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## Implications of a Co-Planning and Co-Teaching Professional Development Training for Pre-Service Teachers and Collaborating Teachers

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### **Abstract**

This study describes pre-service teachers' and collaborating teachers' perspectives of a professional development training, which focused on co-planning and co-teaching in secondary mathematics. Data were garnered from 19 pre-service teachers and 23 collaborating teachers, using a pre-survey, a professional development survey, and personal reflections. The quantitative data were analyzed using descriptive statistics, and the qualitative data were analyzed using a constant comparative analysis. The findings suggest that the professional development helped participants conceptualize how co-planning and co-teaching could be enacted during clinical experiences. We also found that all participants valued collaboration and communication opportunities, hands-on activities, and providing explicit examples for a mathematical context. The collaborative pairs noted they wanted to have more opportunities to engage in co-planning to better enact the co-teaching strategies. The findings of this paper have implications for teacher preparation programs, which seek to prepare pre-service teachers and facilitate professional development training for collaborating teachers and pre-service teachers.

### **Overview**

Professional development can be used to support teachers' professional growth and can vary in duration and pedagogical support (Desimone, 2009). Researchers noted that professional development should attend to content, promote active learning, be coherent, have a stipulated duration, and support collective participation (Garet, Porter, Desimone, Birman, & Yoon, 2001; Desimone, 2009). Regardless of the structure of professional development, researchers should seek to facilitate professional development with consideration to teachers' responsibilities, motivational factors that may impact teachers' engagement with various activities, and research about how teachers learn (Kennedy, 2016). Therefore, in our eight-hour professional development training, we attended to core features identified in the literature (Garet, Porter, Desimone, Birman, & Yoon, 2001; Desimone, 2009) and sought to explicitly address the needs of collaborating teachers who share their space and time with pre-service teachers during clinical experiences.

The overarching research question for this study was as follow: What are collaborating teachers' and pre-service teachers' perspectives of a professional development that focused on co-planning and co-teaching? To answer the research question, we facilitated an eight-hour professional development training at a southeastern university in January 2018. Our professional development training, which focused on co-planning and co-teaching,

was funded by the NSF collaborative grant “Attaining excellence in secondary mathematics clinical experiences with a lens on equity” (NSF-IUSE 17761020). The facilitators of the professional development were members of the Mathematics Teacher Education Partnership (MTE-Partnership) clinical experiences sub-RAC devoted to co-planning and co-teaching. Both collaborating teachers and pre-service teachers attended the professional development and sat in pairs throughout the training. According to Gee and Whale (2016), studies on effectiveness of teachers learning together show that the participants valued collaboration within the community of learners and a “change in practice through a focus on student discourse, student thinking, and questioning strategies” (p. 95).

The goal of the professional development was to illustrate how co-planning and co-teaching strategies may be used to promote equitable learning opportunities during clinical experiences in secondary mathematics classrooms. For our purposes, the concept of equity includes “the fair distribution of material and human resources; intellectually challenging curricula; educational experiences that build on students’ cultures, languages, home experiences, and identities; and pedagogies that prepare students to engage in critical thought and democratic participation in society” (Lipman, 2004, p. 3). Thus, the professional development highlighted how the collaborative pairs can work together to provide opportunities for individualized attention and instructional interventions to meet the needs of each student and established high expectations, thereby promoting equitable opportunities for all students. Hence, to structure the professional development, we provided a 30-minute overview of the importance of equity in mathematics education. We then allocated two hours focused on the Apprenticeship for Learning conceptual framework, which encourages the instructional pair (collaborating teacher and pre-service teacher) to share instructional responsibilities and utilize structured conversations that focus on cultivating students’ learning (Brosnan, Jaede, Brownstein, & Stroot, 2004). This conceptual framework suggests that the pre-service teachers are to be respected as teachers from the onset, even while under the initial guidance of the cooperating teacher. The remaining time actively engaged the audience with the co-planning and co-teaching strategies. The co-teaching strategies discussed were: one teach/ one observe, station teaching, one teach/ one assist, parallel teaching, teaming, and alternative teaching (Friend et al., 2010; Murawski & Spencer, 2011; Sears, et al, 2017). To unpack the various strategies, participants were provided an overview by facilitators and subsequently engaged in activities to reflect the ideas presented. Thus, the participants brainstormed effective instructional strategies, shared their ideas with their instructional pairs, provided feedback on shared lesson plans, participated in structured conversations, and considered how the various strategies may be used for various mathematical topics and for promoting equity. After the professional development, the pre-service teachers were asked to reflect on how to utilize co-planning and co-teaching as part of their instructional practices, within their secondary mathematics methods course.

