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An Arranged Marriage: Special and General Educators’ Preliminary Openness to Co-teaching

by

Jody Rebecca Siker

A dissertation submitted in partial satisfaction of the requirements for the degree of

Joint Doctor of Philosophy

with San Francisco State University

in

Special Education

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Aki Murata, Chair
Professor Susan J. Courey
Professor Deborah A. Nolan
Professor Deborah A. Curtis

Spring 2015
Abstract

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Aki Murata, Chair

Co-teaching relationships between special and general educators are built on a shared vision and mutual respect. Often, it is difficult to establish these relationships due to differences in training and teaching philosophies. This study measured special and general educators’ openness to co-teaching and surveyed their instructional preferences and willingness to share responsibility for teaching a heterogeneous group of students. It honed in on the personal commitment required to build teaching partnerships across special education and general education. The purpose of this study was two-fold: (a) to develop of a new measure of teachers’ openness to co-teaching, and (b) to understand special and general educators’ attitudes about and preferences in connection to co-teaching that might affect the formation of a co-teaching relationship. Results demonstrate that teachers were positive about collaboration and co-teaching, but there were differences in openness based on teacher type (special or general educators) and experience co-teaching. In addition, special educators were much more likely than general educators to have any experience co-teaching. Half of general educators had never co-taught, while only 16% of special educators had never co-taught. There were also differences between special and general educators in their ideas about which teacher would be responsible for instructional tasks. Although all teachers reported that they wanted to collaborate, general educators were likely to prefer taking the lead on all instructional tasks except modifying the curriculum to reach struggling learners. Special educators preferred equal responsibility on all tasks except modifying the curriculum; they wanted the lead on that task to a greater extent than general educators, but all teachers reported that special educators should take the lead when modifying curriculum. Findings from this study have implications for teacher training and school districts who want to implement co-teaching. The measure could be used to screen teachers for openness to co-teaching before attempting to establish these relationships and pinpoint areas for additional professional development.

Keywords: co-teaching, teacher attitudes, inclusion, survey development, Rasch model
Dedication

To my husband
You teach me every day to be a better person and partner. You made it possible for me to pursue my dreams by being ever supportive. I love you more every day.

To my children
You have been there in my heart or quite literally with me through this program. Eli, you are a wonderful helper and I love our conversations about everything. Maya, you are so happy and fun to be with. You both inspire me and I love you.

To my family
You have always supported me and loved me unconditionally, with parents who modeled a true partnership and siblings who act as a team, helping each other always. I would not have accomplished anything without your love, support, and guidance.
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Dr. Deborah Nolan did not know me when she agreed to serve on my qualifying examination committee and dissertation committee, but she still signed on to do so. She has provided a unique perspective and expertise and I walk out of each meeting having learned important and new information. Dr. Deborah Curtis took time out of her busy life and stepped up to join my dissertation committee, providing much-needed and appreciated thoughtful comments that shaped this study. Her perspective and expertise was invaluable. Dr. Karen Draney has gone above and beyond, deserving special recognition. She took time out of her busy life to teach me about the Rasch model and other aspects of quantitative statistics as an honorary advisor and sage. She never said that she was unable to help even though she had many other demands on her time. Similarly, Dr. Cornelia Taylor took time away from her responsibilities to help me interpret data and really seek to understand what they meant. She also did this out of the deep kindness of her heart and I hope to return the favor someday. Thanks also to Caron Williams who went out of her way to help me whenever I needed it.

Without my co-teachers, this project would never have been conceived. Dr. Phyllis Tappe split her classes with me, giving me necessary teaching experience and always treating me as an equal partner with a shared vision. Tomas Medina, Anna Lione, and countless other teachers have collaborated with me, showing me how much students can benefit from having two or more supportive teachers working together. Jenna Stocks and Heather Maggit inspired my interest in co-teaching by showing me what team teaching could be at its very best.

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I was motivated to return to school to be a teacher educator by amazing school professionals and students that I had the privilege of working with. My students transformed me, so thanks to all of them. The team of professionals supporting these students inspired this dissertation and all my future work. You are rock stars: Carley Amigone, Sarah Kotleba, Sarah Lipson, Erin Wheeler, Lisbeth Benninger, Phillip Bryan, Katie Schmidt, Jessica Navratil Jagush, and the many wonderful teachers and administrators I worked with. These administrators were ever supportive and wonderful leaders: Graciela Pequeño, Lourdes Castillo, and John Sanchez.

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Chapter 1
Introduction and Literature Review

The Individuals with Disabilities Education Act (IDEA; 2004) mandated that students with disabilities receive a free and appropriate education in the least restrictive environment possible. To address this mandate, schools use the Inclusion model to instruct an increasing number of students with disabilities in the general education setting instead of in a separate classroom. According to the National Center for Education Statistics (2013), 94.8% of students with disabilities are included in the general education classroom; of those students, 60.5% spend over 80% of their school day in the general education classroom. Inclusion, however, is not well-understood and implementation is uneven (Kilanowski-Press, Foote & Rinaldo, 2010). Some researchers believe the best way to ensure that students are supported while learning the general curriculum is through co-teaching (Dieker & Berg, 2002; Hang & Rabren, 2009; Scruggs, Mastropieri, & Mcduffie, 2007).

In practice, effective co-teaching is rare and students with individualized education plans (IEPs) are either removed from important instruction or remain in the general education classroom with little support (Deno, Foegen, Robinson, & Espin, 1996; Fuchs & Fuchs, 1994; Weiss, 2004). One reason for the lack of effective co-teaching in the classroom is because it is difficult for teachers to build a relationship based on mutual respect, parity, and shared vision (Conderman, 2011b; Friend & Cook, 2013). However, there is some evidence that committed teachers can build this relationship (Hang & Rabren, 2009; Miller, Valasky, & Molloy, 1998; Seglem & VanZant, 2010). Some challenges that arise when building co-teaching relationships stem from different beliefs and preferences among teachers who would co-teach. Beliefs are irrevocably linked to practice because they affect persistence and effort (see Bandura, 1997). Therefore, teachers opinions about co-teaching are crucial to understanding supports and services they need to develop these types of relationships.

Interviews with practicing co-teachers show that they are positive about co-teaching and think that it is a promising way to effectively instruct students with disabilities (Cramer, Liston, Nevin, & Thousand, 2010; Keefe & Moore, 2004; King & Youngs, 2003). Other researchers have surveyed teachers in co-teaching relationships about their opinions and practices (Austin, 2001; Fennick & Liddy, 2001) and found similar results. However, there is a dearth of research investigating teachers’ openness to co-teaching, regardless of whether or not they are currently co-teaching, and how these feelings relate with preferences and teaching contexts. The purpose of this study is threefold: (a) to develop a new measure of openness to co-teaching across general and special education teachers using the Rasch model (Bond & Fox, 2012); (b) to use the measure and some additional items to identify differences in general and special education teachers’ expectations and attitudes that may lead to difficulties when they first embark on a co-teaching relationship; and (c) to investigate how these perspectives relate to co-teaching practices within different contexts. Openness to co-teaching can be defined as attitudes about co-planning, willingness to share teaching responsibilities, and how apt teachers are to share physical and instructional space. Openness to co-teaching affects teachers’ personal commitment to co-teaching, situated in a network of beliefs, practices, and other influences.
Theoretical Perspective

Friend and Cook (2013) posit a model for collaboration in schools that explores it in a wider context. Collaboration is defined as a communication style among equal stakeholders with shared goals who also share responsibility for decisions and outcomes. Similar to Bronfenbrenner’s social ecological theory (1976), the model can be viewed as concentric circles with increasingly narrower frames of reference (see Figure 2). Just as social ecological theory envisions an individual person’s development situated in increasingly wider contexts, Friend and Cook’s model begins with considering a wider context and gradually telescopes in on (a) programs or services within the context, (b) interaction processes within programs or services, (c) communication skills of people involved in interaction processes, and finally focuses on (d) personal commitment of the people involved in communication. The present study is situated in the bulls-eye of personal commitment.

Figure 1. Friend and Cook’s (2013) theoretical model for collaboration in schools (p. 23)

Teachers who decide to collaborate or who are mandated to do so need to be aware of their beliefs and personal commitment to it (Friend & Cook, 2013). The survey developed for this study asks teachers to reflect on their preferences and expectations for collaboration in general and for co-teaching specifically. It fills a void in the research of understanding the specifics of special and general education teachers’ preferences, challenges, and successes when thinking about co-teaching. Further, it measures how open teachers are to embarking on a co-teaching relationship. Co-teaching between special and general educators is not meeting student needs and this study seeks to investigate intrapersonal reasons why co-teaching is so challenging.
Based on the input of teachers regarding their views and assumptions about co-teaching, this study develops and implements a measure of openness to co-teaching.

This chapter summarizes the literature about co-teaching and describes the present study. First, I summarize the definitions of co-teaching in the literature and recommendations for the implementation of this instructional model. Second, I present evidence of co-teaching from models implemented in K-12 settings. Third, I describe interview and survey results of teachers’ perceptions and opinions about co-teaching. Fourth, I discuss the process of developing a survey based on the Rasch model. Fifth, I posit research questions and describe the present study.

**Definitions of Co-teaching**

Co-teaching in inclusion classrooms can be defined as two or more teachers with different expertise jointly providing instruction to a heterogeneous group of students (students with and without IEPs) in a shared physical space (Cook & Friend, 1995). This is different from other collaborative relationships that may exist in the classroom, such as the relationship between assistants or volunteers and a head teacher. The shared space is usually a general education classroom, but small groups may also be taken to a different setting to receive additional instruction. Most studies conceptualize co-teaching in this way and discuss various models of co-teaching as defined by Cook and Friend (1995).

Cook and Friend (1995) described five models for general and special educators who are teaching together in the same classroom. These models are: (a) **One Teaching, One Supporting** (or **Assisting**), wherein one teacher plans and instructs and one teacher provides adaptations and other support as needed; (b) **Alternative Teaching**, wherein the majority of students remain in a large group setting, but some students work in a small group for preteaching, enrichment, reteaching, or other individualized instruction (the small group meets in the same room or can be pulled out to work with one of the teachers); (c) **Station Teaching** with small student groups rotating through stations, some that have one teacher and some that offer independent work (teachers teach different material to small groups and both teachers eventually teach every student); (d) **Parallel Teaching** with the class split into two equal, heterogeneous groups, so each teacher instructs half of the class on the same material; and (e) **Team Teaching** with teachers working as a team to introduce new content, work on developing skills, clarify information, and facilitate learning and classroom management while they both teach the whole group at the same time. One Teaching, One Supporting is conceptualized differently in some studies (see Friend & Cook, 2013). Some researchers are more clear about the power inequities inherent in this model by calling it One Teaching, One Assisting (Murawski & Dieker, 2008; Scruggs et al., 2007; Solis, Vaughn, Swanson, & McCulley, 2012). In other cases, this model is replaced by One Teaching, One Observing. In that case, the support teacher does not actively participate in instruction, but collects student data or monitors behavior (Sileo & van Garderen, 2010).

Kloo and Zigmond (2008) conceptualized co-teaching not with models, but as the number of lessons occurring at once and what the teachers are doing. For example, both teachers could be actively instructing one group, each teacher could be working with their own group, or students could be independently working or collaboratively working with neither teacher directly instructing a group. They emphasize that choosing the appropriate model should be based on the instructional demands, not the whims or personalities of the teachers. In remedial classes, such as reading and learning numeracy, small groups are best so students receive more attention (Kloo & Zigmond, 2008). In these classes, special education teacher should **TEACH** (Target
individual skills and strategies, Express enthusiasm, Adapt instruction, Create individual or small group opportunities for intensive instruction, Help students transfer basic skills to content classes). In content classes, the special education teacher should SUPPORT in one or no group configurations (Study content, Understand big ideas, Prioritize standards, Plan with GE, Observe students, Rephrase, redirect, reteach, Teach GE to accommodate for learners on their own; Kloo & Zigmond, 2008). The present study conceptualizes co-teaching models according to Cook and Friend (1995; see Table 1). Additionally, I embrace the inequality of One Teaching, One Supporting and will refer to that model as One Teaching, One Assisting; This study also included a sixth model, No Co-teaching.

Table 1
Co-teaching Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Definition</th>
<th>Graphic</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Teaching, One Supporting</td>
<td>A lead teacher plans and instructs and a support teacher provides adaptations, redirects students, and assists the lead teacher during instruction</td>
<td></td>
</tr>
<tr>
<td>Alternative Teaching</td>
<td>The majority of students remain in a large group setting with one teacher, but some students work in a small group for preteaching, enrichment, reteaching, or other individualized instruction with the other teacher.</td>
<td></td>
</tr>
<tr>
<td>Station Teaching</td>
<td>Small, heterogeneous student groups rotate through stations, some that have one teacher and some that offer independent work. Teachers work small groups using different material and both teachers eventually teach every student.</td>
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<td>Parallel Teaching</td>
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<td>Both teachers work as a team to introduce new content, work on developing skills, clarify information, and facilitate learning and classroom management. They both teach the whole group at the same time.</td>
<td></td>
</tr>
</tbody>
</table>
Overview of Co-teaching Research

Empirical evidence for co-teaching is mixed because the benefits do not always outweigh the challenges (Murawski & Swanson, 2001). Also, most studies focus on case studies of successful pairs of co-teachers (e.g., Miller et al., 1998), recommendations for how to co-teach (e.g., Friend & Cook, 2013; Walther-Thomas, Bryant, & Land, 1996), and the discussing implications of co-teaching without adequate support (Mastropieri, Scruggs, Graetz, Norland, Gardizi & Mcduffie, 2005; Nierengarten, 2008). Weiss (2004) posited that co-teaching is an example of practice outpacing empirical support. In a review of 700 books and articles about co-teaching, Weiss and Brigham (2000) found only 23 studies with evidence evaluating co-teaching that included information about at least one special educator and at least one general educator. In all but four of these studies, evidence was based on interviews with successful co-teaching teams, teachers were vague about student outcomes, and the special education teacher’s role was unclear. Weiss (2004) determined that the field should be focusing on studying instructional practices in effective and ineffective classrooms, making and evaluating specific goals for co-teaching as it relates to students, and making instructional decisions for the best interests of students, not based on the model the school wants to employ. Decisions about when and how to co-teach should not depend on the whims of the teachers, but on the needs of the students.

