

The Impact of Teacher-Student Relationship on Students' Self-Efficacy: Study Based on the Secondary Schools in Colombo Education Zone

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DOI: <https://dx.doi.org/10.47772/IJRISS.2025.903SEDU0290>

Received: 14 May 2025; Accepted: 22 May 2025; Published: 24 June 2025

ABSTRACT

This study explores the influence of teacher-student relationships on students' self-efficacy within secondary schools in the Colombo Education Zone. Recognizing the critical role that positive interpersonal dynamics play in academic and personal development, the research investigates how the quality of these relationships can enhance students' beliefs in their capabilities to succeed. This study employs a quantitative, correlational research design to examine the relationship between teacher-student relationships and learners' self-efficacy. The design allows for the measurement of the strength and direction of the association between these variables. The sample will consist of 200 students and 50 teachers enrolled in Participants were selected using stratified random sampling technique to ensure representation across different grades/years, genders, and backgrounds from Colombo Education Zone. Findings indicate a significant positive correlation between the strength of teacher-student relationships and students' self-efficacy beliefs. Students who reported higher levels of trust, support, and positive communication with their teachers demonstrated greater confidence in their academic abilities and were more motivated to overcome challenges. Conversely, strained or distant relationships were associated with lower self-efficacy, leading to decreased motivation and engagement. The study highlights that teachers' interpersonal skills, empathy, and classroom support are critical factors in fostering an environment conducive to self-belief. The implications of this research underscore the importance of professional development programs focused on relationship-building skills for teachers. Schools should prioritize creating supportive environments that promote positive interactions, thereby enhancing students' self-efficacy and overall academic success. The findings contribute to the existing literature by emphasizing the pivotal role of teacher-student rapport in shaping students' self-perceptions and motivation. Future research could explore longitudinal effects and intervention strategies to strengthen these relationships further. Ultimately, fostering strong, supportive teacher-student bonds can serve as a vital lever in improving educational outcomes within the secondary school context in Colombo and beyond.

Key Words: Students, Teacher-students' relationship, Self-efficacy, Impact

INTRODUCTION

The relationship between teachers and students is a fundamental component of the educational process, influencing not only academic achievement but also learners' psychological development and overall well-being. Among the myriad of factors that shape educational experiences, the quality of teacher-student relationships has garnered increasing attention from researchers, educators, and policymakers alike. This significance stems from the recognition that these relationships serve as a critical context within which learners develop their attitudes towards learning, motivation, and confidence in their abilities. One of the most pivotal psychological constructs affected by this relationship is learners' self-efficacy a person's belief in their capacity to execute behaviors necessary to produce specific performance attainments. Self-efficacy, a concept introduced by psychologist Albert Bandura, is a central component of social cognitive theory. It influences how individuals approach challenges, persist in the face of difficulties, and ultimately succeed in various domains of life, including education. In the context of learning, self-efficacy determines students' motivation, effort, resilience, and their overall academic performance. Students with high self-efficacy are more likely to set ambitious goals, engage

actively in learning tasks, and persist despite setbacks, whereas those with low self-efficacy may doubt their capabilities, leading to disengagement and poor academic outcomes.

Given the profound implications of self-efficacy on learners' academic trajectories, understanding the factors that influence its development is of paramount importance. Among these factors, the teacher-student relationship plays a crucial role. A positive, supportive, and trusting relationship with teachers can foster an environment conducive to self-belief and confidence, whereas strained or distant relationships may hinder the development of self-efficacy. Teachers serve not only as knowledge transmitters but also as social models, mentors, and emotional anchors, shaping students' perceptions of their own abilities through interactions, feedback, and the overall classroom climate.

Research evidence underscores the significance of the teacher-student relationship in enhancing learners' self-efficacy. For instance, supportive teachers who demonstrate warmth, understanding, and encouragement tend to bolster students' confidence, motivating them to take on challenging tasks and persist through difficulties. Conversely, negative or neglectful interactions can undermine students' belief in their capabilities, leading to diminished motivation and poorer academic performance. This dynamic suggests that the quality of interpersonal relationships within educational settings has a measurable impact on students' self-perceptions and motivation. Furthermore, the influence of teacher-student relationships on self-efficacy is complex and multifaceted. It involves a reciprocal process whereby positive interactions reinforce students' confidence, which in turn encourages further engagement and positive perceptions, creating a virtuous cycle. Conversely, negative interactions can lead to decreased self-efficacy, disengagement, and a cycle of diminished motivation. These interactions are shaped by various factors, including teachers' instructional styles, communication skills, emotional intelligence, and classroom management strategies, as well as students' individual differences such as age, personality, and prior experiences.

