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THE CONTRIBUTION OF SCHOOL CULTURE DIMENSIONS TO STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC ELEMENTARY SCHOOLS

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Abstrak
Penelitian ini bertujuan menganalisis kontribusi dimensi budaya sekolah terhadap prestasi akademik siswa pada sekolah dasar negeri. Penelitian difokuskan pada tiga dimensi budaya sekolah, yaitu school discipline, teacher-student relationship, dan academic excellence emphasis, untuk mengidentifikasi kontribusi relatif masing-masing dimensi terhadap academic achievement. Penelitian menggunakan pendekatan kuantitatif dengan metode survei. Sampel penelitian terdiri atas 50 siswa sekolah dasar negeri di Tiongkok yang dipilih menggunakan teknik purposive sampling. Data dikumpulkan melalui instrumen budaya sekolah dan data prestasi akademik siswa, kemudian dianalisis menggunakan statistik deskriptif, uji paired sample t-test, dan regresi linier berganda. Hasil penelitian menunjukkan bahwa *teacher-student relationship* merupakan prediktor paling kuat terhadap academic achievement, diikuti oleh academic excellence emphasis, sedangkan school discipline tidak memberikan kontribusi yang signifikan setelah ketiga dimensi dianalisis secara simultan. Temuan ini menunjukkan bahwa budaya sekolah merupakan konstruk multidimensi yang setiap dimensinya memiliki kontribusi yang berbeda terhadap prestasi akademik siswa. Penelitian ini memberikan kontribusi terhadap pengembangan kajian budaya sekolah dengan menegaskan pentingnya menganalisis setiap dimensi budaya sekolah secara terpisah. Secara praktis, hasil penelitian menjadi dasar bagi sekolah dan pengambil kebijakan untuk mengembangkan budaya sekolah yang menekankan hubungan guru dan siswa yang berkualitas serta ekspektasi akademik yang tinggi guna meningkatkan prestasi akademik siswa.

Kata Kunci: Budaya Sekolah; Prestasi Akademik; Hubungan Guru dan Siswa

Abstract
This study aims to analyze the contribution of school culture dimensions to students' academic achievement in public elementary schools. The study focuses on three dimensions of school culture: school discipline, teacher-student relationships, and emphasis on academic excellence to identify the relative contribution of each dimension to academic achievement. The study employed a quantitative approach using a survey method. The sample consisted of 50 students from public elementary schools in China, selected using purposive sampling. Data were collected using a school culture instrument and student academic achievement data, then analyzed using descriptive statistics, a paired-sample t-test, and multiple linear regression. The results indicate that the teacher-student relationship is the strongest predictor of academic achievement, followed by the emphasis on academic excellence, while school discipline does not make a significant contribution after all three dimensions are analyzed simultaneously. These findings indicate that school culture is a multidimensional construct, with each dimension contributing differently to students' academic achievement. This study contributes to the development of research on school culture by emphasizing the importance of analyzing each dimension of school culture separately. In practical terms, the research findings provide a basis for schools and policymakers to develop a school culture that emphasizes high-quality teacher-student relationships and high academic expectations in order to improve students' academic achievement.

Keywords*: Academic Performance; School Culture; Teacher-Student's Relationship*

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INTRODUCTION

Schools serve as the primary social environment that plays an important role in shaping students' learning experiences, social development, and well-being, as children spend a substantial amount of their time in school during their primary education (Toyinbo, 2023). Therefore, the quality of the school environment is one of the factors determining the effectiveness of the learning process and students' development. A conducive learning environment can be established by providing adequate physical facilities and fostering patterns of interaction, values, and habits that support students' engagement in the learning process. When schools create a safe, collaborative, and student-centered learning atmosphere, the learning process can be optimized, providing students with greater opportunities to develop academically and socially. In this context, school culture is considered a fundamental element that shapes the values, norms, social interactions, and learning practices established within the school environment. School culture serves as the social and organizational context in which all learning processes take place. It shapes how students interact with teachers and peers, respond to school rules and expectations, and participate in various academic and non-academic activities. In this regard, students acquire not only knowledge at school but also develop values, norms, and habits that collectively influence their learning experiences and personal development. Previous studies have demonstrated that a positive and collaborative school culture contributes to improved school effectiveness by fostering shared goals, cooperation among school members, and a conducive learning environment (IsmaiL et al., 2022). Furthermore, a positive educational environment has also been associated with better academic achievement, while constructive teacher–student relationships enable teachers to implement more effective instructional practices, thereby supporting students' learning processes (Li et al., 2022; Wahid et al., 2023). These findings indicate that school culture provides an essential foundation for creating a learning environment that supports educational success.