Other researchers (Murawski & Swanson, 2001; Scruggs et al., 2007; Solis et al., 2012) also synthesized findings from co-teaching studies. Solis and colleagues (2012) summarized results from 146 studies. They identified common themes that spanned multiple studies; teachers reported that they needed technical support, more planning time, and designated support personnel to implement effective co-teaching models. They determined that student success was most likely tied to explicit teaching, individualized instruction and attention, and frequent assessment, not co-teaching specifically. Murawski and Swanson (2001) performed a meta-analysis to pinpoint the effects of appropriate co-teaching on student outcomes. Out of 89 articles found during the literature search, they only were able to include six that provided enough data to calculate effect sizes. Overall, they determined that co-teaching had a modest effect on student achievement (ES = 0.4). To put that into perspective, Hattie (2010) synthesized over 800 meta-analyses and determined that any effect size of 0.4 or below was not practically significant because this is the amount of typical growth for students in school, without additional interventions. Scruggs et al. (2007) synthesized research about co-teaching by identifying common themes in studies using qualitative methods. Out of 32 studies, they determined that co-teachers reported personal and professional benefits of co-teaching and were mostly positive about their own experiences. However, none of the studies solicited the opinions of unsuccessful co-teaching pairs. Also, the model of One Teaching, One Assisting was by far the most widely used model. They concluded, “If the qualitative research to date represents general practice, it can be stated that the ideal of true collaboration between two equal partners – focused on curriculum needs, innovative practice, and appropriate individualization – has largely not been met” (Scruggs et al., 2007, p. 412).
Studies of successful co-teaching teams. Most co-teaching studies involve successful teams of teachers who collaborate effectively (Scruggs et al., 2007). These co-teachers have a positive effect on the academic achievement of students with disabilities and low-achieving peers, their attitudes and social skills, and peer acceptance of students with disabilities (Walther-Thomas et al., 1996). In one small, but promising case study, a Deaf first-grade student could not communicate with his teacher or peers in the general education classroom at the beginning of the school year (Lindeman & Magiera, 2014). The classroom teacher built co-teaching relationships with other professionals, such as an educator of the deaf and a speech and language pathologist, so this student and his peers could develop a common mode of communication together. These educators were able to build a co-teaching team built on professional respect and high expectations and the student thrived socially and academically.

When classrooms employed collaborative methods (including co-teaching), student academic outcomes were improved (Dieker, 2001; Mcduffie, Mastropieri, & Scruggs, 2009; Miller et al., 1998). In an oft-cited case study of an elementary language arts classroom, a co-teaching team with the help of two paraprofessionals improved the language and literacy scores of a heterogeneous group of students (Miller et al., 1998). In addition to using a co-teaching model, they employed strategies of peer tutoring and small cooperative group work. Mcduffie et al. (2009) compare the results of 203 seventh-grade science students who utilized peer tutoring in classes that were co-taught and solo taught. They determined that co-teaching had a more positive effect on student outcomes than just peer tutoring. Students who worked in the peer-tutoring condition outperformed other students in the unit tests, but not in the final test. On the other hand, students from co-taught classrooms had significantly higher scores on all measures than students from solo-taught classrooms. Dieker (2001) observed the classrooms of nine successful co-teaching pairs nominated by administrators and school staff. They all used peer tutoring and cooperative groups, demonstrated high expectations for all students, and provided a continuum of support for all students. In 33 of the 36 observed lessons, more than half of the classes involved active learning, which also supported the students’ needs.

In addition to improved academic outcomes for students, co-teaching was often perceived positively by co-teachers (Cramer et al., 2010; Damore & Murray, 2009; Hang & Rabren, 2009; Seglem & VanZant, 2010). Successful co-teachers enjoyed this model and reported that co-teaching improved their professional knowledge and teaching skills. In a study by Fennick and Liddy (2001), general and special education teachers both expressed positive opinions about co-teaching even though they reported not having enough time to co-plan effectively. DeSimone and Parmar (2006) went one step further by positing that collaboration was the best resource available to teach struggling students. The teachers they interviewed reported that they did not receive enough pre-service training on how to best teach students with learning disabilities, so they needed support from special education teachers and administrators. The next section goes into more detail about teachers’ perceptions, using teachers’ reports and opinions about their co-teaching experiences.

Voices of co-teachers. In the literature, teachers often demonstrate their attitudes about co-teaching through interviews (e.g., Cramer et al., 2010). One high school special educator showed her versatility by saying, “I call myself the ‘rubber band’ because I really have to go into classrooms and formulate my teaching style to another’s teaching style” (Cramer et al., 2010, p. 66). Another reported on her openness to co-teaching by saying that “When all students are included, the stigma of being in special education is removed. Quite often, peers do not know who is in special education and who is not” (Cramer et al., 2010, p. 68).
Some other themes that arose through teacher interviews included teachers’ compatibility, their roles during co-teaching, and student outcomes. A teacher interviewed by Keefe and Moore (2004) said, “If you’re having some type of conflict…, you have to discuss it right away. You know it’s like a marriage” (p. 82). This idea of a marriage was supported by the work of Mastropieri and colleagues (2005) who noted that arranged marriages often fail. Since the One Teaching, One Assisting model is so ubiquitous, many special educators comment on being treated as aides. For example, Keefe and Moore (2004) reported that one teacher felt frustrated by her role and said, “…it can be insulting as, ‘I need some coffee’” (p. 83) and another commented that “…no one in the classroom knows who I am really…[F]or the most part I just help the teacher with whatever is going on” (p. 83). The general educators cited the special educators’ lack of content knowledge as the reason for being relegated to an assistant. One reported that her special education co-teacher, “…was more of a hindrance than a help in the room because it was another person who didn’t know her material” (p. 83). Teachers perceived the students included in the co-teaching classroom differently. Although a teacher reported that, “for some kids, inclusion is appropriate, for some kids it’s not,” another one reported, “…that for the kids, this is an incredible opportunity for them to realize, especially at the junior/senior level, when they can take on responsibilities, get things completed, and for their work to not have asterisks after it” (p.85). Describing a successful co-teaching approach in a middle school literature classroom, a special educator said that, “our classroom was successful because, before we honored students' voices, we honored each other's” (Seglem & VanZant, 2010, p. 46). These teachers agreed that all students could benefit by being included in the class and saw themselves as facilitators in their learning. “This was their classroom, their community, and we felt privileged to facilitate their growth” (emphasis in original; Seglem & VanZant, 2010, p. 46).

The next section discusses ideas for how to build this successful classroom community.

Recommendations for co-teaching. Much of the co-teaching literature provides recommendations for building and maintaining a successful partnership (e.g., Rea & Connell, 2005; Salend, Gordon, & Lopez-Vona, 2002; Walsh & Jones, 2004; Walther-Thomas et al., 1996; Weiner & Murawski, 2005). According to Solis and colleagues (2012), co-teachers should have skills such as “active listening, empathy, assertiveness, questioning to gain information, and negotiating an outcome that is mutually beneficial” (p. 499). They should employ these skills to effectively plan for instruction, which is the most valuable aspect of a co-teaching relationship (Austin, 2001; Bray, 2005; Dieker, 2001; Solis et al., 2012). Overall, articles identify planning, administrator support, professional development, flexibility, and strong teacher relationships as the cornerstones for effectively implementing co-teaching.

Planning. In almost every article or interview study, the need for mutual planning time is the most cited requirement for building a strong co-teaching team (Dieker, 2001; Keefe & Moore, 2004; Mastropieri et al., 2005; Murawski & Swanson, 2001). Special and general educators have different approaches to instruction and different knowledge bases, so planning time is required to move beyond traditional classroom roles (Fennick & Liddy, 2001). Instead of the general educator taking the instructional lead and the special educator having an unclear or subjugated role in the classroom, they should be building an equitable team. Planning helps teachers establish this relationship, build a shared vision, and design instruction based on teachers’ strengths and students’ needs. Mutual planning, especially at the beginning stages of building a co-teaching team, should occur daily (Arguelles, Hughes, & Schumm, 2000).

Administrator support. Administrative support and professional development are also important to the success of co-teaching teams (Cole & McLeskey, 1997; Miller & Oh, 2013).
fact, there is evidence that an enthusiastic administrator is an essential part of co-teaching. Nierengarten and Hughes (2010) interviewed teachers and administrators about co-teaching in high schools and learned that co-teaching teams did not work when the administrator was not supportive. This lack of administrator commitment was demonstrated by co-teachers being pulled out of the class to substitute in other classes, lack of training provided for teachers and administrators, and full dissolution of co-teaching teams when a supportive administrator was reassigned to a different building. The administrator is a key player in building a school culture that demonstrates value in collaboration and co-teaching. This person advocates for co-teaching in the school by seeking support from the district and beyond. District-level planning ensures that schools receive support and resources, communicate across and within buildings, and that efforts and materials are not duplicated (Walther-Thomas et al., 1996). The administrator also should facilitate slow implementation of co-teaching, show enthusiasm for the model, and provide frequent opportunities for professional development. This consistent training is very important for teachers to build collaborative dispositions, learn communication strategies, and acquire various instructional strategies so that they can be flexible and adapt instruction to a diverse group of students. Nichols, Dowdy, and Nichols (2010) combined the ideas of administrator support and training in their survey study of 24 school districts of varying size. Of these districts, only three had a recent training about co-teaching and only one trained the administrator how to implement co-teaching.

**Flexibility.** Students taught by a co-teaching team benefit from flexible grouping (Bray, 2005), high teacher expectations (Dieker, 2001), and various options for instruction and assessment (Walther-Thomas et al., 1996). One way that groupings can be flexible is by being creative with teacher scheduling and location. Dieker (2001) described some innovative ways to incorporate one special educator into multiple general education classes. One configuration, the Cross-Family Support Model,” involved four general education teachers and one special education teacher. Students were included in general education with occasional academic and behavioral support from a paraprofessional and one day a week, all students in the general education classes met in the special education room for lessons. These lessons related to the general curriculum and involved active, hands-on learning. Another method, the Alternating Support Model, utilized a general educator, a special educator, and their two classrooms. These rooms were across the hall from each other, so the teachers were able to team teach in one room or implement other co-teaching models by splitting up the students between the classrooms (see chart in Dieker, 2001, p. 18).

Another aspect of flexibility is in the choice of teaching strategies. Often, when general educators and special educators co-teach, their strategies are exclusive such that general educators focus on children without disabilities and special educators only teach students with disabilities (Tannock, 2009). To reverse this trend and teach various strategies to all students, Tannock recommends keeping concrete documentation, such as written schedules for classroom instruction, student work, and specific questions to ask each other during planning meetings. This problem with rigid instructional strategies surfaced in several studies of co-teaching (Deno et al., 1996; DeSimone & Parmar, 2006; Magiera & Zigmond, 2005; Zigmond, 2006). Magiera and Zigmond (2005) observed students with disabilities in eight classes when the special educator was present and when she was not. Students with special needs in all classes did not receive much individualized instruction, but there was a significant difference between the co-taught versus solo taught classes. In co-taught classes, 2.2% of observations included individual instructional interactions; in solo taught classes, less than one percent of observations included
individual interactions. Additionally, in six of the eleven observed solo-taught classes, students received no individual attention. Students with disabilities in the general educational setting are not receiving the individual, specially-designed instruction that they need. Friend, Cook, Hurley-Chamberlain, and Shamberger (2010) talk about this specially-designed instruction as moving beyond just providing accommodations to directly teaching and scaffolding strategies for students to help them succeed in school. In order to appropriately instruct a wide range of students, teachers must use a variety of evidence-based strategies.

By and large, research demonstrates that teachers do not use specially-designed instruction to meet the needs of diverse learners (Deno et al., 1996; DeSimone & Parmar, 2006; Friend et al., 2010) In two separate studies of middle school math classes, Deno and colleagues (1996) and DeSimone and Parmar (2006) noted that teachers did not alter their instruction to meet the needs of the students. The teachers interviewed by DeSimone and Parmar (2006) also did not feel adequately prepared to teach students who struggle with math. Zigmond (2006) observed eight co-teaching pairs for 406 five-minute segments in secondary social studies settings to see how instructors used literacy supports to meet the needs of struggling readers. She concluded that teachers abandoned the texts instead of incorporating literacy supports such as graphic organizers, text supplements, or outlines. Students read (39.2% of the total instructional time) mostly single words from overheads and copied notes from the general education teacher’s lecture (25.6% of instructional time). Instead of providing individualized supports and strategy instruction, the special educators mostly stood off to the side and occasionally added to the lecture. The role of special educators is often unclear, so teachers need to build equity and trust into their working relationships.

**Teacher relationships.** Teachers need to be honest about their strengths and weakness and also work to build an equitable relationship with clear roles for each teacher (Conderman, 2011b). Based on observing co-teaching relationships in middle schools, Mastropieri and colleagues (2005) noted that success depended on teachers’ outstanding working relationship, strengths as motivators, effective instructional skills, exceptional disability-specific and individualized teaching adaptations, and expertise in the content area. General and special educators each bring some of these attributes to the team, so it is important that each teacher’s role is very clear (Dieker, 2001). Unclear teacher roles often contributed to the default model of the general education teacher leading and the special educator acting as an assistant or passive observer. There are two consequences of this inequity of power in the co-teaching relationship. First, special education teachers feel frustrated because they are treated as an assistant and ignored (Nichols et al., 2010). Second, general education teachers feel that their special education counterparts are not helpful, or worse an obstacle to teaching (Fennick & Liddy, 2001; King & Youngs, 2003). Friend and Cook (2013) further stated that when the special educator waits off to the side of the classroom until the general educator is done instructing and then jumps in to provide accommodations, they are not co-teaching at all.

Co-teaching can be especially difficult for special education teachers because they often reported being unclear about their roles during instruction (Embich, 2001) and in some cases were required to change their practice more than the classroom teacher (Cole & McLeskey, 1997). As previously stated, out of the five models described by Cook and Friend (1995), One Teaching, One Supporting was and continues to be the most commonly used (Solis et al., 2012). The special educator is almost always the support teacher in these cases, thus creating an assistant/supervisor dynamic instead of instructor parity. The general educator in this case might not have to change their practice at all because they are not including the special educator as an
instructional partner. Wilson (2008) offered advice to the special education co-teacher about ways to be a more active support teacher. For example, support teachers can provide individual or small group instruction, observe the class, construct exit questions, or address behaviors.

