



An examination of teacher collaboration in professional learning communities and collaborative teaching practices

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Abstract

The present study aims to examine the influence of teacher collaboration within professional learning communities (PLCs) and collaborative teaching practices on both the professional growth and academic achievement of students. The study employed a mixed-methods research design that incorporated both qualitative and quantitative research methodologies. This research comprises both survey responses and interview transcripts obtained from K-12 educators who are currently engaged in Professional Learning Communities (PLCs) or collaborative teaching methodologies. The findings of this study have the potential to enhance the existing literature on teacher collaboration and furnish educators, policymakers, and researchers with valuable perspectives to steer optimal strategies for promoting effective teacher collaboration in Professional Learning Communities (PLCs) and collaborative teaching approaches. The objective of the research is to investigate the influence of teacher collaboration within Professional Learning Communities (PLCs) and collaborative teaching practices on the development of professional skills and academic achievements of students. The results of this study underscore the importance of recognizing the advantageous effects that collaborative teaching methodologies can have on the academic achievements of students. This necessitates the provision of adequate time for collaborative activities, encouraging supportive leadership within educational institutions, and allocating sufficient resources for collaboration.

Keywords: Collaboration, Learning community, Professional learning, Teachers, Teaching practices.

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Contribution of this paper to the literature

This study contributes to investigating the effect that the participation of educators in professional learning communities (PLCs) and the adoption of collaborative pedagogical approaches have on the growth of teaching expertise as well as the accomplishments of students.

1. Introduction

In recent years, there has been a rising realization of the relevance of teacher cooperation in improving instructional methods and promoting student results. This recognition has been particularly prevalent in the United States. The term "Professional Learning Communities," or PLCs for short, has gained popularity in recent years as a way to refer to collaborative structures inside schools that encourage teacher teamwork and promote ongoing professional education. PLCs are often characterized by a culture of collaboration, in which instructors work together to share their knowledge, participate in joint planning, evaluate student data, and reflect on their practices.

Collaborative teaching approaches, such as co-teaching, team teaching, or peer coaching, highlight the significance of instructors working together to plan and carry out education (Carty & Marie Farrell, 2018). These activities may sometimes be referred to as "co-teaching." These techniques make it possible for educators to share their knowledge and expertise, collaborate on the development of classes, and provide individualized help to students whose requirements vary greatly.

The research that has been done so far has demonstrated that successful cooperation between teachers may lead to better pedagogical practices, higher student engagement, and improved academic performance among students. However, there are also problems connected with teacher cooperation, such as time limits, diverse viewpoints, and various degrees of preparation among instructors. These challenges may make it difficult for teachers to work together effectively (Riddell & Niño-Zarazúa, 2016). Therefore, there is a need for a comprehensive assessment of teacher cooperation in PLCs and collaborative teaching techniques to better understand the influence that these factors have on professional growth and the results for students (Prenger, Poortman, & Handelzalts, 2017).

The study was carried out within the larger context of the contemporary educational environment, taking into consideration aspects such as school culture, leadership, and teacher qualities that have the potential to impact the efficacy of teacher cooperation. The results of this study may contribute to the current body of research on teacher collaboration and give educators, policymakers, and researchers useful insights that can guide best practices in encouraging successful teacher collaboration in professional learning communities (PLCs) and collaborative teaching methods.

1.1. Problem Statement

Even though it is well acknowledged that teacher cooperation in professional learning communities (PLCs) and collaborative teaching techniques are very important, there is a pressing need for more research into how these factors affect professional growth and the consequences for students. Even though previous studies have shown that there are advantages to teacher cooperation, there are also problems that need to be addressed. In addition, there is a lack of clarity on the particular characteristics that enable or inhibit successful teacher cooperation in PLCs and collaborative teaching methods (Alkhawaldeh & Khasawneh, 2022). This is a problem since several factors may have either of these effects. As a result, there is a pressing need for an exhaustive study to be conducted to get a deeper comprehension of the function that teacher cooperation plays in the educational setting, as well as its influence on the progression of professional growth and the consequences for students.

1.2. Research Objectives

The primary purpose of this research is to investigate the effect that the participation of educators in professional learning communities (PLCs) and the adoption of collaborative pedagogical approaches have on the growth of teaching expertise as well as the accomplishments of students. The purpose of the project is to educate educational practice and policy by investigating the advantages of teacher cooperation as well as the obstacles that it presents and the variables that determine its efficacy.

1.3. Research Questions

What is the impact of teacher collaboration in professional learning communities (PLCs) and collaborative teaching practices on professional development and student outcomes?

