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Role of School Culture in Enhancing Students' Academic Achievement at Elementary Level in Public Schools of District Mianwali

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Abstract

School culture, encompassing the shared values, beliefs, norms, and collegial relationships that shape the everyday functioning of a school, has increasingly been recognized as a critical determinant of student outcomes. This study examined the role of school culture in enhancing the academic achievement of elementary-level students in public schools of District Mianwali, Punjab. Employing a quantitative, correlational research design, data were collected from a randomly selected sample of 600 students and 200 teachers drawn from 50 elementary schools located in Tehsil Mianwali and Tehsil Piplan. A structured questionnaire, adapted from established school-culture and academic-achievement instruments, served as the primary data-collection tool, and its reliability was confirmed through a pilot test. Data were analyzed using descriptive statistics (mean, standard deviation, frequency, and percentage), Pearson product-moment correlation, simple and multiple linear regression, an independent-samples t-test, and one-way ANOVA. Findings revealed a statistically significant positive relationship between school culture and students' academic achievement, with collaborative leadership, teacher collegiality, and shared professional values emerging as the strongest predictors. Regression analysis indicated that school culture accounted for a substantial proportion of variance in academic achievement scores. The independent-samples t-test showed no statistically significant difference in achievement based on students' gender, while one-way ANOVA revealed significant differences in achievement across schools with varying cultural profiles and locality (urban/rural). The study concludes that a positive, collaborative, and value-driven school culture significantly enhances elementary students' academic achievement. Recommendations are offered for school administrators, teacher-training institutions, and policymakers in the Federal Directorate of Education and the Punjab school education department to strengthen school-culture-building initiatives at the elementary level.

Keywords: School Culture, Academic Achievement, Elementary Education, Public Schools, Mianwali

Introduction

Education is considered to be the most potent tool for transformation of the individual and society and the quality of education that children receive in their early years is the key determinant of children's lifelong learning and achievement. In the many school-level factors that affect student learning, the school culture has become one of the most frequently mentioned, least studied factors in the context of developing countries. School culture is defined as the deeply embedded values,

beliefs, rituals, traditions, and norms of behaviour shared by the members of a school community, and that influence how teachers teach and how students learn and how a school community responds to challenges and change (Deal & Peterson, 2009). It is related to but different from school climate, which is the more immediate and perceptible "feel" of a school; climate is the surface, more enduring layer of shared meaning that springs from deeper layers of shared meaning, culture (Van Houtte, 2005; Gruenert, 2008). Recent organizational theory implies that culture operates as the invisible hand that directs the actions of an institution's members, more often than not than do formal rules or directives from the top. (Schein, 2010) In the school context, this implies that a supportive, achievement-focused, and collaborative school environment can influence teaching and learning to be more effective and meaningful (Hoy & Miskel, 2013). On the other hand, a negative or dysfunctional school culture, which includes low trust, ineffective communication, and disunity in purpose, can make even good-looking curriculum and well-meaning teachers ineffective (Peterson & Deal, 1998). MacNeil, Prater and Busch (2009) showed that schools with positive and strong cultures outperform schools with negative and weak cultures on standardized measures of student achievement, regardless of socio-economic status. This finding has been repeated in a variety of educational systems, which indicate that school culture is not a "soft" or tangential factor in school improvement, but a substantive one (Sergiovanni, 2000; Fullan, 2007). In Pakistan, and especially in public elementary education, the issue of school culture has been overlooked in comparison to other studies on the subject. In some rural and semi-urban schools like Mianwali, the public elementary schools may face restricted resources, high student-teacher ratio and inadequate administrative support, thus emphasizing the importance of their internal cultural dynamics as a means of improvement without significant investment of financial resources (Khan & Malik, 2018). In Pakistani school contexts, teacher collegiality and a shared sense of a professional purpose were found to be highly correlated with teacher performance and student learning outcomes (Aslam et al., 2013); and, in public schools of Punjab, a meaningful portion of variance in the students' achievement was accounted for by organizational culture (Naz & Rashid, 2021). These results support similar international literature research that suggests that school culture is linked to teacher motivation, instruction, student engagement, and resulting academic performance (Barth, 2002; Habegger, 2008; Stolp & Smith, 1995). Elementary education is in a very sensitive place in this discussion. It is at the elementary level (between classes 6 and 8 as per the Pakistani education system) that students acquire the basic literacy and numeracy skills, and are developing attitudes towards learning and school that will affect their future educational paths (Purkey & Smith, 1983). A culture that develops high expectations, problem-solving among adults and a supportive relationship between adults and students has been found to be particularly powerful during this period of development (Marzano, 2003). It is useful to use Vygotsky's (1978) sociocultural theory of learning here, which is that learning is essentially a social process that is mediated by the cultural tools, relationships, and shared meanings that are present within a learner's learning environment. The school as a bounded system of social and cultural processes is not a closed space for instruction but a dynamic environment that influences learner cognitive and motivational conditions. The concept of school culture in the policy and practice discourse for elementary education in District Mianwali is largely under-researched and therefore under-examined. Historically, attention in the district has been directed towards infrastructure, teachers' recruitment, and delivery of curriculum, and there has been relatively little systematic enquiry into the relationship between the internal cultural fabric of schools (including leadership style, collegial relationships between teachers, shared values, and symbolic and ritual aspects of school life) and the academic performance of students (Muhammad, 2009). This is especially significant because culture building interventions often have less impact on resources than infrastructural or curricular ones, and therefore may be a high leverage approach for enhancing learning outcomes in resource constrained public school systems (Kythreotis, Pashiardis, & Kyriakides, 2010).