## Methods

The professional development in this study is a component of a larger cross-institutional collaborative research study. We employed a mixed methods research design to gain insights into collaborating teachers and pre-service teachers’ perspectives of a professional development training, which focused on co-planning and co-teaching. The quantitative data were garnered from multiple instruments. In the subsequent paragraphs, we will describe in greater detail the participants, instrument employed, and data analysis techniques utilized.

### Participants

The participants in the study were 19 pre-service teachers enrolled in a high school methods course and 23 collaborating teachers within the local school district. The collaborating teachers obtained a stipend of \$100 to attend the professional development, while the pre-service teachers were required to attend the event as a course requirement.

The pairing of the collaborating teachers and pre-service teachers was based on convenience, and the proximity of the schools the collaborating teachers worked at in relation to the pre-service teachers' home addresses. The instructional pair sat together during the professional development training and were encouraged to implement co-teaching strategies during enacted lessons. The collaborating teachers who did not have a pre-service teacher assigned to them worked together and provided additional instructional support to pre-service teachers at their assigned tables.

### **Instruments**

Data were collected via a pre-survey, a professional development survey, and a written personal reflection on the CPCT professional development for a classroom assignment.

**Pre-survey.** The instructional pairs (pre-service teachers and collaborating teachers) each rated their knowledge about co-planning and co-teaching, strategies to support diverse learners, and assessment strategies employed. They were also asked to provide insights into their knowledge and ability to enact the Common Core State Standards Content Standards (Common Core State Standards Initiative, 2010) and Standards for Mathematical Practice.

**Professional Development Survey.** At the end of the professional development, participants (pre-service teachers and collaborating teachers) were asked to rate the overall quality of the professional development, the level of participant engagement, and usefulness of information presented. Participants were also asked to share what they liked best about the training, what could be done to improve the training, and additional support needed to implement co-planning and co-teaching strategies.

**Reflection on CPCT Professional Development.** For the high school methods course requirement, participants were asked to provide a reflective summary of the professional development. Particularly, they had to (1) summarize the goals and objectives of the professional development and (2) provide commentary (with supporting details) of the impact of the goals of the workshop on their teaching and/or pedagogical philosophy.

### **Data Analysis**

We used the Apprenticeship for Learning conceptual framework—in which collaborating teachers initially provide guidance, and over time, pre-service teachers and collaborating teachers share instructional responsibilities—as a lens to analyze the data (Brosnan, Jaede, Brownstein, & Stroot, 2004). Thus, we reflected on how instructional pairs shared responsibilities, the nature of the conversations valued, and their attention to students' learning. The quantitative data collected Likert-scale items on the pre-survey and professional development survey were analyzed using descriptive statistics—namely: frequencies and measures of central tendencies. The qualitative data garnered from the open-ended sections of the pre-survey and the professional development survey and from the pre-service teachers' classroom assignment reflections were analyzed using a constant comparative analysis (Glaser, 1965). We identified emergent themes and reflected on the extent responses varied between pre-service teachers and their collaborating teachers.

### **Results**

The results indicate that the professional development training enhanced the instructional pairs' understanding of various co-planning and co-teaching strategies. To structure the results section, we provide perspectives shared by the collaborating teachers and, subsequently, by the pre-service teachers. We acknowledge that the instructional pairs believed that the professional development was effective in facilitating their learning of the strategies and that co-planning and co-teaching can support student learning.

## **Collaborating Teachers**

The collaborating teachers' perspectives that co-planning and co-teaching strategies can facilitate student learning and foster collaboration between the instructional pairs was shared throughout the training. Moreover, the professional development supported the collaborating teachers' professional learning and highlighted a need for online resources relative to co-teaching and co-planning. The collaborating teachers acknowledge that prior to the training they were most familiar with one teach/ one assist and had some experience with team planning. Very few teachers (5.9%) noted they knew and could implement all of the co-planning and co-teaching strategies before attending the professional development. Nevertheless, as a result of participating in the professional training, the collaborating teachers felt that they gained a better understanding of the co-planning and co-teaching strategies. Evidence for the ways in which collaborating teachers increased their understanding is presented in the sections that follow.

