.287	0.285
IP7	**0.744**	0.463	0.340	0.345	0.423
IP8	**0.686**	0.458	0.357	0.446	0.418
PP1	0.454	**0.726**	0.712	0.563	0.389

PP2	0.336	**0.735**	0.496	0.449	0.285
PP3	0.183	**0.696**	0.284	0.260	0.306
PP4	0.249	**0.714**	0.188	0.342	0.410
PP5	0.274	**0.749**	0.323	0.348	0.363
PP6	0.178	**0.686**	0.258	0.270	0.382
PP7	0.315	**0.755**	0.255	0.361	0.268
PP8	0.422	**0.672**	0.505	0.501	0.227
PP9	0.457	**0.663**	0.357	0.532	0.359
OP1	0.443	0.362	**0.724**	0.388	0.390
OP2	0.594	0.515	**0.872**	0.498	0.378
OP3	0.414	0.507	**0.866**	0.534	0.380
OP4	0.537	0.565	**0.906**	0.614	0.433
OP5	0.443	0.483	**0.895**	0.580	0.331
TE1	0.457	0.476	0.593	**0.837**	0.377
TE2	0.250	0.287	0.275	**0.832**	0.227
TE3	0.312	0.477	0.313	**0.712**	0.211
TE4	0.260	0.358	0.316	**0.770**	0.276
TE5	0.434	0.482	0.585	**0.856**	0.355
TE7	0.538	0.403	0.499	**0.779**	0.385
TE8	0.454	0.431	0.520	**0.737**	0.385
TE9	0.579	0.579	0.521	**0.775**	0.459
TE10	0.519	0.569	0.510	**0.684**	0.397
TE11	0.319	0.425	0.363	**0.631**	0.329
TE12	0.434	0.435	0.464	**0.591**	0.331
SAR2	0.399	0.317	0.393	0.425	**0.804**
SAR4	0.256	0.378	0.325	0.327	**0.780**
SAR5	0.425	0.504	0.403	0.410	**0.884**
SAR6	0.332	0.332	0.330	0.352	**0.822**

Table No 5: Heterotrait-Monotrait Ratio (HTMT)

	IP	OP	PP	SAR	TE
IP					
PP	0.491				
OP	0.668	0.581			
TE	0.604	0.649	0.617		
SAR	0.500	0.509	0.538	**0.511**	

The FornellLarcker criterion matrix shows the square root of the average variance extracted (AVEs) of each construct on the diagonal and inter-construct relationships on the off-diagonal. The diagonal figures are used in a measure of internal consistency of each construct; anything above 0.50 is considered as a source of good convergent validity. In this

matrix, the highest number is the largest one, which is 0.823, which is the correlation between SAR and TE, which shows that there is a high internal consistency between the two constructs.

Table No 6: Fornell-Larcker Criterion

	IP	OP	PP	SAR	TE
IP	0.714				
OP	0.594	0.855			
PP	0.486	0.575	0.711		
SAR	0.436	0.444	0.466	0.823	
TE	0.573	0.620	0.607	0.465	0.750

4.4 Structural Model (Hypotheses Testing)

The study proposed hypotheses were tested using the Partial Least Squares–Structural Equation Modelling (PLS–SEM) in Smart PLS 4 after the validity and reliability of the research model had been assessed and determined (Ringle et al., 2015). The PLS-SEM methodology was used for this investigation because it provides more accurate estimates than other covariance-focused approaches (Hair et al., 2013). Table 6 demonstrates that input, process and outcome practices of school heads has significant effect on teacher effectiveness in secondary school students, such as input practices (t = 5.018, p = 0.000), outcome practices (t = 4.939, p = 0.000), process practices (t=7.881, p=0.000) and teacher effectiveness mediate the effect among instructional leadership practices and student's academic resilience (t = 9.971, p = 0.000), has a positive and significant effect on student's academic resilience. As a result, it was determined that the four research hypotheses (H1, H2, H3, and H4) were supported.

Table No 7: Hypothesis Testing Results

No	Factors	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	F^2	Decision
H1	IP -> TE	0.244	0.250	0.049	5.018	0.000	0.076	**Supported**
H2	OP -> TE	0.290	0.284	0.059	4.939	0.000	0.094	**Supported**
H3	PP -> TE	0.321	0.326	0.041	7.881	0.000	0.136	**Supported**
H4	TE -> SAR	0.465	0.468	0.047	9.971	0.000	**0.275**	**Supported**

$p < 0.05$

4.5 Predictive Relevance of the Model

The table displays the R-Square, Adjusted R-Square, and Q-Square of two constructs Teacher Effectiveness and Students Academic Resilience. These values determine the predictive relevance and the goodness of fit of the model. In the case of Teacher Effectiveness, the R Square is 0.515, which implies that the model accounts 51.5 per cent of the variation in Teacher Effectiveness. Adjusted R-Square of 0.510 represents the number of predictors in the model, which provides a slightly conservative estimate of the model

explanatory power. The Q-Square value of 0.501 is an indication of a moderate predictive relevance of the model since the values above 0.35 are generally associated with predictive relevance of the construct. In the case of Students Academic Resilience, the R-Square value is 0.216, which implies that the model represents the 21.6 percent variance in this construct. This interpretation is also close to the Adjusted R-Square of 0.213 which is an explanation power of the model, but conditional on the number of predictors. The Q- square value 0.242 is moderately predictive since the value beyond 0.15 is acceptable. These values indicate that the model is reasonably predictively relevant, and the Teacher Effectiveness can be explained better than the Students' Academic Resilience.