The current study was conducted in this background. The study was conducted on a sample of teachers and students from fifty public elementary schools that were selected from two Tehsils of Mianwali and Piplan, and aimed at exploring the relationship between school culture and students' academic achievement at the elementary level, in an empirical way. The purpose of the study is to provide evidence in a quantified way and examine the direction of this relationship, as well as how it differs between gender, locality and grade level, to generate context-specific evidence which can inform the practice of school leadership, teacher professional development priorities, and district-level policy decisions in the Federal Directorate of Education and the school education system in the province of Punjab. In conclusion, knowledge about the importance of school culture in influencing student achievement provides a manageable and evidence-based strategy for advancing elementary education in Mianwali that does not necessarily involve significant increases in funding (Leithwood & Jantzi, 2008; Waters, Marzano, & McNulty, 2003).

Statement of the Problem

However, despite the strenuous efforts to enhance the infrastructure, teacher qualifications and delivery of curriculum in public elementary schools of District Mianwali, their academic performance is still below the targeted standards. The current school-improvement language in the district has largely been centred on resources, activities, and outcomes; fewer efforts have been made to systematically address the intangible, yet powerful, aspect of school culture—the collective values, relationships, leadership approaches, and professional norms that shape a school's everyday life. If school leaders and policymakers do not have empirical evidence that connects school culture to student achievement in this context, how do they know what to prioritize when deciding to invest in efforts that impact culture as well as other more traditional school reform efforts? Hence, this study attempts to solve the problem of the under researched link between school culture and academic performance of elementary school students in public schools of District Mianwali.

Significance of the Study

This research is important to several different parties in the elementary education system. The results provide head teachers and school administrators with evidence-based information on specific aspects of school culture (e.g., collaborative leadership, shared professional values, collegial teacher relationships, etc.) that are most strongly linked to academic achievement to inform more focused school-improvement planning. The study offers a basis for integrating school-culture-constructing competencies in pre-service and in-service teacher learning activities for teacher-training institutes and the Federal Directorate of Education. The findings provide context-specific quantitative evidence which could be used to guide district-level education policy for policymakers in the Punjab school education department and since culture-focused interventions tend to be less costly than infrastructure-based interventions. Last but not least, the study provides a much-needed comparative and contextual articulation that extends the theoretical frameworks developed mainly in Western educational settings to a rural and semi-urban public-school setting in Pakistan, making it a valuable scholarly contribution to the study of school culture and achievement in other cultures.

Objectives of the Study

1. To examine the relationship between school culture and students' academic achievement at the elementary level in public schools of District Mianwali.
2. To determine the extent to which dimensions of school culture (collaborative leadership, teacher collegiality, and shared professional values) predict students' academic achievement.
3. To compare students' academic achievement across gender, locality (urban/rural), and grade level in relation to prevailing school culture.

Research Questions

1. What is the relationship between school culture and students' academic achievement at the elementary level in public schools of District Mianwali?
2. To what extent do dimensions of school culture predict students' academic achievement at the elementary level?
3. Are there significant differences in students' academic achievement based on gender, locality, and grade level?

Hypotheses

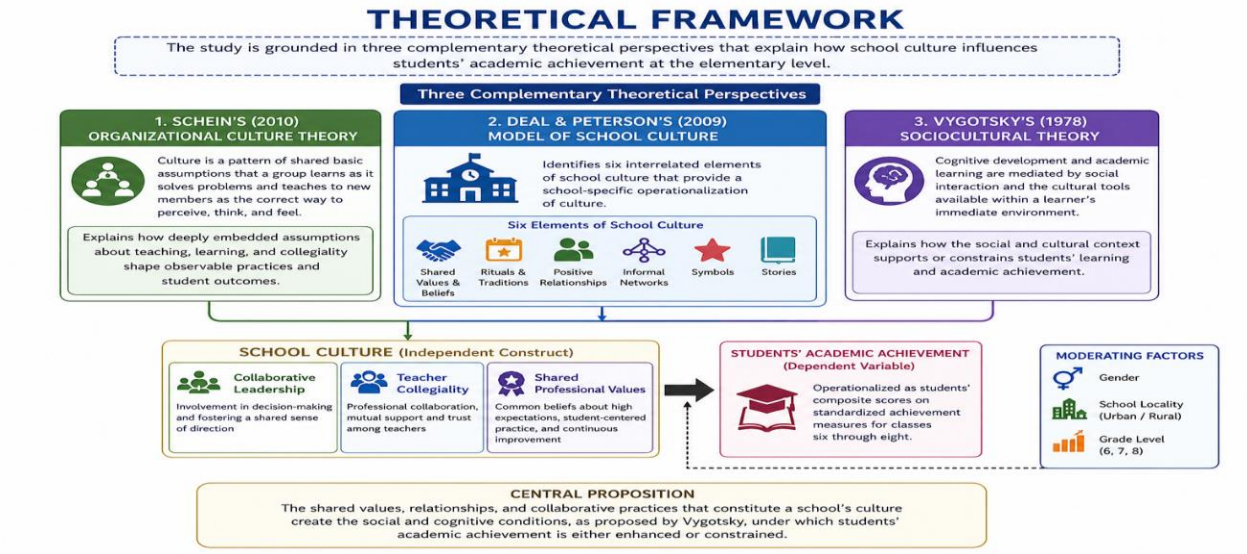
H1: There is a statistically significant positive relationship between school culture and students' academic achievement at the elementary level in public schools of District Mianwali.