**Support student learning.** The collaborating teachers noted that co-teaching can support student learning. For instance, the collaborating teachers noted:

[Co-teaching can] increase student engagement and the ability to reach all learners  
(Collaborating teacher 1, Pre-survey, January 2018)

Benefits will be watching the students understand and learn from our collaboration. It should be a "tag-team" experience while co-teaching. I may explain it one way where most may understand. However, if there are some students that don't understand, the co-teacher could share his/her method in a way that they all could understand. (Collaborating teacher 2, Pre-survey, January 2018)

Thus, even before the professional development training, the collaborating teachers believed that co-teaching could provide multiple opportunities and alternative strategies for students to gain insight into various mathematical topics.

**Professional learning.** The professional development helped the collaborating teachers gain insight into co-planning and co-teaching strategies that are supported by research. The collaborating teachers also suggested that they will retain the information shared. For instance, the collaborating teachers noted:

The presentation was a good blend of research and practical application of the co-teach model. (Collaborating teacher 3, Professional Development survey, January 2018)

I liked that there were well-defined strategies for co-planning and co-teaching. These strategies will stick with me. (Collaborating teacher 4, Professional Development Survey, January 2018)

Therefore, integrating research into the training and providing explicit examples of co-planning and co-teaching strategies were valued by participants.

**Collaborating teachers valued interaction with pre-service teachers.** Moreover, the collaborating teachers valued interacting with pre-service teachers at the professional development because they were able to obtain fresh ideas about various mathematical content. Evidence of this was supported by data obtained from teachers' reflections on the professional development survey. For example, they indicated:

I really enjoyed the interaction between teachers and students. (Collaborating teacher 5, Professional Development survey, January 2018)

The student I was paired with was very bright and it was a real pleasure getting a fresh perspective from him. (Collaborating teacher 6, Professional Development survey, January 2018)

Hence, the collaborating teachers deemed the pre-service teachers' contributions in the professional development to be insightful and were viewed favorably.

**Need for resources and open communication channels.** The collaborating teachers also noted a need for educational materials relative to the training and an online community that could support their instructional practices and foster communication between the instructional pairs. For example, a teacher wrote:

Links to the PowerPoint or PDF's would be helpful to provide my colleagues. Possibly a contact list or communication board so that pre-service teachers could reach out to mentor [collaborating] teachers if they wish to get some classroom experience before their official internship. (Collaborating teacher 7, Professional Development survey, January 2018).

Hence, in facilitating professional development training, the facilitators should consider utilizing a listserv to disseminate information and strengthen communication between all entities.

### **Pre-service Teachers**

Similar to the collaborating teachers, the pre-service teachers also noted that the professional development was beneficial because it fostered collaboration and could support student learning. The pre-service teacher perceived the use of co-planning and co-teaching fostered professional collaboration and had the potential to increase equitable learning opportunities. The themes that emerged from pre-service teachers' perspectives of the professional development focused on the benefits of collaboration, professional learning, and effective modeling of co-planning and co-teaching strategies. Evidence for the themes in pre-service teacher responses is presented in the sections that follow.

**Collaboration.** Pre-service teachers found the interaction with collaborating teachers to be beneficial to them. Specifically, they believed that they can gain insight from their collaborating teachers' expertise. The pre-service teachers noted:

What I found most useful from the workshop was simply being able to talk to other teachers about planning, teaching, and students.... This was especially important when we did activities where we would plan mini-lesson plans because the teachers could tell us what their students would struggle with. A lot of lessons we create as students are ideal lessons—and it is hard to address on paper the challenges teachers face when actually implementing a lesson, such as time, student interruptions, and diverse classrooms. This is where observations and collaboration with mentor teachers really helps us (Pre-service teacher 1, Reflection, February 2018)

One of the most useful experiences during this workshop were the conversations with experienced teachers and networking opportunities (Pre-service teacher 2, Reflection, February 2018)

Thus, the pre-service teachers perceived that some of the lesson plans they write for course assignments are written for a utopia, and they are not likely to address the complexities teachers face within a regular classroom setting. Hence, the pre-service teachers believed that the collaboration with their instructional pairs provided an opportunity to gain real-life insights as to what actually occurs in the classroom setting.

