SCHOOL BELONGING, SAFETY, AND EQUITY: PREDICTORS OF ACADEMIC ACHIEVEMENT IN KOSOVO'S EDUCATION SYSTEM

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ABSTRACT

This study examines whether widely documented links between students' perceptions of safety, equity, and belonging and their academic performance, commonly found in Western contexts, also hold in Kosovo. Drawing on data from 703 fifth-grade students across 30 classrooms, it compares public and private schools and explores how classroom climate relates to achievement. Public school students reported higher levels of safety, equity, discipline, and connectedness than their peers in private schools, whose grades appeared substantially inflated and clustered at the top. In contrast, public schools displayed a broader and more differentiated distribution of achievement. Teacher practices emerged as a key factor: students performed better when teachers were perceived as placing less emphasis on performance goals, indicating that supportive, mastery-oriented classroom environments foster stronger learning outcomes. Multilevel analyses further showed that GPA and CoreGPA were shaped by distinct predictors, with connectedness and discipline playing different roles. Gender differences also appeared: among girls, equity and teacher performance goals were positively associated with achievement, whereas boys' outcomes were more strongly linked to connectedness. Overall, the findings highlight the importance of reducing performance-goal pressure, strengthening student-teacher relationships, and ensuring equitable environments and transparent grading practices to help narrow achievement gaps.

KEYWORDS

Efficiency in education, learning outcomes, school belonging, student safety, responsibility in education

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Highlights

- *Public school students reported higher safety, equity, discipline, and school connectedness than students in private schools.*
- *Teachers' adopted performance goals are detrimental to achievement. Students achieved more when they perceived teachers as using fewer performance goals, highlighting the negative impact of performance-oriented teaching.*
- *Grades of core cognitive courses make differences in achievement visible. Multilevel results show that equity, connectedness, and low teacher performance goals predict GPA and CoreGPA across genders.*
- *Data support the reconceptualization of discipline and learning in core cognitive courses. Core GPA was higher when discipline was rated lower, suggesting that students may equate discipline with strictness in cognitively demanding courses.*
- *Students´ feelings of belonging to the school shape how they perceive teacher practices in the classroom. School belonging influenced how students viewed teacher practices, which in turn shaped achievement through perceptions of teacher performance goals.*

INTRODUCTION

Education systems are increasingly evaluated not only by the outcomes they produce but also by how efficiently and responsibly they operate. Efficiency in education refers to the extent to which available resources (i.e., teachers, classrooms, curricula, and student time) are translated into learning outcomes and academic achievement (Hanushek & Woessmann, 2011). Responsibility, in contrast, emphasizes fairness, equity, and

accountability within the system, ensuring that students have access to safe, supportive, and transparent learning environments regardless of their background (OECD, 2017a). Together, these concepts highlight the dual challenge facing education systems, particularly in developing contexts: maximizing learning with limited resources while ensuring schools uphold their duty to provide equitable and trustworthy educational opportunities.

Within this broader framework, constructs such as school belonging, safety, and equity emerge as central to both efficiency and responsibility. School belonging is commonly defined as the degree of acceptance, respect, and involvement students feel within an educational institution (Allen, 2025; Porter et al., 2021; Allen & Bowles, 2012; Allen et al., 2016). Students with stronger feelings of belonging report more engagement, higher self-esteem, optimism, and happiness, which are linked to more favorable learning outcomes (Anderman, 2002; Juvonen, 2006). Literature consistently demonstrates that belonging contributes to psychological well-being, security (Allen, 2025; Porter et al., 2021; Jethwani-Keyser, 2008), and improved academic performance (Jethwani-Keyser, 2008; Dukynaite & Dudaite, 2017), while also reducing antisocial behavior, depression, and substance use (Shochet et al., 2006; Catalano et al., 2004; Lee & Burkam, 2003; Schulenberg et al., 1994). Importantly, belonging is not uniformly distributed: it varies both between and within schools, often shaped by fairness, discipline, and teacher–student relationships (Ma, 2003; OECD, 2017a, 2017b). Teachers play a particularly influential role in shaping this sense of belonging. Supportive teacher-student relationships foster motivation, engagement, and resilience (Dukynaite & Dudaite, 2017; Durlak et al., 2011), while also serving as protective factors for disadvantaged learners (Chiu et al., 2016; Ma, 2003). Evidence from PISA demonstrates that students who perceive their teachers as caring and supportive report higher belonging and achieve better in mathematics (OECD, 2015). Conversely, students from immigrant or disadvantaged backgrounds often report unfair treatment, including insults from teachers, which is associated with diminished belonging (OECD, 2017a). Across contexts, students without supportive teachers are 1.6 times more likely to feel excluded from school (OECD, 2017b).

Building on this evidence, it becomes critical to assess whether these robust predictors of achievement identified in Western contexts, i.e., belonging, safety, and equity, also apply in developing education systems. In the case of Kosovo, no prior studies have systematically investigated these associations, leaving a gap in understanding whether interventions that strengthen efficiency and responsibility through supportive school climates can translate into higher student achievement. To that end, the present study aims to close this gap by providing scientific evidence to inform future educational interventions in Kosovo.

LITERATURE REVIEW

Why perceptions of school belonging are crucial to learning outcomes

There are many terms used to describe school belonging, and such terms include but are not limited to: belonging, attachment, engagement, and bonding (Allen, 2025; Porter et al., 2021; O'Brennan & Furlong, 2010; Barber & Schluterman, 2008; Brown & Evans, 2002; Libbey, 2004; Moody & Bearman, 2004). On close analysis, all these terms describe the same concept: the feeling that one belongs, is included, and is valued in an educational environment (Libbey, 2004; Moody & Bearman, 2004). This broad definition identifies three main pillars of the sense of belonging, namely: i.) school relationships and experiences; ii.) relationship with teachers; and iii.) students` feelings about the school (Allen et al., 2016). Pittman and Richmond (2007) argue that better-performing students will have a stronger sense of school belonging than other students. Other researchers reported that a higher sense of belonging impacted motivation not only in the short term but for 4 consecutive years (Gillen-O'Neel & Fuligni, 2013). Similarly, these students are also less likely to miss classes, drop out, or misbehave in school (Demanet & Van Houtte, 2012; Hallinan, 2008). An equally significant aspect of this debate is the reported link between self-efficacy beliefs and positive perceptions of learning (Lonczak et al., 2002). Likewise, students who felt that they belonged to a school were happier, had higher self-esteem (Jose et al., 2012; Law et al., 2013), and were less likely to exhibit antisocial behavior or substance abuse (Lonczak et al., 2002; Wilson & Lipsey, 2005). In addition, across academic settings, learners who have a good relationship with their teacher are better at using feedback to learn (Caprara et al, 2000; Cohen & Steele, 2002). Unfortunately, nowadays, with the variety of indicators and assessments, teachers are often teaching to meet these criteria rather than teaching students to learn, form relationships with them, or get to know who they teach. This can easily lead teachers to adopt negative perceptions of their job, which can further demoralize and fragment (Bradford & Braaten, 2018) and ultimately have a detrimental effect on students' perceptions of school belonging and, by extension, achievement.

