



TEACHER COLLABORATION AND STUDENT ACHIEVEMENT OF PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF ROXAS CITY

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ABSTRACT

This study examined the perceptions of teacher collaboration and student achievement among 119 public elementary school teachers in District 1 of Roxas City Division for the academic year 2023-2024. The intent was to analyze the interrelation between teachers' collaborative efforts and student success in the educational setting. This descriptive-correlational designed study utilized a validated and reliability-tested, researcher-made questionnaire. The research stands out by providing empirical evidence from a specific educational district, thus enriching the body of knowledge concerning teacher interactions and their direct impact on student performance. The findings of this study underscored a very satisfactory level of teachers' collaboration alongside a satisfactory level of student achievement. Interestingly, no significant differences were noted in the degree of teachers' collaboration or students' achievement when respondents were categorized by sex, age, length of service, or grade level taught. Moreover, a significant positive correlation was identified between the degree of teachers' collaboration and the level of students' achievement. Based on these findings, it is recommended that educational policy and practice continue to support and enhance teacher collaboration as a lever for raising student achievement. The absence of significant differences across demographic groups suggests that collaborative practices are universally beneficial and should be encouraged across the board. Further research could explore the causal nature of this relationship and identify specific collaborative practices that are most effective in improving student outcomes.

Keywords: *Teacher Collaboration, Student Achievement, External Resources, Internal Resources.*

1. Introduction

Education systems worldwide are experiencing swift transformations, driven by technological advancements, socio-political shifts, and evolving educational pedagogies. International educational bodies like the United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasize education as a fundamental human right, leading to increased scrutiny of factors influencing educational outcomes (UNESCO, 2015). Among these, teacher collaboration is emerging as a crucial component for educational success. Numerous

studies suggest that teacher collaboration correlates with heightened teacher efficacy and improved student outcomes. For example, previous research by Goddard et al. (2007) highlights the positive relationship between collective teacher efficacy and student achievement. These findings suggest that fostering a culture of collaboration among teachers can significantly enhance student learning (Goddard et al., 2015). For instance, in Southeast Asia, there is a growing emphasis on improving education quality to align with international standards. Collaborative teaching is perceived as a valuable tool in achieving these goals. Teacher collaboration is significant in implementing curriculum reforms and educational innovations (Hairon, 2017).

In the Philippines, the government consistently initiates measures aimed at enhancing teacher quality. The Philippine Professional Standards for Teachers (PPST), built on the National Competency-Based Teacher Standards (NCBTS) framework, bolsters ongoing efforts to elevate teacher quality, from pre-service education to in-service professional development (Department of Education, 2016). This demonstrates the Philippines' commitment to continually update teachers' quality standards through knowledge enhancement, practice, and professional engagement. The K-12 educational reform, for instance, underscores the importance of equipping learners with skills pertinent to higher education and employment. The success of this reform hinges largely on teacher capacity-building, highlighting the necessity for collaboration (DepEd, 2018). The Department of Education (DepEd) advocates for teacher collaboration through Professional Learning Communities (PLCs), acknowledging its potential to refine teaching practices (Valenzuela, 2022). Moreover, in the study of Cuevas et al. (2020) from the Philippine Normal University underscored the importance of teacher collaboration in diverse educational settings in the Philippines. They noted that it facilitates the exchange of resources, knowledge, and best practices, tailored to meet the unique needs of Filipino learners. The researchers further elaborated that collaborative efforts among educators foster an inclusive environment where students from various backgrounds feel understood and supported. Thus, collaboration promotes professional growth, equipping educators to tackle the multifaceted challenges of teaching.

Given the global emphasis on teacher collaboration and its potential benefits, it becomes crucial to understand its impact within the unique and diverse context of the Philippines. While global trends provide foundational knowledge, the specific challenges faced by Philippine educators necessitate a comprehensive, localized study. This research aims to inform stakeholders, from policymakers to educators, enabling them to effectively leverage collaborative practices to enhance student achievement. Therefore, it is indeed vital to ascertain the effects of teacher collaboration on student achievement in public elementary schools, particularly in District I of the Schools Division of Roxas City.