**Professional learning and enhanced confidence.** As a result of participating in the professional development training, pre-service teachers gained insight into how to plan, and the pre-service teachers' confidence in their ability to contribute to the enacted lessons increased. For instance, a pre-service teacher noted:

I think this was a very eye-opening workshop and I hope that it benefited others as much as I feel it benefited me. I think I will be able to lesson plan better (Pre-service teacher 3, reflection, February 2018).

This pre-service teacher's remark indicates that as a result of the training they perceived their ability to plan a lesson was enhanced, and they were enlightened.

Moreover, when co-planning and co-teaching is employed, and the Apprenticeship for Learning conceptual framework is utilized, the pre-service teachers indicated they felt more confident in their ability to enact instruction during their clinical experiences (Brosnan, Jaede, Brownstein, & Stroot, 2014). A pre-service teacher suggested:

The strategies can be useful in learning what works for the students in the class with a teacher that has more experience. It also ensures that I, as an intern, still have an active role in the classroom. Even when observing, I would comment on what strategies work for the students. Though my role will not always be equal to my co-teacher, I think by gradually increasing my role with co-planning and co-teaching, I can learn strategies I would not have learned on my own. Overall, the workshop helped me become more confident of my internship (Pre-service teacher 4, reflection, February 2018).

Therefore, providing a professional development training on co-planning and co-teaching for the instructional pair may contribute to the pre-service teachers developing confidence in their ability to be effective teachers.

**Modeling of co-teaching strategies.** Additionally, the pre-service teachers appreciated that the presenters modeled the various co-planning and co-teaching strategies as they were being discussed. The presenters' decision to model the concept helped participants realize the strategies were not abstract constructs, rather they were quite practical and could easily be executed well. One pre-service teacher noted:

The workshop included many ways to co-teach and the organizers of the workshop used these techniques while they were teaching us. I was fascinated to see the coordinators using the techniques, but not knowing they were until they told us (Pre-service teacher 4, reflection, February 2018).

Similarly, another pre-service teacher shared the presenter demonstration of the co-teaching strategies facilitated learning and appeared effortless. The pre-service teacher noted:

By far my favorite part of the entire event was when Dr. Cayton and Dr. Grady performed their lecture on co-teaching and I mean it when I say perform. These two women's abilities to effectively teach with all of these co-teaching strategies almost without us even realizing they were using every strategy shows a high level of trust, synergy, and experience that allows them to flow as they do. (Pre-service teacher 4, reflection, February 2018).

Thus, the pre-service teachers acknowledged they valued the presenters' modeling the ideas.

### **Discussion**

The results of this study have implications with regard to professional development for instructional pairs, particularly during clinical experiences. Using the Apprenticeship for Learning conceptual framework (Brosnan, Jaede, Brownstein, & Stroot, 2014) we found that opportunities for student learning can occur when instructional pairs (a) co-plan and co-teach, (b) attend to student thinking and equitable issues, (c) facilitate structured conversations, and (d) are cognizant of contextual factors that can impact teachers' instructional practices. The instructional pairs' perspective of the professional development on co-planning and co-teaching highlights that they valued the collaboration and the modeling of the co-teaching strategies. Moreover, the professional development provided an opportunity for professional learning and an opportunity to reflect on means to support student learning while increasing equitable learning opportunities. Thus, the results of the study suggest that the professional development supported the instructional pairs' learning of how to use co-planning and co-teaching strategies within a secondary mathematics context, promoted active learning, and encouraged collective participation (Garet, Porter, Desimone, Birman, & Yoon, 2001; Desimone, 2009).

Future studies should examine the implication of professional development on the instructional pairs' practices over time. Particularly, careful examination is needed on the nature of the co-planning and subsequent enactment of lessons within the realms of secondary mathematics. This information can enhance the mathematics education literature relevant to co-planning and co-teaching and the implications of professional development on teachers' instructional practices.

### **Conclusion**

In closing, the instructional pairs perceived that a professional development on co-planning and co-teaching to be quite beneficial. The professional development provided an opportunity to collaborate and gain insights regarding means to support student learning and personal learning, as well as provided an opportunity to observe individuals modeling the strategies. Nevertheless, teacher preparation programs need to reflect on when the professional development is offered and a platform that can maintain ongoing communications in order to optimize the benefits of the professional development.

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