



SECTOR-BASED DISPARITIES IN SCHOOL LEARNING ENVIRONMENT:
EVIDENCE FROM PUNJAB, PAKISTAN

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ABSTRACT:

For precondition for student achievement, a safe, well-resourced and emotionally supportive learning environment is necessary. Contribution of Public and private sector schools are commonly different on the provision of learning environment, though the assumption is rarely tested directly. In this study contribution of public and private sector schools is compared for learning environment of students across three districts of Punjab, Pakistan. A mixed-method design was used: a structured questionnaire was administered to 216 teachers (108 from public and 108 from private sector schools), and semi-structured interviews were held with 38 heads of the schools. Teachers rated their schools on five indicators of learning environment – supportive climate, infrastructure, physical and emotional well-being, availability of subject specialists, and ongoing professional development. An independent-samples t-test showed a statistically significant difference between the two sectors, $t(214) = -4.454, p < .05$, with private sector schools ($M = 21.49, SD = 3.49$) reporting a stronger learning environment than public sector schools ($M = 19.12, SD = 4.28$). The largest gap between these sectors was found in access to ongoing professional development for teachers and infrastructure that supports learning. The study concludes that the contribution of private sector schools to students' learning environment is higher than that of public sector schools and recommends targeted policy attention to infrastructure upgrades and continuous professional development in the public sector.

Keywords: *Learning Environment, Public Sector Schools, Private Sector Schools, Quality of Education, Punjab, School Infrastructure, Teacher Professional Development*

INTRODUCTION

Background of the Study

The learning environment of a school – the physical infrastructure, the emotional climate, and the professional resources made available to teachers – shapes how, and how well, children learn. A school that offers a supportive climate, functional infrastructure such as reading rooms, attention



to the physical and emotional well-being of its students, qualified subject specialists, and continuous professional development for its teachers is better placed to translate enrolment into genuine learning. Where any of these elements are missing, the quality of education that a school can deliver is constrained regardless of curriculum or policy intent.

In Punjab, the education sector is sharply divided between government (public) schools and a fast-growing private sector, including low-fee schools supported by the Punjab Education Foundation (PEF). Government reports and independent studies have repeatedly noted that a substantial proportion of public schools in Punjab struggle with inadequate infrastructure and limited resources for teachers, with the burden falling disproportionately on schools serving the poorest communities. At the same time, private sector schools – supported by competitive pressures and, in the case of PEF-supported schools, targeted funding – are often assumed to provide a more conducive environment for learning, though this assumption has rarely been tested directly against the perceptions of the teachers who work inside these environments every day.

A growing body of literature situates the learning environment at the center of education quality. Programs that support low-fee independent schools have been found to expand infrastructure and improve the overall learning environment for children (Getu, 2018), while research on accessible education argues that empowering teachers and building a conducive physical environment are inseparable parts of the same reform agenda (Jaffery, 2012). Strong teacher-student relationships and a positive psychosocial climate, anchored in student-centered pedagogy and continuous curriculum improvement, have likewise been identified as decisive for learning outcomes (Papanthymou & Darra, 2023). Other scholars place a well-resourced, conducive learning environment alongside competent teachers and an inclusive curriculum as one of the three pillars of education quality (Beatrice & Limo, 2022). Despite this consensus on the importance of the learning environment, comparative evidence from Punjab on how public and private sector schools differ on this specific dimension – as judged by the teachers who staff them – remains limited.

The divide between Punjab's public and private schools is not simply a matter of fees or ownership; it is also a divide in the day-to-day material and emotional conditions under which teaching and learning take place. While comparative performance research efforts suggest that these resourcing gaps translate into measurable differences in pupil results among the two sectors (Adeyemi, 2014), micro-supply assessments of public domain schooling in Punjab have documented chronic shortfalls in classrooms, furniture, teaching materials, particularly in primary institutions (Hameed, 2017). Understanding whether, and how far, these structural differences are reflected in teachers' own perceptions of their schools' learning environment is therefore an important complement to outcome-based comparisons of public and private schooling in Punjab.

The scale of this resourcing challenge is substantial. Assessments of public sector schooling in Punjab have found that close to half of government schools in the province face some combination of infrastructure and qualified-teacher shortages, with these problems concentrated most heavily in primary schools – the level at which more than half of all enrolled students are taught (Hameed, 2017). Recommended responses in this literature center on prioritizing rural educational development, investing in better facilities, recruiting and retaining qualified primary school teachers, reducing student-teacher ratios, and introducing technology-oriented curricula that actively engage students in their own learning. These recommendations map closely onto the five indicators examined in the present study, reinforcing the relevance of a dedicated, sector-



disaggregated assessment of the learning environment specifically, rather than treating it as a secondary by-product of broader education-quality research.