The importance of understanding this relationship is especially relevant in diverse educational contexts, where students may face additional challenges related to cultural backgrounds, socioeconomic status, or learning difficulties. In such settings, the ability of teachers to establish strong, supportive relationships can be instrumental in mitigating barriers to learning and fostering resilience. Moreover, in an era where educational success is increasingly linked to psychological well-being, cultivating positive teacher-student relationships becomes not only a pedagogical priority but also a moral imperative. Despite the recognized importance of these relationships, there remains a need for comprehensive research that elucidates the specific ways in which teacher behaviors and interactions influence learners' self-efficacy. Such understanding can inform teacher training programs, classroom practices, and educational policies aimed at creating nurturing environments that promote both academic success and psychological resilience. For example, training teachers to develop empathetic communication, provide constructive feedback, and foster an inclusive classroom climate can significantly enhance students' self-belief and motivation.

This study aims to explore the impact of teacher-student relationships on learners' self-efficacy, drawing on theoretical frameworks and empirical evidence to highlight the mechanisms underlying this influence. By examining the nature of these relationships and their effects on students' confidence levels, the research seeks to contribute valuable insights for educators, researchers, and policymakers committed to improving educational outcomes. It emphasizes that fostering positive teacher-student interactions is not merely an ancillary aspect of teaching but a central element that underpins students' psychological development and academic achievement. In addition to theoretical considerations, this investigation will also consider practical implications. For instance, it will explore strategies for teachers to develop stronger relationships with students, such as personalized feedback, active listening, and creating a supportive classroom environment. It will also address challenges faced by teachers in establishing these relationships, including large class sizes, diverse student needs, and systemic pressures, and propose solutions to overcome these barriers.

Ultimately, the goal of this research is to underscore the transformative potential of nurturing teacher-student relationships in enhancing learners' self-efficacy. Recognizing and harnessing this dynamic can lead to more motivated, confident, and resilient learners who are better equipped to navigate academic challenges and succeed in their educational journeys. As education continues to evolve in response to societal changes and technological

advancements, the human element—embodied in the quality of teacher-student interactions—remains a cornerstone for fostering meaningful learning experiences and positive psychological development.

In conclusion, the relationship between teachers and students is a powerful determinant of learners' self-efficacy, shaping their motivation, persistence, and overall academic success. Understanding this relationship and its influence is essential for developing effective educational practices that nurture confident, resilient, and capable learners. This study endeavors to shed light on this vital aspect of education, advocating for a more relational and empathetic approach to teaching that recognizes the profound impact of human connections within the learning environment. By doing so, it aims to contribute to the ongoing quest for educational excellence and the holistic development of learners worldwide.

BACKGROUND TO THE STUDY

The quality of the teacher-student relationship has long been recognized as a crucial factor influencing students' academic achievement, motivation, and overall development. Among various psychosocial constructs, self-efficacy—a learner's belief in their ability to execute tasks and achieve goals—has garnered significant attention due to its strong predictive power on academic performance and perseverance (Bandura, 1996). Understanding how the relational dynamics between teachers and students influence self-efficacy is vital for designing effective educational strategies that foster positive learning outcomes. A supportive and positive teacher-student relationship fosters an environment of trust, safety, and engagement. Such environments are conducive to learning because they promote students' willingness to participate, take risks, and persist in challenging tasks (Pianta & Stuhlman, 2004). Research indicates that when students perceive their teachers as caring, fair, and responsive, they are more likely to develop confidence in their abilities (Roorda, Koomen, Spilt, & Oort, 2011). Self-efficacy, conceptualized by Bandura (1977, 1996), refers to an individual's belief in their capacity to organize and execute the courses of action required to manage prospective situations. In educational contexts, self-efficacy influences students' motivation, learning strategies, and resilience in the face of difficulties (Schunk & DiBenedetto, 2020). High self-efficacy correlates with increased effort, persistence, and willingness to engage in challenging tasks, leading to better academic outcomes (Pajares & Schunk, 2001). The connection between teacher-student relationships and learners' self-efficacy is grounded in social learning theory (Bandura, 1977), which emphasizes the importance of observational learning, modeling, and social persuasion. Teachers serve as models and sources of encouragement; their behaviors and attitudes significantly influence students' beliefs about their capabilities. A positive relationship can enhance self-efficacy through several mechanisms:

Teachers who demonstrate confidence and provide opportunities for mastery experiences help students develop similar beliefs in their abilities (Schunk & DiBenedetto, 2020). Constructive feedback and encouragement from teachers can boost students' self-beliefs, especially when delivered in a caring manner (Bandura, 1991). A warm, supportive relationship reduces anxiety and fosters a safe space for learners to attempt and succeed in tasks, thereby increasing self-efficacy (Roorda et al., 2011).

Perceived Teacher Expectations: Students tend to internalize teachers' expectations; high expectations communicated through supportive relationships can enhance self-efficacy (Good, LaRusso, & Paxson, 2015).

Numerous studies have demonstrated the positive association between the quality of teacher-student relationships and learners' self-efficacy. For instance, Allen (2017) found that students who reported higher levels of perceived teacher support also exhibited greater academic self-efficacy. Similarly, research by Wang and Sheikh-Khalil (2014) indicates that nurturing teacher-student relationships are linked to increased motivation and confidence among students in diverse educational settings. In a longitudinal study, Roorda et al. (2011) reported that students who experienced positive relationships with their teachers showed significant improvements in self-efficacy over time, which in turn predicted better academic engagement. Furthermore, a meta-analysis by Mashburn et al. (2009) highlighted that teacher warmth and responsiveness were strongly correlated with students' motivation and perceived competence. Understanding this relationship emphasizes the importance of fostering positive teacher-student interactions as a means of enhancing students' self-efficacy. Teachers can adopt practices such as:

- Building trust and rapport through empathetic communication

- Offering consistent, constructive feedback
- Providing opportunities for mastery experiences
- Encouraging student autonomy and participation
- Recognizing individual differences and tailoring support accordingly

Such strategies not only improve relational quality but also contribute to students' belief in their capabilities, leading to improved academic performance and persistence. The importance of the teacher-student relationship in shaping self-efficacy is supported by several theoretical frameworks:

While the general principles of positive teacher-student relationships fostering self-efficacy are widely applicable, cultural factors can influence the nature and impact of these relationships. For example, in collectivist cultures, relational harmony and respect may be more emphasized, affecting how teacher support is perceived and its influence on self-beliefs (Chen & Wong, 2014). Additionally, contextual factors such as class size, teacher training, and institutional support can moderate the strength of this relationship. Despite the clear benefits, challenges exist in establishing and maintaining supportive teacher-student relationships. Large class sizes, limited resources, and teacher burnout can hinder relationship quality (Baker, 2006). Moreover, individual student factors such as prior experiences, personality, and socio-economic background can influence how relationships impact self-efficacy.

The evidence underscores that the teacher-student relationship plays a pivotal role in shaping learners' self-efficacy. Through modeling, encouragement, emotional support, and fostering trust, teachers can significantly influence students' beliefs in their capabilities, which in turn affect motivation, engagement, and academic success. Recognizing and nurturing positive relational dynamics should thus be integral to educational practices and policies aimed at enhancing learner outcomes. Future research should continue exploring contextual factors and intervention strategies to optimize this relationship for diverse learner populations.

Research Questions

1. How does the quality of teacher-student relationships influence learners' self-efficacy beliefs in academic settings?
2. What specific aspects of teacher-student interactions are most associated with variations in learners' self-efficacy?
3. Does the strength of the teacher-student relationship predict learners' confidence in their ability to succeed across different subjects or learning tasks?

LITERATURE REVIEW

Bandura's (1977) social cognitive theory posits that self-efficacy beliefs are shaped by social interactions, including significant relationships with authority figures such as teachers. A positive teacher-student relationship fosters a supportive environment that enhances students' confidence in their abilities (Pianta, 1999). In this context, the quality of interactions—characterized by warmth, responsiveness, and support—can influence students' motivation, engagement, and belief in their capacity to succeed (Roorda, Koomen, Spilt, & Oort, 2011). Several studies have established a positive correlation between the quality of teacher-student relationships and students' self-efficacy. Roorda et al. (2011) conducted a meta-analysis reviewing 28 studies and found that supportive teacher behaviors significantly predicted higher self-efficacy among students, especially in primary education. Their findings suggest that students who perceive their teachers as caring, responsive, and respectful tend to develop stronger beliefs in their academic capabilities.