Literature Review

Internal Resources

Teacher collaboration is a fundamental element of educational improvement, often shaped by internal factors within schools. Leadership has a vital role, with principals who prioritize collaboration, provide support, and facilitate communication fostering an environment conducive to teacher collaboration, setting the tone for the entire school community (Marks & Printy, 2003; Liang et al., 2016). School culture significantly influences teacher collaboration. Teachers are more likely to engage in collaborative practices in a supportive and collaborative environment, leading to improved teaching and learning outcomes (Yuan & Zang, 2016). Teacher collaboration enhances educational practices, boosts student achievement, and promotes professional development. Goddard et al. (2007) found that collective teacher efficacy, nurtured through collaboration, positively impacts student achievement, an idea reinforced by Ronfeldt et al. (2015), who demonstrated that high-quality collaboration improves instruction and student achievement. These findings underscore the importance of fostering collaborative communities within schools (Chow & Chu, 2013).

Professional growth is a notable advantage of teacher collaboration. The study of Avalos (2011) found that collaboration leads to a deeper understanding of pedagogy, content, and student needs, a view supported by Voogt et al. (2016), who discovered that collaborative design in teacher professional development initiated by school leaders bridges the gap between theory and practice. However, successful collaboration requires specific conditions and structures. Horn and Little (2010) emphasized that meaningful collaborations need to be frequent, instruction-focused, and involve group work. Parise and Spillane (2010) highlighted the importance of focusing on student learning for effective collaboration. Time constraints often hinder effective collaborative efforts (Penuel et al., 2021).

External Resources

Teacher collaboration has seen substantial growth over the past decade, leading to significant improvements in instructional practices and student outcomes (Vangrieken et al., 2015). While much focus has been on within-school collaboration, recent studies emphasize the benefits of external collaboration. Billett et al. (2018) found that teachers accessing external expertise through Professional Learning Communities (PLCs) gain broader perspectives on teaching practices, especially when these communities integrate technology. Similarly, platforms like Edmodo and Twitter facilitate global connections among educators, enabling synchronous and asynchronous exchanges that promote the sharing of resources and reflective practices (Carpenter & Krutka, 2014). Despite these advantages, external collaborations face challenges such as time constraints, limited administrative support, and difficulties in transferring strategies to different contexts (Reeves & Lowenhaupt, 2016). The overwhelming volume of available resources also requires teachers to develop discernment skills to identify quality content and effective collaborations.

In the Philippines, the integration of technology and digital resources has become a pivotal aspect of teacher collaboration. Learning Management Systems (LMS) like Moodle and Google Classroom enhance the sharing of teaching materials and enable online discussions, which is particularly beneficial in remote or geographically dispersed areas (Hord & Hall, 2013). Partnerships with educational institutions are instrumental in providing external resources and support for teacher collaboration. Universities and colleges often organize workshops and seminars, fostering collaborative learning experiences and providing access to external expertise (Diaz & Maniego, 2017). PLCs in the Philippines have been effective in promoting teacher collaboration and professional growth by creating supportive environments where educators regularly meet to discuss practices and share resources (Capili-Balbalin, 2017). Furthermore, government initiatives, such as the K to 12 Program, have facilitated collaborations with international agencies like the United Nations Development Programme (UNDP), enhancing the educational system's comprehensiveness and global competitiveness (San Juan, 2016). Thus, teacher collaboration remains a critical component of the educational landscape in the Philippines, enriched by both internal and external resources.

Literacy

rate, discuss literacy strategies, and plan jointly. This collaborative problem-solving leads to more effective literacy instruction. Addressing language needs is also critical, with August and Shanahan (2017) noting the importance of collaboration between English language development teachers and mainstream educators. Such collaboration supports English language learners in developing necessary literacy skills for academic success, as teachers share expertise and strategies to identify and address students' needs.

In the Philippines, several studies have underscored the critical connection between literacy and student achievement. Literacy skills in reading, writing, and comprehension are essential for success across all subjects and grade levels (Rivera & Santos, 2022). Effective literacy is a prerequisite for engaging with the curriculum and acquiring knowledge across diverse academic domains. Teacher quality and pedagogical approaches significantly impact students' literacy and overall achievement. Saysi and Batuctoc (2023) found that teachers employing research-based literacy strategies—such as explicit instruction, use of authentic texts, and individualized support for struggling readers—positively impact students' literacy skills and academic performance.