The sense of belonging also incorporates the physical security provided by an environment that enables the person to work and engage with others (Radich, 2012). As such, the sense of belonging links not only to physical security but also to emotional security and overall comfort (Antonsich, 2010). "Belonging in school" refers to learners perceiving themselves to be "personally accepted, respected, included, and valued by others" (Goodenow, 1993, p. 80). Building on these definitions of school belonging, researchers maintain that the need for belonging is a basic motivation (MacDonald & Leary, 2005) and it generally links to positive outcomes (Walton & Cohen, 2007). In many countries around the world, interventions to improve schools are built around addressing children's needs for well-being and the prevention of negative antisocial behavior, such as bullying (Thapa et al., 2013; Turner et al., 2014). School climate refers to a wide range of school-based factors that influence learning, such as school-based relationships and interaction, values, and norms (McEvoy & Welker, 2000; Ramelow et al., 2015; Thapa et al., 2013; O'Malley et al., 2015; Turner et al., 2014). The main reason why, over the years, school climate has received growing interest among researchers and policy builders is the impact that the latter has in providing an environment in which students thrive and achieve higher (Hoy & Hannum, 1997; McEvoy & Welker, 2000; Ma & Klinger, 2000; Sherblom et al., 2006; Stewart,

2008). Addressing school climate may help reshape gender differences in learning motivation. Research on school performance generally indicates that girls often outperform boys (Novák et al., 2024; Eriksson et al., 2020), highlighting thus consistent gender-based differences in learning motivation (Coetzee et al., 2020; Silva-Arias et al., 2020).

Early research on educational achievement found that students' final grades were positively correlated with their relationships at school (Moos and Moos, 1978). After 26 years of research, Crosnoe et al. (2004) reported similar findings: stronger relationships between students and teachers were associated with higher grades. While there may be abundant literature in the Western educational research on the impact of school belonging as well as teacher-student relationships on achievement, in the case of Kosovo, there is a lack of understanding of whether these robust predictors of achievement can be generalized to the context of a developing country, a gap that present research aims to address. Understanding the extent to which schools and classrooms in general impact achievement by initially shaping student perceptions is important in the case of Kosovo, especially due not only to low achievement in large-scale assessments (Shala & Grajcevci, 2023; Shala et al., 2021) but also because the gap in achievement between groups of students is expanding at a rapid pace between assessment years. It expanded from a one-year gap in the PISA 2015 assessment to a 2.5-year gap in the PISA 2018 assessment, with students in private schools, and/or higher socioeconomic status, and/or residing in urban areas outperforming all other groups of students by a large margin (Shala & Grajcevci, 2023; Shala et al., 2021). At the same time, students' readiness for instruction, their preference for the subjects, and their confidence in their abilities were all linked to higher literacy levels (Grajcevci & Shala, 2024). To that end, understanding what impacts student achievement and, if we can, building on Western education literature to draft evidence-based interventions are the main challenges the present research aims to address.

The current study

According to Hopson and Lee (2011), supportive school climates can mitigate disadvantages among at-risk students, enabling them to perform at levels comparable to peers from more advantaged backgrounds. School climate has also been consistently linked to achievement in reading, science, writing, and mathematics (O'Malley et al., 2015). These findings consider both the efficiency and responsibility of schools as important to learning and achievement, i.e., efficiency in maximizing learning outcomes through social and emotional supports, and responsibility in ensuring equitable conditions that allow all students to thrive. Building on this literature, the present study examines how school belonging and students' perceptions of teacher practices shape achievement. School belonging was conceptualized through four constructs (whole-school connectedness, equity, safety, and discipline), while teacher practices, as perceived by students, were measured through three sub-constructs: teachers adopting performance goals, providing opportunities for group work, and fostering friendly, high-quality relationships.

The study was guided by the following research questions:

RQ1. To what extent do school context factors influence student achievement, and how does school belonging mediate this relationship?

RQ2. Are there gender and school-type differences in student perceptions of school belonging and teacher characteristics?

RQ3. To what extent do perceptions of school belonging and teacher practices predict achievement, and do these effects differ when comparing GPA with grades in core cognitive courses (mathematics, science, etc.)?

MATERIALS AND METHODS

To conduct this study, four master's students were trained in data collection procedures and research ethics. Schools were randomly selected from the four largest municipalities in Kosovo to ensure representation across diverse urban and educational settings. Within each participating school, two classrooms were randomly selected, yielding a final sample of 703 students from 30 classrooms. Paper-based questionnaires were administered in person by the trained research assistants. At the beginning of each classroom session, students were informed about the study's purpose, their rights as participants, and the voluntary nature of their participation. They were assured of anonymity and the right to withdraw at any point without consequence. Informed consent from parents or legal guardians was obtained in advance in collaboration with classroom teachers and school administrators.

Participants completed six demographic items covering gender, grade level, school type (public or private), GPA, grades on four key curriculum courses: Albanian Language, Mathematics, Man and Nature (exact science), and Society and Environment (social science), household income, and access to electronic learning resources. All procedures adhered to established ethical principles and guidelines for research involving minors. To minimize potential carryover effects, the survey included short pauses accompanied by clear transitions and neutral messaging (e.g., "Thank you for completing the previous section. Please take a moment before starting the next."). In addition, the order of the statements was randomized across participants to reduce the risk of systematic priming or framing effects associated with a fixed sequence. All questionnaire statements were administered in their original, validated form, with no modifications to item wording that might bias or prime participants' responses.

Participants

In the study population, 343 participants (48.8%) were female, 359 participants (51.1%) were male, and the remaining 0.1% did not identify with either gender. When asked about their mother's education, only 10 participants indicated that their mother had never attended school (1.4%), 101 participants (14.4%) indicated that their mother had completed elementary school, and a further 43 participants chose the option "Other" (6.1%) without giving any further information. Most participants indicated that their mothers had either a high school diploma (N = 261, 37.1%) or a bachelor's degree (N = 270, 38.4%). Similar data were collected for father's educational attainment, with participants reporting that their fathers predominantly had

a high school diploma (N = 259, 36.8%), a bachelor's degree (N = 264, 37.6%), or some other educational qualification (N = 56) had.8%). Compared to the previous question, fewer respondents reported that their fathers had no education (N = 6, 0.6%) and that their fathers had completed elementary school (N = 88, 12.5%). Finally, 79.5% (N = 559) of the participants attended public schools, while the remaining 20.5% (N = 144) attended private schools.