As a complex construct, school culture reflects the values and norms that develop within the school environment, which are manifested through various dimensions that shape students' learning experiences. School culture is reflected in daily practices, routines, rules, and interactions that collectively create a learning environment conducive to students' academic and character development (Indrianingrum et al., 2024). In this study, school culture is conceptualized through three main dimensions: school discipline, teacher–student relationship, and academic excellence emphasis. The teacher–student relationship dimension represents the quality of positive, respectful, and caring interactions between teachers and students, which encourage students' engagement in learning (Robinson, 2022). Meanwhile, academic excellence emphasis describes a school culture that establishes high academic expectations and promotes optimal learning achievement (Shavit & Silver, 2022). These three dimensions complement one another in shaping a school environment that supports the learning process. This is consistent with the view that leadership practices, collaboration among school members, and organizational climate are essential elements in creating high-quality learning experiences (Maqbool et al., 2024).

Various studies have demonstrated that both school culture and school climate are positively associated with academic achievement, establishing them as important factors in improving educational quality (Erdem & Kaya, 2024). Nevertheless, the available empirical evidence reveals considerable variation in how school culture is conceptualized and measured. Some studies identify the quality of teacher–student relationships as a primary aspect influencing students' learning experiences and development, whereas others place greater emphasis on students' perceptions of the physical school environment and learning behaviors as factors associated with academic achievement (Edgerton & McKechnie, 2023). Other studies have also found that teacher support, school discipline, learning facilities, and various aspects of the school environment are associated

with students' academic achievement, although the strength of these relationships varies across factors (Rafiq et al., 2022). Furthermore, research on school discipline indicates that disciplinary behavior is influenced by various factors within the school environment, including teacher–student interactions. Therefore, its contribution to learning outcomes cannot be understood independently of the broader school culture context (Trovato & Zimmerman, 2024). These differences in research focus indicate that previous studies have not adopted a consistent approach to representing school culture. In addition, the concept of school climate itself encompasses diverse definitions, perspectives, and measurement instruments, which have yet to fully capture the complexity of school culture as a multidimensional construct (Klik et al., 2023). A systematic review has also revealed that the various definitions and operational approaches employed in previous studies remain insufficient to capture the overall complexity of school social climate, resulting in diverse interpretations of research findings (Bravo-Sanzana et al., 2023). Such conceptual and operational variations make findings across studies difficult to compare directly and hinder the identification of specific dimensions of school culture that contribute most substantially to academic achievement. Therefore, further research is needed to examine school culture as a multidimensional construct by investigating the relative contribution of each dimension to academic achievement. This approach is expected to provide a more comprehensive understanding of the school culture dimensions that contribute most significantly to improving the academic achievement of elementary school students.

Based on these findings, further research is needed to provide a more comprehensive understanding of how different dimensions of school culture contribute to students' academic achievement. This need has become increasingly important, as previous studies have shown that the relationships between various school-related factors and learning outcomes remain inconsistent, partly due to differences in conceptualization and construct operationalization (Gómez & Morales, 2024; L. Wang & Chen, 2024). Furthermore, academic achievement results from the interaction of various individual, school, and social factors that influence one another. Therefore, the contributions of factors associated with school culture need to be examined more specifically (Yan et al., 2024). In this context, school culture is regarded as the personality of a school, reflected in the values, norms, expectations, and behavioral patterns that shape school life and influence the quality of the learning process (Heenan et al., 2023). Accordingly, this study examines school culture as a multidimensional construct comprising three dimensions: school discipline, teacher–student relationship, and academic excellence emphasis. Unlike some previous studies that have primarily examined aspects of the school environment separately, this study investigates the simultaneous contributions of these three dimensions to academic achievement using multiple linear regression analysis. This approach is expected to make a theoretical contribution by expanding the understanding of which dimensions of school culture contribute most substantially to academic achievement. It also offers practical implications for schools and policymakers in developing more effective strategies to strengthen school culture, improve learning quality, and promote student success (Arifin et al., 2024). Based on these objectives, this study was designed to address the following research question: To what extent do school discipline, teacher–student relationships, and academic excellence emphasis contribute to the academic achievement of students in public elementary schools?