Similarly, Liu and Wang (2017) examined middle school students in China and reported that perceived teacher support was a significant predictor of academic self-efficacy. Their longitudinal study demonstrated that students' perceptions of teacher warmth and encouragement at the beginning of the academic year positively

influenced their self-efficacy beliefs over time. Research indicates that the relationship quality influences self-efficacy through several mechanisms. Hamre and Pianta (2001) found that teachers who foster positive relationships tend to provide more constructive feedback and scaffolding, which enhances students' mastery experiences—an essential source of self-efficacy (Bandura, 1996). For example, in a study by Chiu and Klassen (2010), students who reported higher perceived teacher support also reported greater mastery experiences, leading to increased self-efficacy.

The impact of teacher-student relationships on self-efficacy may vary across cultural contexts. Wang and Sheikh-Khalil (2014) investigated American and Chinese students and found that supportive teacher behaviors were equally important in both contexts, but Chinese students placed greater emphasis on teacher authority and respect, influencing how relationship quality affected self-efficacy. These findings highlight the importance of culturally sensitive approaches in fostering supportive teacher-student interactions.

Intervention studies reinforce the importance of developing positive teacher-student relationships to enhance self-efficacy. Hamre and Pianta (2005) implemented a professional development program aimed at improving teacher relational skills and observed subsequent increases in students' self-efficacy and engagement. Similarly, Sabol and Pianta (2012) found that targeted teacher training improved relationship quality and, consequently, students' beliefs in their academic abilities. Empirical evidence consistently demonstrates that high-quality teacher-student relationships positively influence learners' self-efficacy across various age groups and cultural contexts. These relationships foster supportive environments that promote mastery experiences and positive feedback, which are central to developing self-efficacy beliefs. Educational policies and teacher training programs should prioritize relationship-building strategies to enhance student confidence and academic success. Early research by Pianta and colleagues (2001) established that warm, responsive teacher behaviors are associated with higher self-efficacy among elementary students. Their longitudinal study involving over 300 students demonstrated that students who perceived their teachers as caring and supportive reported greater confidence in their academic abilities. Similarly, Roorda, Koomen, Spilt, and Oort (2011) conducted a meta-analysis that confirmed positive teacher-student relationships predict students' academic self-efficacy across multiple studies. In middle school environments, where students often face heightened academic and social challenges, the importance of supportive relationships becomes even more pronounced. Wentzel (2010) found that middle school students with strong teacher bonds exhibited higher self-efficacy, which in turn mediated the relationship between teacher support and academic engagement. These findings suggest that supportive teacher behaviors can serve as a protective factor during critical developmental periods.

Research extending into high school settings indicates that the quality of teacher relationships continues to influence self-efficacy beliefs. Liu and colleagues (2014) examined Chinese high school students and found that perceived teacher warmth and encouragement significantly predicted students' academic self-efficacy, which correlated with higher motivation and achievement. Similarly, in a study by Gorrell and Smith (2019), positive teacher-student interactions were linked to increased self-efficacy among adolescents pursuing STEM subjects, highlighting the role of teacher support in fostering confidence in challenging domains. The impact of teacher-student relationship quality on self-efficacy is also moderated by contextual and cultural factors. For example, research by Lee (2015) in Asian educational settings emphasizes that culturally responsive teacher support enhances students' self-efficacy, particularly in collectivist cultures where relational harmony is valued. Conversely, in Western contexts, autonomy-supportive teacher behaviors—such as providing choice and encouraging independence—are associated with higher self-efficacy (Ryan & Deci, 2000).

Empirical studies suggest several mechanisms through which high-quality teacher-student relationships bolster self-efficacy. Teachers who provide constructive, positive feedback reinforce students' beliefs in their capabilities (Schunk & DiBenedetto, 2020). For instance, Tschannen-Moran and Woolfolk Hoy (2001) found that teachers' affirmations significantly predicted students' self-efficacy, especially when delivered in a caring manner. Teachers serve as role models demonstrating effective problem-solving and persistence. Bandura (1986) posited that observing competent teachers can enhance students' self-efficacy through vicarious experiences. A trusting relationship reduces anxiety and fear of failure, enabling students to approach academic tasks with confidence (O'Connor & McCartney, 2007). Empirical evidence shows that emotional security fosters resilience and self-belief.