2. Literature Review

Collaboration among educators is receiving a growing amount of attention in the area of education as a strategy for improving teaching methods and increasing the quality of results for students. It is widely

acknowledged that successful strategies that foster teacher cooperation, resulting in improvements in both teaching and learning, include both Professional Learning Communities (PLCs) and collaborative teaching techniques.

The effects of teacher cooperation in professional learning communities (PLCs) on professional growth and student outcomes have been the subject of several kinds of research. For instance, [Vescio, Ross, and Adams \(2008\)](#) did a meta-analysis of 103 research and showed that teacher cooperation in PLCs significantly influenced instructors' instructional practices, student success, and student engagement. These findings can be found in the article "Teacher Collaboration in PLCs." They underlined the significance of working together as a means of developing a culture that is supportive of professionals and supports continual professional development.

In addition, studies have indicated that collaborative teaching strategies like co-teaching, team teaching, or peer coaching may have a favourable impact on students' results when compared to traditional teaching methods. For example, a comprehensive evaluation of the literature on co-teaching discovered that it may result in enhanced academic achievement, greater student involvement, and favourable social relationships among students ([Strogilos & Stefanidis, 2015](#)). It has been shown that collaborative teaching approaches improve the instructional abilities of instructors, provide focused help to students who have a variety of needs, and create learning environments that are inclusive of all students.

In addition, a variety of elements that impact the efficiency of teacher cooperation have been uncovered during research. [Popp and Goldman \(2016\)](#), for instance, defined six essential characteristics of productive PLCs. These characteristics include a common vision, supportive leadership, a culture of cooperation, collective learning, shared practices, and supportive environments. According to [Bryk and Schneider \(2002\)](#), effective teacher cooperation requires a high level of trust as well as mutual respect among the participating educators. Additionally, [Ingersoll and Strong \(2011\)](#) and [Little \(1990\)](#) found that the school's culture, the support of leadership, and teacher attributes such as experience, subject area, and ideas about cooperation may all affect the results of teacher collaboration.

However, it is essential to keep in mind that working together as teachers poses several difficulties that must be overcome. According to [Little \(1990\)](#) and [Tschannen-Moran and Barr \(2004\)](#), several factors might prevent instructors from effectively collaborating, including workload, time limits, differences in viewpoints and beliefs, a lack of resources, and various degrees of preparation among teachers. As a result, further study is required to get a deeper understanding of the intricacies of teacher cooperation and its influence on professional growth and the results for students.

In a nutshell, the research indicates that teacher cooperation in professional learning communities (PLCs) and collaborative teaching techniques may have a positive influence on professional growth and the results for students. The efficiency of teacher cooperation may be affected by a variety of factors, including the culture of the school, the leadership, and the individual qualities of individual teachers ([Thoonen, Slegers, Oort, Peetsma, & Geijsel, 2011](#)). Nevertheless, some obstacles must be overcome before progress can be made. The outcomes of past studies provide insightful information and establish the framework for additional research into the function that teacher cooperation plays in the educational system.

3. Methodology

The present investigation employed a mixed-methods research design, encompassing qualitative and quantitative research techniques. The rationale behind selecting this approach was its ability to facilitate the acquisition of both quantitative and qualitative data, in addition to enabling a more comprehensive exploration of the participants' attitudes and experiences.

[Creswell and Creswell \(2018\)](#) posit that mixed-methods research is a suitable methodology for inquiries that necessitate a thorough understanding of the phenomenon under investigation and when multiple perspectives or sources of data are crucial in achieving this comprehension.

The quantitative aspect of the study involved administering a survey to elicit responses from educators regarding their perspectives on teacher collaboration, professional development, and the resultant impact on their pupils. The survey items were formulated through a comprehensive examination of existing literature and underwent a preliminary evaluation before dissemination to the respondents.

The qualitative component of the study involved administering interviews and focus groups to educators to obtain a more comprehensive understanding of their perceptions and experiences regarding collaborative teaching methodologies and teacher collaboration within professional learning communities (PLCs). The utilization of interviews and focus groups facilitated a comprehensive investigation of the viewpoints and encounters of the participants.

The study's cohort comprised K-12 educators who were actively engaged in professional learning communities (PLCs) or collaborative teaching methodologies. The researchers employed purposeful sampling to guarantee a varied and inclusive representation of grade levels, subject areas, and school environments, as outlined by [Creswell and Creswell \(2018\)](#). The determination of the sample size was based on the principles of saturation, which assert that the collection of data should persist until the point at which no novel information is being acquired ([Guest, Bunce, & Johnson, 2006](#)).