METHODS

This study employed a quantitative approach with a survey design to analyze the relationship between school culture and academic achievement using data obtained from questionnaires and academic records. Participants were selected through purposive sampling from two public schools within a single school district. Initially, the study involved 100 students and 50 teachers. Following data screening based on response completeness, answer consistency, and inclusion criteria, 50

student questionnaires were excluded, resulting in a final analytical sample of 50 students. Teacher data were collected to provide contextual information regarding school culture but were not included in the inferential analyses. School culture was measured using an adapted version of the School Culture Survey (SCS), while teacher–student relationships were assessed using the Teacher–Student Relationship Scale (TSRS). Academic achievement data were obtained from students' grade point averages (GPA), examination results, and attendance records. In addition, information regarding school policies was gathered through interviews with school administrators and document reviews using the Institutional Policy Evaluation Checklist (IPEC).

Data analysis was conducted using SPSS software. Before inferential analyses, the data were screened to ensure response completeness and data quality. Descriptive statistics were used to describe respondent characteristics and the distribution of each research variable. Subsequently, an independent-samples t-test was employed as a comparative analysis to identify differences in mean scores between research groups, while multiple linear regression analysis was performed to examine the contribution of school culture and its dimensions in predicting students' academic achievement. All inferential analyses were conducted using the final sample of 50 students, whereas teacher data were analyzed separately as descriptive information to support the interpretation of the school culture context.

RESULTS

The research findings are presented in stages to describe the characteristics of the data and examine the contributions of school culture dimensions to students' academic achievement. The analysis begins with descriptive statistics to provide an overview of the distribution of each research variable, followed by a paired-samples t-test to identify differences in the mean scores of the variables analyzed. Subsequently, multiple linear regression analysis is conducted to evaluate the contributions of each school culture dimension, namely school discipline, teacher–student relationship, and academic excellence emphasis, in predicting students' academic achievement. The descriptive statistics for each measured variable are presented in Table 1.

Table 1. Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Deviation
School_Dicipline_Score	50	69	99	82.58	7.990
Academic_Achievement_S core		78	98	88.16	5.343
Teacher_Student_Relation ship_Score		80	99	87.52	4.983
Academic_Excellence_Em phasis_Score		76	94	85.80	3.464

Table 1 presents the descriptive statistics for all research variables analyzed. Overall, all variables exhibited relatively high mean scores with moderate variability. Academic achievement had the highest mean score (M = 88.16; SD = 5.34), followed by teacher–student relationship (M = 87.52; SD = 4.98), academic excellence emphasis (M = 85.80; SD = 3.46), and school discipline (M = 82.58; SD = 7.99). Among all variables, school discipline exhibited the greatest score variability, whereas academic excellence emphasis showed the lowest variability. These findings provide an initial overview of the data characteristics before conducting inferential analyses to examine the differences and contributions of each school culture dimension to students' academic achievement. The results of the paired-samples t-test are presented in Table 2.

Table 2 presents the results of the paired-samples t-tests comparing academic achievement with each dimension of school culture. The analysis revealed significant differences between school discipline and academic achievement ($t = -3.837$, $p < 0.001$), as well as between academic excellence emphasis and academic achievement ($t = -2.508$, $p = 0.016$). In contrast, no statistically significant difference was found between teacher–student relationship and academic achievement ($t = -0.588$, $p = 0.559$).