	N	%		N	%
Gender			**Type of school attended**		
Female	343	48.8	Public	559	79.5
Male	359	51.1	Private	144	20.5
Mother's education level			**Father's education level**		
Never went to school	10	1.4	Never went to school	6	.9
Has completed primary school	101	14.4	Has completed primary school	88	12.5
Has completed secondary school	261	37.1	Has completed secondary school	259	36.8
Has completed university studies	270	38.4	Has completed university studies	264	37.6
Other	43	6.1	Other	56	8.0

Table 1: Descriptive statistics for the student sample.

Measurements

Teacher expectations

Perceptions regarding teachers adopting performance items from the PALS (Patterns of Adaptive Learning Scales) of Midgley et al. (2000). Sample items included: My teachers treat students who get good grades better than other students, & In my class, special privileges are given to students who get the highest grades. The Cronbach's α for the subscale of *perceived teacher performance goals* was .74 (answer choices ranging from 1-*completely disagree* to 4-*completely agree*).

Supportive practices

Teacher-supportive classroom practices were assessed using the SEEQ (Student Evaluation of Educational Quality) Questionnaire (Marsh, 1982). *Classroom group-work opportunities* were assessed with four items, and the Cronbach's α for this subscale was .71 (e.g., Students are encouraged to participate in class discussions, and students are invited to share their ideas and knowledge in groups). *Teachers' Quality and Friendly Relationships* with students were composed of two initial subscales: the *Teacher Support* subscale of the SEEQ Questionnaire and the *Relationship Quality* subscale of the PISA assessment cycle 2009. The alpha value of this subscale was .92 (i.e., Teachers are friendly towards students, Teachers make students feel welcome when asking for help/ advice outside of class). In all cases, a four-point Likert Scale was used for the responses, ranging from 1 (*completely disagree*) to 4 (*completely agree*).

Safety

In the current research, school safety was measured with the Maryland Safe and Supportive School Climate Survey (Rezapour, Khanjani & Mirzaee, 2020). The *Safety* subscale had a Cronbach's α of.57 and consisted of the following two items: I feel safe at this school & I feel safe going to and from school. The *whole-school connectedness* subscale consisted of 4 items and had an α of .73 (i.e., I enjoy learning at this school & I like this school). The *discipline* subscale was composed of three items and had an α value of .82 (i.e., Students listen to the teachers & There are clear rules about student behavior). The *equity* subscale had a Cronbach's α of.77 and comprised 3 items (e.g., Everyone is perceived as equal in school). In all cases, a four-point Likert Scale was used for the responses, ranging from 1 (*completely disagree*) to 4 (*completely agree*).

Data analysis procedure

Data analyses were conducted in multiple stages. First, differences between groups were explored (i.e., t-tests, ANOVAs). Next, multilevel modeling was employed to account for the nested structure of the data, with students grouped within classrooms. This approach allowed us to examine both individual and classroom-level effects on achievement outcomes. Mediation analyses were also conducted to test the indirect effects of school belonging on the relationship between perceptions of teacher goal orientation and student achievement. Analyses were carried out using Mplus 8.0 and SPSS. Finally, statistical significance was determined at the $p < .05$ level. Graphs of the statistical tests conducted with Mplus were also generated automatically by Mplus.

RESULTS

Differences in perceptions based on school type, i.e., public vs. private educational institutions

The results of the t-tests reveal that students of public schools, compared to students attending private schools, held significantly higher perceptions about school safety (M = 3.50, SD = .59; $t(690)$ = 3.38, $p < .001$), whole school connectedness (M = 3.72, SD = .51; $t(688)$ = 6.88, $p < .001$), equity in school (M = 3.55, SD = .63; $t(689)$ = 6.20, $p < .001$), discipline (M = 3.59, SD = .48; $t(690)$ = 4.79, $p < .05$), teacher-friendly/ quality relationships (M = 3.59, SD = .48; $t(701)$ = 3.92, $p < .001$), teacher performance goals (M = 2.12, SD = .95; $t(685)$ = 2.42, $p < .05$), and group interaction possibilities in the classroom (M = 3.49, SD = .54; $t(685)$ = 3.04, $p < .05$).

Differences in grading based on the type of school

A Chi-Square goodness-of-fit test was performed to determine if the grading practices were similar between private and public schools. Results reveal significant differences in grading in Albanian Language classes, $\chi^2(3, 673) = 22.19$, p <.001, with private schools awarding higher grades than public schools. The same was true for grading in Math courses $\chi^2(3, 673) = 30.23$, $p < .001$, exact science courses $\chi^2(3, 672) = 31.41$, $p < .001$ and social science courses $\chi^2(3, 669) = 21.46$, $p < .001$, with only 0.8% of students receiving marks of 3 (good), between 9% and 10% received the grade 4 (very good) and the remaining 90% received the highest grade, 5. While no student in the private schools received a satisfactory mark of 2, this was not the case in public schools. In addition, there were significant differences in overall GPA, $\chi^2(3, 535) = 10.70$, $p = .005$, with 91% of students attending private schools receiving the highest GPA level (level 5, excellent), compared with only 76% of students in public schools. The data suggest that in private schools, grading is skewed toward very high grades; in public schools, grades are more evenly distributed across achievement levels. Based on these results, hypothesis 2 was supported.

Differences in perceptions based on GPA

ANOVA test results reveal that there are significant differences between groups in the perceptions of whole school connectedness $F(3, 699) = 5.00$, $p = .002$, equity $F(3, 699) = 3.46$, $p = .016$, teacher adopting performance goals $F(3, 699) = 8.51$, $p = .001$, and quality relationships with teachers $F(3, 699) = 4.12$, $p = .006$. Higher-performing students reported significantly lower perceptions of teachers adopting performance goals than other groups of students ($M = 1.88$, $SD = .89$). In other constructs, higher-performing students reported higher perceptions than all other students. Based on these results, the hypothesis was supported.