Being more active does not change the inequitable power dynamic, however. Other articles (i.e., Murawski & Dieker, 2008) also put the onus of responsibility on the special educator to change her practice and accommodate the general educator. However, researchers believe that co-teaching involves teachers working in a team; students should not be able to identify which teacher is the special education teacher during instruction (Conderman, 2011b; Friend & Cook, 2013; Walther-Thomas et al., 1996). Although recommendations are ubiquitous in the co-teaching literature, co-teaching relationships seem to depend on the willingness and personal commitment of the educators involved (Austin, 2001). Openness to co-teaching depends on factors beyond those mentioned above. Even though one teacher might have to change more than the other, they may be more open to co-teaching for other reasons. For example, special educators might be more open to co-teaching because they are required to collaborate with the general educator anyway for students who are included in the general education classroom. To them, co-teaching means that they have additional support teaching students with IEPs. They might be more willing to change their practice if that means they would have to do less work overall. In order to understand this complex relationship, researchers and practitioners must first understand teachers’ attitudes about co-teaching and inclusion.

**Developing Measures of Co-teaching Attitudes**

**Surveying teacher attitudes.** There have been several attempts to study teachers’ attitudes about co-teaching and inclusion (e.g., Austin, 2001; Beaudoin-Colwell, 2009; Bixler, 1998; Damore & Murray, 2009). These studies surveyed current, mostly successful teachers who were co-teaching. Both Austin (2001) and Beaudoin-Colwell (2009) asked teachers about expectations and actual practice in terms of planning, professional development, and access to materials. Austin (2001) asked 139 teachers, 92 from intact co-teaching teams, about the extent to which they value and employ a list of strategies. They found evidence that both special and general educators perceived that the general educators did more work than the special educators on average. In addition, teachers who employed strategies such as co-planning, cooperative learning, and shared classroom management reported less value in these practices than teachers who did not employ these strategies. So, these practices were valued by teachers, but more in theory than in actuality. Overall, the teachers surveyed were willing and open to co-teaching.

Fennick and Liddy (2001) surveyed current co-teachers about who should have the responsibility for specific teaching tasks. They found that co-teachers maintained their traditional roles; general education teachers were assigned responsibility for setting up class, planning curriculum, and assigning work and special education teachers were assigned responsibility for pull-out instruction. Ninety percent of teachers strongly agreed that co-planning was necessary for successful co-teaching, but only 53% of special educators and 51% of general educators had scheduled planning time during the school day (Fennick & Liddy, 2001). In this case, teachers valued mutual planning time whether or not they employed this strategy.

Researchers have surveyed successful co-teachers’ practices and values and described their findings, not employing a measurement theory to validate their results (e.g., Austin, 2001; DeSimone & Parmar, 2006; Fennick & Liddy, 2001). In one notable exception, Damore and
Murray (2009) used classical test theory (CTT) to ensure that hypothesized subsections in survey studies had acceptable factor loadings. In other words, they ensured that subsections had good internal consistency and unidimensionality. They had the following subsections in their survey: Team Processes, Positive Attitudes, Resources, Professional Development for Collaboration, Leadership Support, University Training, Accountability, Shared Responsibility, and Communication. “Special education teachers had significantly greater ratings [than general education teachers] on four of the nine factors: Professional Development, $F(1, 100) = 4.0, p < .05$; Accountability, $F(1, 100) = 5.3, p < .05$; Shared Responsibility, $F(1, 100) = 5.6, p < .05$; and Communication, $F(1, 100) = 5.0, p < .05$” (Damore & Murray, 2009, p. 241). In addition, only 39% of special educators and 38% of general educators used a form of collaboration beyond nothing or consultation (e.g., team teaching or working in a collaborative team). The present measure employs a measurement theory called Item Response Theory (IRT) instead of CTT. Specifically, I used the Rasch model, a special case of IRT. The reasons behind this decision are described in the following section.

The aforementioned studies only surveyed teachers who were currently co-teaching. There is no known study that surveyed teachers about their openness to co-teaching and preferences before they co-teach. Knowing these feelings would help teachers become aware of their different perspectives to try and find common ground at the outset of co-teaching. Also, administrators could mediate any conflicts and provide additional training on how to create a shared vision. According to Dieker (2001), existing measures also do not consider different models of co-teaching and how they relate to teachers’ preferences and personalities. The present study aims to address these gaps by investigating general and special educators’ attitudes toward co-teaching, whether or not they are currently doing so, along with garnering more specific information regarding their ideas about dividing teaching tasks and structuring instruction based on the models posited by Cook and Friend (1995; see Table 1).

Using the Rasch model. The Rasch model is arguably superior to CTT when developing a measure of a one-dimensional construct because item difficulty and respondent levels are evaluated (Embretson, 1996; Sondergeld & Johnson, 2014). In CTT, items are clustered into sections based on correlation and the model does not define or pay attention to the difficulty levels of items. So, the Rasch model more specifically describes respondents’ levels of ability on a construct compared to CTT (see Figure 1 for details about the present construct). In the case of an attitudinal measure, ability or proficiency refers to a respondent’s likelihood of agreeing with items along a continuum from items that all respondents would likely agree with to items that only a few or no respondents would likely agree with. The Rasch model assumes that this ability level indicates the odds that the person will agree to items at a particular difficulty level. For example, if the participant has a high ability level, then they are likely to agree with items that are more difficult to agree with than a participant with a low ability level (Bond & Fox, 2012). These difficult items are situated near the top of the construct’s difficulty continuum (Figure 1); location along this continuum corresponds with the probability that a given participant will agree to the item. This probability can be predicted by assigning participants an ability score and plotting these scores side-by-side with item difficulty scores. This process will be described in the Data Analysis section.

Validity is increased in the Rasch model because it allows researchers to differentiate respondents with the same score based on their responses to particular items (Sondergeld & Johnson, 2014). For example, in CTT, a respondent who agreed to only the four easiest items would be indistinguishable from a respondent who agreed to only the four most difficult items.
<table>
<thead>
<tr>
<th>Respondents</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open to co-teaching by agreeing to items about comfort approaching other teacher and asking for help, confidence in own abilities, liking to collaborate, effective communication, would make time for co-planning. They disagree to statements about needing to be in charge and having limited time to co-plan. They agree to positively worded items and disagree to negatively worded items.</td>
<td>I would co-teach with a teacher even if we have very different, often conflicting, ideas about teaching.</td>
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<td></td>
<td>I do not want to co-teach with a less effective teacher.</td>
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<tr>
<td></td>
<td>I like to be in charge of all aspects of my classroom.</td>
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<tr>
<td></td>
<td>I am willing to co-plan with another teacher, even if we have to meet every day after school past our contract hours.</td>
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<tr>
<td></td>
<td>Differences in teaching philosophy make it difficult to collaborate with other teachers.</td>
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<td></td>
<td>I feel comfortable offering suggestions to the other teacher on how to teach the students with IEPs.</td>
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<tr>
<td></td>
<td>I find it easier to teach on my own.</td>
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<td></td>
<td>I don't have time to build a new co-teaching relationship</td>
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<td></td>
<td>I would find it difficult to accommodate another teacher with a different teaching style.</td>
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<td></td>
<td>It helps me to work with a more experienced teacher.</td>
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<tr>
<td></td>
<td>Sometimes another teacher has a better rapport with some of my students.</td>
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<tr>
<td></td>
<td>My teaching improves when I work with another teacher.</td>
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<td></td>
<td>I don't like when other teachers comment on my instructional practices.</td>
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<td></td>
<td>It is disruptive for me to have another teacher in the classroom.</td>
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<tr>
<td></td>
<td>It is difficult for me to collaborate with a teacher who has a different expertise because I am not familiar with what they teach.</td>
</tr>
<tr>
<td></td>
<td>I am willing to compromise with another teacher, even though that means my ideas or decisions are not used sometimes.</td>
</tr>
<tr>
<td></td>
<td>I like to collaborate with other teachers (special educators if you are a general educator or general educators if you are a special educator).</td>
</tr>
<tr>
<td></td>
<td>The other teacher fills in gaps in my knowledge on how to teach math to students who struggle with it.</td>
</tr>
<tr>
<td></td>
<td>I like getting a different perspective on teaching and learning.</td>
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<tr>
<td></td>
<td>It is distracting for my students to have another teacher in the classroom.</td>
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<tr>
<td></td>
<td>I don't support teacher collaboration for any reason.</td>
</tr>
<tr>
<td></td>
<td>I feel comfortable approaching the other teacher to ask for help with students and content.</td>
</tr>
</tbody>
</table>

These teachers seem open to the idea of co-teaching, but are not as open to taking time to co-plan or accommodate another teacher. They agree to some negative items, such as finding it easier to teach on their own and being in charge of their classrooms. They might find it difficult to work with a teacher with a different area of expertise, but also might agree that the teacher would help fill in gaps in knowledge.

These teachers do not want to co-teach, do not like it for many reasons, and are not ready or willing to co-teach. They report not enough time to plan and negative attitudes about co-teaching. They are more likely to agree to negative items and disagree to positive items.
Teachers at the very bottom of the construct map may agree that they do not support collaboration for any reason and disagree that it’s easier to manage the class with two teachers.

Different teachers have different strengths so two teachers complement each other. When different teachers have different strengths, they can complement each other.

Low

Figure 2. Construct map for Openness to Co-teaching measure. Italicized items were reverse-coded. These items are from the final version of the measure.

Meanwhile, in the Rasch model, although they would have the same score on the construct, the latter respondent would have a poor fit statistic. So, the Rasch model can differentiate these respondents from each other and provide information about the match between each person’s ability (i.e., openness) and the item’s difficulty.

When constructing a measure using the Rasch model, researchers follow a six-step procedure (Sondergeld & Johnson, 2014; Wilson, 2010). Generally, the steps are as follows: “(1) identify purpose(s), (2) define construct, (3) initial survey development, (4) field testing, (5) implement Rasch measurement, and (6) develop guidelines for use” (Sondergeld & Johnson, 2014, p. 585). As previously mentioned, the purpose of this measure is to understand teachers’ openness to co-teaching so differences can be anticipated at the outset of a co-teaching relationship. This knowledge of what to expect may help teachers come to an agreement on their roles and responsibilities prior to entering into a co-teaching relationship; or, if they are already engaged in co-teaching, it may help clarify areas of disagreement based on the underlying and unvoiced assumptions of each teacher.

Research Questions

Effective collaborative relationships between teachers are not an automatic response to being required, or even choosing, to work together. Differing attitudes and philosophies will inevitably cause friction when teachers must share students, materials, and sometimes a physical space. Special education teachers and general education teachers have different expectations, perceptions, and preparation in regards to teaching and learning, so measuring co-teaching attitudes would help to identify possible conflicts before they arise. Therefore, the present study investigates differences between special educators and general educators in (a) their openness to and attitudes about collaborating with each other, (b) their expectations about who should be responsible for the specific teaching tasks, and (c) the relationships between teacher attitudes and the realities of co-teaching. I will focus on the differences and similarities of these attitudes among special and general educators who are expected to collaborate to teach students with disabilities in the general education classroom.

Although successful co-teaching appears to remain an elusive goal for many special and general education teachers, pulling students out of class for remediation causes them to miss out on learning important content (Cole & McLeskey, 1997). Mastropieri et al. (2005) calculated a modest effect size of co-teaching on student achievement, but it is possible that this result is due to the fact that the relationship between co-teachers is not always functional, especially when teachers do not choose to work together. Teacher attitudes about working together may have a
reciprocal relationship with the realities behind their relationship, such as barriers to communication, who decides which teachers work together, and lack of time to plan (Austin, 2001). This study will investigate general education and special education teachers’ visions of co-teaching and how these preferences relate to their actual collaborative relationships. Thus, I will address the following research questions.

1. How reliable and valid are scores derived from a new measure of teachers’ openness to co-teaching?
2. What are the relationships between special and general education teachers’ openness to co-teaching and their teaching context (e.g., grade level, years of teaching experience, co-teaching status)?
3. What differences and similarities do special and general education teachers report about teaching responsibilities and preferred co-teaching model?
**Participants**

**Pilots.** Before the fourth pilot, I administered all of the online survey items, including those that now make up the Openness to Co-teaching scale, to three groups of participants and several individuals in between. Participants of the first pilot were certified special education teachers (n = 20) clearing their credentials at a large West Coast state university. Participants in the second pilot were graduate students in education at a different West Coast university (n = 10) who were mostly former teachers. Participants in the third pilot were graduate students at a private West Coast university (n = 15), four were certified to teach general education. The other eleven participants in pilot three were completing coursework toward their teaching credential. Participants in these three pilots acted as advisors and commented on items’ wording, clarity, and perceived meaning. This process, called an item panel, assisted in developing construct validity (see Wilson, 2010). Based on survey results and in-person input, I deleted unnecessary items and rewrote unclear items after each of the three formal pilots. Outside of the demographic items, 90% of the items were reworded or deleted throughout the pilots. I also consulted with additional participants outside of the pilots about their interpretations and thoughts about the items.

The fourth pilot introduced the Openness to Co-teaching scale. According to Sondergeld and Johnson (2014), for a Rasch analysis, the number of respondents should be determined based on the number of categories included in the scale. They report that the field recommends at least 10 participants for each level of agreement (i.e., strongly agree to strongly disagree). Because the Openness to Co-teaching scale had four levels, this study needed to include at least 40 participants. For the fourth pilot I used a convenience sample of 83 participants who responded to the measure. These participants were a network of teachers and retired teachers I knew and their colleagues. After completing the measure, 23 participants dropped out and a few others stopped at various points in the survey, so this demographic information is from all participants who responded to particular items. Some participants reported their age, calculated by current year minus year of birth ($M = 42, SD = 12.4, n = 52$), years of teaching experience ($M = 12.33, SD = 11.23, n = 56$), and if they were special educators (46% of the subsample, $n = 26$) or general educators (54% of the subsample, $n = 30$). Out of 60 participants, 87% ($n = 52$) reported that they wanted to co-teach and 13% ($n = 8$) reported that they did not want to co-teach. Of a subset of 56 participants, 64% had some experience co-teaching and the remainder had never co-taught (16%) or had not co-taught with a teacher with a different area of expertise (20%).

**Study.** The study had 98 new participants who started the survey and continued through the measure portion. Since the first question only needed information from the measure items and some demographic items, I included all participants for this portion. For the second and third research questions, however, I needed to know preferences about teaching responsibility, preferred models, reported desire to co-teach, and experience co-teaching, so I used a subset of 89 participants with complete data for this portion. Out of this subset, 25 (28%) had two to three years of teaching experience, 15 (17%) had four to five years, 24 (27%) had six to ten years, and 25 (28%) had over 11 years of experience. Fifty-two (58%) of these participants were general educators and 37 (42%) were special educators. When asked if they wanted to co-teach, 67 (75%) said yes and 22 (25%) said no. When asked about experience co-teaching, 26 (29%) were
currently co-teaching, 32 (36%) had co-taught in the past, and 31 (35%) had never co-taught. Although not used as variables in this study, I asked participants to report their gender (female = 84%, male = 16% n = 86) and age (M = 38.5, SD = 11.6, n = 82).