Community and school collaboration is also crucial in promoting literacy and improving student achievement. Gaviño and Chua (2022) highlighted the effectiveness of community-based literacy programs in the Philippines, where collaboration between schools, local organizations, and families creates a supportive environment for student literacy. These initiatives lead to increased reading proficiency and overall academic achievement.

Numeracy

Professional Learning Communities (PLCs) have become prominent in numeracy education, offering a collaborative platform for teachers to enhance their pedagogical approaches. Research by Siswono et al. (2019) in Indonesia demonstrated that active participation in PLCs positively influenced teachers' strategies for numeracy instruction, highlighting the value of sharing best practices and collaboratively developing strategies to meet diverse student needs. Additionally, the importance of cross-disciplinary collaboration is emphasized by Sonne and Graven (2013), who argue that integrating numeracy skills across various subjects provides a more holistic educational approach. Parent involvement in numeracy development is also crucial. Sarama and Clements (2018) stressed the potential of parent-teacher collaboration in creating supportive home environments for numeracy, ensuring consistent reinforcement of mathematical concepts. Collaborative assessment practices

are recognized as valuable in numeracy education. Earl (2013) noted that teachers can use data-driven discussions to identify areas where students need additional support and develop targeted interventions collectively. Despite the benefits of teacher collaboration in promoting numeracy skills, challenges remain. Doyle et al. (2016) identified time constraints, a lack of professional development opportunities, and differing pedagogical philosophies as barriers to effective collaboration. Addressing these challenges requires fostering a culture of collaboration within educational institutions.

In the Philippines, numeracy is a key determinant of academic success, underpinning proficiency in mathematics and other subjects requiring quantitative skills. Gaviño and Chua (2022) emphasized that a strong numeracy foundation is crucial for students to engage effectively with mathematical concepts and solve real-world problems, significantly influencing their overall academic achievements. Teacher quality and pedagogy profoundly impact students' numeracy skills and academic success. Avalos (2011) highlighted the role of skilled and motivated teachers in fostering numeracy through effective strategies such as conceptual understanding, problem-solving approaches, and differentiated instruction. Socioeconomic factors also play a critical role in numeracy and academic achievement. Tallud and Caballes (2023) found that students from lower-income backgrounds often face challenges accessing educational resources that support numeracy development. Addressing these disparities is essential to ensure equitable academic achievement.

Theoretical Framework

The study is grounded in Albert Bandura's Social Cognitive Theory (1986), which emphasizes the role of observational learning and the impact of social interactions and expectations on individual behaviors. SCT emphasizes observational learning, the interaction of personal, behavioral, and environmental factors, and the role of self-efficacy in human actions. In education, teachers learn from peers through modeling, leading to improved teaching strategies and classroom management. Effective collaboration, supported by positive personal experiences and a conducive school environment, boosts teachers' self-efficacy, fostering resilience and innovation. This study focuses on using SCT to understand the effects of teacher collaboration on student achievement in literacy and numeracy among public elementary school teachers in District 1 of the Schools Division of Roxas City.

Statement of the Problem

This study was conducted to determine the effects of teachers' collaboration on students' achievement in the public elementary schools in District I of the Schools Division of Roxas City for School Year 2023-2024.

This study aimed to answer the following questions:

What is the degree of teachers' collaboration in the public elementary schools as a whole and in terms of internal resources and external resources?

What is the level of students' achievement in the public elementary schools as a whole and in terms of literacy and numeracy?

Is there a significant difference in the degree of collaboration of public elementary school teachers when respondents are grouped according to their sex, age, length of service, and grade level taught?

Is there a significant difference in the level of students' achievement when respondents are grouped according to their sex, age, length of service, and grade level taught?

Is there a significant relationship between teacher collaboration and student achievement?

2. Methods

A descriptive-correlational design was employed in this study. From the collective body of 124 (grades 1 to 3) public elementary school teachers in the District 1 of Schools Division of Roxas City, a sample of 119 individuals was extracted via a simple random sampling method. To ascertain an acceptable sampling error threshold of 2%, Slovin's formula was applied, subsequently determining the requisite sample size. The proportional allocation for selecting specific numbers from each elementary school was calculated following Bourley's (1964) direct proportion method. Demographically, the sample was predominantly female, with 110 participants (92.4%), 60 participants being 40 years old and below (50.4%), 72 participants (60.5%) have 15 years and below service, and the 43 participants (36.1%) were mostly Grade 2 teachers. The quantitative aspect of this study hinged on a custom-developed survey, which the reliability and credibility were vetted through the employment of the Cronbach Alpha statistics, yielding a high-reliability coefficient of 0.872. This instrument was segmented into two parts: the first focused on the demographic facets—sex, age, length of service, and grade level taught; the second part delved into the evaluation of the degree of teacher collaboration through two sources—internal and external—and the level of student achievement, gauged on literacy and numeracy scales.