Significance of the Study

This study is significant for three groups of stakeholders. For policymakers and the provincial education department, it offers teacher-level evidence – rather than enrolment or examination statistics alone – on exactly which dimensions of the learning environment (infrastructure, well-being, specialist staffing, or professional development) require the most urgent attention in the public sector. For school administrators in both sectors, it provides a benchmark against which their own institution's learning environment can be assessed. For researchers, it contributes Punjab-specific, sector-disaggregated data to a literature that has more often relied on outcome measures or single-sector case studies than on direct comparative survey evidence from classroom teachers themselves.

Scope and Delimitation of the Study

The study is delimited to teachers' perceptions of the learning environment in public and private sector schools located in three districts of Punjab – Lahore, Vehari, and Narowal – selected to represent high, medium, and low school-enrolment categories respectively. The learning environment construct in this study is operationalised through five indicators: supportive school climate, physical infrastructure, physical and emotional well-being of students, availability of subject specialists, and ongoing professional development for teachers. The study does not extend to student or parent perceptions of the learning environment, nor does it claim to generalise beyond the sampled districts, although the sampling frame was designed to be broadly representative of enrolment patterns across the province.

Problem Statement

Although the learning environment is consistently identified in the literature as a foundation of education quality, there is little empirical comparison of how public and private sector schools in Punjab actually perform on this dimension from the perspective of classroom teachers. Regulation discussions tend to assume that independent academies simply offer a better environment, yet this presumption needs to be tested against direct proof of supportive climate, framework, pupil well-being, specialist staffing as well as teacher progress opportunities, rather than against enrolment or examination statistics alone.

Objectives of the Study

- To examine teachers' perceptions of the learning environment provided by public sector schools in Punjab.
- To examine teachers' perceptions of the learning environment provided by private sector schools in Punjab.
- To compare the contribution of public and private sector schools to the learning environment of students in Punjab.

Research Questions

- How do teachers in public sector schools perceive the learning environment provided to students?



- How do teachers in private sector schools perceive the learning environment provided to students?
- Is there a statistically significant difference between public and private sector schools in their contribution to the learning environment of students?

Hypothesis

H0: There is no significant mean score difference between the views of teachers in public and private sector schools on the learning environment scale.

Operational Definitions

For the purposes of this study, the key terms used throughout are defined as follows.

Learning Environment refers to the combination of physical, infrastructural, and psychosocial conditions within a school that together shape students' ability to engage with instruction. In this study, it is operationalised through five indicators: the extent to which a school provides a supportive climate for students to learn and grow, infrastructure that supports learning needs such as reading rooms, attention to students' physical and emotional well-being, the availability of subject specialists in Science and Mathematics, and the provision of ongoing professional development opportunities for teachers.

Public Sector Schools refer to educational institutions in Pakistan that are funded, managed, and controlled by government at the federal, provincial, or local level, and that are designed to provide affordable, inclusive education to students from a wide range of socio-economic backgrounds.

Private Sector Schools: in the study are those schools, who are being run under PEF. They have more freedom over staff recruitment and admissions etc. than public sector schools do. In keeping with the parent research behind this study, Punjab Education Foundation (PEF) supported schools get classified as private sector schools for comparison purposes. Additionally, that typically retain greater freedom over syllabus design, staff recruitment, and admissions benchmarks than those schools who are working under jurisdiction of government. Consistent with the parent research underlying this study, schools supported by the Punjab Education Foundation (PEF) are classified as private sector schools for the purposes of this comparison.

Pakistan Education Foundation (PEF) Schools refer to privately managed schools that receive financial assistance, incentives, and standards-based quality oversight from the Punjab Education Foundation, a provincial body that promotes public-private partnership in education. Although privately operated, PEF schools benefit from a layer of provincial support that distinguishes them from purely independent private schools, which is part of the reason their resourcing levels were expected, and found, to differ from those of public sector schools.

LITERATURE REVIEW

Conceptualizing the Learning Environment

In both international and Pakistan-specific context, the learning environment is one of the most frequently cited determinants of schooling quality. While engaging with content that is appropriately paced and resourced, at a basic level, a learning environment is supportive when it allows pupils to feel physically safe and emotionally secure. Quality schooling in Pakistan has been described as a multifaceted endeavor that depends not only on the motivation and academic background of learners although furthermore on the competence of teachers, their attitudes toward



learners, apply of instructional digital tools and incentives for outstanding performance (Nazak & Ali, 2019). In a similar vein, secondary learning in Pakistan has been found to be constrained by an outdated syllabus, teacher shortages and insufficient resources. Moreover, weak regulation application, with remedies proposed around expanded financing, stronger teacher professional progress institutions, and regular course content review (Batool & Hussain, 2012). These broader accounts of academic quality consistently treat the learning environment, physical facilities and teacher aid. Additionally, academy climate together as inseparable from quality itself, rather than as a secondary or cosmetic concern.