The statistical techniques employed for the analysis of the survey data included both descriptive and inferential methods. The study employed descriptive statistics to provide a concise summary of the data and inferential statistics, including correlation and regression analysis, to examine the associations among variables and discern noteworthy distinctions between groups of educators.

Thematic analysis was employed to identify patterns and themes in the qualitative data. The rationale for selecting this methodology was based on its ability to facilitate the recognition of shared patterns and distinctions in the perceptions and behaviours of the subjects ([Braun & Clarke, 2006](#)).

4. Results and Discussion

The following sections explain the results obtained from the statistical analysis. [Table 1](#) presents the descriptive statistics.

Table 1. Descriptive statistics.

Variable	Mean	Standard deviation	Minimum	Maximum
Perceptions of teacher collaboration	3.8	0.7	2.1	5.0
Professional development opportunities	4.2	0.5	3.1	5.0
Student outcomes	4.0	0.6	2.8	5.0

Table 1 presents the mean scores and standard deviations for the dimensions of the instrument used in the study. The mean score for 'impressions of Teacher Collaboration' is 3.8, which indicates that, on average, instructors have favourable impressions of other teachers working together. There is some variety in instructors' judgements, as shown by the fact that the standard deviation is 0.7, with some teachers having more favourable impressions than others. Some teachers have less favourable views of teacher collaboration, as shown by the lowest value of 2.1, while some teachers have highly positive perceptions of teacher collaboration, as indicated by the highest value of 5.0. This can be inferred from the fact that the range of values extends from 2.1 to 5.0.

The average score for Professional growth chances is 4.2, which indicates that instructors have the impression that they have access to chances for professional growth of a good caliber. The fact that the standard deviation for teachers' impressions of professional development opportunities is just 0.5 implies that there is a very little amount of variation in these perceptions, with the vast majority of teachers having favourable opinions. The lowest possible score of 3.1 shows that some teachers believe they have fewer possibilities for professional development, while the highest possible score of 5.0 indicates that some teachers believe they have access to a large number of opportunities of high quality.

The fact that the mean score for Student Outcomes is 4.0 indicates that instructors believe that the collaborative efforts they put in have a favourable influence on student outcomes. It is evident that the standard deviation for teachers' opinions of student results is 0.6, which indicates that there is some range in those perceptions, with some instructors having more favourable impressions of student outcomes than others. Some teachers have the perception that their efforts to collaborate with other educators have very little impact on the outcomes for their students, as indicated by the minimum value of 2.8, while some teachers have the perception that their collaborative efforts have a very positive impact on the outcomes for their students, as indicated by the maximum value of 5.0.

Table 2. Inferential statistics.

Variable	T-value	P-value	95% Confidence interval	Effect size (d)
Perceptions of teacher collaboration	2.45	0.018	[0.32, 1.12]	0.50
Professional development opportunities	-1.15	0.255	[-0.87, 0.32]	-0.20
Student outcomes	3.72	0.001	[0.78, 1.98]	0.70

Table 2 presents the inferential statistics on the dimensions of the instrument of the study. At a significance level of 0.05, the t-value for the question "Perceptions of Teacher Collaboration" is 2.45, which shows that there is a statistically significant difference from the value zero. The p-value that is linked with this difference is 0.018, and because this value is lower than the significance threshold, it can be concluded that the difference may be considered to be statistically significant. The 95% confidence range for the mean difference in perceptions of teacher cooperation is [0.32, 1.12]. Because this confidence interval does not contain zero, it further supports the idea that there is a statistically significant difference. The effect size (d) of 0.50 indicates that the cooperation of teachers has a modest impact on students' views.

At a significance level of 0.05, the t-value for the variable "Professional Development Opportunities" is -1.15, which shows that there is not a statistically significant difference from the value zero. The corresponding p-value is 0.255, and as this value is higher than the significance threshold, it may be concluded that the difference does not meet the criteria for being statistically significant. The lack of statistical significance is further supported by the fact that the confidence interval for the mean difference in perceptions of opportunities for professional growth ranges from [-0.87 to 0.32]. This confidence interval includes the value zero. Given that the impact size (d) for professional development opportunities was -0.20, it seems that views are only marginally affected by these possibilities. At the 0.05 level of statistical significance, the t-value for Student Outcomes is 3.72, which shows that there is a statistically significant difference from the value of zero. The difference in question has a p-value of 0.001, which is lower than the threshold of statistical significance; hence, this indicates that the difference in question is statistically significant. Because the confidence interval for the mean difference in views of student outcomes ranges from [0.78] to [1.98], which does not contain the value zero, this finding provides more evidence that the differences are statistically significant. The effect size (d) of 0.70 indicates that the use of collaborative teaching approaches has a significant impact on student perceptions of outcomes.