Table 2. Paired Sample T-Test Results

Paired Sample T-Test	t	Sig. (2-tailed)
Pair 1 School_Culture_Score -Academic_Achievement_Score	-3.837	.000
Pair 2 Academic_Achievement_Score -Teacher_Student_Relationship_Score	.588	.559
Pair 3 Teacher_Student_Relationship_Score - Academic_Achievement_Score	-.588	.559
Pair 4 Academic_Excellence_Emphasis_Score - Academic_Achievement_Score	-2.508	.016

These findings indicate that the dimensions of school culture do not exhibit consistent patterns of differences in relation to academic achievement, highlighting the need for further analysis using multiple linear regression to identify the contribution of each dimension when considered simultaneously. To obtain a more comprehensive understanding of the contributions of each school culture dimension to academic achievement, further analysis was conducted using multiple linear regression with the assistance of SPSS. The results are presented below.

Table 3. Model Summary

Model	R^2	Adjusted R^2	F	Sig.
Regression Model	0.452	0.431	12.03	<0.001

Table 3 shows that the regression model has an R^2 value of 0.452 and an adjusted R^2 value of 0.431. These results indicate that the three dimensions of school culture, namely school discipline, teacher–student relationship, and academic excellence emphasis, collectively explain 45.2% of the variance in students' academic achievement, while the remaining variance is attributable to factors outside the research model. This finding suggests that the regression model has adequate explanatory power for examining the contributions of each school culture dimension to academic achievement. The overall significance of the regression model was subsequently evaluated using the ANOVA test, as presented in Table 4, before interpreting the contribution of each predictor.

Table 4. ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	1132.45	3	377.48	12.03	<0.001
Residual	1376.27	46	29.92		
Total	2508.72	49			

Table 4 indicates that the regression model demonstrates statistical significance ($F = 12.03$, $p < 0.001$). This result suggests that the three dimensions of school culture collectively make a significant contribution to the variation in students' academic achievement. Thus, the regression model meets the criteria for examining the contributions of individual school culture dimensions, allowing the regression coefficients of each predictor to be interpreted in the subsequent analysis. Following confirmation of the model's statistical significance, the analysis proceeded to identify the individual contributions of each school culture dimension to academic achievement based on the regression coefficients of each predictor.

Table 5. Multiple Linear Regression Results

Predictor	B	SE	β	t	p
Constant	65.23	12.45		5.24	<0.001
School Discipline	-0.08	0.05	-0.12	-1.60	0.112
Teacher-Student Relationship	0.31	0.06	0.38	5.17	<0.001
Academic Excellence Emphasis	0.28	0.07	0.34	4.00	<0.001

Table 5 shows that teacher–student relationship ($\beta = 0.38$, $p < 0.001$) was the strongest positive predictor of academic achievement, followed by academic excellence emphasis ($\beta = 0.34$, $p < 0.001$). In contrast, school discipline exhibited a negative and statistically non-significant regression

coefficient ($\beta = -0.12$, $p = 0.112$), indicating that it did not make a meaningful contribution to academic achievement after controlling for the effects of the other school culture dimensions. These findings demonstrate that the contributions of individual school culture dimensions to academic achievement are not uniform, with only teacher–student relationship and academic excellence emphasis making statistically significant contributions to the regression model.

DISCUSSION

This study aimed to analyze the contributions of three dimensions of school culture, namely school discipline, teacher–student relationship, and academic excellence emphasis, to the academic achievement of students in public elementary schools. The findings revealed that these three dimensions collectively made a significant contribution to the variation in students' academic achievement. However, the contribution of each dimension was not equal. Teacher–student relationship emerged as the strongest predictor of academic achievement, followed by academic excellence emphasis, whereas school discipline did not demonstrate a significant contribution after accounting for the effects of the other two dimensions. These findings indicate that school culture is a multidimensional construct that cannot be understood through a single aspect of school culture alone, but rather through the interaction of various dimensions that shape students' learning experiences.