This picture is more complicated due to regional and provincial disparities. Comparative function on the Millennium Development Goals and learning quality in Pakistan has shown that provinces such as Baluchistan have markedly less established school facilities than Punjab, and has argued for standardizing the medium of instruction and ensuring equal treatment across provinces to narrow these gaps (Farooq, 2018). Within Punjab itself, nonetheless, the more consequential divide for this research is not geographic however sectoral: the shortfall among what state and non-government institutions are able to offer their pupils and teachers in terms of a favorable learning environment.

Infrastructure and Physical Resources

There are many studies those indicates weak infrastructure directly to poorer outcomes in the Punjab public sector. A micro-supply capacity assessment of public sector schools in Punjab documented widespread shortfalls in classrooms, furniture, and basic teaching materials, concentrated disproportionately in primary schools that serve the majority of enrolled students (Hameed, 2017). Complementary research in the context of secondary education quality indicates that AV aids are being underused through classrooms, libraries also lacked adequate books, identifying the availability and use of such resources as a key indicator of learning environment (Shahzad & Hussain, 2018). Findings of these studies are consistent with the pattern which is observed in current study, where public sector teachers rated their school's infrastructural support for learning such as reading rooms – only moderately, while private sector teachers rated the same item considerably some higher.

Where there is minimal-tuition fee and PEF-backed schools, they present a contrasting picture of how facilities gaps can be closed. Programs that channel targeted capital into small-cost independent schools have been credited with expanding framework, improving the altogether quality of learning, and, in doing so, creating better learning environments for children (Getu, 2018). Comparable data from accessible-schooling investigation in Pakistan argues that addressing the multifaceted challenge of equitable learning requires empowering teachers and building school environments that are physically and pedagogically favorable to learning (Jaffery, 2012). While study on accessible academic in Ireland stresses that addressing infrastructural and guideline barriers together is necessary to generate an inclusive and supportive learning setting for all pupils (Doyle & McCoy, 2020), internationally, similar arguments have been made for embedding physical accessibility – ramps, wide doorways, accessible washrooms, and flexible classroom layouts – directly into school design so that the setting itself supports participatory teaching methods (Danso, 2018). Internationally, similar patterns exist outside Pakistan as well. Targeted financial support is often extended to schools through partnerships between government bodies,



non-governmental organisations, and, in some cases, religious community-run institutions. (Akaguri, 2013; Walford, 2011).

Psychosocial Climate, Student Well-Being, and Teacher Factors

In schools, buildings and equipments are not only part of the story but environment itself is very important rather than walls and furniture. Studies of Yin and Li (2021) and Papanthymou and Darra (2023) also reveals that student-centered teaching and constant curriculum refinement are more relevant towards supportive environment.

Ahmed and Maqbool (2023) through their studies included that there is the question of how teachers are evaluated once they are in the classroom. Azmat and Bashir (2018) also concluded that performance appraisal systems in government schools with real targets, honest feedback from supervisors, and some form of recognition for teachers must be followed. Masheeda and Hussain (2022) also included that departmental assessment are needed to increase teaching performance, with the feedback from experience of the student. Muhammad and Ali (2022) provide evidence on teacher resistant towards the institutional climate.

From the study of Andrabi et al. (2006, 2008) there is interesting addition with private schools in Pakistan, they grow in those areas where the government has already been running schools for a while, these government schools provide education to local women and from these many become teachers in private schools. Andrabi et al. (2013) went further and reveal something, that growth of private school has increased in those areas where parents do not want to enroll their children in government schools. It is about trained teachers available to fill the jobs.

Ahmed and Sayeed (2014) pointed out two things, parents believe that quality of education is better in private schools, and children from private schools got better job opportunities. Siddiqui (2017) added more to this puzzle, educated parents are more likely to send their children to private schools. Parents who are illiterates chose cheapest schools, whether the quality is good or not. Javaid and Khalid (2021) studied that basic facilities are depended on how many children are enrolled. Muhammad and Ali (2020) found how much money a family has, how educated the parents are results in which kind of school they chose. Adeyemi (2014) founded that private school students performed better than public school students.

Institutional Quality Assurance and Monitoring of the Learning Environment

Assad-us-Samad and Ali (2023) added that inspection system for schools in Khyber Pakhtunkhwa was based on Netherlands and England model, but this is beneficiary only when inspectors were properly trained. Nazak and Ali (2019) highlights the role of district education on quality assurance whether their officers follow standards consistently across all the schools in a district. Zhong (2023) argued that schools can find and fix their own problems through self-evaluation. Kinesti (2019) added that good quality in schools is only maintained when parents, government, and community is involved.