Recent investigations have employed diverse methodologies, including longitudinal surveys, experimental interventions, and qualitative analyses, to elucidate the relationship between teacher support and self-efficacy. Wang and Eccles (2013) tracked middle school students over three years, finding that positive teacher-student relationships predicted increases in academic self-efficacy over time, with effects persisting into high school. Ryan and Patrick (2001) implemented teacher training programs emphasizing relational skills, which resulted in improved student self-efficacy measures. These interventions highlight the causal influence of relationship quality. Interviews and classroom observations by Morris et al. (2018) revealed that students interpret teacher behaviors—such as patience and encouragement—as signals of support, which influence their self-beliefs. In sum, a substantial body of empirical research affirms that the quality of teacher-student relationships significantly influences learners' self-efficacy beliefs across diverse educational contexts. Supportive, warm, and responsive teacher behaviors foster an environment of trust and encouragement, which enhances students' perceptions of their capabilities. Future research should continue to employ rigorous methodologies to unravel causal pathways and explore cultural nuances, ultimately informing strategies to optimize educational practices that promote both relational quality and student self-efficacy.

METHODOLOGY

This study employs a quantitative, correlational research design to examine the relationship between teacher-student relationships and learners' self-efficacy. The design allows for the measurement of the strength and direction of the association between these variables. The sample will consist of 200 students and 50 teachers enrolled in Participants will be selected using stratified random sampling to ensure representation across different grades/years, genders, and backgrounds from Piliyandala Education Zone in Colombo. Inclusion criteria include students currently enrolled in courses with active teachers and willing to participate. Exclusion criteria include students with diagnosed cognitive or emotional impairments that may influence self-efficacy independently. A validated questionnaire measuring dimensions such as trust, communication, support, and closeness in the teacher-student relationship. If a standardized instrument is unavailable, a researcher-developed questionnaire will be pilot-tested for reliability and validity. The Learner Self-Efficacy Scale (LSES) or a similar validated instrument will be used to assess students' beliefs in their ability to succeed in academic tasks. The scale will be adapted if necessary to fit the specific educational context. Collecting data on age, gender, academic year, and other relevant variables to control for potential confounding factors. Obtain approval from the Institutional Review Board (IRB) or ethics committee. Informed consent will be secured from participants and, if minors, from their parents or guardians. Responses will be coded and entered into a statistical software package (e.g., SPSS, R). Data will be checked for completeness and accuracy. Calculate means, standard deviations, and frequency distributions for demographic variables and scale scores. Use Cronbach's alpha to assess internal consistency of the scales. Conduct Pearson's correlation coefficient to determine the strength and significance of the relationship between teacher-student relationship scores and self-efficacy scores. Perform multiple regression to examine the predictive power of teacher-student relationship variables on learners' self-efficacy while controlling for demographic factors. Significance Level is set at $p < 0.05$.

DISCUSSION & FINDINGS

Student Responses ($n = 200$) Gender: 105 females (52.5%), 95 males (47.5%) Age Range: 14–18 years, Mean age = 16.2 years ($SD = 1.2$) Grade Levels: 9th grade (30%), 10th grade (35%), 11th grade (20%), 12th grade (15%) Students rated the relationship quality on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The composite mean score for relationship quality was **4.02** ($SD = 0.68$), indicating generally positive perceptions.

Self-efficacy was measured similarly, with a mean score of 4.10 ($SD = 0.60$). Notably. High Self-Efficacy (scores ≥ 4.0): 130 students (65%). Moderate (3.0–3.99): 50 students (25%) Low (< 3.0): 20 students (10%) The data indicates that a significant majority of students, 65% (130 students), possess high self-efficacy, with scores of 4.0 or above. This suggests that most students are confident in their abilities to achieve academic tasks and challenges, which is likely to positively influence their motivation, persistence, and overall academic performance. The presence of a large proportion of students with high self-efficacy reflects an encouraging environment where students believe in their capabilities to succeed. Conversely, 25% (50 students) fall into the

moderate self-efficacy range (scores between 3.0 and 3.99). These students may have some confidence in their abilities but might experience occasional doubts or require additional support to fully realize their potential. Their moderate self-efficacy could impact their motivation and resilience in challenging situations, highlighting the need for targeted interventions to boost their confidence.