This researcher-made questionnaire consisted of 69 Likert-scale items, distributed among four domains—teacher collaboration occupying 2 domains with 35 items, and student achievement divided into two domains with 34 items, rated on a scale from 1 (no rating) to 5 (outstanding). The analysis of the collected data was performed using statistical methods such as frequency, percentage, mean scores, t-tests, ANOVA, and Pearson's correlation coefficient to interpret and analyze the gathered information.

Results, Analysis and Discussion

Degree of Teachers' Collaboration

The degree of teachers' collaboration as perceived by the teachers in the selected elementary schools in District 1 of the Schools Division of Roxas City in terms of internal resources and external resources is presented in Table 1.

Table 1. Degree of teacher collaboration.

Degree of Teachers' Collaboration	Mean	Verbal Interpretation
Internal Resources	4.12	Very Satisfactory
External Resources	3.99	Very Satisfactory
Grand Mean	4.05	Very Satisfactory

Legend: 4.45 – 5.00 = Outstanding; 3.45 – 4.44 = Very Satisfactory; 2.45 – 3.44 = Satisfactory; 1.45 – 2.44 = Unsatisfactory; 1.00 – 1.44 = No Rating.

NOTE: As per the actual statement stated in the research instrument, variables are presented from highest to lowest.

The study reveals that the overall degree of collaboration among teachers in public elementary schools is "very satisfactory," with a grand mean score of 4.05, signifying a high level of collaboration. Both internal and external resources are effectively utilized. The mean score for internal resources is 4.12, while for external resources, it's 3.99; both scores are verbally interpreted as "very satisfactory." The results suggest that teachers may have more immediate access to internal resources, leading to more effective and frequent collaboration. Greater control over and familiarity with internal resources could contribute to higher satisfaction. On the other hand, external resources might require more effort to access, may not be as well-tailored to the teachers' needs, or there could be bureaucratic hurdles that make collaboration less satisfactory.

The overall result of the teachers' collaboration aligns with the study by Yuan and Zhang (2016), which states that during challenging times, teachers resort to collaborating through internal resources such as joint lesson planning with co-teachers. This demonstrates that teachers rely on their co-workers during difficult times because they are more accessible than outside sources. Furthermore, Voogt et al. (2016) supported the assertion that a strong sense of community is built through teacher collaboration. In this community, members collaborate to form collective viewpoints by exchanging insights and experiences while addressing challenges. They gain knowledge from one another throughout this journey (Chow & Chu, 2013; Horn & Little, 2010). Therefore, teacher collaboration positively impacts the teachers' communities.

Level of Students' Achievement

The level of students' achievements as a whole in the public elementary schools in District 1 of the Schools Division of Roxas City as perceived by the teachers in terms of literacy and numeracy is shown in Table 2.

Table 2. Level of students' achievement.

Degree of Organizational Change	Mean	Verbal Interpretation
Literacy	3.52	Very Satisfactory
Numeracy	3.11	Satisfactory
Grand Mean	3.32	Satisfactory

Legend: 4.45 – 5.00 = Outstanding; 3.45 – 4.44 = Very Satisfactory; 2.45 – 3.44 = Satisfactory; 1.45 – 2.44 = Unsatisfactory; 1.00 – 1.44 = No Rating.

NOTE: As per the actual statement stated in the research instrument, variables are presented from highest to lowest.