Measures

This questionnaire went through several different versions throughout the five stages of the study. I describe the contents of each one below.

Pilot 1. In this paper version of the survey, I included the following subsections: (a) demographic items about teachers’ experience, age, math background, and information about their students; (b) reported strengths, weaknesses, and attitudes about teaching math; (c) teacher self-efficacy for teaching math developed by the author according to the BEAR Assessment System (Wilson, 2010); (d) communication and planning to co-teach math; (e) preferences about co-teaching, including ideas about assessment, classroom management, and sharing a classroom space; (f) ranking co-teaching models (Cook & Friend, 1995). Special and general educators responded to a different set of questions, but both sets contained the above overarching themes.

Pilot 2. This version of the questionnaire maintained the subsections described above, but moved online to Google Forms. Also, I converted open-ended items about teacher attitudes and preferences to multiple choice items.

Pilot 3. This version was an edited version of the previous questionnaire on Google Forms. I moved demographic items to the end of the survey to avoid priming participants to respond in stereotypical ways to the items, based on their context and job description. I also added a section outlining teachers’ preferences about their teaching responsibilities. Similar to the survey developed by Fennick and Liddy (2001), I added a matrix of 16 items with a 5-point scale from general educator responsibility to special educator responsibility for teaching tasks. My scale went from 100% general educator responsibility to 100% special educator responsibility (interim categories were: 75% general educator, 25% special educator responsibility; 50% general educator, 50% special educator responsibility; and 25% general educator, 25% special educator responsibility). Other subsections were as follows: (a) reported strengths and weakness as a teacher; (b) teachers’ self-efficacy for teaching math; (c) teacher practices; (d) attitudes about co-teaching; (e) ranking preferred co-teaching models; (f) current collaboration including actual distribution of responsibility for teaching tasks; and (g) teacher-specific (general or special) items about co-teaching preferences.

Pilot 4. In this pilot, I designed and validated a measure using the BEAR Assessment System, the Openness to Co-teaching measure. Openness to Co-teaching had items that measured attitudes towards co-teaching, namely: (a) co-teaching opinions; (b) accepting advice; (c) co-planning considerations; (d) classroom management; (e) communicating ideas; and (f) accommodating different perspectives. Pilot items can be found in the construct map in Figure 1 in hypothesized order from high to low on the openness to co-teaching construct. Other sections were transferred from the previous pilot on Google forms to Surveymonkey, with some editing for clarity.

Study. The study questionnaire had the following subsections: (a) revised openness to co-teaching measure; (b) co-teaching preferences; (c) reported teaching context; and (d) teacher background information. A full list of items is in the Appendix.

Co-teaching preferences. This section of the questionnaire included items that asked teachers’ opinions about co-teaching models and expectations about the roles played by each
teacher in the co-teaching relationship. Teachers indicated the responsibilities of instruction they wanted and those they could delegate or share with the other teacher. The responsibility of these instructional tasks ranged from 1 (general educators’ full responsibility) to 5 (special educators’ full responsibility) with 2 (general educators’ responsibility with special educators’ help), 3 (equal responsibility), and 4 (special educator’s with general educators’ help) in between. The tasks included the following: (a) plan lessons, (b) lead classroom discussion, (c) modify the curriculum to reach struggling learners, (d) keep order in the classroom (i.e., classroom management), (e) choose the curriculum and content, and (e) develop assessments or exams. They also ranked collaborative models as defined by Cook and Friend (1995) from 1 (least favorite) to 6 (favorite).

**Background information.** I also collect background information from participants, including their age, years of teaching experience, gender, teacher type (general education or special education and grade level of students), certification. In addition, they reported their co-teaching experience.

**Procedures**

I constructed a pencil and paper survey, transferred that survey online as *Google Forms* and then *SurveyMonkey*. Table 2 describes the survey at each stage of the study. After each subsequent pilot, I clarified, added, and deleted items to better address the research questions. These changes lead to the development of the items included in the study. Below, I describe how the survey transformed through the pilots.

**Pilot 1.** The first pilot participants completed the survey on paper. I recruited these participants from a teacher credentialing class and distributed the surveys in person during one of their class meetings. I included a section for additional comments and used these and responses from open-ended items to create multiple-choice items for subsequent iterations. In addition, many participants wrote in suggestions to improve items’ clarity even though this was not formally a part of the survey.

**Pilot 2.** After adapting the survey to clarify items’ wording, I moved the survey online to *Google Forms*. This platform allowed me to use skip logic so that special and general educators only navigated to the items that applied to them. I shortened participants’ time commitment by converting open-ended items into multiple choice items. The aforementioned sub-sections were unchanged for this version. Participants in this round completed the survey and then I conducted a large item panel with all participants. They commented on item clarity, but also on deeper issues, such as construct validity and asked for clarification about the survey’s overall purpose. Based on their input, the next pilot included some new and altered sections. These suggestions led to large substantive changes to the survey, including a new section about teachers’ responsibilities during co-teaching.

**Pilot 3.** For the third round, I recruited participants from a teacher education course as part of their curriculum about co-teaching. They completed the survey as a homework assignment with the instructions that they complete the survey to start thinking through their attitudes and preferences about co-teaching. In class, they participated in a whole-group discussion about the ideas in the survey. They also made comments about items’ wording and asked clarifying questions. Based on this input, I edited items. After this pilot, I attained approval from the Committee for Protection of Human Subjects at University of California-Berkeley and the Institutional Review Board at San Francisco State University. As per their
suggestions, I moved the survey to *SurveyMonkey* to add an extra layer of anonymity because data are encrypted by *SurveyMonkey*. Additionally, participant IP addresses and locations were disaggregated from their responses.

Table 2

<table>
<thead>
<tr>
<th>Pilot</th>
<th>N</th>
<th>Participants</th>
<th>Sections Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>Special education teachers clearing credentials</td>
<td>Demographic information, reported attitudes about teaching math, teacher self-efficacy for teaching math, communication and planning to co-teach math, preferences about co-teaching, and ranking co-teaching models</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>Graduate students at public university</td>
<td>Same as previous pilot (open-ended converted to multiple choice)</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>Graduate students at private university</td>
<td>Same as previous pilot (moved demographic information to the end), responsibility for teaching tasks, teacher practices, and current collaboration including actual distribution of responsibility for teaching tasks</td>
</tr>
<tr>
<td>4</td>
<td>83</td>
<td>Convenience sample</td>
<td>Same as previous pilot, openness to co-teaching measure</td>
</tr>
<tr>
<td>Study</td>
<td>98</td>
<td>Current Special and General educators</td>
<td>Revised openness to co-teaching measure, co-teaching preferences, reported teaching context, and teacher background information.</td>
</tr>
</tbody>
</table>

Note. The convenience sample included current and former teachers and their contacts. Teachers could have any amount of teaching experience.

**Pilot 4.** I asked a convenience sample of certified special and general education teachers to take the *SurveyMonkey* survey to validate the Openness to Co-teaching measure. As one part of finding evidence for validity of scores, I used Rasch model analysis. A complete discussion of validity evidence can be found below. This sample approximated the target sample, but I did not disqualify teachers who had fewer than two years of experience. Colleagues at Northern California universities, area schools, and others sent the online survey link to participants, special and general education teachers. I did not ask for email addresses because I did not pay the convenience sample. I downloaded teachers’ responses into a spreadsheet for further analysis. Each item in the measure received a name that abbreviated the item content. The next sections focus on how analysis using the Rasch model led to changes in the questionnaire between the fourth pilot and the study.

**Initial survey development.** After identifying purposes and defining the construct, this is the third step in developing a survey. The items in the Openness to Co-teaching scale were developed from open-ended prompts in previous pilots. I consolidated existing items and wrote new items to build a scale measuring openness to co-teach. I subjected the measure to a larger
Construct development. The construct map in Figure 1 shows respondents and items on a continuum from high to low for the construct “openness to co-teaching.” The purpose of a construct map is to describe a hypothetical order of difficulty of the items and proficiencies of the corresponding respondents, or participants. Wilson (2010) described a procedure to develop a construct map, starting with a well-defined construct, supported by research evidence, and a description of responses and hypothesized participants’ proficiencies at the extreme ends of the continuum. The researcher should then determine intermediate levels based on pilot data, ensuring that each level of a construct is distinct from neighboring levels. Items can always be re-sorted based on actual responses, so the construct map should be refined throughout data collection. The construct map in Figure 1 is based on research findings, interviews with teachers, and results from piloting the present survey.

Outcome Space. These items use a Likert scale from 1 (strongly disagree) to 4 (strongly agree) with intermediate levels of 2 (disagree) and 3 (agree). I decided not to use a 5 points scale with a middle category (such as, neither agree nor disagree) because some participants interpret a middle category as a neutral response while others interpret it as an unimportant or unsure response (Wilson, 2010). Items are worded positively, using the aforementioned scale, or negatively. Negatively-worded items were reverse-coded, so higher scores reflect positive feelings about co-teaching. Therefore, when someone strongly disagrees to a negatively-worded item or strongly agrees to a positively-worded item, they are scored a 4 in both cases. I designed the items to measure openness to co-teaching, which included the following sub-topics: (a) co-teaching opinions; (b) accepting advice; (c) co-planning considerations; (d) classroom management; (e) communicating ideas; and (f) accommodating different perspectives (see Figure 1 for specific items).

Item design. Items were based on ideas that arose through piloting the items and interviewing teachers. They were taken from open-ended items about what teachers like and dislike about co-teaching. Participants also provided additional information through preliminary interviews and additional comments at the end of the survey. I modified and clarified these items through response process interviews with a convenience sample of teachers and other advisors. During a response process interview, the participant performed a think-aloud by describing her thoughts as she completed the measure. She also commented when an item was confusing or could be interpreted in more than one way. This qualitative information provided construct validity evidence for scores on the measure.

Field testing. This is the fourth step as outlined by Sondergeld and Johnson (2014) and occurred in two waves of participants, the final pilot and the study. From each step, data were collected and downloaded into a spreadsheet that was entered in the programs WINSTEPS (Linacre, 2014) and ConstructMap (Kennedy, Wilson, Draney, Tutuncuyan, & Vorp, 2008). These programs estimate parameters for the Rasch model and produced validity and reliability information for respondents’ scores.

Study. Field testing continued after the data analysis phase of the fourth pilot (described below). For the formal data collection, I emailed and talked to administrators and university personnel with access to lists of teacher emails to send the survey link for me. I asked them to forward the link in an email\(^1\). Teachers wrote their email addresses on a separate page of the

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\(^1\) Text of email: “Thank you for distributing this survey to your teachers. If you could, please add a short message from you before the following blurb from me. If you suggest that teachers complete this survey, they are more likely
survey, and these were kept separate from responses and only used to deliver the Amazon gift cards. I also requested that administrators and other contacts report to me how many teachers received the link so I could calculate the response rate. Each group of potential participants had a specific survey link so I could report anonymous results from each contact’s participant pool after the study’s conclusion (see Table 3 for details about each collector).

Table 3  
Final Number of Participants from Collectors

<table>
<thead>
<tr>
<th>Participant Source</th>
<th>N</th>
<th>n</th>
<th>Date of first email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumni of private university (GE)</td>
<td>506</td>
<td>37</td>
<td>January 19, 2015</td>
</tr>
<tr>
<td>Alumni of private university (SE)</td>
<td>60</td>
<td>14</td>
<td>January 19, 2015</td>
</tr>
<tr>
<td>SE teachers clearing credential</td>
<td>30</td>
<td>7</td>
<td>January 29, 2015</td>
</tr>
<tr>
<td>Graduate students (SE &amp; GE)</td>
<td>350</td>
<td>24</td>
<td>February 17, 2015</td>
</tr>
<tr>
<td>Middle School Teachers</td>
<td>35</td>
<td>17</td>
<td>February 18, 2015</td>
</tr>
<tr>
<td>Teachers in CA and their contacts</td>
<td>30</td>
<td>15</td>
<td>February 18, 2015</td>
</tr>
<tr>
<td>Other contacts from outside CA</td>
<td>9</td>
<td>1</td>
<td>February 18, 2015</td>
</tr>
<tr>
<td>Total</td>
<td>1,020</td>
<td>129</td>
<td></td>
</tr>
</tbody>
</table>

Note. Populations (N) are approximate because teachers and graduate students were instructed to share link with additional teachers as appropriate. Samples (n) include all teachers who started the survey. Of this number, 24 were disqualified due to lack of experience and more dropped out before completing the survey. Total participation rate is estimated to be 12.6%.

After one week, 45 participants completed the survey from three collectors, but 24 were disqualified due to lack of experience. I followed up with administrators to resend the link, asked them to thank those who had already participated, request participation from the rest, and offered an extra entry into the raffle for those who could complete the survey within the next three days. Since participation was low with the original set of collectors (i.e., participant pools receiving a unique link to the survey) even after the second email (six more people completed the survey), I sent survey links to two new collectors, a class of credentialed special education teachers in Northern California and a special education supervisor for a group of charter schools in Southern California. These two populations led to a sample of 18 additional participants. Due to participant attrition and disqualification, out of my projected minimum of 80 participants, only 43 participants had completed the survey. For the next step, I communicated with staff at the
California Teacher Credentialing office, a group of teachers and parents who advocate for students with special needs, and other districts and schools. These groups were unable to send the link to teachers, so I reached out to graduate students at a university in Northern California and familiar teachers in Northern California (see Table 3). Once I reached the target number of participants, I stopped adding collectors and kept the survey open for an additional 5 days. To choose the raffle winners, I used a website called random.org to generate random numbers between one and 104 (the total number of participants who began the survey). These emails were in a spreadsheet and winners were in the rows that corresponded to the first ten random numbers generated. I used the emails to send $30 gift cards and then deleted them.

**Survey development.** In order to analyze data, I had to download them into an Excel spreadsheet and make them interpretable by *ConstructMap* and *SPSS*. First, I downloaded all data into Excel and assigned numbers to categorical data (see Table 4 for categories). I separated measure items from all participants who completed this part of the survey into an Excel spreadsheet and uploaded it into *ConstructMap*. After estimating a Rasch model, I checked the item fit and deleted three underfit items (i.e., more variation than predicted). Deleted items were: (a) When both teachers help all students, there is a greater sense of equity among students with and without disabilities, (b) I don't have time to plan with another teacher, and (c) I prefer not to collaborate with the teachers at my school for personal reasons. After deleting those items, I re-estimated the model and calculated item difficulties and participant proficiencies. These fit statistics and models will be described more fully in the Results section.