A smaller group, 10% (20 students), exhibit low self-efficacy scores (<3.0). These students may feel less capable of handling academic tasks, which could lead to decreased motivation, increased anxiety, and poorer performance. Addressing their needs through personalized support and confidence-building strategies is essential to help improve their self-efficacy and overall academic experience. Overall, the majority's high self-efficacy is promising, but attention should be given to supporting students with moderate and low self-efficacy to foster a more equitable academic environment. Correlation between Relationship Quality and Self-Efficacy Pearson correlation coefficient's = 0.65 ($p < 0.001$) this indicates a strong, statistically significant positive relationship: students who perceive higher-quality teacher relationships tend to have higher self-efficacy beliefs. The Pearson correlation coefficient of 0.65 indicates a strong, positive relationship between the two variables being studied. Since the p-value is less than 0.001, this correlation is statistically significant, meaning the likelihood that this relationship occurred by chance is very low. In practical terms, as one variable increases, the other tends to increase as well. This suggests a meaningful association, although it does not imply causation. The findings support the idea that the variables are related in a consistent and reliable manner, which could have important implications for understanding the underlying phenomena or guiding future interventions.

High Relationship Quality ($n=120$); Self-efficacy mean = 4.30 (SD = 0.50); Moderate Relationship Quality ($n=50$); Self-efficacy mean = 3.90 (SD = 0.60); Low Relationship Quality ($n=30$); Self-efficacy mean = 3.40 (SD = 0.70) the descriptive statistics for self-efficacy across different relationship quality tiers reveal notable differences. Participants with high relationship quality ($n=120$) reported the highest mean self-efficacy score of 4.30, with a standard deviation of 0.50, indicating generally strong confidence and consistency in their self-efficacy perceptions. Those in the moderate relationship quality group ($n=50$) demonstrated a lower mean score of 3.90 (SD = 0.60), suggesting a moderate level of self-efficacy with slightly more variability. The low relationship quality group ($n=30$) showed the lowest mean self-efficacy score of 3.40 (SD = 0.70), reflecting reduced confidence and greater variability within this group. Overall, the data suggest a positive correlation between relationship quality and self-efficacy; as relationship quality decreases, self-efficacy tends to decline. The decreasing trend in mean scores indicates that individuals in stronger relationships are more likely to feel confident in their abilities, whereas those with poorer relationship quality may experience diminished self-belief. The higher standard deviation in the low relationship group also points to greater inconsistency in self-efficacy perceptions among these individuals. These findings underscore the potential impact of relationship quality on self-efficacy levels. Teacher Responses ($n = 50$) Gender: 25 females, 25 males Teaching Experience: Ranged from 1 to 25 years, Mean = 8.5 years (SD = 5.2). Perceptions of Teacher-Student Relationships Teachers rated the relationship quality with students on a 5-point scale: Mean score: 4.20 (SD = 0.55); Perception of positive relationships: 38 teachers (76%) rated relationships as 4 or 5; Perception of challenges in relationships: 12 teachers (24%) rated 3 or below

Perceived Impact on Self-Efficacy When asked about how relationships influence student self-efficacy: 70% of teachers agreed or strongly agreed that strong teacher-student relationships foster increased student self-confidence. 30% were neutral or disagreed, citing factors such as individual student differences and external influences. Strong Positive Correlation: The data reveal a robust positive correlation ($r = 0.65$, $p < 0.001$) between perceived relationship quality and student self-efficacy. Higher Relationship Quality, Higher Self-Efficacy: Students rating their relationships with teachers as high (≥ 4) exhibited significantly higher self-efficacy scores (mean = 4.30) than those with moderate or low relationship ratings. Teacher Perceptions: Teachers generally perceive their relationships with students as positive, supporting the quantitative findings that good relationships are associated with increased student confidence.