Differences in perceptions based on grades in specific courses

ANOVA results showed mixed patterns between achievement and perceptions. In Albanian language, significant differences appeared for discipline (F(4,696) = 2.71, p = .029) and teacher performance goals (F(4,696) = 9.53, $p < .001$), with top achievers reporting the lowest perceptions of teacher performance goals ($M = 1.89$, $SD = .88$), while average achievers reported the highest equity ($M = 3.47$, $SD = .67$). For Math, significant effects were found for connectedness ($F(4,698) = 3.18$, $p = .013$), equity ($F(4,698) = 2.94$, $p = .020$), discipline ($F(4,698) = 4.39$, $p = .002$), teacher performance goals ($F(4,698) = 9.12$, $p < .001$), and group interaction ($F(4,698) = 2.42$, $p = .047$). Here, top achievers again rated teacher performance goals lowest ($M = 1.88$, $SD = .89$), while average achievers reported higher perceptions across other scales. In exact sciences, differences emerged in connectedness ($F(4,698) = 3.66$, $p = .006$), discipline ($F(4,698) = 3.23$, $p = .012$), teacher performance goals (F(4,698) = 8.34, $p < .001$), and teacher relationships ($F(4,698) = 2.59$, $p = .036$); high achievers rated performance goals lowest ($M = 1.90$, $SD = .90$), while lowest achievers reported weaker discipline ($M = 3.28$, $SD = 1.12$). For social sciences, significant differences appeared for safety ($F(4,698) = 3.46$, $p = .008$), connectedness ($F(4,698) = 3.57$, $p = .007$), equity ($F(4,698) = 2.61$, $p = .034$), discipline ($F(4,698) = 5.00$, $p = .001$), teacher performance goals ($F(4,698) = 9.68$, $p < .001$), and teacher relationships ($F(4,698) = 2.98$, $p = .019$). Again, top achievers rated teacher performance goals lowest ($M = 1.90$, $SD = .89$), while average or lower achievers reported higher perceptions in most other areas. These findings suggest that high-achieving students are less receptive to performance-goal orientation, whereas average and lower achievers tend to report stronger feelings of belonging and support. This points to a potential misalignment between instructional emphasis on performance and the social-emotional needs of different achievement groups.

Multilevel analysis

Multilevel analysis of GPA and Core GPA

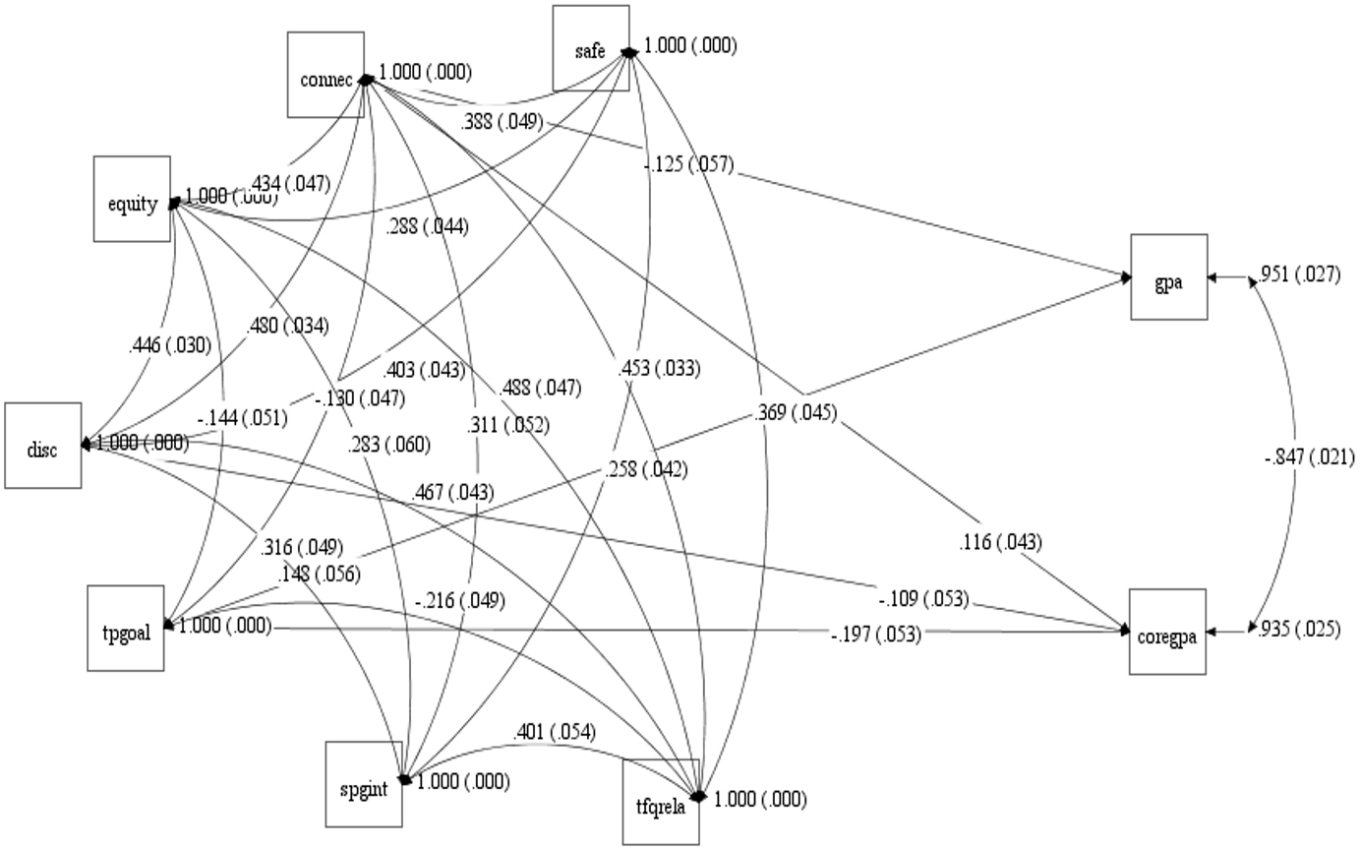
The working hypothesis of the present research was that higher levels of achievement would be associated with higher school belonging, higher levels of teacher-friendly and quality relationships, more opportunities for group work in classrooms, and lower levels of performance goals adopted by teachers.

The regression equation is:

$$Yk = \beta 0k + \beta 1k\text{SAFE} + \beta 2k\text{CONNEC} + \beta 3k\text{EQUITY} + \beta 4k\text{DISC} + \beta 5k\text{TPGOAL} + \beta 6k\text{SPGINT} + \beta 7k\text{TFQRELA} + \varepsilon k$$

Here Y_{GPA} = GPA and $Y_{CoreGPA}$ = CoreGPA

To test this hypothesis, a multilevel analysis with classroom-level clustering was conducted (please see Figure 1 and Table 2 below). The chi-square for the model was significant, $\chi^2(15) = 515.53$, p = .001, and the alternative fit indices indicated a good fit to the data: CFI = 0.95 and SRMR = 0.09. Results of the multilevel analysis conducted with MPlus, clustered by classroom, indicate that GPA was predicted by feelings of being connected to school-Connec β = -.125, $p = .029$ and teachers adopting performance goals-TPGOAL $\beta = .148$, $p = .009$, with both variables accounting for 4.9% of the variance in GPA, but it was too low to be considered significant (p = -070). Core GPA was predicted by three variables: feelings of being connected to school (Connec; $\beta = .116$, $p = .008$), discipline (DISC; β = -.109, $p = .039$), and teachers adopting performance goals (TPGOAL; β = -.197, $p = .001$), accounting for 6.5% of the variance in achievement. This suggests that students will do better when their teachers do not adopt performance goals, especially when discipline is low, and students feel connected to the school. In addition, results report differences between measures of achievement: GPA is associated with two constructs (i.e., school connectivity & teacher performance goals), while CoreGPA is associated with three constructs (i.e., school connectivity, discipline & teacher performance goals). The difference lies in the CoreGPA construct, which is higher when discipline is lower.



Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Figure 1: Multilevel analysis for GPA and CoreGPA and the study variables, at classroom level, for the study variables. Only significant parameters are represented by arrows. Std. coefficients presented.

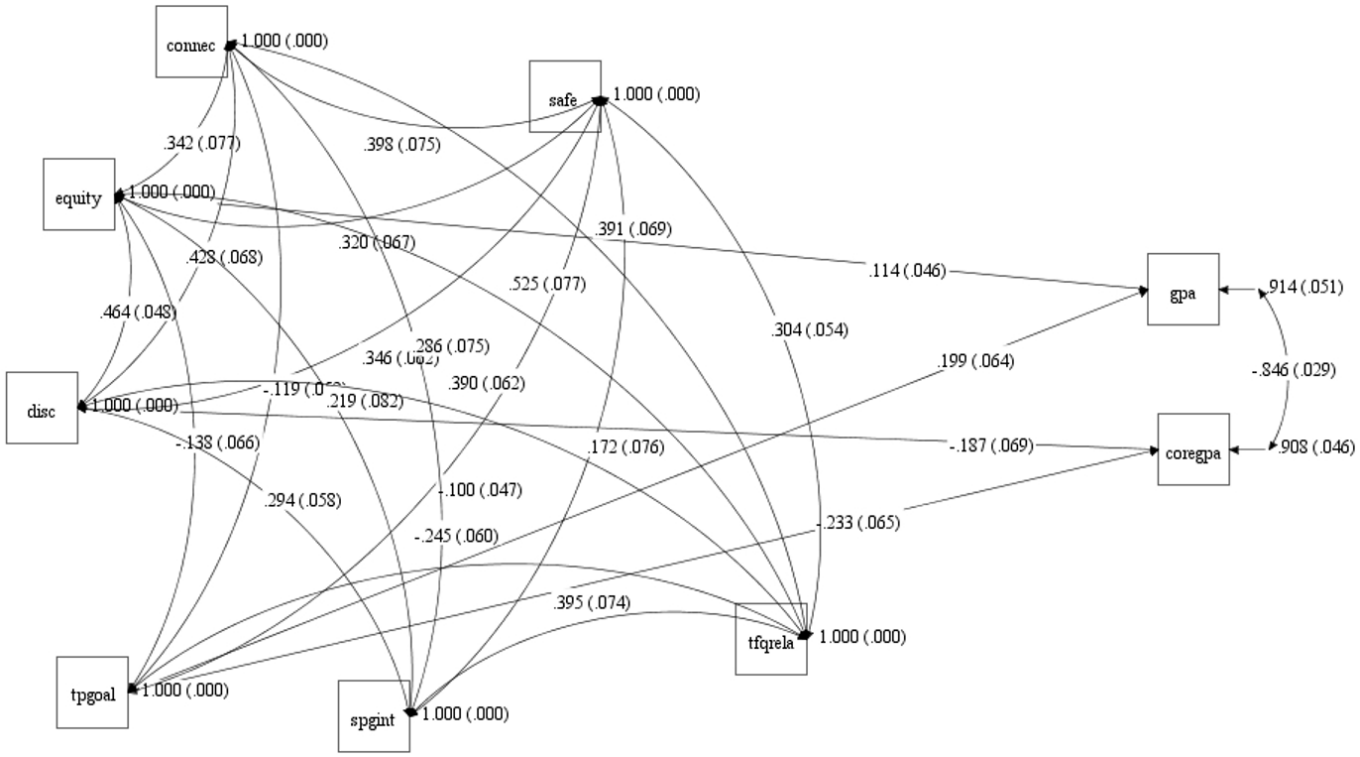
Variable	Std. Estimate	S.E.	*p*
SAFE → GPA	0.057	0.045	.203
CONNEC → GPA	-0.125	0.057	.029
EQUITY → GPA	0.066	0.047	.158
DISC → GPA	0.068	0.067	.311
TPGOAL → GPA	0.148	0.056	.009
SPGINT → GPA	-0.012	0.054	.823
TFQRELA → GPA	-0.090	0.063	.154
R-Square	**0.049**	**0.027**	**.070**
GPA unexplained variance	-		
SAFE → CoreGPA	-0.041	0.041	.321
CONNEC → CoreGPA	0.116	0.043	.008
EQUITY → CoreGPA	-0.039	0.053	.458
DISC → CoreGPA	-0.109	0.062	.039
TPGOAL → CoreGPA	-0.197	0.053	.001
SPGINT → CoreGPA	0.006	0.046	.902
TFQRELA → CoreGPA	0.069	0.061	.258
R-Square	**0.065**	**0.025**	**.009**
CoreGPA unexplained variance	**0.935**		

Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Table 2: Parameter Estimates- Multilevel Analysis conducted with Mplus.

Multilevel analysis: Gender differences

The hypothesis of this study states that higher achievement among female students will be associated with higher school belonging, higher levels of teacher-friendly and high-quality relationships, more opportunities for group work in classrooms, and lower levels of performance goals adopted by teachers. To test this hypothesis, a multilevel analysis with classroom-level clustering was conducted (please see Figure 2 and Table 3 below). The chi-square for the model was significant, χ^2 (15) = 237.50, p = .001, and the alternative fit indices indicated a good fit to the data: CFI = 0.940 and SRMR = 0.08. Results of the multilevel analysis conducted with MPlus, clustered by school type, indicate that, for female students, GPA was significantly impacted by perceptions of school equity (EQUITY.114, p = .014) and by teachers adopting performance goals (TPGOAL β = .199, p = .002), accounting for 8.6% of the variance in achievement. This suggests that female students will do better in schools with greater equity and when teachers adopt performance goals. CoreGPA was impacted by perceptions of school discipline (DISC; β = -.187, p = .007) and by teachers adopting performance goals (TPGOAL; β = -.233, p = .001), accounting for 9.2% of the variance in grades. To that end, it suggests that female students will do better when there is less discipline and when teachers adopt performance goals.



Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

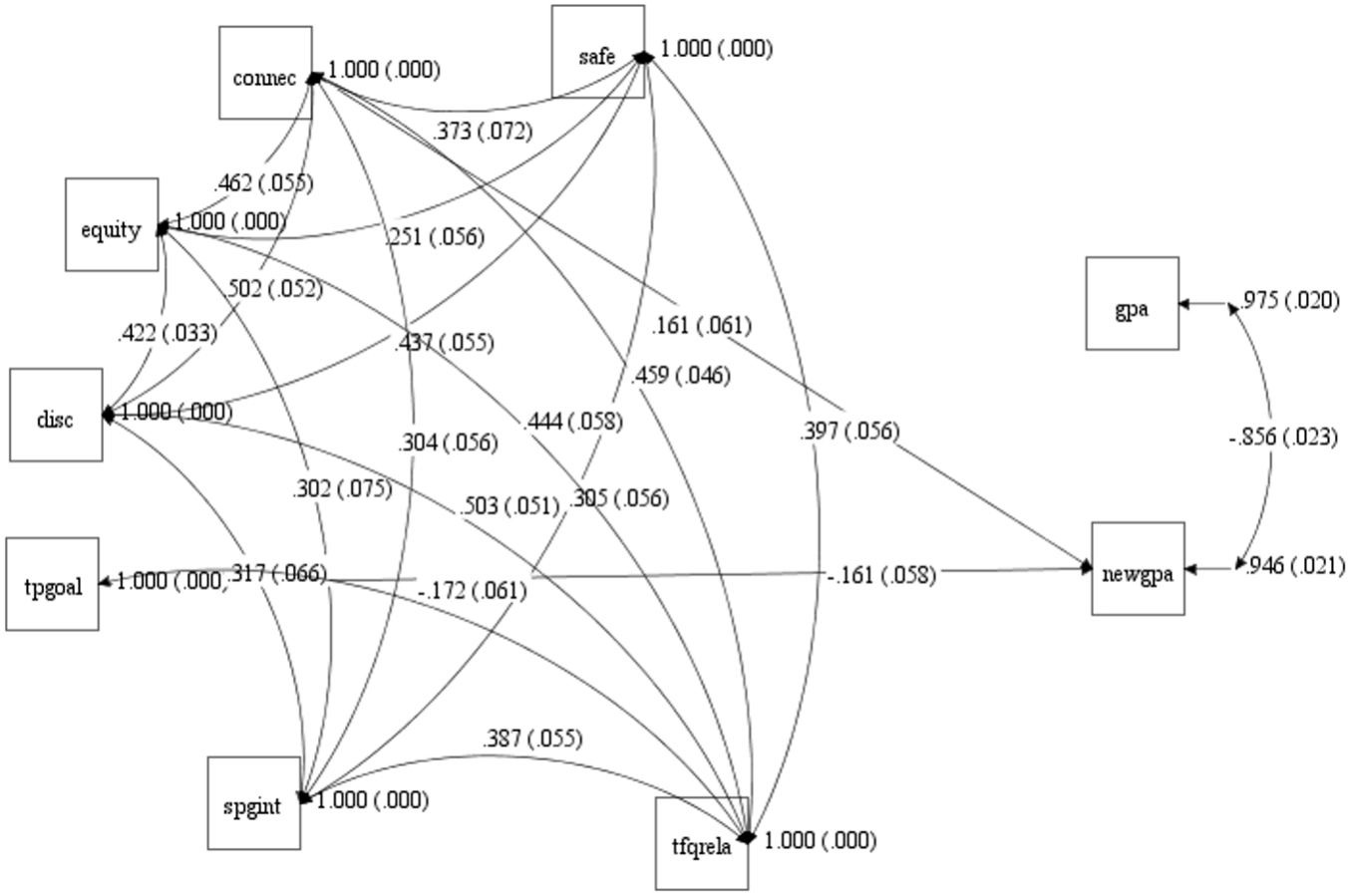
Figure 2: Multilevel analysis for GPA, CoreGPA, and the study variables, at the classroom level for female students. Only significant parameters are represented by arrows. Std. coefficients presented.

In addition, the chi-square for the model conducted on male students was significant, χ^2 (15) = 314.54, p = .001, and the alternative fit indices indicated a good fit to the data: CFI = 0.98 and SRMR = 0.07 (please see figure 3 and table 4 below). Results of the multilevel analysis conducted with MPlus, clustered by school type, indicate that GPA for male students was not predicted by any of the variables studied. However, CoreGPA was predicted by feelings of connection to school (Connec; β = .161, p = .009) and by teachers adopting performance goals (TPGOAL; β = -.161, p = .006), accounting for 5.4% of the variance in achievement. This suggests that students will do better when they have teachers who do not adopt performance goals and when they feel connected to the school, only in the case of CoreGPA; in the case of GPA, there was no association between variables. The hypothesis was partially supported.

Variable	Std. Estimate	S.E.	*p*
SAFE → GPA	0.040	0.062	.515
CONNEC → GPA	-0.127	0.120	.292
EQUITY → GPA	0.114	0.046	.014
DISC → GPA	0.078	0.095	.414
TPGOAL → GPA	0.199	0.064	.002
SPGINT → GPA	-0.026	0.072	.719
TFQRELA → GPA	-0.141	0.072	.959
R-Square	**0.086**	**0.051**	**.008**
GPA unexplained variance	**.914**		
SAFE → CoreGPA	-0.007	0.078	.932
CONNEC → CoreGPA	0.048	0.080	.552
EQUITY → CoreGPA	-0.004	0.058	.949
DISC → CoreGPA	-0.187	0.069	.007
TPGOAL → CoreGPA	-0.233	0.065	.001
SPGINT → CoreGPA	0.038	0.073	.605
TFQRELA → CoreGPA	0.082	0.062	.189
R-Square	**0.092**	**0.051**	**.047**
CoreGPA unexplained variance	**0.908**		

Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Table 3: Parameter Estimates- Multilevel Analysis conducted with Mplus.



Note. Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Figure 3: Multilevel analysis for GPA, CoreGPA, and the study variables, at the classroom level for male students. Only significant parameters are represented by arrows. Std. coefficients presented.

Variable	Std. Estimate	S.E.	*p*
SAFE → GPA	0.065	0.061	.288
CONNEC → GPA	-0.103	0.065	.110
EQUITY → GPA	0.045	0.058	.437
DISC → GPA	0.061	0.080	.449
TPGOAL → GPA	0.098	0.066	.136
SPGINT → GPA	0.002	0.069	.976
TFQRELA → GPA	-0.053	0.092	.565
R-Square	**0.025**	**0.020**	**.203**
GPA unexplained variance	-		
SAFE → CoreGPA	-0.075	0.046	.102
CONNEC → CoreGPA	0.161	0.061	.009
EQUITY → CoreGPA	-0.069	0.069	.319
DISC → CoreGPA	-0.035	0.066	.595
TPGOAL → CoreGPA	-0.161	0.058	.006
SPGINT → CoreGPA	-0.042	0.056	.452
TFQRELA → CoreGPA	0.039	0.075	.604
R-Square	**0.054**	**0.021**	**.011**
CoreGPA unexplained variance	**0.946**		

Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Table 4: Parameter Estimates- Multilevel Analysis conducted with Mplus.