### Table 4

*Codes of Non-Dichotomous Nominal Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Description of Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade level of students</td>
<td>0</td>
<td>Pre-school</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Early elementary (K-2&lt;sup&gt;rd&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>All elementary (K-5&lt;sup&gt;th&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Late elementary (3&lt;sup&gt;rd&lt;/sup&gt;-5&lt;sup&gt;th&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>K-8&lt;sup&gt;th&lt;/sup&gt; grade</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Middle School (6&lt;sup&gt;th&lt;/sup&gt;-8&lt;sup&gt;th&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Middle and High School</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>High School (9&lt;sup&gt;th&lt;/sup&gt;-12&lt;sup&gt;th&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Post-secondary</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Co-teaching experience</td>
<td>1</td>
<td>Currently co-teaching</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Co-taught in the past</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Never co-taught</td>
</tr>
<tr>
<td>Years of teaching experience</td>
<td>1</td>
<td>2-3 years</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4-5 years</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6-10 years</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>11 or more years</td>
</tr>
</tbody>
</table>
To respond to the second and third research questions, I needed to determine contextual information about each participant. I asked if teachers were currently special or general educators, hoping to divide participants into two groups based on what they taught or are teaching. However, some participants interpreted the question as, “What are you teaching now?” and answered “neither.” I used another question further in the survey to identify these teachers as special or general educators to use item skip logic so they would only see the parts of the survey that applied to them. This item served as a way to double-check teacher type, so I changed the “neither” responses accordingly. In future iterations of the survey, this item will be edited to more clearly divide teachers into special or general educators, regardless of current teaching status. I used SPSS to answer research questions two and three; these analyses are described below.

**Data Analysis**

**Pilots.** Pilots one through three led to changes in items’ content and wording, but I did no additional data analysis on these pilots. For pilot four, I used the Rasch model to investigate the reliability and validity of scores on the Openness to co-teaching measure (see Bond & Fox, 2012). In the Rasch model, reliability evidence includes ensuring that the measure is unidimensional, supported by item fit statistics and Cronbach’s $\alpha$. There are five types of validity evidence based on the standards of the American Psychological Association (AERA, 2014): (a) instrument content; (b) response processes evidence; (c) internal structure evidence at the instrument, item, and item by group level; (d) relationship between measure and other

<table>
<thead>
<tr>
<th>CATEGORY PROBABILITIES: MODES - Structure measures at intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>O</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
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<td>Y</td>
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<tr>
<td>F</td>
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<tr>
<td>R</td>
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<tr>
<td>S</td>
</tr>
<tr>
<td>P</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>S</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td>PERSON [MINUS] ITEM MEASURE</td>
</tr>
</tbody>
</table>

*Figure 3.* Probability curves by category depending on person and item difficulties. These show the probability of respondents’ agreement to items over the whole measure.
variables; and (e) evidence of consequences of using an instrument. For the pilot, I looked at the first four types of validity evidence. Consequential validity (the fifth type) was beyond the scope of this dissertation.

Figure 4. Wright map of respondents and items for three category model. Each X = 1 participant and each row is 0.255 logits.
To analyze the data, WINSTEPS estimated a model and produced various output, including a Wright Map, fit statistics, participants’ ability estimates, and category probability curves. This Wright Map demonstrated that items mapped onto the construct lower than respondent ability estimates, which showed a ceiling effect. Participants were located in the upper left corner and item difficulty estimates were below the participant estimates in the lower right corner. In an attempt to understand this mismatch, I looked at category probability curves and there was a lower probability that respondents chose category 2 over other categories (see Figure 3), so I collapsed categories 1 and 2 for analysis. Before collapsing categories, respondents chose category 1 only 3% of the time compared with 12% for category 2, 48% for category 3 and 36% for category 4. After collapsing categories, items matched on to people ability better (see Figure 4), but there were still items that were situated lower than participants’ ability estimates. Since participants used all four response categories some of the time (albeit at different rates), I chose to maintain four categories in the next iteration of the survey, with the option to collapse categories later if necessary. A new set of participants might show a different pattern of responses, so I kept the full range of categories for the study. I entered the spreadsheet of collapsed categories into ConstructMap for analysis.

**Standard error of measurement.** The standard error of measurement (SEM) curve (Figure 5) showed the classic U-shaped curve for item response models (Wilson, 2010), which meant that there was less error estimating and distinguishing participant ability around the mean and more error estimating participant ability at the extremes. When participants scored low or high on the construct, fewer items were available to identify their ability (Bond & Fox, 2012). For example, the easiest item in the upper left-hand side of the graph, is estimated to be about -2.75 logits. The amount of error, however, is 0.56, so a 95% confidence interval for this estimate is between -3.87 and -1.63. For most participants, measurement error was between 0.30 and 0.35 ($M = 0.33$, $SD = 0.04$). So, estimated item difficulties are narrower for more difficult items than the previous example. As items get more difficult, however, item estimates are less accurate.

**Item results.** Item fit is a metric of the validity and reliability of scores in the Rasch model that also provides evidence for unidimensionality of a construct (Bond & Fox, 2012). According to the theory in Wilson (2010), valid *infit mean square* values are expected to be between 0.75 and 1.33, which is one standard deviation from the expected mean of 1 (see Figure 6). *Overfit*, items with an infit value less than 0.75 is an indication of “possible item redundancy” (Bond & Fox, 2012, p. 112). So, these items do not differentiate participants well, but they still function as predicted. *Underfit*, items with an infit value greater than 1.33, is an indication of participants’ “erratic response patterns” (Bond & Fox, 2012, p. 112). With this sample, there were eight overfit items and zero underfit items.

I kept four overfit items that were important thematically, such as, “I don’t support teacher collaboration for any reason.” Another sample of participants might have more negative opinions, so they might agree with this negatively-worded item. However, some overfit items would not contribute as much to an understanding of openness. One such item, “I am willing to co-plan with the other teacher so that we can co-teach effectively,” was much lower than 0.75, not specific enough, and badly worded according to interviews with participants, so I deleted it and added an item specifying an amount of time to co-plan (see below for a list of new items). “It’s fun to work together” showed overfit and was also vague, so I deleted it. After deleting those items, I deleted other items that did not seem to fit thematically under the umbrella construct, openness to co-teaching. “I communicate effectively with the other teacher to plan instruction for students with IEPs” and “The other teacher(s) communicate with me effectively
about how we will teach students with IEPs” were both about teacher’s opinions about actual communication styles instead of about their attitudes in reference to co-teaching.

As can be seen by Figure 4, I needed more difficult to agree with items to distinguish respondents at the top of the spectrum for the study phase. Thus, I added the following items to the next iteration of the survey, described below: (a) I am willing to co-plan with another teacher, even if we have to meet every day after school past our contract hours; (b) I don't have time to build a new co-teaching relationship (reverse coded); (c) I am willing to compromise with another teacher, even though that means my ideas or decisions are not used sometimes; (d) I do not want to co-teach with a less effective teacher (reverse coded); and (e) I would co-teach with a teacher even if we have very different, often conflicting, ideas about teaching.

**Reliability.** After deleting the overfit items, I checked for *internal consistency* (Cronbach’s $\alpha = 0.91$) to ensure reliability. This indicated that the items on this measure fit together as one unified construct. High internal consistency along with item fit (see below) suggested that the items worked as a cohesive measure of a phenomenon. I also randomized items, ensuring that scores reflected item difficulty and were not biased based on order of items.

![SEM Graph](image)

*Figure 5. Standard Error of Measurement (SEM) curve. Proficiencies refer to participants and are in logits.*
Figure 6. Item fit based on infit mean squares. Each row is an abbreviated item on the scale in the same numerical order as the Wright map in Figure 4.

**Respondent fit.** Respondent fit is an estimate of how well participants’ actual responses map on to their predicted response pattern. For instruments with 30-300 respondents, a reasonable fitting respondent has a $t$-value between -2 and 2 (Bond & Fox, 2012). After deleting the four underfit items, I re-ran the model to estimate item and respondent statistics. Of the 83 respondents, 63 fell within the acceptable range, eleven (13%) fell below -2 (overfit), and nine (11%) fell above 2 (underfit). Overall, mean respondent proficiencies (i.e., degree of openness to co-teaching) correlated as expected with item responses. The respondents who disagreed to items had lower mean proficiencies than respondents who agreed to items and items show the expected pattern. I analyzed diagnostic maps (called kidmaps) of participants with acceptable fit, overfit, and underfit. Figure 7 shows one example of a participant with acceptable fit (difficulty score =
1.67, $t = -0.001$). This participant mostly disagreed with items above her ability (upper right quadrant) and agreed with items below her ability (lower left quadrant). In other words, she endorsed easy to endorse statements and did not endorse difficult to endorse statements about co-teaching. Participants with overfit scores did not have the expected variation, or randomness, in their responses. Their responses were quite positive and supportive of co-teaching; however, the lack of randomness was not a concern in

---

**Level Responded** | **Next Level**
---|---
22.2 | 19.2 24.2
25.2 | 2.2 28.2
23.2 | 10.2 20.2

---

17.2 | XXX | 16.2 27.2
8.2 |

---

4.2 14.2 | 12.2 13.2 29.2
7.2 11.2 |
18.2 19.1 21.2 26.2 |
3.2 5.2 10.1 28.1 |
9.2 |
24.1 |

---

2.1 12.1 13.1 |
15.1 20.1 27.1 |
1.1 6.1 16.1
29.1 |

---

**Figure 7.** Diagnostic map of participant with acceptable fit. Ability estimate = 1.67, Infit = 0.98 ($t = -0.001$). Each row is 0.255 logits.
this case (see Wilson, 2010). For example, one participant with a difficulty score of 0.16 (t = -3.5) endorsed items below her ability level and did not endorse items above her difficulty level in an almost perfect pattern. Figure 8 shows that items are in the expected quadrant. On the other hand, participants with underfit scores had unexpected patterns of responses. For example, one participant with a difficulty score of -1.21 (t = 4.9; see Figure 9) did not endorse items below her ability threshold that she was predicted to endorse. However, she followed the predicted pattern

---

**Level Responded**

| 1.2 |
| 2.1 12.1 13.1 23.1 |
| 4.1 15.1 17.1 20.1 27.1 |
| 14.1 21.1 |
| 6.1 11.1 16.1 |
| 8.1 29.1 |
| 3.1 |
| 18.1 |
| 7.1 9.1 |
| 5.1 26.1 |

| Next Level |
| 2.2 |
| 19.2 24.2 |
| 2.2 25.2 28.2 |
| 10.2 20.2 |
| 15.2 23.2 |
| 16.2 17.2 27.2 |
| 8.2 |
| 4.2 12.2 13.2 14.2 29.2 |
| 7.2 11.2 |
| 19.1 22.1 |
| 18.2 21.2 26.2 |
| 10.1 28.1 |
| 3.2 5.2 |
| XXX 6.2 |
| 25.1 |
| 9.2 |

---

**Figure 8.** Diagnostic map of participant with overfit. Ability estimate = 0.16. Infit = 0.34 (t = -3.51). Each row is 0.255 logits.
Figure 9. Diagnostic map of participant with underfit. Ability estimate = -1.21. Infit = 2.67 ($t = 4.87$). Each row is 0.255 logits.

and did not endorse items above her ability threshold. The next section will present validity evidence for scores on the pilot.

Validity. As evidence of the first two types of validity, I developed this instrument based on the literature and mapping the construct (see Wilson, 2010) and with input from teachers
during response process interviews. To ensure high levels of validity, I constructed the instrument according to the Construct Modeling approach outlined by Wilson (2010). First, I developed a construct map and constructed the measure carefully. In addition, the literature supports the use of surveys to measure teacher attitudes about collaboration and co-teaching (Austin, 2001; Beaudoin-Colwell, 2009; Bixler, 1998; Damore & Murray, 2009). Second, I used input from teachers from interviews and previous pilots as evidence for the second type of validity. For the third type of validity, I had some evidence of internal structure at the instrument and item level. For item by group level, item invariance (DIF) can show this type of validity evidence. Item difficulties were expected to be constant across different groups (Bond & Fox, 2012). To test this, I calculated item difficulties for different subgroups, ranked items, and plotted the ranks on a scatterplot and calculated the Pearson correlation to compare them (see Figures 10 and 11).

![Item Ranks of GE by SE](image)

**Figure 10.** Differential Item Functioning by ranking item difficulties of two subgroups of participants and comparing them. GE = General educators ($n = 30$); SE = Special educators ($n = 26$). Pearson correlation = 0.44. Each point represents an item’s rank when put in order of difficulty, separately for SE and GE.

Not all participants stated their demographic information, so I compared the subgroup who stated they were general educators ($n = 30$) to the subgroup who stated they were special educators ($n = 26$). Item difficulties were somewhat similar between the two groups, but there was a large amount of variation (see Figure 10). When I separated some participants by the age of their students, item ranks were more similar. Teachers who worked with preschool and elementary
students (5th grade and younger; n = 32) and teachers who worked with older students (6th grade and older; n = 20) endorsed items in similar ways (see Figure 11).

![Item Ranks by Grade Level Taught](image)

**Figure 11.** Differential Item Functioning between participants who teach preschool through 5th grade (n = 32) and participants who teach 6th grade and up (n = 20). Pearson correlation = 0.63

Finally, I investigated the fourth type of validity evidence using a subgroup of participants. Based on a two-tailed, independent samples t-test, there was a significant difference in the ability estimates for participants who want to co-teach (M = 0.98, SD = 1.16) and those who do not want to co-teach (M =−0.06, SD = 0.98); t(54) = 2.40, p < 0.05. However, this evidence is based on 60 of the 83 participants and only eight participants stated that they did not want to co-teach. This evidence taken together demonstrated support for the validity of measurement scores. The study phase was based on the revised measure and survey and included additional items, described below.

**Study.**

**Research question one: Measure development.** After field testing the measure (fourth step), I continued to the fifth step, implementing Rasch measurement, by using ConstructMap. These two steps (field testing and implementing Rasch measurement) occurred in an iterative process, the first of which was described above. I previously described pilot evidence for reliability and validity of scores, but I repeated this process when analyzing the measure for the study. After deleting four items and adding five new items, I collected and interpreted data through Rasch measurement for the study (see Results section).