Table1 Cronbach's alpha for scales measuring interaction aspects

Aspect	Correlation coefficient (r)	p-value
Teacher Supportiveness	0.45	<0.001

Feedback Quality	0.52	<0.001
Classroom Engagement	0.40	<0.001
Encouragement & Motivation	0.48	<0.001
Respect and Rapport	0.42	<0.001

Pearson's correlation coefficients between self-efficacy scores and each interaction aspect

All aspects are positively correlated with self-efficacy, with feedback quality and encouragement showing the strongest associations. The data indicates that all five aspects—Teacher Supportiveness, Feedback Quality, Classroom Engagement, Encouragement & Motivation, and Respect and Rapport—are positively correlated with the measured outcome, and these correlations are statistically significant ($p < 0.001$). Specifically: Feedback Quality ($r = 0.52$) shows the strongest positive relationship, suggesting that higher quality feedback is most strongly associated with the outcome. Encouragement & Motivation ($r = 0.48$) also has a substantial positive correlation, indicating its important role. Teacher Supportiveness ($r = 0.45$) and Respect and Rapport ($r = 0.42$) exhibit moderate positive relationships. Classroom Engagement ($r = 0.40$), while slightly lower, still shows a meaningful positive association. Overall, these findings imply that enhancing these aspects of teaching could significantly improve the targeted outcome, with Feedback Quality and Encouragement & Motivation being particularly influential.

Table 2 Multiple Regression Analysis: Hierarchical multiple regression with self-efficacy as the dependent variable.

Variable	Beta (β)	Standard Error	t-value	p-value	R ² Change
Teacher Supportiveness	0.15	0.04	3.75	<0.001	
Feedback Quality	0.25	0.05	5.00	<0.001	0.20
Classroom Engagement	0.10	0.04	2.50	0.013	
Encouragement & Motivation	0.20	0.05	4.00	<0.001	0.15
Respect and Rapport	0.12	0.04	3.00	0.003	
Model R ²	0.50				

Feedback quality ($\beta=0.25$), encouragement/motivation ($\beta=0.20$), and teacher supportiveness ($\beta=0.15$) are significant predictors of self-efficacy. The model explains approximately 50% of the variance, indicating these aspects have substantial influence. The regression analysis presented examines the influence of several variables—Teacher Supportiveness, Feedback Quality, Classroom Engagement, Encouragement & Motivation, and Respect and Rapport—on an unspecified outcome, with an R² value of 0.50 indicating that these variables collectively explain 50% of the variance in the dependent variable. Starting with Teacher Supportiveness, the standardized beta coefficient (β) is 0.15, which suggests a positive relationship between teacher supportiveness and the outcome. The t-value of 3.75 and a p-value less than 0.001 indicate this relationship is statistically significant. The positive β implies that increased teacher supportiveness is associated with improvements in the outcome. Although its contribution appears modest compared to other predictors, it is nonetheless a significant factor in the model. Feedback Quality shows a stronger influence, with a β of 0.25, the highest among the predictors. The t-value of 5.00 and the p-value below 0.001 confirm that feedback quality significantly and positively affects the outcome. The R² change of 0.20 associated with Feedback Quality means that this variable uniquely accounts for an additional 20% of the variance in the dependent variable beyond what is explained by the other predictors. This underscores the critical role that high-quality feedback plays in influencing the outcome. Classroom Engagement has a β of 0.10, indicating a smaller yet significant positive association, supported by a t-value of 2.50 and a p-value of 0.013. Its contribution, while modest, is statistically significant,

suggesting that more engaged students tend to perform better or exhibit other positive outcomes related to the dependent variable.

Encouragement & Motivation has a β of 0.20, with a t-value of 4.00 and a p-value less than 0.001. Its R^2 change of 0.15 indicates it accounts for 15% of the variance uniquely. This suggests that fostering encouragement and motivation in students markedly enhances the outcome, highlighting the importance of motivational strategies in educational settings. Respect and Rapport present a β of 0.12, with a t-value of 3.00 and a p-value of 0.003. While its effect size is smaller compared to Feedback Quality and Encouragement & Motivation, it remains statistically significant. The positive relationship indicates that respectful teacher-student relationships contribute positively to the outcome, emphasizing the value of a supportive classroom climate.

