



Impact of Institutional Environment on Teacher-Student Relationships in Shadow Education: A Gender-Based Comparative Analysis of Private Coaching Institutes

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ABSTRACT

This study investigates the structural impact of institutional environments on the quality of teacher-student relationships within the domain of shadow education, focusing on a comparative analysis between male and female students. Using a descriptive survey research design, data were collected from a stratified sample of students attending prominent private coaching institutes specializing in competitive examination preparation. The institutional environment was categorized into high (scores ≥ 116), average (88-115), and low (≤ 87) tiers using a standardized institutional climate inventory, while the teacher-student relationship was evaluated across dimensions of trust, communication, and accessibility. Quantitative analysis revealed a substantial gender-based divergence. For female students, teacher-student relationships remained consistently robust and high across all institutional climates, yielding mean scores of 213.52 (high environment), 202.52 (average environment), and 207.76 (low environment). Conversely, male students demonstrated high sensitivity to their surroundings; their teacher-student relationship scores deteriorated from a high level (mean = 205.85) in high-quality institutional environments to average levels in average (mean =

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197.29) and low (mean = 192.58) environments. These findings are statistically significant at the 0.05 level. The study concludes that female students exhibit profound socio-emotional resilience independent of structural resource allocation, whereas male students require high-quality infrastructure and organized institutional environments to cultivate optimal relationships with mentors.

Introduction

In contemporary educational ecosystems, the rapid proliferation of parallel tutoring frameworks—frequently termed "shadow education"—has drastically transformed the pedagogical landscape of developing economies. Private coaching institutes, once viewed as merely supplementary or remedial mechanisms for struggling academic underachievers, have evolved into highly institutionalized, multi-billion-dollar parallel schooling structures. Driven by hyper-competitive university admissions criteria, standardization of national selection examinations, and widespread perceptions of quantitative deficits in conventional public schooling, millions of secondary and senior secondary students spend a substantial portion of their formative academic day within these specialized coaching ecosystems. Despite the massive socio-economic and psychological scale of this sector, empirical research has traditionally prioritized conventional formal schools, leaving a significant empirical vacuum regarding the internal climate, structural dynamics, and human-relational variables operating inside private coaching institutes.

Two foundational pillars govern the psycho-social and academic effectiveness of any instructional space: the institutional environment and the teacher-student relationship. The institutional environment constitutes a multidimensional construct encompassing physical architecture, structural resource allocation, spatial organization, administrative safety, psychological comfort, and the over-arching academic ethos cultivated by management. Within private coaching centers, this environment varies dramatically. High-tier franchises often provide highly sophisticated, air-conditioned lecture theaters, exhaustive digital infrastructure, rigorous administrative workflows, and structured schedules. Conversely, lower-tier or localized centers frequently operate out of claustrophobic, resource-constrained spaces characterized by high student density, poor ventilation, and minimal psychological or infrastructural buffers. How these varying tiers of structural reality influence the interpersonal interactions that occur within them remains a critical question for educational theorists.

Simultaneously, educational psychology universally positions the teacher-student relationship as the vital emotional and pedagogical conduit through which learning is realized. A robust, supportive, and communicative teacher-student dynamic serves not only as an accelerator of conceptual mastery but also as a profound psychological buffer against the pervasive anxiety, chronic burnout, and competitive stress typical of high-stakes testing tracks. In conventional schools, these relationships are guided by longitudinal interactions, extensive pastoral care duties, and holistic institutional mandates. Within coaching institutes, however, these interactions are compressed, intensely fast-paced, and heavily transactional, dictated entirely by quantitative performance metrics. This environment heightens the necessity to evaluate how a mentor's interpersonal accessibility and support are maintained when the surrounding institutional structure undergoes systemic stress or degradation.

A compelling dimension of this relational dynamic lies in gendered variations. Educational sociology and developmental psychology consistently show that male and female learners perceive, decode, and adapt to institutional environments through distinct socio-cognitive lenses. Gender socialization instills different coping strategies, communication preferences, and environmental dependencies. For instance, female students often display heightened relational orientation, prioritizing communicative safety, emotional empathy, and interpersonal trust as structural pillars for their learning journeys. Male students, conversely, may exhibit varying patterns of physical independence, transactional expectations, or environmental susceptibility, making their relational attachment to teachers more contingent upon outer institutional symbols, administrative prestige, or structural security. Consequently, evaluating how variations in institutional quality influence teacher-student dynamics using a comparative gendered framework is imperative.

This research paper directly addresses this empirical gap. By evaluating primary data drawn from a diverse cohort of coaching institute attendees, this study maps the direct, interactive links between three tiers of institutional environment (High, Average, and Low) and the corresponding level of teacher-student rapport, fully moderated by gender. Through this rigorous analysis, the paper provides clear insights into the socio-emotional mechanisms of shadow education, offering actionable guidelines for educational planners, institutional operators, and adolescent psychologists seeking to optimize instructional climates for all student demographics.