Masheeda and Hussain (2021) added that there is a difference between policy and practice. Teachers needs training and the buildings needs care. Attaullah (2015) said that growing population and poverty is a hindrance. Akbar and Ali (2023) found that partnerships between regulators and schools can expand schooling in Punjab.

Theoretical Framework



In this study there are supportive climate, infrastructure, student well-being, specialist staffing and professional development. So, how do these things come together as one single construct rather than five unrelated items? There are two theories.

Maslow's (1943) hierarchy of needs is the first. It says that a child cannot learn properly until their basic needs are provided. School should be safe and comfortable, if nobody is looking out for the child, then no matter how good the teacher is, the child will not be able to focus on learning. Foundation of learning is based on Infrastructure and well-being. Current study found the same, public sector schools they have a weaker infrastructure and well-being, so that over all learning environment score is low.

As per Bronfenbrenner (1979) said that the matter is not only about classroom but it sits inside bigger systems, like circles around it. The first is the classroom itself. The second circle is the school. The outer layer is the decisions made by the government and money that impact all schools. Thus, no human being can provide it all by his/her self. What a teacher is able to provide also depends on the leaders, buildings, and staff at their school." It also relies on funding from the government and other major institutions. This enables us to comprehend the findings of this research. Teachers from both public and private schools reported that they care deeply about making sure students feel cared for. They were very different, however, in their buildings, specialist teachers and training are available due to the things are decided by the school and the government, not by the teacher alone.

The hybrid funding position of PEF-supported schools, described above, fits naturally within this ecological framing. Because these schools sit at the intersection of private management and provincial financial support, they illustrate how the systemic layer of Bronfenbrenner's model can be reshaped by deliberate policy design – in this case, channeling public-private partnership funding into privately operated institutions – rather than being fixed simply by whether a school is labelled public or private. This suggests that the resourcing gap identified in this study is not an immutable feature of private ownership as such, but a reflection of which systemic supports a given school is able to draw on, a distinction with direct relevance for the policy recommendations that follow.

Taken together, this literature suggests that the learning environment is best understood as a composite construct, built from physical infrastructure, psychosocial climate and student well-being, teacher support and professional development, and the institutional mechanisms that monitor and sustain these elements over time. It also suggests that resourcing decisions – whether driven by donor or foundation support in the private sector, or constrained by public budgets and oversight capacity in the government sector – translate fairly directly into the quality of the learning environment teachers are able to offer. This composite framing informed the five-indicator operationalization of the learning environment construct used in the present study: supportive climate, infrastructure, student well-being, specialist staffing, and ongoing professional development.

What the existing literature has not done, however, is test this composite construct directly against the perceptions of teachers working side by side in comparable public and private sector schools within the same Punjab districts. Much of the evidence reviewed above either compares Pakistan's public and private sectors on enrolment and outcome measures rather than on the conditions of the environment itself (Andrabi et al., 2006, 2008, 2013; Adeyemi, 2014), or documents infrastructural and professional-development constraints within a single sector without a matched comparison



group (Hameed, 2017; Ahmed & Maqbool, 2023). By sampling teachers from both sectors in the same districts using a common instrument, the present study is positioned to close part of this gap, offering sector-disaggregated, indicator-level evidence on the learning environment construct that complements the largely outcome-based or single-sector evidence base reviewed in this section.

METHODOLOGY

Research Design

Mixed-method design was employed. a structured questionnaire (quantitative phase) followed by semi-structured interviews of headmasters (qualitative phase), in order to secure both an empirically comparable measure of the learning environment across sectors and a more layered, practitioner-based narrative of how that environment is experienced and negotiated. The quantitative phase enabled statistical measurement and cross-sectoral comparison of perceptions across a relatively large balanced sample of teachers, while the qualitative phase provided contextual detail from headmasters (who bear primary responsibility for maintaining infrastructure, staffing, and professional development within their schools).

Population and Sample

The population in this study is comprised of all public schools, as well as PEF schools from 36 districts of Punjab. The random sampling technique was used. Three districts, we captured Narowal, Vehari and Lahore from near there. The rational for this stratification rested on the fact that, Punjab is not a homogeneous province with respect to enrolment.

From these three districts, a total of 36 schools (18 public sector and 18 private sector) were sampled. The study had two parts. In total, the first phase involved 216 teachers. Fifty percent came from public schools, and fifty percent from private schools. The second part of the study was to interview Thirty-eight school principals from the same schools.