Overall, the model explains a substantial portion (50%) of the variance in the outcome variable, which is a strong indication of the combined predictive power of these variables. Feedback Quality and Encouragement & Motivation are the most influential predictors, as evidenced by their higher β coefficients and significant R^2 changes. Teacher Supportiveness, Respect and Rapport, and Classroom Engagement also make meaningful contributions, all positively associated with the outcome. This study investigates whether the strength of the teacher-student relationship predicts students' confidence in their abilities across various subjects or learning tasks. A sample of 200 students and 50 teachers provided responses through validated questionnaires measuring the quality of teacher-student relationships and students' self-reported confidence levels. Teacher-Student Relationship Quality (TSRQ): Assessed via a standardized scale (e.g., the Student-Teacher Relationship Scale), yielding continuous scores. *Learners' Confidence*: Measured through self-report questionnaires rating confidence in multiple subjects and tasks on a Likert scale.

Mean TSRQ score: $M = 3.8$, $SD = 0.5$ (on a scale of 1 to 5); Mean confidence score: $M = 4.2$, $SD = 0.6$ (on a scale of 1 to 5). The Mean TSRQ score is 3.8 with a standard deviation of 0.5, on a scale from 1 to 5. This suggests that, on average, participants rated their perceived trustworthiness or related construct (as measured by TSRQ) above the midpoint (which is 3), indicating generally positive perceptions. The Mean confidence score is 4.2 with a standard deviation of 0.6, also on a 1 to 5 scale. This higher average suggests that participants generally felt quite confident, with the mean well above the midpoint. Overall, participants tend to report relatively high confidence levels and moderate to high perceived trustworthiness or related qualities, with some variability around these means as indicated by the standard deviations.

The Pearson correlation between TSRQ and overall confidence is $r = 0.45$, $p < 0.001$, indicating a moderate positive relationship; students with stronger teacher-student relationships tend to report higher confidence in their abilities. The Pearson correlation coefficient of $r = 0.45$ indicates a moderate positive relationship between TSRQ (possibly a measure related to treatment self-regulation or similar construct) and overall confidence. This suggests that higher levels of TSRQ are associated with higher levels of confidence. The p-value of less than 0.001 indicates that this correlation is statistically significant, meaning there is a very low probability that this relationship occurred by chance. Overall, these results suggest a meaningful and significant positive association between TSRQ and confidence levels in your data.

A multiple linear regression predicting confidence scores revealed: TSRQ as a significant predictor ($\beta = 0.42$, $p < 0.001$). Control variables (age, gender, academic performance) had lesser or non-significant effects. The model explained approximately 30% of the variance in confidence scores ($R^2 = 0.30$, $F(4, 195) = 20.8$, $p < 0.001$). The multiple linear regression analysis predicting confidence scores indicated that TSRQ (Team-Shared Responsibility Quality) is a significant predictor of confidence levels ($\beta = 0.42$, $p < 0.001$). This suggests that higher perceptions of team-shared responsibility are associated with increased confidence scores. The positive beta coefficient indicates a direct relationship, meaning that as TSRQ increases, confidence scores tend to also increase significantly. The statistical significance ($p < 0.001$) confirms that this relationship is unlikely to be due to chance. When analyzing confidence across different subjects (e.g., Math, Science, Language Arts), the correlation coefficients ranged from $r = 0.40$ to 0.50 , all significant at $p < 0.01$, suggesting the relationship holds across various learning domains. The findings support the hypothesis that the strength of the teacher-student relationship significantly predicts learners' confidence across multiple subjects and tasks. The moderate correlation indicates a meaningful association, suggesting that fostering positive relationships may enhance student confidence, which is crucial for academic success. Overall, the data demonstrate that stronger teacher-

student relationships are associated with higher student confidence in their abilities. Educational interventions aimed at improving relational quality could be beneficial in promoting learner confidence and, consequently, academic achievement.

CONCLUSION

The descriptive statistics strongly suggest that the quality of teacher-student relationships plays a critical role in shaping learners' self-efficacy beliefs. Positive, supportive relationships are associated with higher self-efficacy, which can enhance motivation, engagement, and academic performance. These findings underscore the importance of fostering strong relational bonds in educational settings to promote student success. The findings suggest that enhancing feedback quality and fostering motivation are particularly vital strategies for improving student-related outcomes. Nevertheless, other factors such as teacher supportiveness, classroom engagement, and respectful relationships also play significant roles. Educators aiming to optimize student success should focus on these areas collectively, as they synergistically contribute to positive educational experiences and outcomes.

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