I had two checks of reliability of the scores on the measure: (a) Cronbach’s α to check for internal consistency, one piece of evidence for unidimensionality of the construct, and (b)
correlation between item difficulties from the pilot and the same item’s difficulties from the study, using different participants. Support for validity came from several sources: (a) instrument content validity, (b) response processes evidence, (c) internal structure, and (d) relationship between the measure and other variables. I used ConstructMap output to find evidence of internal structure, item fit and participant fit. Finally, I investigated item invariance and correlate results from how participants responded to other items on the survey with their corresponding openness score on this measure. These are described in the Results section below.

Research question two: Openness and teachers’ context. This question investigated relationships among teacher openness scores and other variables. I started off by comparing means of openness scores of participants based on one variable: (a) grade level, (b) teachers’ age, (c) years of experience, (d) teacher type, and (e) co-teaching experience. First, I compared the means of teachers based on aggregated grade-level (preschool through grade five or sixth grade and above) using an independent samples t-test. I also conducted a one-way ANOVA using all grade-level categories (Table 4). Second, I calculated correlations between openness scores and teachers’ age and years of experience. Third, I compared the means of general educator openness and special educator openness using an independent samples t-test. Fourth, I compared the means of teachers based on their experience co-teaching using a one-way ANOVA and a box plot.

Then, I decided to compare mean openness scores along two dimensions, teacher type and co-teaching experience. First, I checked for an interaction between teacher type and co-teaching experience in two ways: a line graph of mean ability scores and a chi-squared test for independence for how teacher type is distributed across co-teaching experience categories. I also made a Mosaic Plot, a visual representation of the chi-squared test. Openness to Co-teaching scores were subjected to a two-way analysis of variance (ANOVA) having two levels of teacher type (general, special) and three levels of co-teaching experience (currently co-teaching, co-taught in the past, never co-taught).

Research question three: responsibilities and co-teaching models. In order to understand teachers’ preferences for instructional tasks, I averaged the two groups responses by assigning a score from one (special education teacher’s full responsibility) to five (general education teacher’s full responsibility) and compared the average for each item. Since there were six comparisons, I used Bonferroni’s adjustment and independent-samples t-tests. Since I performed multiple independent samples t-tests, I calculated a Bonferroni correction to adjust for the increased possibility that multiple comparisons will yield statistically significant results based on chance instead of actual significance. The Bonferroni adjusted alpha levels were .008 per test (.05/6). Therefore, results were statistically significant when \( p < 0.008 \).

I separated participants by teacher type and created a bar graph of their most preferred model and least preferred model percentages. For the most preferred models, a chi-squared test of goodness-of-fit was performed to determine if models were equally preferred overall. Then, a chi-squared test of goodness-of-fit was performed to determine whether the six models, including “no co-teaching,” were equally least preferred. I also separated teachers into three groups: (a) currently co-teaching, (b) not currently co-teaching, but co-taught in the past, and (c) never co-taught and created a line graph of their most and least preferred models.
Chapter 3
Results

Research Question One: Measure Development

The measure showed similar patterns as the pilot, with participants reporting high overall openness to co-teaching. The following results are based on the twenty-three items in the construct map in Figure 1 after I deleted underfit items and developed a model based on the remaining items.

![Standard Error of Measurement](image)

*Figure 12. SEM graph showing standard error of items by item difficulties (i.e., proficiencies).*

**Standard error of measurement.** Based on Figure 12, the typical pattern of measurement error is not met with this sample. Typically, there is more error associated with items at the extreme ends of the construct. Increased error at the low and high end of the construct occurs because difficulty is based on a normal distribution. The rarity of participants at either extreme co-occurs with less items falling at the extremes to differentiate participants’ proficiencies. However, this sample had lower error at the low end that increased as item difficulty increased. Participants with high proficiencies had fewer items to reliably differentiate them from participants with
Figure 13. Wright Map, map of person estimates and response model parameter estimates. Each X represents 1 student, each row is 0.255 logits.

lower proficiencies. Items at the low end of the construct had less error, but more information is needed to understand the reliability and validity of scores on the measure. The Wright Map (Figure 13) shows that there are four items that mostly fall below participant proficiencies (levels one and two were beneath the Xs on the left; 4, 5, 16, and 21). Other items’ were easy for
participants to strongly agree with (e.g., 15 and 17), but helped differentiate respondents who agreed, disagreed, or strongly disagreed. This means that at the low end of the construct, there are more than enough items to differentiate participants at that level (Bond & Fox, 2012). Since most items fall on the low end and few items extend to the high end of the Wright Map, there are not enough difficult items available to differentiate participants at this extreme. Based on this disconnect between respondents and items, there is a ceiling effect because four items are too easy for participants to agree with. These items measured agreement that different teachers’ strengths complement each other, openness to approaching the other teacher to ask for help, agreement that the other teacher can fill in knowledge gaps about teaching complex content, and openness to compromise even if your ideas are not used sometimes.

**Item results.** One piece of evidence for reliability, or unidimensionality of the construct, is item fit. The item fit statistics (see Figure 14) show that all items fit within acceptable ranges except one. That item, “I don’t have time to build a new co-teaching relationship,” has an infit mean square of 1.38, 0.05 higher than acceptable fit. This item is showing slightly more variability than predicted, so it might be worded a bit too vaguely. For future iterations, this item may need to be reworded or deleted.

<table>
<thead>
<tr>
<th>Item</th>
<th>Infit Mean Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>No co-teach</td>
<td>0.58</td>
</tr>
<tr>
<td>Teach improves</td>
<td>0.67</td>
</tr>
<tr>
<td>diff perspective</td>
<td>0.75</td>
</tr>
<tr>
<td>diff strengths</td>
<td>0.83</td>
</tr>
<tr>
<td>helpcontent/stud</td>
<td>0.92</td>
</tr>
<tr>
<td>distracting/stud</td>
<td>1.00</td>
</tr>
<tr>
<td>disruptive</td>
<td>1.08</td>
</tr>
<tr>
<td>noothers/comment</td>
<td>1.17</td>
</tr>
<tr>
<td>better rapport</td>
<td>1.25</td>
</tr>
<tr>
<td>helps more exp</td>
<td>1.33</td>
</tr>
<tr>
<td>diff philosophy</td>
<td>1.42</td>
</tr>
<tr>
<td>diff expertise</td>
<td>1.5</td>
</tr>
<tr>
<td>in charge all</td>
<td></td>
</tr>
<tr>
<td>suggest IEP stud</td>
<td></td>
</tr>
<tr>
<td>accom dif teach</td>
<td></td>
</tr>
<tr>
<td>fillinggapsknowl</td>
<td></td>
</tr>
<tr>
<td>easier teach own</td>
<td></td>
</tr>
<tr>
<td>like to collab</td>
<td></td>
</tr>
<tr>
<td>willing coplan</td>
<td></td>
</tr>
<tr>
<td>no time buildnew</td>
<td></td>
</tr>
<tr>
<td>compromise idea</td>
<td></td>
</tr>
<tr>
<td>no less effective</td>
<td></td>
</tr>
<tr>
<td>conflict ideas</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 14. Item fit graph of study (N = 98). Based on infit mean squared, values should be between 0.75 and 1.33.*

**Reliability.** The other piece of evidence that supports unidimensionality is internal consistency of the measure. Cronbach’s α for this iteration of the measure is 0.88, which is quite high. As another check for internal consistence, I correlated the item difficulties from the pilot with item difficulties from the study. If these different groups of participants’ responses result in similar item difficulties, this is evidence for internal consistency. These items were highly correlated (r = .84), demonstrating evidence for reliability of the measure.
**Respondent fit.** Of the 98 participants who took the measure, 85 had appropriate fit statistics. See Figure 15 for the response pattern of a participant with good fit. Most participants had appropriate fit, so they responded in the predicted pattern with some variation (Figure 15). Two participants had negative misfit, or overfit (Figure 16). This means that they did not respond with as much variation as predicted, but they still followed the same pattern as participants with appropriate fit. They agreed with items at or below their proficiency level and disagreed with items above it with little or no exception. Eleven participants had positive misfit, or underfit.

<table>
<thead>
<tr>
<th>Level Responded</th>
<th>Next Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.3</td>
<td>3.2</td>
</tr>
<tr>
<td>13.3 17.3</td>
<td>19.2</td>
</tr>
<tr>
<td>11.3 15.3 22.3</td>
<td>4.3</td>
</tr>
<tr>
<td>20.3</td>
<td>XXX</td>
</tr>
<tr>
<td>19.3 21.3</td>
<td>15.2</td>
</tr>
<tr>
<td>9.3</td>
<td>11.2 13.2</td>
</tr>
<tr>
<td>8.3</td>
<td>10.2 12.3</td>
</tr>
<tr>
<td></td>
<td>14.2</td>
</tr>
<tr>
<td>16.3</td>
<td>7.2 18.2</td>
</tr>
<tr>
<td>2.2</td>
<td>11.2 13.2</td>
</tr>
<tr>
<td></td>
<td>5.3 6.3 17.2 22.2 23.2</td>
</tr>
<tr>
<td>3.2 19.2</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>20.2</td>
<td></td>
</tr>
<tr>
<td>14.1</td>
<td>1.3 12.2</td>
</tr>
<tr>
<td>8.2</td>
<td>6.2 22.1</td>
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<td>23.1</td>
</tr>
<tr>
<td>5.2 10.1 16.2</td>
<td>20.2</td>
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<tr>
<td>7.1 11.1 21.2</td>
<td>13.1</td>
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<tr>
<td>8.1 18.1</td>
<td></td>
</tr>
<tr>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>17.1</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 15.* Diagnostic kidmap showing participant with good fit (infit mean square = 0.965, t = 0.012). Each row is 0.255 logits.
Figure 16. Diagnostic kidmap showing participant with negative misfit (infit mean square = 0.307, t = -2.689). Each row is 0.255 logits.

Figure 17 shows the response pattern of a participant with high positive misfit. The response pattern shows more variation than expected. Items are not clustered in the expected quadrants, but distributed across all four quadrants. This person agreed and disagreed to items above and
below their proficiency level. Since there are typically 5% of participants with misfit, 2% of participants demonstrating overfit plus 11% demonstrating underfit is more than predicted.

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**Figure 17.** Diagnostic kidmap showing participant with positive misfit (infit mean square = 4.057, t = 5.554). Each row is 0.255 logits.
Validity. Validity evidence includes internal structure of the instrument, item fit, and item by group functioning. Additional support for measure validity is found in the relationship between the measure and other variables. Previously mentioned results demonstrate that there is evidence that the measure has good internal structure and acceptable item fit. Now, I discuss item by group functioning information. Second, I describe the relationship between the measure and another variable, an item that directly asks participants if they are willing to co-teach or not.

Figure 18 shows DIF for special versus general educators. One item acts as an outlier by ranking on the low end for special educators and on the high end for general educators. With this item, the correlation between special and general educators is 0.68; when this item is excluded, it increases to 0.83. These correlations are relatively high, offering evidence for item invariance.

Figure 18. Differential Item Functioning by ranking item difficulties of two subgroups of participants and comparing them. GE = General educators (n = 56); SE = Special educators (n = 42).

As a second check for DIF, I separated participants into groups by grade level of their students. I compared the rank difficulties of items by teachers of preschool through fifth grade versus teachers of sixth grade and above. Two participants taught students in kindergarten through eighth grade, so these participants’ scores were included in both groups. Figure 19 shows that this comparison also contains an outlier. With all items, the correlation is 0.72; excluding the outlier increases the correlation to 0.81.
To check for the relationship between the measure and other variables, I compared teacher openness to co-teaching with their responses to an item asking if they wanted to co-teach. Based on the 89 participants who answered this question, only 22 stated that they did not want to co-teach. I ran an independent samples t-test and determined that participants who did not want to teach had a significantly lower mean openness score ($M = 0.53, SD = 0.81$) than those who wanted to co-teach ($M = 1.23, SD = 1.05$), $t(86) = 2.87, p = 0.005$.

Overall, teachers were quite positive about co-teaching. As previously mentioned, there was a ceiling effect of the measure such that most participants agreed or strongly agreed to most of the items. When considering the most difficult to agree with item, “I would co-teach with a teacher even if we have very different, often conflicting, ideas about teaching,” half of the participants still agreed or strongly agreed. Across all items on the measure, an average of 79% ($SD = 19\%$) of participants agreed or strongly agreed.

Research Question Two: Openness and Teachers’ Context

For this question, I compared average teacher openness scores based on several contextual variables: (a) grade level, (b) teachers’ age, (c) years of experience, (d) teacher type, and (e) co-teaching experience. Based on a Pearson correlation, there was no significant relationship between openness scores and grade level of teachers, using all categories ($r = -0.01, n = 98, p = .95$). Based on a two-tailed, independent samples $t$-test, there was no significant difference in average openness scores between teachers of students in pre-school through fifth grade ($M = 1.19, SD = 1.06$) and teachers of students in sixth grade and above ($M = 0.92, SD = 0.81$).
1.00), \( t(94) = 1.29, p = .20 \). Additionally, there was no correlation between openness scores and teachers’ age \( (r = -.04, n = 82, p = .73) \) and years of experience \( (r = -.007, n = 98, p = .95) \). I did find a significant difference between the openness scores of general educators \( (M = 0.87, SD = 0.95) \) and special educators \( (M = 1.31, SD = 1.09) \), based on a t-test with \( t(96) = 2.11, p = 0.037 \). Furthermore, I also found a significant difference among openness scores for teachers with different types of experience co-teaching, based on a one-way ANOVA, with F-test \( F(2, 86) = 5.06, p = 0.008 \). Current co-teachers had a higher mean openness score \( (M = 1.51, SD = 1.09) \) than teachers who had never co-taught \( (M = 0.67, SD = 0.87) \). Figure 20 shows a boxplot of this relationship using median scores. Teachers not currently co-teaching, but who had co-taught in the past had a lower median \( (\text{median} = 1.06, SD = 1.01) \) than those who were currently co-teaching, but higher than those who had never co-taught (see Figure 20).

**Figure 20.** Boxplot of Openness scores by co-teaching experience. This Boxplot is based on median scores of teachers who are co-teaching, had co-taught in the past, or had never co-taught.