Instrumentation

A structured questionnaire was developed by the researcher, then validated by an education expert at the University of Education, Lahore. Items relating to the learning environment construct asked teachers to rate, on a five-point scale (To a significant degree, Moderately, To a certain extent, Slightly, Not in any way), the extent to which their school: (a) provides a supportive environment for students to learn and grow; (b) has infrastructure that supports learning needs, such as reading rooms; (c) promotes the physical and emotional well-being of students; (d) employs subject specialists in Science and Mathematics; and (e) provides ongoing professional development opportunities for teachers. For the qualitative phase, a semi-structured interview schedule was developed and reviewed by an education expert, whose suggestions were incorporated prior to data collection; questions were printed with space for handwritten responses, and detailed notes were prepared after each interview based on the views expressed by headmasters.

Validity and Reliability

Content validity was established through expert review at the instrument-development stage, with the questionnaire and interview schedule both refined in response to feedback from an education specialist before data collection began. The internal consistency of the full questionnaire (86 items



spanning all study constructs, including the learning environment scale) was subsequently tested using Cronbach's Alpha, which returned a coefficient of .979 – well above the conventional .70 threshold for acceptability in social science research – confirming that the instrument was reliable for use in this study.

This reliability coefficient, while computed across the full instrument rather than the learning environment sub-scale in isolation, is consistent with the relatively low standard deviations observed on several of the learning environment items in the private sector sample, suggesting that responses within that sector were comparatively consistent from one respondent to the next. The wider standard deviations observed on several public sector items, by contrast, point to greater variability in how individual public sector schools are resourced, even within the same district, a pattern that the reliability of the instrument itself cannot resolve but that future, school-level analyses could usefully explore.

Data Collection Procedure

Data was collected in person by the researcher by visited all 36 sampled, collected the data through questionnaire and face to face interviews were conducted. This was to clarify the ambiguous items on spot for both of the sectors. After data collection, questionnaires were again rechecked and interview notes were transcribed on each visit.

In these three districts data was collected from the same area to compare window of time. This was not by chance. The pressures inherent in the school term or the specific seasonal factors of a particular stage of the school calendar could easily have skewed the responses from one sector compared to the other, and visiting both sectors with little time between visits helped to avoid this. When a school's questionnaire showed an unusually high number of unanswered questions, the researcher reviewed the information rather than simply discarding it. This follow-up partly explains why the final quantitative sample maintained its balance of 108 responses per sector.

Data Analysis Technique

Data were recorded and analyzed using SPSS. Descriptive statistics, mean and standard deviation were calculated for each subject at the study site, divided by category, showing the performance of teachers in public and private sectors. From there, an independent-samples t-test was conducted on the sample of study area, testing the null hypothesis that there is no significant difference between public and private schools. The threshold for rejecting the null hypothesis was set at $p < .05$.

Ethical Considerations

Because this study was meant to engage directly with serving teachers and headmasters about the conditions within their own institutions, several ethical principles guided the process from beginning to end.

- Every teacher and headmaster was requested for informed consent before data collection began.
- Participation, whether in the questionnaire or the interviews, was entirely voluntary.
- Anonymity and confidentiality of individual responses were maintained throughout data entry, analysis, and reporting.
- It was make sure that findings are honestly and transparently reported.



- It was make sure to secure the data to strictly use only for the purposes of this research.

DATA ANALYSIS AND RESULTS

Descriptive Findings on the Learning Environment

Mean scores and standard deviations are being presented through the following table for the learning environment scale, disaggregated by public (government) and private sector schools.

Statement	Sector	Mean (\bar{x})	SD
The school provides a supportive environment to students for learn and grow	Government	4.32	.841
	Private	4.45	.802
The school infrastructure supports the learning needs of students (e.g., reading rooms)	Government	3.98	1.023
	Private	4.46	.766
The school environment promotes the physical and emotional well-being of students	Government	3.79	1.169
	Private	4.18	.905
The school hires subject specialists (Science and Math)	Government	3.98	1.152
	Private	4.28	.994
Ongoing professional development opportunities are provided to teachers	Government	3.05	1.383
	Private	4.12	.924

Learning environment is consisted of the five indicators, private sector teachers reported equal or higher mean than their public sector school on each item.

Supportive School Climate

In this regard, the two sectors have become close. In both sectors teachers agreed that their school provided a supportive environment for student learning and development. There is slightly higher Mean and and Standard deviation for Private sector teachers than the public sector teachers (M = 4.45, SD = .802) (M = 4.32, SD = .841).

Infrastructure

On the indicator of infrastructure, Public sector teachers rated reading rooms, as moderate (M = 3.98, SD = 1.023). Private sector teachers, in contrast, rated it higher (M = 4.46, SD = .766). This



is as per the study of Hamid (2017) there is a lack of classroom space, furniture, and teaching materials in public primary schools in Punjab.