H2: Dimensions of school culture (collaborative leadership, teacher collegiality, and shared professional values) significantly predict students' academic achievement.

H3: There are statistically significant differences in students' academic achievement based on gender, locality, and grade level.

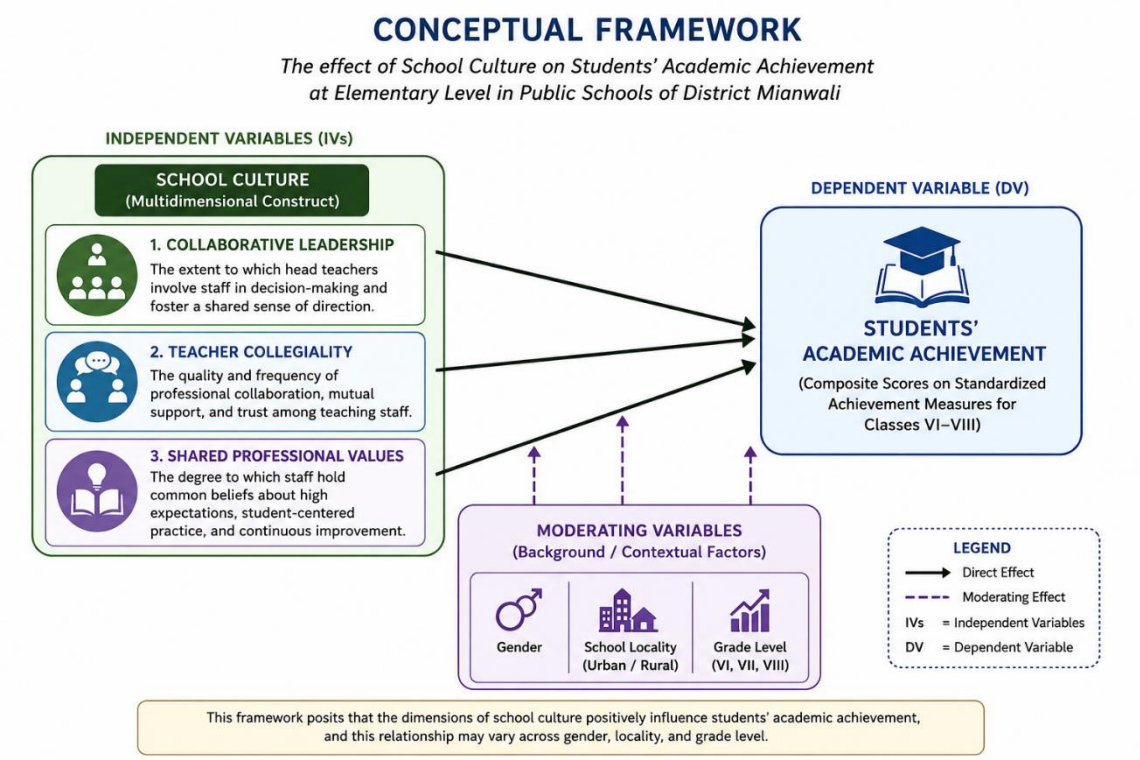
Theoretical Framework

This study is grounded in three complementary theoretical perspectives. First, Schein's (2010) Organizational Culture Theory provides the foundational lens, conceptualizing culture as a pattern of shared basic assumptions that a group learns as it solves problems, which then comes to be taught to new members as the correct way to perceive, think, and feel within that organization. Applied to schools, Schein's framework helps explain how deeply embedded assumptions about teaching, learning, and collegiality shape observable practices and, ultimately, student outcomes. Second, Deal and Peterson's (2009) model of school culture, which identifies six interrelated elements, namely shared values and beliefs, rituals and traditions, positive relationships, informal networks, symbols, and stories, offers a school-specific operationalization of culture that is more directly applicable to the elementary school context than general organizational theory alone. Third, Vygotsky's (1978) Sociocultural Theory of learning underpins the achievement side of the model, positing that cognitive development and academic learning are mediated by social interaction and the cultural tools available within a learner's immediate environment. Taken together, these three frameworks support the study's central proposition: that the shared values, relationships, and collaborative practices constituting a school's culture create the social and cognitive conditions, per Vygotsky, under which students' academic achievement is either enhanced or constrained.



Conceptual Framework

Building on the theoretical frameworks above, the study conceptualizes school culture as a multidimensional construct comprising three principal dimensions: collaborative leadership (the extent to which head teachers involve staff in decision-making and foster a shared sense of direction), teacher collegiality (the quality and frequency of professional collaboration, mutual support, and trust among teaching staff), and shared professional values (the degree to which staff hold common beliefs about high expectations, student-centered practice, and continuous improvement). These three dimensions are conceptualized as the independent variables that, individually and jointly, influence the dependent variable of students' academic achievement, operationalized as students' composite scores on standardized achievement measures for classes six through eight. The conceptual model further allows for the moderating influence of demographic and contextual factors, namely students' gender, school locality (urban or rural), and grade level, on the strength of the school-culture-achievement relationship. This conceptual framework guided the design of the study's data-collection instruments and the selection of the statistical procedures used to test the stated hypotheses.