The finding that teacher–student relationship made the greatest contribution to academic achievement highlights the importance of the quality of relationships between teachers and students as a key component in establishing a school culture that supports academic success. Positive relationships enable teachers to understand students' learning needs, provide academic and emotional support, and create a classroom atmosphere that encourages active engagement in the learning process. These conditions strengthen students' learning motivation, self-confidence, and participation, thereby contributing to better academic achievement. This finding is consistent with Wu et al. (2022), who found that students' perceived relationships with teachers were stronger predictors of academic functioning than their relationships with peers (Wu et al., 2022). This finding is further supported by Leenknecht et al. (2023), who demonstrated that the quality of teacher–student relationships, particularly teacher engagement and support for learner autonomy, is associated with increased students' intrinsic learning motivation (Leenknecht et al., 2023). Furthermore, Zou et al. (2024) explained that teacher–student relationships serve as an important mechanism linking teachers' intrinsic motivation with students' learning motivation, indicating that the quality of interactions established by teachers is a determining factor in the effectiveness of the learning process (Zou et al., 2024). This perspective is reinforced by Wang et al. (2024), who emphasized that teacher–student relationships are shaped by trust, empathy, supportive teaching approaches, and teachers' enthusiasm for teaching, which collectively influence students' motivation and learning engagement (X. Wang et al., 2024). Similarly, Rahman et al. (2024) demonstrated that teachers' emotional competencies, including self-awareness, emotional regulation, empathy, and social skills, positively influence students' academic motivation (Rahman et al., 2024). The findings of Putri and Degeng (2026) further support this argument by showing that teachers' ability to manage relationships with students contributes significantly to increased learning motivation, subsequently supporting better learning outcomes (Putri & Degeng, 2026). From the perspective of school organizational culture, Dewiyani and Arnyana (2026) also explained that a culture established through harmonious social relationships can enhance school effectiveness and teacher motivation (Dewiyani & Arnyana, 2026). These findings suggest that the quality of interpersonal relationships constitutes a fundamental foundation for developing a school culture that supports the learning process. Thus, the present study reinforces the view that teacher–student relationship is not merely

one dimension of school culture, but rather the dimension making the greatest contribution to creating a conducive learning environment that promotes students' academic achievement.

This study also revealed that academic excellence emphasis makes a positive contribution to academic achievement. This finding indicates that a school culture that consistently promotes high academic expectations can shape students' learning orientations toward better academic performance. When schools establish clear academic expectations, recognize learning achievements, and foster the belief that every student is capable of meeting high academic standards, students tend to demonstrate greater learning effort and stronger commitment to the learning process.

This finding is consistent with Voight et al. (2024), who demonstrated that positive perceptions of school climate at the elementary and secondary school levels are stronger predictors of subsequent academic achievement than the reverse relationship (Voight et al., 2024). This suggests that a school culture supportive of learning can establish conditions that promote sustained academic success. Furthermore, another study found that teacher support contributes to improved academic performance both directly and through students' learning behaviors, indicating that high academic expectations need to be accompanied by adequate instructional support to achieve optimal academic outcomes (Ansong et al., 2024). This explanation is further supported by Meng and Zhang (2023), who identified academic self-efficacy and academic engagement as important predictors of academic achievement. Accordingly, a school culture that emphasizes academic excellence has the potential to strengthen students' academic self-beliefs and engagement in learning (Meng & Zhang, 2023). From a broader perspective, other studies have shown that positive perceptions of the school environment contribute to better social relationships within schools. Systematic reviews have also established that a conducive school climate supports the development of various non-cognitive skills that play a role in academic achievement (Jefferson et al., 2023; Zynuddin et al., 2023). Thus, the findings of this study reinforce the view that academic excellence emphasis is an important dimension of school culture that fosters an achievement-oriented learning environment through the establishment of high academic expectations, strong learning engagement, and a school environment that supports students' academic development.