Physical and Emotional Well-Being of Students

The same pattern shows up again here. Public sector teachers reported a moderate level of agreement on whether their school promotes students' physical and emotional well-being ($M = 3.79$, $SD = 1.169$), while private sector teachers reported a markedly higher level ($M = 4.18$, $SD = .905$). One item stands out beyond itself: this item showed the highest standard deviation among public sector responses across the entire scale.

Availability of Subject Specialists

On the availability of subject specialists in Science and Mathematics, public sector teachers again reported a lower mean ($M = 3.98$, $SD = 1.152$) than private sector teachers ($M = 4.28$, $SD = .994$), consistent with broader evidence that secondary education quality in Pakistan is constrained by gaps in specialist staffing and instructional resources such as audio-visual aids and library materials (Shahzad & Hussain, 2018).

Ongoing Professional Development

There was a large gap between sectors for ongoing professional development opportunities for teachers, there was lowest mean score reported by public sector teachers in the entire scale ($M = 3.05$, $SD = 1.383$), where as private sector teachers ($M = 4.12$, $SD = .924$). The unusually high standard deviation on this score among public sector teachers suggests not only that access to professional development in public schools is lower on average, but also highly inconsistent from school to school, also illustrated by the interviews with principals presented later in this section.

Comparison of Public and Private Sector Schools

An independent-samples t-test was conducted on the composite learning environment scale to compare the views of teachers from public and private sector schools. Results are presented in Table 2.

Sector	N	Mean	SD	t	p
Public Sector	108	19.12	4.28	-4.454	.000*
Private Sector	108	21.49	3.49		

* $p < .05$

The results, $t(214) = -4.454$, $p < .05$, indicate a statistically significant mean score difference between the views of teachers from public and private sector schools on the learning environment scale; the null hypothesis was therefore rejected. The mean score for private sector school teachers ($M = 21.49$, $SD = 3.49$) was found to be higher than that for public sector school teachers ($M = 19.12$, $SD = 4.28$), indicating that the contribution of private sector schools to the learning environment of students is higher than that of public sector schools across the sampled population.



Qualitative Findings: Headmasters' Perspectives on Professional Development

To triangulate the quantitative results, semi-structured interviews were conducted with 38 headmasters across the 36 sampled schools, including a specific question on how each school provides opportunities for teachers' professional development – one of the five indicators making up the learning environment scale. The responses in this item explain the large sector gap ($M = 3.05$ for public sector and $M = 4.12$ for private sector teachers).

The majority of public sector managers described professional development as something that takes place through public channels. Submission of No Objection Certificates to enable teachers to continue their education. Reliance on periodic training from provincial organizations such as the Quaid-e-Azam Academy for Educational Development (Now known as PECTAA) or, more often than not, externally funded programs that came only sporadically. Several school principals were quick to point out that this training was effective when it happened. The problem was time as the arrangements were outside the control of the school itself, which meant that inequities were almost inherent in the system.

Private sector Heads are a different story. Professional development, in their view, was something that the school itself provided. In schools funded by the Punjab Education Foundation., support teachers who need additional expertise by allowing them to enrolled in evening classes, weekends or distance learning. In at least one PEF-led school, the training came in person, rather than relying solely on online sessions, with a dedicated trainer. Still, some private sector Heads rightly argued that PEF's online training, by itself, was not always enough. But the broader pattern in those interviews told its own story: private schools complemented central training with their own institutional environment, while public sector schools, bound by state-determined curriculum schedules, made it more difficult.

This qualitative pattern is consistent with the quantitative finding that ongoing professional development recorded the largest sector gap of any item on the learning environment scale, and lends weight to the interpretation that the gap reflects differences in institutional latitude and initiative rather than differences in how much individual teachers or headmasters value professional growth.

SUMMARY OF FINDINGS

Drawing together the descriptive, comparative, and qualitative results presented above, four main findings emerge from this study:

Teachers in both sectors reported a broadly supportive classroom climate, with only a small gap between public sector ($M = 4.32$) and private sector ($M = 4.45$) schools on providing supportive environment – the smallest gap recorded anywhere on the scale.

Sizeable gaps favouring private sector schools were found on infrastructure (3.98 vs. 4.46), student physical and emotional well-being (3.79 vs. 4.18), and the availability of subject specialists (3.98 vs. 4.28).

The largest gap of all was recorded for ongoing professional development opportunities for teachers (3.05 vs. 4.12), which was also the lowest-rated item on the entire scale for public sector teachers.

The composite learning environment scale showed a statistically significant difference favouring private sector schools, $t(214) = -4.454$, $p = .000$, leading to rejection of the null hypothesis; this



quantitative gap was corroborated by headmaster interviews describing greater institutional initiative around professional development in private sector schools.