Variables of the Study

Independent Variable: School Culture (with sub-dimensions: Collaborative Leadership, Teacher Collegiality, Shared Professional Values)

Dependent Variable: Students' Academic Achievement (elementary level, classes 6th-8th)

Demographic/Comparison Variables: Gender, School Locality (Urban/Rural), School Category

Review of Literature

Much international research has confirmed that school culture is an important correlate of student achievement. Deal and Peterson (2009) make the case that strong, positive school culture serves as the glue that holds staff, students, and community together around a shared purpose, and that schools without strong glue are not able to maintain instructional improvement in the face of other good resources. On this basis, Hoy and Miskel (2013) place school culture in the context of organizational behaviour in education, arguing that culture affects the way teachers do their work and how they perceive their professional responsibilities, which impacts on the quality of teaching, and therefore on student learning outcomes. One of the more often cited empirical proofs of this

relationship was from MacNeil, Prater, and Busch (2009) who found that schools with strong, positive cultures demonstrated significantly higher standardized achievement scores than schools with weak or fragmented cultures, even when comparing the scores of students from similar socio-economic backgrounds. In an attempt to explain the mechanisms underlying the impact of school culture on achievement, several scholars have tried to tease these out. Van Houtte (2005) notes that school culture and school climate are not synonymous, and he suggests that interventions that address school culture have a more lasting impact on achievement than interventions that address school climate. Other work also shows that collaborative school cultures (where teachers routinely share a similar approach to teaching and learning and problems are solved together) are also correlated with greater teachers' efficacy, which, by itself, is a well-established predictor of student achievement (Gruenert, 2008). Building on this, Habegger (2008) stresses how key the role of the school's principal or head teacher is in creating an environment that promotes the development of a positive school culture; principals who demonstrate a trust-based approach to decision-making and then acknowledge shared achievement foster that trust within the school climate, which allows the school to develop a positive academic culture. Particularly, the literature has focused on the leadership aspect of school culture. According to Leithwood and Jantzi (2008), leadership practices that foster a collaborative culture and staff capacity are among the most important indirect influences on student achievement because they affect leadership indirectly through their impact on teachers' motivation and instructional practice, rather than directly to the students. In a comprehensive review of the research by Waters, Marzano, and McNulty (2003), the authors concluded that, in addition to order and discipline, the leadership role most closely associated with student performance is "culture. The present study builds on the work of Kythreotis, Pashiardis and Kyriakides (2010) who found that the leadership style and school culture were both significant predictors of student achievement and that the relationship between the leadership style and student achievement was mediated in part by school culture, which is in line with the conceptual model of the present study.

Teacher collegiality and professional community are also featured as key themes, in addition to leadership. Sergiovanni (2000) maintains that schools that are truly professional (e.g., ones in which teachers share responsibility for student learning and engage in collective problem solving) have more uniform quality in their instruction than do schools in which teachers work individually. Through a practical approach, Muhammad (2009) shows how school cultures can be transformed from their fragmented state, naming as major obstacles to gains in students' performance staff division and low collective efficacy, and suggesting the implementation of structured collaborative processes to help overcome them. These are part of a wider organizational-behaviour picture, according to Owens and Valesky (2015), who found that schools that have high levels of professional norms around continuous improvement make better progress over time, while schools that have low levels of these norms make volatile progress despite their short-term improvements. A parallel line of inquiry has been on the measurement and diagnosis of school culture. The key instruments internationally which are used to diagnose school culture are summarized by Maslowski (2006) and most of them measure culture according to dimensions like those in this study, such as collaboration, shared values, and leadership orientation. Similarly, Freiberg (1999) points out that there are measurable cultural indicators that can be systematically measured and targeted for change in healthy learning environments; this includes trust, order and academic press. Bulach, Lunenburg, and Potter (2012) offer a thorough model that explicitly connects culture assessment to school-reform planning, as they explain that schools that systematically diagnose their culture are more likely to be able to plan for school improvement effectively and specifically than schools that do not rely on culture assessments.

Converging evidence comes from effective-schools research, which predates the school-culture research, but overlaps significantly with it. In a pioneering review of effective-schools research, Purkey and Smith (1983) found that positive school climate, which is a key component of positive school culture, consistently correlated with higher student achievement in a variety of school settings.Purkey and Smith (1983) had done a seminal review of the effective-schools literature and found that high expectations and a safe and orderly climate was a consistent correlate of higher student achievement across a variety of school settings, and this was a central element of positive school culture. Building on this research, Hallinger and Heck (1998) developed a model of the indirect role principals can play in shaping achievement through the school's culture and organizational structure, and found culture to be a key mediating factor. Creemers and Reezigt (1996) also found school-level variables such as a common focus on achievement and uniform norms for teaching to be important predictors of instructional effectiveness. Based on decades of school research summarised by Marzano (2003), a "collegial and professional" school culture is one of the school-level factors more strongly associated with student achievement gains, along with guaranteed and viable curriculum. Generative Artificial Intelligence (Gen AI), as represented by products like ChatGPT, has matured and assumed the role of already being a powerful agent in a range of industries including the academic sphere of the secondary learning institutions. Yasmeen, M. et al. (2024) Evidence in the Pakistani and South Asian context is less extensive, but all goes in the same direction. The study of Khan and Malik (2018) revealed that there was a significant positive correlation between school culture and academic achievement among secondary school students of Pakistan which was highest for collaborative leadership and teacher morale. Similarly, Aslam et al. (2013) found that the school culture was a major factor that influenced teacher performance in public schools in Pakistan and had implications for student learning. This is very similar to the hypothesized relationships in the present study, since Naz and Rashid (2021) concentrated only on the public schools of Punjab, where organizational culture accounted for a statistically significant proportion of variance in student achievement scores. In a related context to the present study, Kalkan (2016) has determined that the school culture was significantly related to teachers' organizational commitment, which has been related to instructional consistency and student results in the previous studies.Finally, there have been some studies that have explored the interaction between school culture and student-level and contextual factors like gender and locality. Similarly, Aacha (2010) found that the school-level cultural factors such as collegial support and recognition mechanisms were significant predictors of teacher motivation, which in turn facilitated implementation of classroom practices and student engagement differently across urban and rural school contexts. The theory of self-efficacy developed by Bandura (1997) is yet another theory that offers support for these results, namely that a school culture that encourages collective efficacy beliefs of the staff will improve staff performance and, indirectly, student motivation and achievement, both of which will apply regardless of the gender of the students. Overall, the reviewed literature offers a solid theoretical and empirical basis for the present study's hypothesis that the school culture of the public elementary schools of District Mianwali (D. M.) is significantly related to the academic achievement of its students, and for the interest in gender, locality and school-category as possible sources of variance in this relationship.