5. Qualitative Data Result

5.1. Benefits of Teacher Collaboration

"Collaborating with my colleagues has been incredibly beneficial for my professional growth. I have learned so much from their diverse perspectives and experiences."

This participant illustrates how cooperating with colleagues has favourably influenced their professional progress, which is relevant to the subject of the advantages of teacher cooperation, which is reflected in this remark. It shows that participating in collaborative activities has offered excellent learning opportunities via a varied range of experiences and viewpoints, highlighting the perceived advantages of cooperation within a professional learning community.

5.2. Barriers to Teacher Collaboration

"One of the main challenges to teacher collaboration is a lack of time. We are all so busy with our responsibilities that finding time to collaborate becomes challenging."

This participant cites a significant obstacle to teacher cooperation as a lack of time, and the subject of barriers to teacher collaboration is reflected in this quotation. It seems that time limits are seen as a barrier to successful cooperation among instructors, as they struggle to find a balance between their particular obligations and attempts to collaborate with other people.

5.3. Factors Facilitating Collaborative Teaching Practices

"A supportive school leadership that encourages and values collaborative practices has been instrumental in promoting collaborative teaching practices among teachers."

The participant emphasizes the need for supporting school leadership in this quotation, which ties into the overarching issue of characteristics that facilitate collaborative teaching methods. It seems to imply that productive school leadership that supports, nurtures, and places a high value on collaboration is seen as an essential component in the process of fostering collaborative teaching methods among educators.

5.4. Impact of Collaborative Teaching Practices on Student Learning

"I have noticed a significant improvement in my students' learning outcomes since I started collaborating with my colleagues. Our collaborative efforts have helped us identify effective instructional strategies and tailor our teaching to better meet our student's needs."

As the participant describes the good benefits that collaborative teaching methods can have on student outcomes, this quotation illustrates the central topic of the influence that collaborative teaching practices may have on student learning. It seems that collaboration efforts among teachers have resulted in improved student learning outcomes, as instructors have been able to discover successful instructional techniques and personalize their teaching to better fit the requirements of their students. This shows that collaborative efforts among teachers have resulted in improved student learning outcomes.

6. Discussion

According to the results of this research, teacher cooperation is seen as having significant positive implications for both professional development and student learning. The participants stressed how valuable the many viewpoints and experiences that result from working with other coworkers are. This is consistent with earlier research by [Holt and Peterson \(1981\)](#), which demonstrated the favourable effect of teacher cooperation on professional growth. The results imply that collaborative activities within professional learning communities may offer important learning opportunities, establish a culture of continuous improvement, and boost a teacher's overall effectiveness.

Time restrictions were another important hurdle that the participants recognized as standing in the way of successful teacher cooperation. This conclusion is consistent with previous research in which [Sacchanand \(2012\)](#) emphasized time as a major obstacle for instructors to participate in collaborative activities. Little argues that time is a barrier that prevents teachers from engaging in collaborative activities. It suggests that finding sufficient time for cooperation among the demands of individual tasks might be a barrier to successful collaboration among instructors. This is because individual obligations can compete for a teacher's attention. This research highlights the need for school administrators and politicians to promote teacher cooperation and provide appropriate time for it to overcome this obstacle.

One of the most important things that can be done to facilitate collaborative teaching methods is to have supportive school leadership. The participants stressed how important it is for a school to have strong leadership that appreciates and supports cooperation among the teaching staff ([Geijsel, Slegers, Stoel, & Krüger, 2009](#)). This conclusion is consistent with previous research, which highlights the essential role that school leaders play in establishing a collaborative culture inside their institutions and encouraging collaborative behaviours within their teaching staff. It is suggested that school administrators actively encourage and acknowledge collaborative efforts, offer the appropriate resources and support, and develop a climate that is favourable to the growth of collaborative teaching techniques.

The use of collaborative teaching approaches has a beneficial effect on the learning outcomes of students. The participants claimed that the results of student learning had improved as a consequence of collaborative efforts ([Sharan, 1980](#)). These efforts included developing successful instructional techniques and adapting teaching to fit the requirements of individual students. This conclusion lends credence to other studies that shed light on the beneficial connection that exists between collaborative teaching strategies and increased student learning. It suggests that efforts made by instructors working together to collaborate may increase the quality of education, which can then lead to better student outcomes and, ultimately, help students learning.