Together, these findings point to something specific. The public-private gap in Punjab's school learning environment is not spread evenly across the board. It concentrates in the resources that sit at the institutional and systemic level, infrastructure, staffing, professional development, rather than in the personal commitment individual teachers bring to their own classrooms.

DISCUSSION

These findings are consistent with broader research linking targeted resource provision to a stronger learning environment. Getu (2018) put this to one side by showing that investment in low-cost private schools expands infrastructure and raises the overall learning environment experienced by children. The current data adds something to that picture. The advantage is not only evident in the results or the conditions observed. Teachers themselves report this fairly accurately, and the gap is most apparent in the parts one would expect: infrastructure and professional development. The exceptionally low score in the public sector for ongoing professional development ($M = 3.05$) is consistent with broader reports of public education systems in Punjab, where micro-supply assessments have documented chronic shortfalls in classrooms, materials, and staffing concentrated in primary schools (Hameed, 2017), and where teacher absences and poor working conditions are consistent barriers to instruction (Ahmed & Maqbool, 2023).

At the same time, the relatively small gap on the supportive-environment item (4.32 versus 4.45) suggests that public sector teachers are not failing to create a welcoming classroom climate through effort and intent; rather, the larger gaps emerge on items that depend on institutional resourcing – infrastructure, specialist staffing, and professional development – rather than on teachers' personal disposition toward students. This is consistent with arguments that a conducive learning environment depends on strong teacher-student relationships and student-centred pedagogy as much as on physical resources (Yin & Li, 2021; Papanthymou & Darra, 2023), and that quality is best understood as the product of competent teachers, an inclusive curriculum, and a well-resourced environment acting together (Beatrice & Limo, 2022). Where one of these elements – in this case, institutional investment in infrastructure and teacher development – lags, the overall learning environment suffers even if teachers themselves remain committed.

The size of the gap on subject-specialist availability (3.98 versus 4.28) and on infrastructure (3.98 versus 4.46) also echoes evidence that comparative academic performance between public and private schools in similar contexts tracks closely with differences in resourcing rather than with teacher effort alone (Adeyemi, 2014), and with the complementary-sector argument that private schooling in Pakistan has tended to expand on the back of locally available, often better-resourced conditions rather than emerging in direct opposition to the public system (Andrabi et al., 2006, 2008). Read alongside evidence that parents choose private schooling over free public alternatives largely because of perceived quality (Ahmed & Sayeed, 2014; Siddiqui, 2017), these teacher-reported gaps suggest something worth taking seriously. Those perceptions may not be a matter of reputation alone. They may be tracking real, measurable differences in the learning environment itself.

Findings on institutional support are consistent with the literature on quality assurance and monitoring. Low score for professional development in public sector schools points out a gap that addresses monitoring and evaluation systems where inspectors who had proper training on



educational matters (Assad-us Samad & Ali, 2023). This also fits with Kinesti's (2019) argues that quality is sustained through stakeholder engagement, government, school leadership, community, and partnerships, not just individual motivation of teachers. As per Attaullah (2015) point too: Structural barriers such as population pressure, poverty, and gender inequality can limit the extent to which infrastructure investments reach the schools and students who need them most.

Read through the theoretical lenses introduced earlier, these findings suggest that the public/private divide in educational communities should be better understood as an institutional and systemic divide of Bronfenbrenner's (1979) ecological model rather than at the level of individual teacher commitment, and as a gap in Maslow's (1943) basic, infrastructure-based layer of the hierarchy, not in teachers' expectations for their students. This has direct practical implications: interventions aimed solely at motivating or training individual teachers in the public sector, without institutional-level investment in infrastructure, will not bridge the gap on their own.

More broadly, these results caution against treating the public-private divide in Punjab's schooling as a single, undifferentiated gap in quality. The near-parity found on supportive classroom climate, set against the wide and statistically significant gaps on infrastructure, well-being, specialist staffing, and professional development, suggests that effective policy responses will need to be indicator-specific rather than sector-wide. A public sector reform agenda that addresses infrastructure and professional development directly is likely to do more to close the learning-environment gap identified here than a generic appeal to teacher motivation, since the evidence in this study suggests that motivation and commitment are already comparably high across both sectors.

CONCLUSION

This study set out to compare the contribution of public and private sector schools in Punjab to the learning environment of students, as perceived by 216 teachers and 38 headmasters across three districts. The results show that while both sectors are seen by their teachers as providing a broadly supportive classroom climate, private sector schools have a statistically significant advantage over public sector schools on the composite learning environment scale, driven mainly by gaps in infrastructure, student well-being support, specialist staffing, and – most markedly – ongoing professional development for teachers. Headmaster interviews helped to explain this last gap in particular, pointing to greater institutional latitude and initiative in how private sector schools organise professional development compared to the more centrally determined training pathways available in the public sector.