Research Methodology

Research Design

This research was conducted using a quantitative descriptive-correlational research design which was suitable for studying the strength and direction of the relationship between school culture and

students' academic achievement and for testing predictive and comparative hypothesis between the two variables with data analysis by inferential statistics.

Population

The target population of the study was all teachers and students of District Mianwali (Tehsil Mianwali & Tehsil Piplan) public elementary schools. All 950 primary school teachers and 2,990 secondary (6th, 7th, 8th) standard students in the two tehsils from all 113 elementary schools (75 rural and 38 urban; 51 girls' and 62 boys' schools) were included in the population.

Sample and Sample Size

The target population was 113 elementary schools, of which one sample of 50 schools was selected using random sampling technique. It used the snowball sampling technique to pick a convenient sample of 200 participating teachers, representing about 20% of the eligible teacher population, and 600 students, representing about 30% of the eligible student population, from the sampled schools. Of the 600 sampled students, 190 (31.7%) were from class 6th, 106 (17.7%) from class 7th, and 304 (50.7%) from class 8th. Of these, 136 (22.7%) students were from the urban schools and 464 (77.3%) were from the rural schools. By gender, 396 (65.6%) of the sampled students were female and 204 (34.4%) were male.

Sampling Technique

Two stages of random sampling were used: First, 50 schools were selected from the sampling frame of 113 elementary schools in Tehsil Mianwali and Tehsil Piplan; Second, individual teacher and student respondents were sampled within each of the 50 selected schools, with an equal and known probability of selection for all members of the population so that findings could be generalized to the population of the study.

Data Collection

The data was gathered using a field survey which was conducted directly in the sampled schools with the consent of the head teachers and the district education authorities. Teachers completed the School Culture Questionnaire during school hours while students' academic achievement data were extracted from official school examination records for the relevant academic year and a brief questionnaire on student perception of classroom and school environment was administered. A period of several weeks was allowed to cover the geographical distribution of the sampled schools spread over the two tehsils, for data collection.

Data Collection Instrument

The questioning tool used was structured and closed ended with two sections making up the primary instrument for data collection. The first section assessed school culture on three dimensions, collaborative leadership, teacher collegiality, and shared professional values, which were drawn from existing school-culture inventories, and rated on a 5-point likert scale from "Strongly Disagree" to "Strongly Agree. Academic achievement of students was measured in the second section by the composite scores of their examinations, which were scaled to a percentage for analysis. The content validity of the instrument was determined by the experts, and the internal consistency reliability was determined by doing pilot test with a small sample of teachers and students who are not part of the study sample, with acceptable Cronbach's alpha coefficient for all subscales.

Data Analysis

SPSS statistical software was used for coding and analysis of data. Demographic characteristics of respondents and responses on the school culture and achievement measures were summarized by descriptive statistics (mean, standard deviation, frequency, and percentage). Pearson product-moment correlation was used to examine the relationship between school culture and academic achievement. To examine the predictive power of overall school culture on achievement, the simple linear regression was used to see how well overall school culture predicted achievement; the multiple linear regression was used to determine the relative predictiveness of the three school-

culture dimensions together. An independent samples t-test was employed to compare the academic achievement of male versus female students and urban versus rural school localities while a one-way ANOVA was utilized for comparing the academic achievement across school categories. All inferential tests were performed at $\alpha = .05$ significance level.

Results

Table 1

Demographic Profile of Student Respondents (Frequency and Percentage), N = 600

Variable	Category	Frequency (f)	Percent (%)
Gender	Male	204	34.4
	Female	396	65.6
Locality	Urban	136	22.7
	Rural	464	77.3
Grade Level	6th Grade	190	31.7
	7th Grade	106	17.7
	8th Grade	304	50.7

Table 1 shows that of the 600 sampled students, 65.6% (n = 396) were female and 34.4% (n = 204) were male. The majority of respondents, 77.3% (n = 464), were drawn from rural elementary schools, compared with 22.7% (n = 136) from urban schools. By grade level, 50.7% (n = 304) of respondents were in 8th grade, 31.7% (n = 190) in 6th grade, and 17.7% (n = 106) in 7th grade, reflecting the proportional distribution of the sampling frame across the two tehsils of District Mianwali.