Materials and Methods

To systematically evaluate the interaction between environmental conditions and interpersonal dynamics, this study adopted a quantitative, cross-sectional descriptive survey research design. This methodology

allows for the precise mapping of student perceptions and relational metrics across multiple environmental strata without manipulating or interfering with the natural ongoing educational workflows of the private coaching institutes under review.

Participants and Sampling Matrix

The target population for this investigation comprised senior secondary students enrolled in intensive, year-long preparation courses for national engineering, medical, and central university entrance examinations. A stratified random sampling strategy was employed to ensure representative data across diverse socio-economic, structural, and gendered demographics. The sample was carefully partitioned to capture parallel streams of male and female participants operating under varied institutional settings. All participating students had completed a minimum of six months of continuous enrollment within their respective coaching centers, ensuring their perceptions of the institutional climate and teacher relationships were grounded in longitudinal, everyday experience rather than transitory initial impressions.

Psychometric Instruments and Operationalization

Data collection was operationalized via two primary standardized psychometric instruments, adapted specifically for the unique socio-cultural and structural context of private shadow education centers:

1. Institutional Environment Scale (IES): This inventory quantitatively assesses the physical, infrastructural, social, and administrative climate of the coaching institutes. It measures parameters including structural room safety, seating density, acoustic insulation, lighting comfort, ventilation, digital resource provision, scheduling predictability, and psychological safety. Based on extensive pre-validation testing, the cumulative scores obtained from the IES were operationalized into three distinct environmental tiers:

- High Institutional Environment: Defined by a cumulative mean score of 116 or above, representing well-resourced, highly organized, and physically superior training centers.
- Average Institutional Environment: Defined by a cumulative mean score ranging from 88 to 115, representing standard, moderately equipped coaching facilities.
- Low Institutional Environment: Defined by a cumulative mean score of 87 or below, indicating severely constrained, overcrowded, or structurally suboptimal educational settings.

2. Teacher-Student Relationship Scale (TSRS): This multi-item tool measures the subjective quality and depth of the interpersonal rapport between students and instructors. It tracks sub-scales such as pedagogical empathy, approachable communication, mutual trust, accessibility outside formal lecture hours, emotional

support during academic setbacks, and instructor fairness. Higher cumulative mean scores on the TSRS signify an optimal, highly supportive, and integrated teacher-student relationship, whereas lower scores point to detached, strictly transactional, or strained interactions.

Research Procedure and Statistical Controls

The psychometric inventories were administered in controlled environments during dedicated survey blocks. Informed consent was secured from both institute administrators and student participants, with strict assurances of absolute anonymity to eliminate social desirability bias or fear of institutional pushback. Clear verbal instructions were given, emphasizing that the items pertained specifically to their current coaching experience rather than formal schooling histories. Data cleaning protocols were applied to eliminate incomplete responses or patterned answers. The refined datasets were subjected to descriptive and inferential statistical operations, utilizing mean score mapping and variance evaluations across the stratified groups. Hypotheses testing for the significance of environmental impacts on relationship scores was established at a conservative alpha level of 0.05 ($p\text{-value} = 0.05$), ensuring high statistical reliability for the final insights.

Results

The empirical findings derived from the statistical processing of the primary data provide highly insightful insights into how varying institutional environments interact with teacher-student relationships, revealing sharp contrasts when analyzed by gender. The data are organized into two primary segments to isolate and compare the behavioral and relational patterns of female and male students.

Quantitative Evaluation of Female Students

The statistical analysis of data collected from female participants reveals an unexpectedly uniform pattern of high-level relational bonding, demonstrating an independence from the surrounding physical and administrative infrastructure. Table 1 presents the comprehensive mean distributions and qualitative interpretations for the female sample group.

Level of Institutional Environment	Mean Score of Teacher-Student Relationship Tools	Level of Teacher-Student Relationship
High (Score ≥ 116)	213.52	High Level
Average (Score 88-115)	202.52	High Level
Low (Score ≤ 87)	207.76	High Level

Total Aggregate	203.66	High Level
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Significance Level (Alpha) = 0.05

As clearly illustrated in Table 1, female students consistently reported a "High Level" of teacher-student relationship across all configurations of the institutional environment. In coaching facilities characterized by a High Institutional Environment, the relational mean score achieved its peak at 213.52. In instances where the environment transitioned down to an Average Level, the relationship quality remained firmly anchored within the High category, yielding a mean score of 202.52. Intriguingly, in coaching centers marked by a Low Institutional Environment (severe structural or resource limitations), the teacher-student relationship mean score slightly rose to 207.76, maintaining its qualitative designation as a High Level. The total cumulative mean score for all female participants across all institutional environments was 203.66, confirming a high baseline of interpersonal connection with instructors regardless of external physical conditions.