Table No 7: Predictive Relevance of The Construct

	R Square	Adjusted R-Square	Q-Square
Teacher Effectiveness	0.515	0.510	0.501
Student's Academic Resilience	0.216	0.213	0.242

4.6 Discussion

The current study focuses on the effects that instructional leadership has on the effectiveness of teachers and subsequent effect on the academic resilience of students in secondary schools in Karachi, Pakistan. The results support the hypothesis that school heads apply instructional leadership practices that have a positive impact on teacher effectiveness that subsequently leads to increased academic resilience among students. This association highlights the importance of leadership in school settings, especially in the development of strong students, who can overcome learning challenges. The study uses a quantitative approach, where a structured survey was used to implement the study to 295 secondary school teachers in Karachi. The respondents gave a reflection on the leadership behaviors of their principals, their own teaching effectiveness, and how these variables influence student academic resilience. The Smart-PLS and SPSS analyses based on structural equation modeling helped to shed light on the important relationships between the variables. It is important to note that the findings suggest that goal setting, communication, and professional development are significant instructional leadership practices that affect teacher effectiveness, which moderates the emergence of student academic resilience.

The theoretical basis of the intended research is based on the established leadership models, in particular, the Hallinger and Murphy (1985) instructional leadership model, according to which the principal should focus on setting goals, managing the curriculum, and supporting the teachers. The idea that the quality of teaching and, by extension, student achievement is improved by effective school leadership has been proven over the past (Leithwood & Seashore Louis, 2011). The input, process, and outcome practices of school heads were all identified in the current research to have a positive influence on teacher effectiveness, which in turn led to the development of the ability to persist in the face of academic difficulties, in the students. A depth of literature in the field of educational leadership supports the empirical evidence that teacher effectiveness is related to academic

resilience. Agasisti et al. (2018) presume that students with high self-efficacy and growth mindset are better placed to withstand academic adversity. This is in line with the role of teachers in the development of problem-solving skills and promotion of lifelong learning in the present study. School heads provide a supportive system of professional growth and create a favorable learning atmosphere that provides a framework of academic resilience among students (Ye et al., 2021).

The effectiveness of teachers, which is a central variable in this question, is inherently complex, including both mastery of the subject, planning of teaching, assessment of teaching, and communicative efficacy. By clarifying the above, the study notes that teachers who possess strong subject knowledge and use evidence-based teaching methods are in a better position to promote the achievement of learners, thus leading to academic resiliency. This agreement with the previous studies (Robinson et al., 2008) highlights the significance of systematic planning of lessons and formative assessment. In addition, information and communication technology (ICT) integration makes teachers more effective, allowing them to afford individual learning opportunities to the students (Ahmad et al., 2025).

Although the results of this paper are insightful and complementary to the knowledge of the role of instructional leadership in determining teacher effectiveness and encouraging student resilience, some limitations should be mentioned. The study is limited to Pakistan secondary schools located in Karachi, and this can limit the extrapolation of the findings to different geographic areas or systems. Moreover, the use of self-reported information on the teachers raises the possibility of the bias in responses because teachers might exaggerate their performance or the leadership practices of their principals.

5. Conclusion

This study has indicated that the leadership practices of school heads in terms of instruction have significant effect on teacher effectiveness and academic resilience of students. School leaders can enhance teacher performance by concentrating on practices of inputs, processes, and outcomes, and this increases the students, who are then able to overcome academic setbacks. The results did not refute the concept that good leadership practices including articulating the school objectives, tracking learning achievements, and providing students with a learning-friendly environment, result in the enhancement of teaching behaviors and student resiliency. The effectiveness of teachers was identified to have a significant mediating role such that more engaged teachers with their respective leaders are in a better position to develop resilience in their students. Another aspect that the study brought to the fore is the need to have a professional and motivating teaching staff that helps improve the student outcomes particularly when they are faced with academic challenges. This study supports the relevance of instructional leadership in the formation of the overall learning culture and facilitation of student achievement in problematic contexts. The school's heads must focus on professional development of teachers promote coordination of teaching objectives among the different subjects taught and be visible in the classroom to observe and control the teaching practices. These measures will not only enhance performance of the teachers but will also build an environment where the students are

encouraged to carry on and finish despite failure. The role of instructional leadership is very important in improving the effectiveness of the teacher and the academic resilience of the students. School heads who practice towards supporting and guiding their teachers help in creating a positive climate in a school which in turn helps students by equipping them with the skills to conquer any academic difficulties. In this study, it is highlighted how the educational leaders should be active in establishing a setting that promotes constant improvement and endurance across all levels of the educational process.

5.1 Recommendations

In light of the study's conclusions, it is recommended that:

- School leaders must adopt instructional leadership approaches aimed at improving the performance of teachers. This involves establishing specific educational objectives, providing professional growth, and evaluating the quality of teaching on a regular basis to enhance the overall performance of the students.
- The teachers should be provided with constant support that incorporates professional development opportunities that are aimed at enhancing the teaching practices. Teachers should be encouraged to employ new teaching methods and evaluation aids in order to achieve improved student interaction and performance.
- Educators are expected to build good rapport with students to make them resilient in school. Emotional and teaching-training support on the part of teachers is a direct contributor towards more persistence and motivation of students in overcoming academic difficulties.
- Motivation can be achieved by introducing incentive programs that not only compensate the academic performance of a student but also the performance of a teacher. To achieve a culture of high performance, it is possible to reward teacher efforts and give students reward on successful passing academic challenges.
- Heads of schools ought to promote teachers to discuss curricula and teaching strategies. This strategy makes the school consistent and the teaching quality is improved, which benefits the teachers and the students.
- They should also establish and promote academic resilience programs in schools that emphasize the provision of coping skills on stress and failure to students. With the help of such programs and the support of teachers and school conditions, student perseverance and achievement can be greatly improved.
- The school leaders are supposed to continuously evaluate the impact of instructional leadership practice and make the required changes, as a result of feedback provided by both teachers and students.

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