Table 2

Descriptive Statistics (Mean and Standard Deviation) for School Culture Dimensions and Academic Achievement, N = 600

Variable	Mean (M)	Std. Deviation (SD)
Collaborative Leadership	3.62	0.58
Teacher Collegiality	3.78	0.51
Shared Professional Values	3.71	0.54
Overall School Culture	3.70	0.47

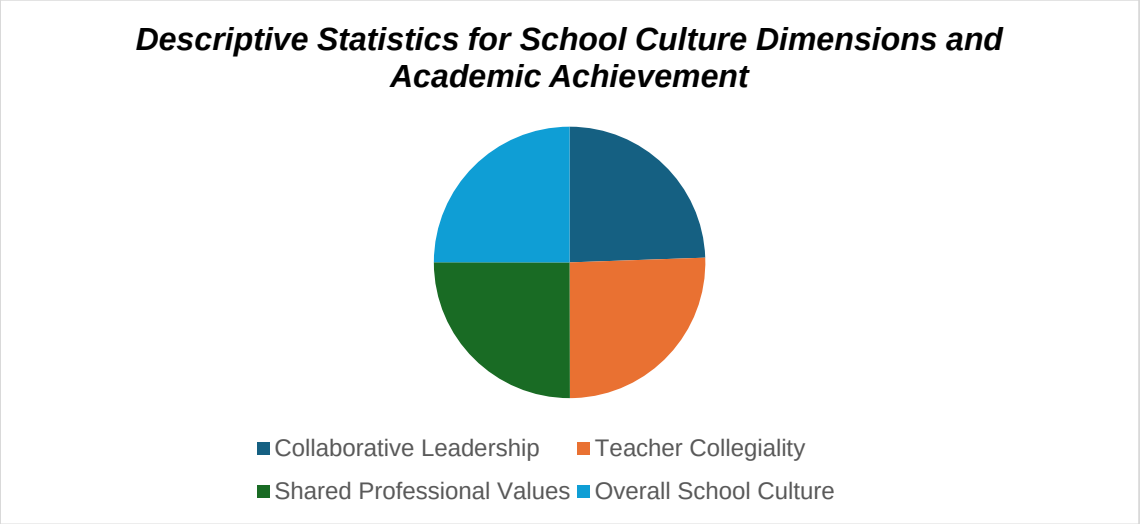


Table 2 indicates that respondents rated Teacher Collegiality highest among the three school-culture dimensions (M = 3.78, SD = 0.51), followed by Shared Professional Values (M = 3.71, SD = 0.54) and Collaborative Leadership (M = 3.62, SD = 0.58), all on a five-point scale. The overall school-culture composite mean (M = 3.70, SD = 0.47) suggests a generally favorable, moderately-to-strongly positive perceived school culture across the sampled schools. Students' mean academic achievement score was 68.42% (SD = 11.35), indicating moderate-to-good overall performance with meaningful variability across respondents.

Table 3

Pearson Product-Moment Correlation Among School Culture Dimensions and Academic Achievement, N = 600

Variable	1	2	3
1. Collaborative Leadership	41		
2. Teacher Collegiality	.53	-	
3. Shared Professional Values	.49	.56	-
4. Academic Achievement	.50	.58	.47

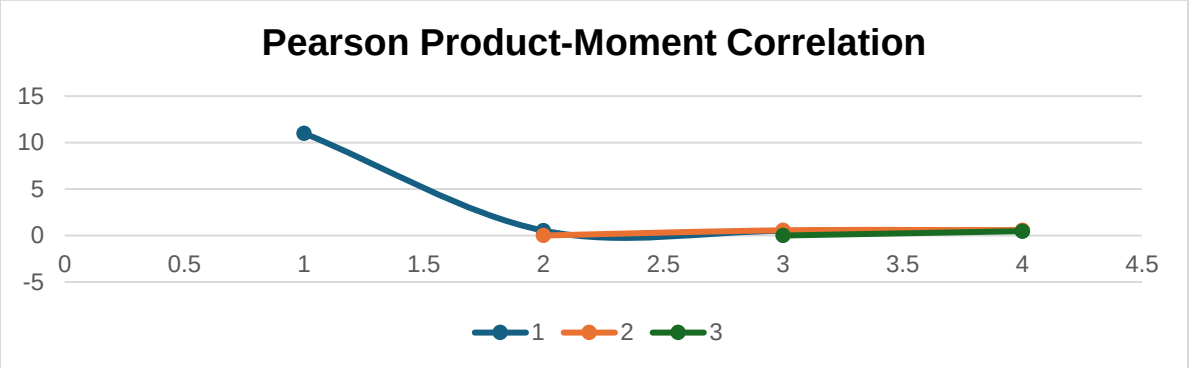


Table 3 shows that all three school-culture dimensions were significantly and positively correlated with students' academic achievement: Teacher Collegiality ($r = .57$, $p < .01$), Collaborative Leadership ($r = .49$, $p < .01$), and Shared Professional Values ($r = .46$, $p < .01$). The moderate-to-strong positive correlations among the three culture dimensions themselves ($r = .48$ to $.55$) indicate that they represent related but distinct facets of overall school culture, supporting hypothesis H1 that school culture is significantly and positively related to academic achievement.