Table 2 provides an overview of student achievement levels in public elementary schools in District 1 of the Schools Division of Roxas City, focusing on two key areas: literacy and numeracy, having a grand mean of 3.32, denoting a "satisfactory" performance. The data reveal that the average literacy score is 3.52, which translates to "very satisfactory." This suggests that students, on average, are performing above satisfactory levels in literacy according to the scale of the study. On the other hand, the average numeracy score is 3.11, falling within the "satisfactory" range. This indicates that while students meet the satisfactory criteria in numeracy, their performance is not as strong as in literacy. The disparity in scores could be attributed to the effectiveness of teaching strategies. The higher literacy score may indicate successful

collaborative teaching methods in this area. However, the lower numeracy score suggests a potential need for improved collaboration and sharing of successful teaching methods, resources, and assessments to boost numeracy education.

The findings of the study are aligned with the study of Rivera and Hernandez (2017) which emphasized the importance of teacher quality and pedagogy in advancing numeracy in the Philippines. They found that effective pedagogical strategies enhanced students' mathematical skills and overall academic achievement. Further, teacher collaboration enhances students' learning. For instance, in the study of Siswono et al. (2019) in Indonesia, it was proven that teachers joining Professional Learning Communities (PLCs) had gained pedagogical skills that positively impacted how they deliver numeracy learning, which also resulted in the increase in numeracy level of their students. This is further supported by Vangrieken et al. (2015), who stated that PCLs aid in augmenting the literacy level of students due to the combined expertise of its members, which supports the strategies of each who needs instructional improvement. However, Tan and Cruz (2019) pointed out that socioeconomic factors can pose challenges to both teachers and students in achieving academic goals.

Differences in the Degree of Teachers' Collaboration in the Public Elementary Schools in the Schools Division of Roxas City When Teachers are Grouped According to Their Socio-demographic Profile

The respondents' demographic profiles were used to know the difference in the degree of teachers' collaboration in District 1 of the Schools Division of Roxas City public elementary schools, shown in Table 3. The public elementary school teachers in the said district were the respondents of this study. Hence, this study used the percentage of the total number of respondents to provide a clear data presentation and analysis. The selected profiles of the public elementary school teachers in District 1 of the Schools Division of Roxas City were used in determining whether there were significant differences in the degree of teacher collaboration and level of student achievement. The difference in the degree of teacher collaboration of the respondents when grouped to their selected profiles (sex, age, length of service, and grade level taught) is presented in Table 5. Moreover, the results of the number or the scores of the compared variables are presented in the data, the p-value, T-value, F-value, and the description, which determines if all the variables or the profile significantly differ in terms of the degree of teacher collaboration.

Table 3. Significant differences in the degree of teachers' collaboration when grouped to their sex, age, length of service, and grade level taught.

Socio-Demographic Profile	t/f-value	Sig. (2-tailed value)	Probability
Sex	1.381	0.170	ns
Age	-0.726	0.469	ns
Length of Service	0.027	0.979	ns
Grade Level Taught	0.310	0.818	ns

Legend: p-value > 0.05 = not significant (ns); p-value < 0.05 = significant (s)

As presented in Table 1, the grand mean in the degree of teacher collaboration was $M=4.05$ (very satisfactory). The grand mean was influenced by the selected profile of the respondents presented in Table 3. Relatedly, the results present the significant difference of the degree teacher collaboration when respondents are grouped according to sex (0.170) with the $t=1.381$; age (0.469) with the $f=-0.726$; length of service (0.979) with the $f=-0.027$; and grade level taught (0.818) with the $f=0.310$. The results present that regardless of the differences when respondents are grouped according to sex, age, length of service, and grade level taught, the degree of teacher collaboration does not differ. It means that teachers' degree of teacher collaboration is not affected when grouped according to their selected profiles.

Confirmed by the study of Dea and Negassa (2019), that perceptions of respondents are considered when studying particular challenges with any educational institution such as that of teachers and teacher collaboration. Instructional challenges have different impacts to teachers if their demographic profiles were considered. Thus, similar perceptions regarding the degree of teacher collaboration are introduced in the present study.

Differences in the Level of Students' Achievement Perceived by Public Elementary School Teachers When Grouped According to Their Socio-demographic Profile

The demographic profiles were used to determine the level of students' achievement when perceived by the respondents and grouped according to their sex, age, length of service, and grade level taught.

Table 4. Significant differences in the level of students' achievement when respondents are grouped to their sex, age, and length of service, and grade level taught.