Strengths of the Study

A few features of this design strengthen confidence in the findings. The evenly balanced sector split (108 public, 108 private) removes a common source of bias in comparative education research, where one sector often ends up over- or under-represented. The validated, highly reliable instrument (Cronbach's Alpha = .979) cuts the odds that the sector differences we observed are artefacts of measurement error rather than genuine differences in the learning environment. And pairing a structured teacher questionnaire with independent headmaster interviews let us corroborate, rather than merely assert, the quantitative gap on professional development – backed by a second, qualitative source drawn from the people directly responsible for arranging that training in each school.



Limitations of the Study

These findings come with caveats worth flagging. The sample, balanced as it is across sectors, was drawn from three districts chosen to represent enrolment categories rather than from a province wide random sample, so the precise size of the sector gap should not be generalised to all 36 districts of Punjab without caution. The learning environment construct, too, was limited to the five indicators in our questionnaire; other dimensions – safety and security, or basic facilities – were assessed elsewhere in the parent study but not folded into the composite scale analysed here. And the data reflect teachers' and headmasters' own perceptions, not independent, externally verified audits of infrastructure or training provision. Future research could usefully pair perception-based survey data of the kind collected here with direct infrastructural audits and training records to corroborate these findings. One further caveat is worth naming directly: this is a single, cross-sectional snapshot. We surveyed teachers and interviewed headmasters at one point in time, in three districts, which means we cannot speak to how the public-private gap on any of these indicators has moved over recent years, nor to whether a policy intervention introduced today would close it within one year, five years, or longer. A longitudinal design, tracking the same schools as infrastructure or training programmes are rolled out, would be far better placed to answer that kind of question than the comparative snapshot offered here.

RECOMMENDATIONS

Policy Recommendations (Punjab Education Department)

The Punjab education department should prioritise infrastructure upgrades in public sector schools, particularly reading rooms and other facilities that directly support learning needs, since this was where the gap with private sector schools came out widest in the survey data. Budget allocation formulas should give explicit weight to schools that score lowest on infrastructural readiness, rather than distributing development funds on a uniform per-school basis, so that the schools most in need of upgrades are not left to compete for the same limited resources as already better-equipped institutions.

Institutional Recommendations (School Administration)

Public sector school administrations should move away from sole reliance on centrally scheduled training and instead institute structured, school-driven professional development programmes for teachers, mirroring the institutional initiative observed among several private sector headmasters in this study who supplemented externally provided training with their own arrangements. Doing so would directly address the largest sector gap identified on the learning environment scale. Schools in both sectors should also be supported, where shortages exist, to recruit or access subject specialists in Science and Mathematics, closing the staffing gap identified relative to better-resourced institutions, and should direct explicit attention to the physical and emotional well-being of students, including measures that strengthen teacher-student relationships and classroom climate alongside infrastructural investment.

Teacher-Level Recommendations

Where institutional resourcing remains constrained, teachers can still take practical steps within their own classrooms to sustain a supportive learning climate: maintaining consistent, structured



attention to every student regardless of class size, and proactively seeking out whatever externally or informally available training opportunities exist – including online and distance-learning options of the kind already used by some teachers in this study – rather than waiting solely for institutionally scheduled training.

Recommendations for Parents and Communities

Beyond direct community fundraising, diversified financing partnerships of the kind already used to widen access to specialised curricula in Pakistan – for example, collaboration between regulatory bodies and educational institutions to extend Islamic finance education into mainstream schools (Akbar & Ali, 2023) – illustrate a broader principle that could be applied to closing the learning-environment gap: where public budgets alone are insufficient, structured partnerships between government bodies, foundations, and private contributors can expand the range of resources, training, and specialist input available to public sector schools without requiring full privatisation of provision.

Parent-teacher associations and community groups, particularly in public sector school catchments, can play a constructive role in narrowing the learning-environment gap identified in this study by advocating collectively for infrastructure improvements and by supporting fundraising or in-kind contributions – such as books, furniture, or basic teaching materials – where government budgets are slow to respond. Greater community engagement of this kind has been linked elsewhere to the formation of a sustained quality culture within schools, encompassing facilities as well as teaching and management (Kinesti, 2019), and could help bridge some of the infrastructural gap identified here while longer-term public investment is pursued.

Recommendations for Future Research

Future researchers should explore why, despite an overall lower learning-environment score, public sector teachers reported comparatively high agreement on creating a supportive classroom climate, as this may point to teacher-level practices worth replicating system-wide. Researchers should also consider combining the kind of teacher-perception data collected in this study with independent infrastructural audits and training records, and extending the sampling frame to a larger, province-wide random sample of districts to test whether the magnitude of the public-private gap observed here holds across Punjab more broadly.

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