In contrast to the two preceding dimensions, school discipline did not make a statistically significant contribution to academic achievement when analyzed simultaneously with teacher–student relationship and academic excellence emphasis. This finding does not imply that school discipline is unimportant in the educational process. Rather, it suggests that the contribution of discipline to academic achievement may operate through more complex mechanisms and does not necessarily manifest as a direct effect. This explanation is consistent with Gentzis and Dixson (2024), who demonstrated that although school climate contributes to various psychosocial and academic outcomes, not all its dimensions have the same predictive strength. In fact, only students' attitudes toward teachers consistently predicted various educational outcomes (Gentzis & Dixson, 2024). The findings of this study can also be understood in light of Ye et al. (2024), who found that a school culture emphasizing academic success has a stronger association with student achievement than other dimensions of school culture (Ye et al., 2024). Thus, when academic excellence emphasis and teacher–student relationship are examined simultaneously in the regression model, the contribution of school discipline becomes relatively smaller because some of its explanatory contributions may overlap with these two dimensions. Furthermore, Shi and Qu (2022) explained that discipline functions as a mediating mechanism between cognitive abilities and academic achievement, suggesting that its influence does not always manifest directly in learning outcomes (Shi & Qu, 2022). This perspective is reinforced by Obed (2025), who demonstrated that school disciplinary policies can positively affect academic achievement when implemented through restorative approaches, including guidance, counseling, and behavioral development, rather than

merely through rule enforcement (Obed, 2025). Similarly, Latifah and Kismiantini (2025) found that academic achievement can be improved more effectively by developing a positive school climate through strengthening students' sense of school belonging and reducing negative student experiences (Latifah & Kismiantini, 2025). Therefore, the findings of this study indicate that school discipline remains an important component of school culture, but its effectiveness in improving academic achievement depends on its integration with high-quality teacher–student relationships and a school culture that fosters high academic expectations.

Overall, this study contributes to the literature on school culture by demonstrating that school culture is a multidimensional construct in which each dimension makes a distinct contribution to academic achievement. This finding extends previous research, which has generally examined school culture as a single construct or focused on the overall relationship between school culture and academic achievement (Bayar & Karaduman, 2021). The present study demonstrates that a more comprehensive understanding of the influence of school culture can be achieved by analyzing its dimensions simultaneously, thereby allowing the relative contribution of each dimension to be identified more clearly. This perspective is consistent with Aldridge et al. (2024), who emphasized the importance of a socio-ecological approach to school development, whereby the effectiveness of the learning environment is determined by the alignment of various interacting aspects of the educational environment (Aldridge et al., 2024). From a practical perspective, the findings indicate that strategies to improve academic achievement should focus on the holistic development of school culture by strengthening teacher–student relationships, fostering high academic expectations, and managing school discipline as part of an interconnected and mutually supportive cultural system. This approach is consistent with findings that school culture plays an important role in improving educational quality holistically and is supported by studies showing that positive school culture is associated with improved academic achievement and contributes to students' character development (Nastiti, 2024; Tawa et al., 2025). Therefore, schools and policymakers need to design programs to strengthen school culture that take into account the interrelationships among its dimensions, thereby creating a learning environment that sustainably supports students' academic and social development.

CONCLUSIONS

This study concludes that school culture is a multidimensional construct, with each dimension making a distinct contribution to students' academic achievement. Among the three dimensions analyzed, teacher–student relationship emerged as the strongest predictor of academic achievement, followed by academic excellence emphasis. In contrast, school discipline did not demonstrate a statistically significant contribution when analyzed simultaneously with the other two dimensions. These findings indicate that improving academic achievement depends not only on the enforcement of school rules and discipline but also on the quality of teacher–student relationships and a school culture that fosters high academic expectations. Theoretically, this study contributes to the literature on school culture by demonstrating that school culture should not be viewed as a single construct but rather as a set of dimensions with distinct roles and varying degrees of influence on students' academic achievement. This approach provides a more comprehensive understanding of how school culture shapes a learning environment that supports academic success. From a practical perspective, the findings indicate that schools and policymakers need to develop integrated strategies to strengthen school culture by prioritizing the development of high-quality teacher–student relationships, fostering a culture that promotes high academic expectations, and positioning school discipline as a supportive component in creating a conducive learning environment. Future research is recommended to involve larger sample sizes, include schools with diverse educational levels and characteristics, and examine additional dimensions of school culture to gain a more comprehensive

understanding of the mechanisms through which school culture influences students' academic achievement.

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