Overall, these findings highlight clear gender differences in the predictors of achievement. Female students' outcomes appear more sensitive to perceptions of equity, discipline, and teacher performance goals, while male students' achievement is mainly shaped by connectedness and reduced emphasis on performance goals, suggesting that interventions to improve achievement may need to be tailored differently for boys and girls.

Mediating effect of teacher and classroom practices in student achievement

The working hypothesis of this research study was that school belonging constructs will mediate perceptions of teacher practices, with the latter predicting achievement in both general GPA and CoreGPA. A multilevel analysis conducted with MPlus, clustered by school type, to test for mediation effects of school safety, equity, discipline, and connectedness to school on the perceptions of teacher performance goals, opportunities for group work, and teachers being friendly to students, with the latter variables then predicting student achievement (i.e., GPA and Core GPA).

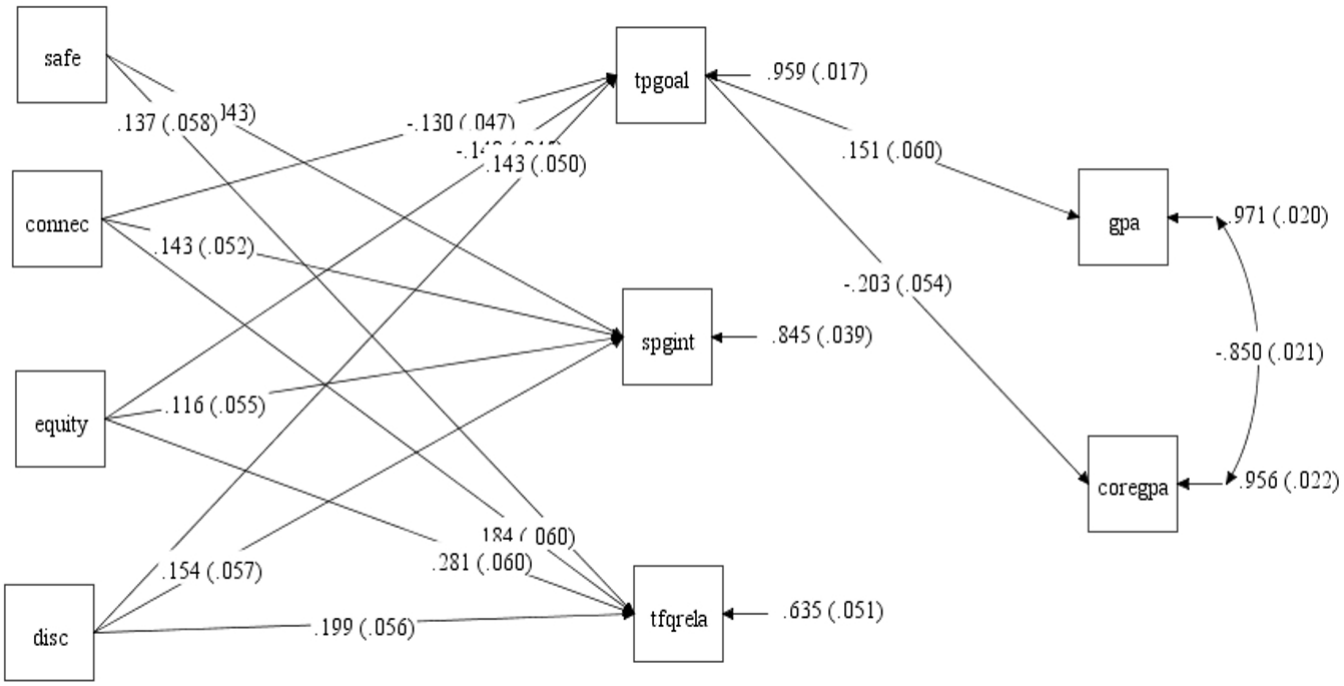
The regression equations were specified as follows:

$$Y = (\delta + \Lambda\alpha) + \Lambda\Gamma X + \Lambda\varepsilon m + \varepsilon$$

Γ contains all paths from (SAFE,CONNEC,EQUITY,DISC) to (TPGOAL,SPGINT,TFQRELA)

Λ contains all paths from (TPGOAL,SPGINT,TFQRELA) to Y (GPA,CoreGPA)

The chi-square for the model was significant, χ^2 (11) = 52.279, p = .001, and the alternative fit indices indicated a good fit to the data: CFI = 0.94 and SRMR = 0.04 (please see Figure 4 and Table 5 below). Results of the analysis indicate that perceptions of teachers adopting performance goals (TPGOAL) were significantly impacted by feelings of being connected to school (Connec; β = -.130, p = .005), equity (EQUITY; β = -.148, p = .001), and school discipline (DISC; β = .143, p = .004), explaining 4% of the variance (p = .020). Suggesting that students report lower levels of performance goals when they feel connected to school, when discipline is low, and when they perceive the school to be equitable, and vice versa. The perceptions of teachers adopting performance goals (TPGOAL) then significantly predicted achievement, β = .151, p = .012, accounting for 3.2% of the variance in GPA. The same was evident in the case of CoreGPA: β = -.203, p = .001, accounting for 5.1% of the variance in CoreGPA grades. The results in both cases suggest that when students perceived that teachers did not adopt performance goals, they also did better in school. Other variables did not have any significant impact on student achievement.



Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Figure 4: Multilevel analysis for GPA and CoreGPA, and the study variables representing the mediating effects of variables at the classroom level. Only significant parameters are represented by arrows. Std. coefficients presented.

Variable	Std. Estimate	S.E.	*p*
SAFE → TPGOAL	-0.018	0.034	.601
CONNEC → TPGOAL	-0.130	0.047	.005
EQUITY → TPGOAL	-0.148	0.045	.001
DISC → TPGOAL	0.143	0.050	.004
SAFE → SPGINT	0.110	0.043	.011
CONNEC → SPGINT	0.143	0.052	.006
EQUITY → SPGINT	0.116	0.055	.033
DISC → SPGINT	0.154	0.057	.006
SAFE → TFQRELA	0.137	0.058	.018
CONNEC → TFQRELA	0.184	0.060	.002
EQUITY → TFQRELA	0.281	0.060	.001
DISC → TFQRELA	0.199	0.056	.001
TPGOAL → GPA	0.151	0.060	.012
TPGOAL → CoreGPA	-0.203	0.052	.001
SPGINT → GPA	-0.009	0.052	.858
SPGINT → CoreGPA	-0.015	0.045	.735
TFQRELA → GPA	-0.062	0.056	.268
TFQRELA → CoreGPA	0.042	0.052	.415
R-Square (CoreGPA)	0.051	0.032	.009
R-Square (GPA)	0.032	0.062	.014

Note: Safe-School safety, Connec-connectivity to school, Equity, DISC-school discipline, TPGOAL-Teacher performance goals, SPGINT-Classroom group work opportunities, TFQRELA-Teacher-friendly and quality relationships.