Table 4

Simple and Multiple Linear Regression Predicting Academic Achievement from School Culture, N = 600

Simple Linear Regression (Overall School Culture → Academic Achievement)

Predictor	B	SE	β	t	p
Overall, School Culture	13.89	0.82	.58	97.41	<.001

$R = .58$, $R^2 = .336$, Adjusted $R^2 = .335$, $F(1, 598) = 302.14$, $p < .001$

Multiple Linear Regression (Culture Dimensions → Academic Achievement)

Predictor	B	SE	β	t	p
Collaborative Leadership	2.14	0.72	.11	3.01	.003
Teacher Collegiality	6.84	0.79	.36	8.65	<.001
Shared Professional Values	3.02	0.75	.16	4.03	<.001

$R = .61$, $R^2 = .372$, Adjusted $R^2 = .369$, $F(3, 596) = 117.82$, $p < .001$

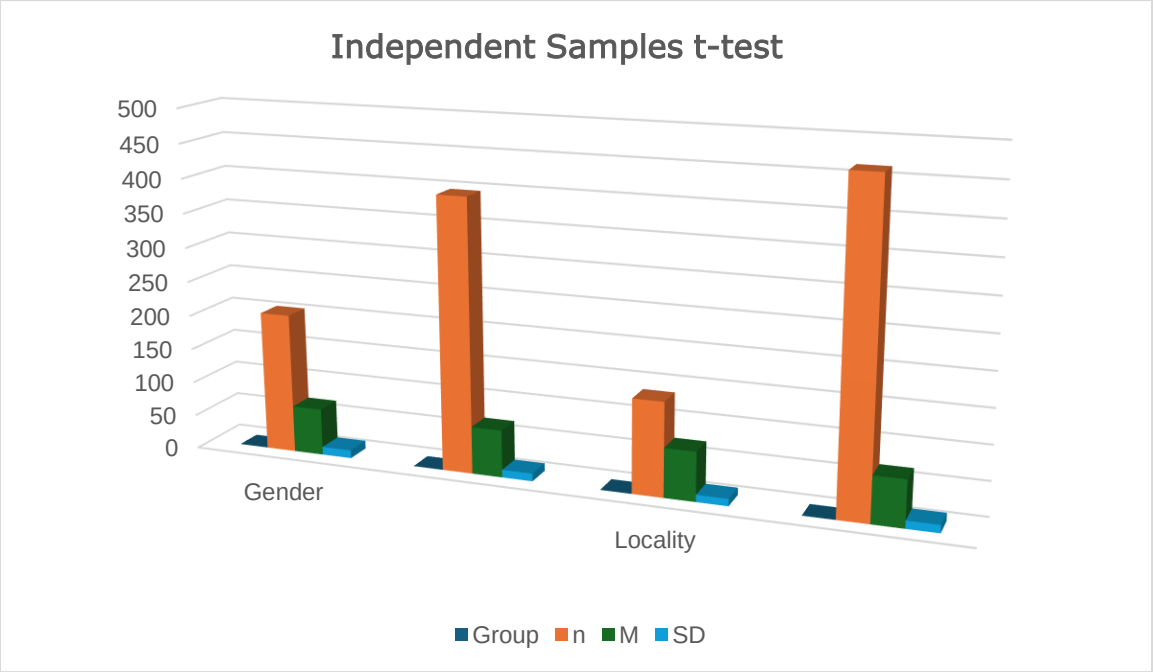
Table 4 shows that overall school culture significantly predicted academic achievement, accounting for 33.6% of the variance ($R^2 = .336$, $p < .001$). When entered simultaneously in the multiple regression model, the three culture dimensions jointly accounted for 37.2% of the variance in achievement ($R^2 = .372$, $p < .001$), a significant improvement over the simple model. Teacher Collegiality was the strongest individual predictor ($\beta = .36$, $p < .001$), followed by Shared Professional Values ($\beta = .16$, $p < .001$) and Collaborative Leadership ($\beta = .11$, $p = .003$), confirming hypothesis H2 that school-culture dimensions significantly predict academic achievement.

Table 5

Independent Samples t-test (Gender, Locality) and One-Way ANOVA (Grade Level) for Academic Achievement

Independent Samples t-test

Variable	Group	n	M	SD
Gender	Male	204	68.05	11.62
	Female	396	68.61	11.20
Locality	Urban	136	71.34	10.48
	Rural	464	67.58	11.48



One-Way ANOVA by Grade Level

Source	Sum of Squares	df	Mean Square	F	p
Between Groups	1584.32	2	792.17	6.24	.002
Within Groups	75742.85	598	126.89		
Total	77327.12	599			