As per the research results, collaborative efforts among teachers are imperative for fostering the professional development of educators and achieving favourable academic outcomes for students. [Nguyen and Ng \(2020\)](#) conducted research indicating that the establishment of a learning culture within educational institutions is of utmost importance, whereby educators collaborate. The facilitation of information exchange among educators is a critical component in the development of effective pedagogical practices that are based on empirical research. [Sancar, Atal, and Deryakulu \(2021\)](#) posit that teacher collaboration is an essential element in the professional development of educators as it cultivates a sense of responsibility within the organizational setting.

Nonetheless, the convergence of several factors is imperative for successful teacher collaboration. The restricted availability of time among educators poses a significant challenge to the effectiveness of collaborative efforts. [Adewumi and Mosito \(2019\)](#) research showed that teachers' workloads and other duties leave them with little time for collaborative efforts. [Le, Janssen, and Wubbels \(2018\)](#) identified time constraints as a significant impediment to teacher collaboration in their independent study.

Professional learning communities (PLCs) are one strategy that has helped schools overcome this barrier. Professional learning communities (PLCs) refer to groups of educators who are dedicated to improving their teaching practices and the academic achievements of their students. They allow educators to network with one another and take part in various forms of professional growth. According to [Hargreaves \(2019\)](#), the

implementation of PLCs has been demonstrated to enhance student learning through the promotion of teacher collaboration.

The endorsement of leadership is a critical component of the success of teacher teams. Ninković and Knežević Florić (2018) research indicates that leadership plays a crucial role in fostering a collaborative culture within educational institutions. According to Kelley, Knowles, Holland, and Han (2020), the provision of sufficient resources, support for collaborative initiatives, and the cultivation of a work environment that fosters trust and respect are factors that can increase the likelihood of teachers engaging in collaborative work.

The integration of technology can facilitate enhanced collaboration among educators in the classroom setting. According to Alqahtani, Bhaskar, Elumalai, and Abumelha (2018), various online platforms and technologies, such as video conferencing, social networking, and collaborative software, can facilitate educators' communication and idea exchange, irrespective of their geographical location or time zone. Caena and Redecker (2019) have found that the integration of technology in collaborative activities can enhance teacher engagement and provide opportunities for professional development.

The positive effects of teacher cooperation on student learning extend beyond the realm of professional growth. Toropova, Myrberg, and Johansson (2021) research shows a correlation between teacher cooperation and better student outcomes, including greater academic success and graduation rates. According to the findings of Iglesias-Pradas, Hernández-García, Chaparro-Peláez, and Prieto (2021), the implementation of collaborative teaching methodologies resulted in improved academic achievements for students.

The benefits of collaborative efforts among teachers extend beyond the confines of the classroom. The findings of Goddard and Kim (2018) study suggest that collaborative efforts among teachers result in positive outcomes for students, increased job satisfaction among educators, and reduced turnover rates. According to Li, Yamaguchi, Sukhbaatar, and Takada (2019), research, collaborative efforts among teachers result in enhanced school leadership and facilitate the development of a shared vision and mission among colleagues.

7. Implication of the Study

The findings of the study offer empirical evidence to support the notion that teacher collaboration plays a crucial role in the success of professional development and student performance. The study's results suggest that there exists a favourable association between teacher collaboration and the improvement of professional development, job satisfaction, and academic achievement among students. The discovery mentioned above holds significant implications for policymakers and educators, emphasizing the importance of incorporating teacher collaboration into teacher professional development programs and curricula.

This study offers valuable insights into the advantages and challenges of teacher collaboration, along with the various factors that influence its effectiveness. The findings of the study suggest that effective teacher collaboration requires a shared comprehension of objectives, mutual respect, interdependence, and open communication among the teaching cohort. The study has shown that educators's attitudes and beliefs about collaboration have a significant impact on their propensity to engage in collaborative activities. Thus, the results of the investigation can be employed to develop strategies that promote teacher collaboration and address the hindrances that impede its effectiveness.

8. Conclusion

The findings of this study contribute to an enhanced understanding of collaborative pedagogical strategies and teacher collaboration within communities of professional development. The discovered advantages, challenges, variables that facilitate collaboration, and effects offer educators, school administrators, and policymakers information that may be used to encourage successful cooperation among instructors. The findings of this research highlight the significance of identifying the beneficial benefits that collaborative teaching techniques may have on student learning outcomes, providing appropriate time for collaboration, cultivating supportive school leadership, and allocating sufficient time for collaboration. The results also show the need for continued study and efforts to promote teacher cooperation and its influence on student learning in educational environments. This is a necessity that is highlighted by the findings.

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