Table 5: Parameter Estimates- Multilevel Analysis conducted with Mplus.

DISCUSSION

The present empirical analysis examined the association between school and classroom variables and student achievement, under the hypothesis that more favorable conditions would predict higher outcomes in both GPA and CoreGPA. Prior research has consistently shown that teacher characteristics (Rivkin, Hanushek, & Kain, 2005), peer influences (Hanushek et al., 2003), and class size (Hoxby, 2000) shape achievement. Students' perceptions of teachers are also central to learning outcomes (Sereda et al., 2024; Nabaho et al., 2017), with evidence suggesting that perceptions of teachers influence not only students' academic achievement but also how they perceive learning itself (Marksteiner et al., 2021; Shah et al., 2019).

Findings from this study indicate that students in public schools reported higher perceptions of equity, discipline, safety, and connectedness compared to their peers in private schools. Public schools' stronger performance in these areas may stem from donor-supported initiatives that prioritize equity and student well-being, as well as stricter teacher recruitment processes that ensure higher professional competence. By contrast, private schools, which are self-funded and often employ novice teachers on short-term contracts, appear less consistent in providing supportive learning climates. These differences highlight both efficiency, i.e., how effectively resources and practices are translated into positive student perceptions, as well as responsibility, i.e., how schools ensure equitable conditions across contexts. Notably, public schools benefit financially from donors through awareness-raising campaigns and resources, and, in many cases, these campaigns focus on equity and student well-being. This may have contributed to an improved overall school context.

Achievement outcomes further emphasize these dynamics. Students reported higher achievement when teachers adopted lower performance goals, suggesting that reducing performance pressure is an effective strategy for improving learning outcomes. Safety perceptions were also positively associated with achievement, consistent with evidence that safe and orderly schools attract more qualified teachers (DeAngelis & Presley, 2011) and foster stronger academic environments (Stronge, 2010). Yet, persistent issues such as bullying (Lunenburg, 2010; Woods & Wolke, 2003) and reliance on surveillance measures (Casella, 2010; Kupchik & Bracy, 2010) raise concerns about the responsibility of schools to ensure safety through inclusive policies rather than monitoring technologies, which may also reinforce stereotypes (Steeves, 2010). In Kosovo, widespread camera use in schools highlights this tension, calling for greater clarity on whether perceptions of safety are shaped more by surveillance or by genuine school policies.

Gender-based analyses revealed distinct predictors of achievement. For female students, GPA was positively associated with equity and negatively associated with teacher performance goals, while CoreGPA was associated with lower levels of discipline and performance goals. Male students' CoreGPA, by contrast, was associated with stronger school connectedness and reduced performance-goal orientation. These findings suggest that improving achievement requires tailoring interventions to different student groups, while responsibility entails recognizing and addressing the distinct needs of boys and girls.

A final contribution of this analysis lies in the mediating role of school belonging. Belonging variables shaped perceptions of teacher practices, which, in turn, influenced achievement, particularly by reducing the emphasis on performance goals. Teachers who overemphasize performance goals may inadvertently signal doubts about student capacity, undermining self-beliefs critical to achievement. This aligns with evidence that epistemological beliefs are strongly tied to motivation and effort (Hidayatullah & Csíkos, 2023) and that students who believe in their own abilities are more likely to persist and succeed in demanding tasks (Gijsbers et al., 2019).

Overall, the study emphasizes the importance of efficiency and responsibility in education. Efficiency is reflected in how teacher clarity, supportive climates, and student motivation enhance achievement without requiring additional resources. Responsibility emerges in ensuring fair grading, equitable environments, and accountability in both public and private schools. Strengthening both dimensions is crucial for reducing achievement gaps and creating a more effective and trustworthy education system.

CONCLUSION

The findings of this study highlight that both efficiency and responsibility are critical for understanding educational achievement in Kosovo. On the efficiency side, results demonstrate that clear instructional practices, teacher job satisfaction, and teaching experience significantly enhance student performance in mathematics and science. These factors illustrate how existing resources, when effectively deployed, can generate stronger outcomes without necessarily requiring additional financial investment. Similarly, student readiness, motivation, and subject preference proved to be efficient drivers of literacy, suggesting that policies aimed at strengthening learner agency and confidence can have substantial payoffs.

At the same time, issues of responsibility were evident across multiple results. Inflated grading in private schools undermines the credibility of assessment systems and creates inequities across school types, underscoring the need for stronger accountability mechanisms. The counterintuitive finding that students taught by teachers with secondary-level qualifications outperformed those taught by teachers with bachelor's degrees signals systemic inefficiencies in how qualifications and competencies are aligned and highlights policymakers' responsibility to improve professional standards and training. Multilevel analyses also revealed gender-based differences: female students' achievement was more sensitive to equity and discipline, while male students' performance depended more on connectedness and reduced performance-goal emphasis. These disparities point to schools' responsibility to create supportive and equitable environments tailored to diverse student needs.

Overall, the study suggests that improving Kosovo's education system requires a balance between efficiency, i.e., maximizing the impact of teacher practices and student dispositions on one hand, and responsibility, i.e., ensuring transparent

grading, equitable access, and inclusive learning climates on the other. Strengthening both dimensions is essential to closing achievement gaps and building a more accountable, effective education system.

The present study has two limitations that should be considered when interpreting the findings. First, the measures of academic achievement relied exclusively on student self-reports of grades in specific courses and their general GPA, rather than on official school records. While self-reported grades are commonly used in research, they are not as reliable as assumed (Kuncel, Crede & Thomas, 2005), as self-reported values may be prone to recall errors, misreporting, or social desirability bias, which could have affected the results reported. Secondly, the questionnaire administered to participants was relatively long and may have contributed to survey fatigue. Extended surveys can reduce response quality, as participants may become less attentive or provide less accurate responses in the later sections. This may have been the case as the participants of this study were relatively young.

In conclusion, the findings of the present research suggest that school belonging, perceptions of equity, and teacher practices meaningfully shape academic achievement in Kosovo. Furthermore, findings imply that improving instructional clarity, reducing performance-goal pressures, and fostering supportive school climates could enhance achievement. Future research should examine how targeted interventions, i.e., innovative teaching approaches that both build on equity principles and foster a sense of belonging for students, can reduce achievement gaps and promote equity within Kosovo's education system.

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