Quantitative Evaluation of Male Students

The empirical trends recorded for the male participant cohort diverge substantially from the female group, exhibiting high sensitivity and dependence on external institutional conditions. Table 2 provides the detailed statistical outcomes for male students.

Level of Institutional Environment	Mean Score of Teacher-Student Relationship Tools	Level of Teacher-Student Relationship
High (Score ≥ 116)	205.85	High Level
Average (Score 88-115)	197.29	Average Level
Low (Score ≤ 87)	192.58	Average Level
Total Aggregate	197.53	Average Level

Significance Level (Alpha) = 0.05

The data compiled in Table 2 demonstrates a step-like decline in relationship quality corresponding to drops in environmental quality. Male students enrolled in coaching centers with a High Institutional Environment experienced an optimal teacher-student relationship, yielding a high mean score of 205.85. However, as the institutional infrastructure declined to an Average tier, the perceived teacher-student relationship dropped to an Average Level, showing a mean score of 197.29. This downward trend continued into the Low Institutional Environment category, where the relationship mean reached its lowest point at 192.58, qualitatively remaining at an Average Level. The total cumulative mean score for all male respondents

across all institutional settings stood at 197.53, establishing their baseline relational interaction within the Average category.

Discussion

The statistical architecture of this study reveals a clear gender-based divergence in how institutional spaces interact with the socio-emotional networks of students inside private coaching centers. The most striking finding is the robust, uniform maintenance of a High Level teacher-student relationship among female participants across all tiers of institutional environmental quality. Whether operating in an elite, resource-rich facility (mean = 213.52) or a highly constrained, low-tier setting (mean = 207.76), female students successfully developed and sustained highly supportive relationships with their instructors. This phenomenon indicates a deep relational resilience among female learners within shadow education systems.

From a developmental and socio-psychological perspective, this trend can be explained through several complementary frameworks. Educational literature consistently highlights that female adolescents often demonstrate an advanced relational orientation, placing a high cognitive and emotional priority on verbal communication, interpersonal trust, and empathetic mentorship to navigate stressful educational spaces. In highly competitive coaching institutes, where the pressure to excel is intense, female students may actively seek out and preserve strong psychological connections with their mentors as an adaptive coping strategy. When confronted with a sub-optimal or physically deficient institutional climate (Low environment), female students appear to isolate these outer infrastructural limitations from their direct pedagogical interactions. They deliberately maximize their engagement with teachers to compensate for structural voids, viewing the mentor as an accessible source of academic and psychological stability amidst poor physical infrastructure.

In stark contrast, male students demonstrated distinct environmental vulnerability, with their interpersonal relationships heavily dependent upon the quality of the institutional climate. Their relationship scores showed a direct, linear decline moving from high (205.85) to average (197.29) and low (192.58) environments. This indicates that the physical, architectural, and structural integrity of the educational space serves as a fundamental prerequisite for male students to build high-level rapport with their instructors.

This environmental dependency among male participants may stem from a more transactional approach toward their learning settings. Sociological studies on academic motivation suggest that male students often anchor their respect for, and engagement with, an instructor within the broader prestige, organizational discipline, and physical resources of the institution itself. When an institute is poorly resourced, chaotic, or overcrowded (Average and Low tiers), male students are more likely to experience frustration, leading to

diminished trust in the institutional system. This institutional dissatisfaction frequently externalizes as psychological detachment or behavioral withdrawal from instructors, resulting in lower perceived teacher-student relationship scores. Furthermore, male adolescents are statistically less inclined to actively seek emotional or relational buffers from instructors during periods of environmental stress, preferring to internalize or externalize anxiety rather than convert it into collaborative academic relationships.

These insights hold substantial relevance for the design and management of private coaching ecosystems. They challenge the standard administrative assumption that uniform infrastructural upgrades will affect all student demographics in an identical manner. While infrastructural enhancement is broadly beneficial, it is clear that male students require highly organized, physically comfortable, and structured environments to achieve optimal relational connectivity with their educators. For female students, the priority shifts from physical infrastructure toward maintaining and protecting interpersonal accessibility, ensuring that teachers possess the time, empathy, and communication channels necessary to sustain the deep relational support these students rely on.

Conclusion

This empirical inquiry establishes that institutional environments within private coaching centers do not impact student groups in a uniform manner; rather, their influence is distinctly shaped by gender dynamics. Female students demonstrate profound socio-emotional resilience, maintaining high-quality, supportive teacher-student relationships irrespective of external structural or physical limitations. Conversely, male students exhibit significant sensitivity to their material surroundings, requiring well-resourced, highly organized, and physically superior institutional spaces to foster high-level rapport with their instructors. As private tutoring centers increasingly dominate contemporary education, a nuanced understanding of these gendered environmental sensitivities becomes essential. To maximize student engagement and well-being, coaching institute administrations must transition away from one-size-fits-all management models, ensuring they simultaneously provide solid physical infrastructure to support male learners and protected, open interpersonal communication channels to support female learners.

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