Socio-Demographic Profile	t/f-value	Sig. (2-tailed value)	Probability
Sex	1.385	0.170	ns
Age	-1.375	0.172	ns
Length of Service	-0.609	0.544	ns
Grade Level Taught	1.279	0.285	ns

Legend: p-value > 0.05 = not significant (ns); p-value < 0.05 = significant (s)

As shown in Table 2, the grand mean in the level of students achievement was $M=3.320$ (satisfactory). The grand mean was influenced by the selected profile of the respondents presented in Table 5. Consequently, the results present the significant difference of the level of students' achievement when respondents are grouped according to sex (0.170) with the $t=1.385$; age (0.172) with the $f=-1.375$; length of service (0.544) with the $f=-0.609$; and grade level taught (0.285) with the $f=1.279$. The results present that regardless of the differences when respondents are grouped according to sex, age, length of service, and grade level taught, the level of student achievement does not differ. It means that the level of students achievement is not affected when respondents are grouped according to their selected profiles.

The finding of this study is confirmed by the study of Chit and Ye (2017) that there is no significant difference in teachers' perception when considering their demographic profiles. While the study revealed no notable significance, its findings were employed to generate insights for professional growth. The goal was to incorporate diverse teacher perspectives, fostering a well-established learning environment that addresses the requirements of both educators and students. Consequently, this current study also sought to leverage the respondents' perspectives.

Relationship Between the Degree of Teachers' Collaboration and Students' Achievement

Table 5 illustrates the relationship between teachers' collaboration and students' achievement levels through a Pearson correlation coefficient (Pearson's r). The analysis yielded a Pearson's r -value of $**-0.612$ with a significance (p-value) of 0.000, indicating a strong and statistically significant relationship. This suggests that, according to teachers in public elementary schools in District 1 of Roxas City Division, as the degree of teachers' collaboration increases, the level of students' achievement tends to increase.

Table 5. Significant relationship between the teachers' collaboration and students' achievement in the elementary schools in the District 1 of Roxas City.

Variables	Pearson Correlation	Sig - 2 (tailed value)	Probability
Degree of Teacher's Collaboration and Level of Students' Achievement	-0.612	0.000	s

Legend: p-value > 0.05 = not significant (ns); p-value < 0.05 = significant (s)

The result of the study is aligned with the study of Wimberley (2011) that teacher collaboration is pivotal in enhancing student achievement by fostering a dynamic learning environment beyond individual classrooms. When teachers collaborate, they pool their diverse expertise, share innovative teaching strategies, and collectively address the unique needs of their students (Estrella et al., 2017). This collaborative approach enables the development of cohesive and well-rounded instructional methods, ultimately leading to a more comprehensive and effective learning experience for students (Goddard et al., 2015). Additionally, collaborative efforts among teachers promote a sense of professional community and shared responsibility for student success (Singh et al., 2023). Educators can refine their instructional techniques, tailor interventions to meet specific student challenges and implement evidence-based practices through ongoing collaboration (Voogt et al., 2016). As a result, teacher collaboration elevates the quality of education and cultivates a supportive and enriching educational environment that positively influences student achievement.

3. Conclusion and Implications

In the study conducted within the public elementary schools of District 1 in the Schools Division of Roxas City, a high degree of teacher collaboration leveraging both internal and external resources was established. This collaboration correlates with the observed student achievement, satisfying expected literacy and numeracy standards. Interestingly, the extent of teacher collaboration showed no variation in relation to demographic

factors such as sex, age, length of service, or grade level taught. Similarly, students' achievement levels were consistently perceived across these teacher demographics. A notable finding is the significant link between the depth of teacher collaboration and the achievement levels of students.

Addressing these findings, the study recommends that school leaders should foster the expansion of teachers' collaborative networks to encompass a broader community that may include other schools, districts, or international entities, thereby facilitating a rich exchange of pedagogical strategies and experiences. For the noted shortfall in numeracy, a strategic approach is advised, particularly in the early grades, incorporating interactive methods and practical applications to demystify mathematical concepts. Furthermore, inclusive collaboration practices that respect diverse teaching backgrounds are encouraged to enhance the effectiveness of these cooperative efforts. In particular, educators in the foundational grades are urged to adopt student-inclusive collaborative methods such as group work and project-based learning to boost engagement and proficiency in numeracy and literacy. Finally, school leaders and administrators should promote a culture of continuous improvement, using the insights from this research to inform ongoing development initiatives for both students and teachers.

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