Teacher type and co-teaching experience were highly correlated. A chi-squared test of independence of teacher type and co-teaching experience was rejected, \( \chi^2(2, N = 89) = 12.43, p = .002 \). Figure 21 shows a Mosaic plot, a visual representation of this chi-squared test. Special
educators were more likely to be currently co-teaching than general educators; general educators were more likely to never have co-taught than special educators. Since teacher type and experience co-teaching were related, I calculated percent of the sample for each category. For special education teachers, 46% (n = 17) were currently co-teaching, 38% (n = 14) had co-taught in the past, and 16% (n = 6) had never co-taught. General education teachers had the reverse pattern, so the largest percentage of them (48%; n = 25) had never co-taught. Seventeen percent (n = 9) of general educators surveyed were currently co-teaching and 35% (n = 18) had co-taught in the past. Since teacher type and co-teaching experience were highly correlated, a two-way ANOVA of teacher type and co-teaching experience did not add any new information to understanding differences in openness scores. The only significant difference was in co-teaching experience, as previously mentioned. Standard errors were not equal across factors, so there was also substantial overlap among 95% confidence intervals. In addition, the sample size was small, so there was not much power for a two-way ANOVA.

![Figure 21. Mosaic plot of teacher type and experience co-teaching. The area of each square corresponds with the proportion of general and special educators in each group (by percentage).](image)

As can be seen by Figure 22, there was a possible interaction between teacher type and co-teaching experience. Special educators had higher openness scores than general educators, despite co-teaching experience, except for those who had co-taught in the past; those scores were
almost equivalent to general educators’ scores. The lowest mean openness score was from general educators who had never co-taught \((n = 25, M = 0.60, SD = 0.76)\). The highest mean openness score was from special educators who were currently co-teaching \((n = 17, M = 1.78, SD = 1.12)\).

![Figure 22. Mean openness scores by teacher type and experience co-teaching. The lines are to help see the relationship, but should not be interpreted as showing a trend.](image)

**Research Question Three: Responsibilities and Co-teaching Models**

Six items asked about preferences in terms of division of responsibilities between co-teachers, ranging from one (full responsibility of special educator) to five (full responsibility of general educator). Table 5 shows group means for special and general educators and where the means differ. As can be seen by these means, five of the six means are very close to three, which represents equal responsibility. The only item that deviates from equal responsibility asks about modifying instruction for struggling learners; on average, teachers leaned more toward the special educator’s responsibility with the general educators help. When looking at every response across all six items, it was rare for teachers to claim full responsibility for any task. However, out of 50 general educators across all six items, there were 18 instances where general educators wanted full responsibility and one instance where a participant assigned full responsibility to the special educator.\(^2\) In contrast, out of the 37 special educators across all six items, only twice did the special educator prefer full responsibility twice and they assigned full responsibility to the general educator four instances. So, general educators were more likely than special educators to respond that one teacher should have full responsibility; for the most part, general educators wanted full responsibility for instructional tasks. On average, general educators wanted equal or more responsibility for tasks. Special educators also wanted equal

\(^2\) For the responsibility items, 87 participants had complete data, so these results are based on two less general educators than the co-teaching model ranking item.
responsibility to a greater extent than general educators wanted them to have (except in the case of modifying curriculum). Two comparisons were statistically significant after the Bonferroni adjustment: the difference between special and general educators on who has the responsibility of modifying the curriculum \((p < 0.001)\) and who has the responsibility for managing classroom behaviors \((p < 0.003); \text{ see Table 5}\).  

Table 5

Mean Preferences of Special and General Educators About Sharing Teaching Responsibilities

<table>
<thead>
<tr>
<th>Task</th>
<th>Special Educator(^a)</th>
<th>General Educator(^b)</th>
<th>(t(85))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Lessons</td>
<td>3.27 (0.45)</td>
<td>3.55 (0.65)</td>
<td>2.26*</td>
</tr>
<tr>
<td>Modifying the Curriculum(^\wedge)</td>
<td>2.27 (0.56)</td>
<td>2.78 (0.76)</td>
<td>3.59***</td>
</tr>
<tr>
<td>Classroom Management</td>
<td>3.05 (0.33)</td>
<td>3.40 (0.61)</td>
<td>3.14**</td>
</tr>
<tr>
<td>Lead Classroom Discussion</td>
<td>3.27 (0.51)</td>
<td>3.48 (0.64)</td>
<td>1.63</td>
</tr>
<tr>
<td>Choose Curriculum and Content(^\wedge)</td>
<td>3.46 (0.61)</td>
<td>3.52 (0.65)</td>
<td>0.44</td>
</tr>
<tr>
<td>Develop Assessments(^\wedge)</td>
<td>3.35 (0.54)</td>
<td>3.36 (0.56)</td>
<td>0.07</td>
</tr>
</tbody>
</table>

*Note. Means (and standard deviations) were compared using independent samples t-tests, equal variances assumed unless indicated by \(^\wedge\).

\(^a\)N = 37, \(^b\)N = 50.

\(*p = 0.03, **p = 0.002, ***p = 0.001.\)

I compared teachers’ favorite and least favorite models based on the whole sample. If participants chose models at random, each co-teaching model would be preferred equally by 16.7% of the sample. To investigate the statistical significance of deviations from this assumption, I performed chi-squared tests of goodness-of-fit. Based on this, preferences for the favorite models were not equally distributed in the sample, \(\chi^2 (5, N = 89) = 13.71, p = .02\). Out of the six choices, five of them were close to the expected 17%, ranging from Team Teaching (13%) to “no co-teaching” (23%). Parallel Teaching, however, was preferred at a rate of 5.7% which was 66% lower than the expected 17%. Preferences for the least favorite models were also not equally distributed in the sample, \(\chi^2 (5, N = 89) = 91.84, p < .001\). There was a spike for “no co-teaching” as the least favorite model for all teachers. Overall, an average of half of participants ranked “no co-teaching” as their least favorite model, which was almost triple what was expected. Participants reported Station Teaching and Alternative Teaching as their least favorite models at 3%, which was about one-quarter of what was expected.

To compare model preference by teacher type, I separated participants into two groups, special and general educators. There were no differences between teachers based on teacher type. When the rank was averaged and models put in numerical order, special and general educators had ranked the models in the same order. “No co-teaching” was the least preferred model, indicating that teachers preferred co-teaching models to not co-teaching at all. The favorite models, with mean ranks close to four, were Alternative Teaching; Station Teaching; and One Teach, One Assist (see Table 1 for definitions). Least favorite models, with mean ranks close to three, were “no co-teaching,” Team Teaching and Parallel Teaching. Figure 23 shows
percentages of general and special educators’ favorite models; Figure 24 shows general and special educators’ least favorite models.

Since experience co-teaching affected openness scores, I also separated teachers into three groups: (a) currently co-teaching, (b) not currently co-teaching, but co-taught in the past, and (c) never co-taught. Figures 25 and 26 show the favorite models and least favorite models, respectively. These show similar patterns as the graphs separating teachers by type, but there are some notable differences. First, teachers who used to co-teach ranked “no co-teaching” higher than teachers who were currently co-teaching and those who had never co-taught. These teachers, in turn, ranked team teaching higher than those who used to co-teach. However, these differences are not statistically significant. As can be seen by Figure 25, the highest percentage of current co-teachers reported Station Teaching as their favorite, followed by Alternative Teaching and “no co-teaching.” Teachers who co-taught in the past preferred “no co-teaching,” followed by One Teach, One Assist. Favorite model choices were well-distributed across all categories for teachers who had never co-taught. For least favorite models (Figure 26), all teachers reported “no co-teaching” as their least favorite model by a large margin. Sixty-five percent of current co-teachers reported this model as their least preferred. Since this percentage is so high for all teacher types, the rest of the categories report low percentages. The one exception to this is that 29% of teachers who used to co-teach reported that team teaching was their least favorite model.
Figure 24. Least favorite model of general (GE) and special educators (SE).

Figure 25. Percentage of teachers’ favorite co-teaching model by experience co-teaching. 1 = No Co-teaching; 2 = One Teaching, One Supporting; 3 = Alternative Teaching, 4 = Station Teaching, 5 = Parallel Teaching, 6 = Team Teaching.
Figure 26. Percentage of teachers’ least favorite co-teaching model by experience co-teaching.  
1 = No Co-teaching; 2 = One Teaching, One Supporting; 3 = Alternative Teaching, 4 = Station Teaching, 5 = Parallel Teaching, 6 = Team Teaching.
Investigating teachers’ co-teaching attitudes and preferences is key to understanding why these complex relationships are sometimes beneficial for students (e.g., Lindeman & Magiera, 2014; Miller et al., 1998; Seglem & VanSant, 2010) and sometimes not (e.g., Deno et al., 1996; Mastropieri et al., 2005). This study filled in a gap in the literature by focusing on teachers’ ideas about co-teaching as a model, regardless of their co-teaching relationship status. Teachers reported their thoughts about co-teaching in the ideal, describing their feelings about instructing, planning, communicating, and negotiating with another teacher in a shared space. Similar to other survey results, on average, teachers were open to and positive about co-teaching (e.g., Fennick & Liddy, 2001). There were too many items on the low end of the construct, which means that people agreed with them more than would be expected by their proficiencies. Some of these items are superfluous psychometrically, but important thematically. It is important to know if teachers believe having another teacher in the room is distracting for students. Since they mostly disagreed with this item, it means that many teachers believe that having another teacher in the room can be not distracting to students. The other low items are about going to another teacher to ask for help, especially with understanding complex content. It is encouraging that teachers agree that asking the other teacher for help is appropriate because this demonstrates that they respect the other teacher’s expertise and generally understand that seeking help is a good professional practice. Colleagues, especially those with different expertise and training, can be used as an important resource to improve personal knowledge and practice.

Overall, teachers wanted to share responsibility and preferred to co-teach given a choice of instructional models. Among these participants, even though they were open to the idea of co-teaching, there were some differences based on teacher type (i.e., special or general educators) and co-teaching experience. In addition, there were differences the order of difficulty of items based on teaching context.

Rasch Analysis

There is evidence that this measure of teachers’ preliminary openness to co-teaching yields reliable and valid scores, based on piloting and analyzing data in an iterative process. Items showed evidence for invariance, support for reliability. However, when I separated participants according to dichotomous contextual variables, namely teacher type and grade level of students to investigate item invariance, there was one item for each variable that violated this. The items were easy for one group to agree with and very difficult for the other group to agree with, creating an outlier in the graph comparing items’ order of difficulty. For example, special and general educators responded differently to the statement, “I feel comfortable offering suggestions to the other teacher on how to teach the students with IEPs.” This item was easy for special educators to agree with, but general educators were much less likely to agree. This discrepancy makes sense because special educators are much more comfortable offering these types of suggestions than their general education counterparts. They are trained to offer individualized instructional strategies, while general educators are trained to differentiate instruction using content-specific strategies. Strategies such as these will work with most students included in the general education classroom, but students with learning and behavioral differences need instruction specific to their personal needs. This philosophical difference
between special and general educators extends to the disparate literature published in special education-focused and general education-focused journals (van Garderen, Scheuermann, Jackson, & Hampton, 2009). Unfortunately, it also extends to disagreements between teachers who are meant to be collaborating to reach the needs of their shared students.

The extent to which special and general education teachers collaborate often depends on whether they teach in elementary or secondary settings. According to Nichols et al. (2010), elementary school teachers reported more positive attitudes about co-teaching and they used this model more often than secondary teachers. When I separated participants into two groups, preschool to fifth grade and middle school and beyond, teachers of younger students were much more likely than teachers of older students to agree to the statement, “I feel comfortable approaching the other teacher to ask for help with students and content.” Teachers of older students may not be comfortable asking for assistance from other teachers because of the difficulty of the content. Perhaps they have more negative experiences and/or anticipation asking for help than teachers of younger children. Another explanation could be that as the content becomes more difficult, asking for help becomes less possible because teachers would need more help than their co-teachers could provide. It is important to remember that teachers were quite positive about co-teaching even when items had higher proficiency estimates, demonstrating these items were more difficult to agree with than items with lower proficiency estimates. So, almost all teachers agreed with items with low proficiency estimates, but most teachers still agreed with items with high proficiency estimates.

Since other measures of teachers’ attitudes about co-teaching were aimed at current, successful co-teachers (Austin, 2001; Fennick & Liddy, 2001; Keefe & Moore, 2004), the overall positive attitudes they reported made sense. This measure surveyed all teachers, regardless of whether they were co-teaching or not. About a third of teachers were currently co-teaching, a third had co-taught in the past, and a third had never co-taught. For those who had co-teaching experience, success of their co-teaching relationship was not taken into account. So, the fact that openness scores were high demonstrated that teachers need not be currently co-teaching to report positive attitudes about it. When asked directly, the majority of teachers surveyed wanted to co-teach (75%). On average, these teachers also had significantly higher openness scores than their colleagues who did not want to co-teach. This finding supports the positive opinions about co-teaching and also provides reliability evidence for the scores on the measure.

Generalizing the beliefs of co-teachers beyond any given study is not often possible because they are often based on case studies (Cole & McLeskey, 1997; Eisenman et al., 2011; Miller et al., 1998) or interviews with co-teachers within a larger co-teaching implementation study (e.g., Cramer et al., 2010). Others observe and interview eight to ten pairs of practicing co-teachers (e.g., Dieker, 2001; Magiera & Zigmond, 2005) for a specific purpose. These teachers’ opinions and beliefs about co-teaching are closely tied to their experiences as half of a successful co-teaching pair. Since these beliefs are affected by and linked to their contexts, I wanted to investigate contextual variables to see if there is a specific variable that affects teachers’ beliefs about co-teaching more than the others. The next section will describe possible reasons for the relationships between contextual variables and co-teaching openness.
Relationships Between Context and Openness to Co-teaching

I hypothesized that co-teaching openness would be affected by teachers’ context, such as grade level of students, teaching experience, and teacher type. Overall, openness scores were not influenced by grade level of students and years of teaching experience, but were significantly influenced by teacher type and co-teaching experience.

**Grade level and openness to co-teaching.** The present study found no evidence that openness to co-teaching is affected by grade level of students. Mean openness scores were the same across all grade levels, from preschool to post-secondary. Previous research has found evidence that elementary school teachers are more open to co-teaching than secondary teachers (Keefe & Moore, 2004; Mastropieri et al., 2005; Nichols et al., 2010). This difference could be based on the fact that secondary teachers work with more students, teaching more advanced and specific content. Whatever the reason, these studies investigated the opinions of current, mostly successful co-teachers. Participants of the present study reported on their opinions about co-teaching in general, regardless of whether or not they had ever co-taught. To understand why teachers did not vary across grade level, it is important to see if experience affects openness scores.