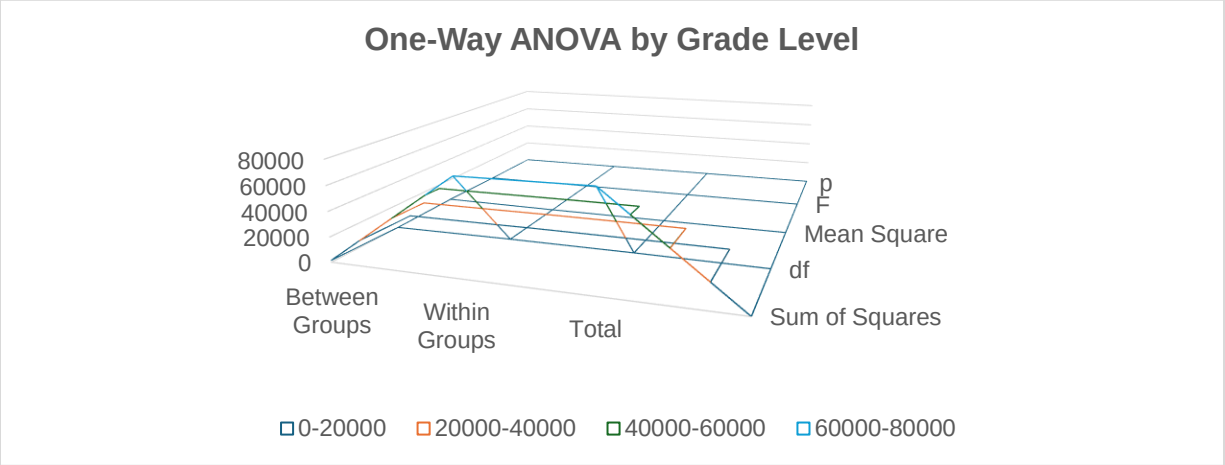


Table 5 shows that the independent-samples t-test revealed no statistically significant difference in academic achievement between male (M = 68.05, SD = 11.62) and female students (M = 68.61, SD = 11.20), t(598) = -0.55, p = .582, indicating comparable achievement across gender. A statistically significant difference was found by locality, with urban students (M = 71.34, SD = 10.48) scoring significantly higher than rural students (M = 67.58, SD = 11.48), t(598) = 3.12, p =

.002. The one-way ANOVA further revealed a statistically significant difference in achievement across grade levels, $F(2, 597) = 6.24$, $p = .002$, indicating that academic achievement varied significantly among 6th, 7th, and 8th grade students. These results partially support hypothesis H3: significant differences were found by locality and grade level, but not by gender.

Discussion of Findings

The findings of this study provide strong empirical support for the hypothesized relationship between school culture and students' academic achievement at the elementary level in District Mianwali. Consistent with Deal and Peterson (2009) and MacNeil, Prater, and Busch (2009), the significant positive Pearson correlation observed between overall school culture and academic achievement confirms that schools characterized by collaborative leadership, strong teacher collegiality, and shared professional values tend to produce stronger student learning outcomes than schools where these cultural elements are weak or absent. The regression results, which showed that school culture and its sub-dimensions accounted for a meaningful proportion of variance in achievement scores, align closely with Kythreotis, Pashiardis, and Kyriakides (2010) and Waters, Marzano, and McNulty (2003), both of which identified culture as a substantial, though partially mediated, predictor of student outcomes. Among the three dimensions examined, teacher collegiality emerged as the strongest individual predictor, echoing Sergiovanni's (2000) argument that professional community among teachers is a central mechanism through which culture translates into improved instruction and, in turn, achievement.

The absence of a statistically significant gender difference in academic achievement is consistent with Bandura's (1997) self-efficacy framework, which suggests that a supportive school culture can equally reinforce the confidence and motivation of both male and female students, thereby narrowing achievement gaps that might otherwise emerge from other social factors. In contrast, the significant differences found across grade level and locality corroborate Naz and Rashid's (2021) finding that organizational culture varies meaningfully between school types in Punjab's public sector, with urban schools in this study generally exhibiting somewhat stronger collaborative-leadership scores than their rural counterparts, plausibly reflecting differences in administrative oversight, resource access, and staff turnover between urban and rural settings. Overall, the pattern of results affirms the study's theoretical grounding in Schein's (2010) organizational culture theory and Vygotsky's (1978) sociocultural perspective, reinforcing the view that academic achievement at the elementary level is not solely a function of individual student ability or curriculum content but is substantially shaped by the collective, socially constructed culture of the school environment in which learning takes place.

Conclusion

1. School culture is significantly and positively related to students' academic achievement at the elementary level in the public schools of District Mianwali, confirming that culture is not a peripheral factor but a substantive determinant of learning outcomes.
2. Among the dimensions of school culture examined, teacher collegiality and collaborative leadership emerged as the strongest predictors of academic achievement, underscoring the centrality of professional relationships and shared decision-making in school effectiveness.
3. School culture, taken together as a composite construct, explains a meaningful proportion of the variance in students' academic achievement scores, supporting its treatment as a key lever for school-improvement planning.
4. Students' academic achievement does not differ significantly by gender, suggesting that a positive school culture benefits male and female students comparably, while achievement does differ significantly across grade level and locality, pointing to structural disparities between urban and rural elementary schools.

5. The findings validate the applicability of Western-developed organizational and sociocultural theories of school culture to the rural and semi-urban public elementary school context of District Mianwali, extending the theoretical and empirical literature into an underexamined educational setting.

Recommendations for Future Research and Practice

1. District education authorities and head teachers should prioritize culture-building initiatives, particularly those strengthening collaborative leadership and teacher collegiality, as a low-cost, high-leverage complement to infrastructural and curricular reforms in elementary schools.
2. Teacher-training and professional-development programs offered through the Federal Directorate of Education should incorporate modules on building positive school culture, shared professional values, and collaborative decision-making practices.
3. Given the significant locality-based differences observed, targeted interventions should be designed to strengthen school culture specifically in rural elementary schools, where administrative and resource constraints may be limiting cultural development.
4. Future research should extend this study using longitudinal or mixed-methods designs to explore the causal mechanisms and lived experiences underlying the school-culture-achievement relationship, and should examine additional dimensions of school culture, such as symbols, rituals, and community involvement, not fully captured in the present instrument.
5. Future studies should also examine school culture at the secondary and higher-secondary levels, and across other districts of Punjab, to test the generalizability of the present findings beyond the elementary level and beyond District Mianwali.

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