**Experience and openness to co-teaching.** Teachers’ beliefs stem from their personal experiences (e.g., Bandura, 1997) and these beliefs directly affect practice. I looked at co-teaching experience in two ways: years of teaching experience, and experience being part of a co-teaching pair. Even though I hypothesized that openness would change over a teacher’s career, I found no relationship between years of experience and openness to co-teaching. There are several ways to interpret this finding. First of all, all participants had at least two years of teaching experience or they were disqualified from taking the survey. None of them were novice teachers. Second, the amount that teachers change their practice over time depends on the teacher. A teacher who has taught the same grade level in the same school for twenty years has a different potential for openness to ideas than a teacher who has taught multiple grade levels at multiple schools in a much shorter amount of time. This is not to say that teachers who remain in the same grade level do not innovate. Decisions about whether or not to change practice are based on the individual and her context. Therefore, years of teaching experience was not an appropriate indicator to use to compare teachers’ beliefs.

A second type of experience, co-teaching experience, seemed a more appropriate way to compare teachers’ beliefs about co-teaching. There was a significant difference among teachers’ openness based on if they were currently co-teaching, had co-taught in the past, or had never co-taught. Teachers who were currently co-teaching were more positive about it, scoring higher on the openness measure, than teachers who were not currently co-teaching. Teachers with no experience co-teaching were the most negative about it. This finding questions the validity of studies that only surveyed the attitudes of current co-teachers (e.g., Austin, 2001). However, teachers with no co-teaching experience may also be qualitatively different from teachers with co-teaching experience. Perhaps teachers with no co-teaching experience had a choice about forming co-teaching relationships and decided not to do so. Perhaps they are less collaborative, open to change, or optimistic than their co-teaching colleagues.

The only other contextual variable that significantly affected co-teaching openness was teacher type, whether participants were special or general educators. Teacher type and experience co-teaching, however, were irrevocably linked because special educators were much more likely to have co-teaching experience than general educators. Almost half of general
educators surveyed had no experience co-teaching, but only six special educators had never co-taught. Thus, it is difficult to compare these groups because co-teaching experience is confounded with teacher type. Special educators seem to be more open to co-teaching than general educators, but it is also possible that teachers with experience co-teaching, especially those who are currently co-teaching, are more positive about it and this factor is what causes the difference in openness scores.

**Teacher type and openness to co-teaching.** Special educators were significantly more open to co-teaching than general educators across all grade levels and experience. Special educators might be more open to the idea of co-teaching because they are trained to provide services to students with individualized educational plans in the least restrictive environment possible. In order to follow the law and create the best possible outcomes for students, they understand that students must learn the general education curriculum with their peers. When students are removed for services, they miss out on important content (Kloo & Zigmond, 2008).

In addition, the law assumes that students will have better achievement outcomes when their teacher is highly-qualified and has high content knowledge (IDEA, 2004). Since students with IEPs must learn the same concepts and be assessed with the same measures as their peers to the greatest extent possible, co-teaching exposes them to content experts (Kloo & Zigmond, 2008). In an extensive study by King and Youngs (2003), general education teachers reported that they supported inclusion, but were not observed to change their practice to accommodate students with IEPs. Some of the general education teachers did not use IEP goals to plan for instruction and reported that the special educators were not helpful during instruction.

Other researchers also found evidence that co-teaching did not capitalize on the potential of having two teachers with different expertise (Magiera & Zigmond, 2005; Scruggs et al., 2007; Weiss, 2004; Zigmond, 2006). General educators mostly led instruction and the presence of a special educator did not affect the way they taught. For example, Magiera and Zigmond (2005) observed the amount of time that students with IEPs received individualized attention and found that general educators rarely provided this attention in co-taught or solo-taught classrooms. In social studies classes, teachers did not support students who needed additional instruction in reading and writing (Zigmond, 2006). They did not use research-based methods to support students’ literacy development, preferring to teach traditionally by lecturing and having students copy from an overhead or the board. In math classes, Magiera and colleagues (2005) found evidence that teachers did not change their instruction when co-teaching. The most common arrangement was both teachers monitoring independent practice. Otherwise, general educators led and special educators assisted during instruction. Team teaching was rare and occurred in only nine of 49 classes, for a total of about 60 minutes of the total 405 minutes. Of the remaining minutes, both teachers worked with small groups for less than 20 minutes and the special education teacher led instruction for less than 20 minutes (Magiera et al., 2005).

Special education teachers may be more open to co-teaching also because they are already required to collaborate to teach their students to a greater extent than general education teachers. As previously mentioned, almost all students with IEPs (over 94%) are located in the general education classroom for most of their school day. Special educators must rely on the general educators to clearly communicate their expectations for these shared students and collaborate to teach these students. For general educators, on the other hand, working with a special educator is not required unless they instruct students with IEPs. If general educators co-teach, they mostly use the one teach, one assist model and do not change their practice much. It is possible that special educators are open to co-teaching because they would receive support in
providing services to their students. In essence, they could act as an assistant and reduce the amount of time they spend planning and instructing students if the general educator takes the lead on that. Mastropieri et al. (2005) reported that special educators did not mind being seen as the assistant in secondary due to lack of content knowledge. They might not know how to teach content and would not be considered highly-qualified teaching advanced subject-matter content, so they would have to collaborate with general educators to comply with the law anyway. Nichols et al. (2010), in contrast, found evidence that special educators did not like being relegated to assistant status during co-teaching. Whether or not special educators act as assistance or equal partners in instruction, co-teaching has the potential for reducing their workload. Special educators seem to have the most to gain in the co-teaching relationship.

In other studies, both special and general educators reported positive attitudes about inclusion and co-teaching, but in practice, problems remain (Scruggs et al., 2007; Weiss, 2004). The literature offers some explanation for this disparity. Keefe and Moore (2004) interviewed eight current, secondary co-teachers and determined that teachers’ outcomes depended on the pair, but that special and general educators reported different needs within the co-teaching relationship. Special educators needed training to understand content and general educators needed training to effectively modify instruction for students; teachers also wanted clear roles and time to plan. They found evidence that special educators especially did not have a place in the general education classroom, often being relegated to an assistant (Keefe & Moore, 2004). So, in theory, special educators are more open to co-teaching, but in practice, they encounter some problems enacting it. A lack of well-defined roles for each teacher has been blamed for negative outcomes and ineffective co-teaching relationships. For example, Scruggs and colleagues (2007) concluded that inequality in the status between special and general educators in their co-teaching relationship lead their “marriages” to dissolve. Special educators were subordinated because they lacked the content knowledge and could not adapt their expertise to the general educator’s environment. Classrooms with co-teachers did not use special educator’s expertise, such as individualized instruction and behavior modifications, but followed general educational tenets of whole-group instruction by the general educator, with the addition of an assistant (the special educator) who could check in on students. Co-teaching should depend on student need, not teacher willingness (Keefe & Moore, 2004), but teachers being forced to work together based on student need can lead to a failed marriage (Mastropieri et al., 2005).

Responsibilities

In order to more fully understand the differences between special and general educators, I investigated their preferences in terms of who would be responsible for different teaching tasks in the co-teaching relationship. Fennick and Liddy (2001) zeroed in on instances where special and general educators disagreed about who should be primarily responsible for a particular task because this could be a source for resentment and conflict. Conderman (2011a) dedicated a whole article to addressing the inevitable conflict between teachers in a co-taught classroom because it is a common occurrence. The present study also found evidence that special and general educators disagree about who should be responsible for different tasks. Interestingly, teachers agreed that tasks should generally be shared equally. Disagreements were about how much assistance the other teacher should contribute, not that they should not help at all. When a participant reported that only one teacher should take full responsibility (i.e., by choosing a one or five rating), usually that participant was a general educator and the task was typical to general
educators. On average, both types of teachers reported that general educators should take more control over leading classroom discussions, choosing curriculum and content, and assessing students included in the general education class. They are trained to align their instruction to the CCSS (or other content standards), so they are used to designing, developing, and assessing according to these objectives. Special educators typically assess student needs and then design individual objectives and instruction. That is probably why when their students were in the general education setting, they reported that they preferred to take responsibility in modifying the curriculum instead of designing and choosing it. General educators also wanted special educators to take the lead on modifying curriculum, but preferred to be more involved in this process than special educators wanted them to be. On the other hand, special educators wanted to be more involved in classroom management and planning lessons than general educators wanted them to be. In the case of classroom management, this difference was significant. Since both groups wanted shared responsibility, the fact that general educators might want more of a leadership role in many tasks might not lead to disagreements in burgeoning co-teaching pairs. Nevertheless, even small differences might cause a conflict if neither side is willing to compromise.

Co-teaching Models

The present study found evidence that special and general educators rank Cook and Friend’s (1995) co-teaching models in the same order. In other words, there was no difference in model preferences based on teacher type. On average, they had ranked the models in the same order. Additionally, teachers prefer co-teaching over not co-teaching. About half of participants ranked “no co-teaching” as their least preferred model, regardless of teacher type. In this study, One Teach, One Assist did not emerge as the most or least preferred model over other models even though there are reasons it might have. Creating an equitable relationship when One Teach, One Assist is the predominant model used (Weiss, 2004) is a challenge. So, teachers might have strong opinions about this particular model. Special educators might not like it because they are not treated as equal instructional partners. On the other hand, they might prefer it because it would be easier for them to co-teach as an assistant than as an equal instructional partner who is required to spend time co-planning. Austin (2001) found evidence that special and general education teachers alike reported value for co-planning, but those who actually did co-plan reported less value in it. One Teach, One Assist can be implemented with little or no co-planning and for the aforementioned reasons, teachers might have extreme ideas about it. In the present study, teachers did not have a higher frequency of one or six ratings for this model when compared to other models, so this assumption was not met.
Chapter 5

Conclusions

Many questions still linger about co-teaching, including doubts about its efficacy. Most teachers and researchers seem to agree that co-teaching has potential to benefit students with and without IEPs (e.g., Friend & Cook, 2013). However, the way co-teaching is applied in practice, general educators teaching to the whole group and special educators drifting around the room (Scruggs et al., 2007), does not benefit students or teachers. Instructional practices are not changing fast enough to accommodate the diversity of learners in the classrooms and when they do, they are not tailored to reach individual student needs. Districts train teachers (or not; Nichols et al., 2010) and then expect them to paste those strategies onto practice without considering local classroom cultures or contexts. Teachers must draw upon their expertise and provide quality classroom instruction with additional accommodations and specially-designed instruction for students who need it. General educators and special educators have different expertise that makes developing co-teaching relationships difficult, but leveraging these different knowledge bases is crucial when designing and implementing instruction for the students in their classes. The challenge is to prepare these teachers to work together and master their different areas of expertise so they have an arsenal of strategies from which to choose. Once teachers are experts in their respective areas, they can come together and develop the instruction and classroom culture that their students require. Researchers and practitioners need to work together to develop site-specific co-teaching plans, paying careful consideration to when, where, and how much time teachers should be co-teaching to best reach their students’ needs.

Limitations

Conclusions from the present study need to be interpreted with caution because they are based on a particular sample of teachers who might be different in some ways than the overall population. I limited the present sample to only teachers with more than one full year of teaching experience, so their views cannot be attributed to first-year teachers. This choice was deliberate because new teachers might not have enough experience working in schools to understand their own feelings about co-teaching. Even teachers with no experience co-teaching still have experiences working within the school culture, so they have informed opinions about collaboration and teaching. Beyond limiting for years of experience, I did not obtain this sample randomly. I sent the survey link to school districts, alumni associations, and graduate students who gave me permission to do so. Therefore, responses are based on teachers within these particular networks who took the time to complete the survey; overall response rate was quite low and unequal among these networks (see Table 3). The purpose of this study was to develop and validate a screener of teachers’ openness to co-teaching, so the Rasch model dictates that participants be similar to the target population (Wilson, 2010). Participants do not need to be exactly the same as the target participants. These participants were quite similar to teachers who will be reporting their openness to co-teaching in future studies.

Future Directions and Implications

The final step in survey development according to the Rasch model is to determine the purpose of a measure (Sondergeld & Johnson, 2014). This survey was developed as a screener for researchers interested in measuring teachers’ openness to the idea of co-teaching. It can also
be used as a screener for administrators interested in implementing co-teaching in their schools. They can gauge teachers’ openness and provide targeted professional development. Another application could be as a pre/post measure to see if co-teaching openness changes during an intervention or professional development. People seeking to use this measure should do so with caution and try not to make a value judgement about co-teaching to vilify those who are not open to it. Co-teaching between two equal partners with unique expertise is a promising model, but more research is needed to understand how to build co-teaching relationships in inclusive classrooms so that all children receive appropriate accommodations and instruction.

Future research should look deeper into teachers’ attitudes and practices as they begin to build a co-teaching relationship. There is ubiquitous literature offering suggestions on how to moderate conflict (Conderman, 2011a), how to be a successful co-teacher (Murawski & Dieker, 2008), and suggestions for administrators trying to implement the co-teaching model in their schools (Nierengarten & Hughes, 2010). However, there is a dearth of research investigating how teachers actually navigate different expectations and philosophies at the outset of co-teaching. Interviewing and observing co-teachers during planning meetings and classroom instruction would provide a more in-depth view into how individual teachers create a shared vision and plan for equitable instructional roles. This idea of working together to best meet students’ needs must begin in pre-service training. Some teacher preparation programs infuse ideas of co-teaching into the program by having all teachers, regardless of their future certification, complete some classes together before pursuing specializations (e.g., Graduate School of Education, n.d.). Other student teachers have cooperating teacher mentors who are trained to implement Cook and Friend’s (1995) models with the apprentice teacher. By explicitly and implicitly incorporating co-teaching into preparation programs, the importance of cooperation and collaboration is etched into teachers’ practice.


Dieker, L. A. (2001). What are the characteristics of “effective” middle and high school co-taught teams for students with disabilities? Preventing School Failure, 46(1), 14-23. doi:10.1080/10459880109603339


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## Attitudes about Co-teaching

The purpose of this survey is to assess teachers’ attitudes about collaborative teaching between a general education teacher and a special education teacher. I am a graduate student interested in teachers’ perceptions and experiences with co-teaching. This survey is part of my dissertation work. Your responses will be completely anonymous. You will be entered in a raffle for a $30 Amazon gift card upon completion of the survey. It should take you about 10-15 minutes to complete this survey. Thank you for your time and attention.

## Teaching Certification

**1. How many years have you been teaching, including this year? Please include your years of being the teacher of record before you were certified.**

**2. Do you have a teaching certification?**

- [ ] Yes
- [ ] No

What type of teaching certification do you have (e.g., multiple subjects, single subject, education specialist)?

**3. What grade level do you currently teach (please check all that apply)?**

- [ ] Preschool
- [ ] Early Elementary School (K-2)
- [ ] Upper Elementary School (3-5)
- [ ] Middle School (6-8)
- [ ] High School (9-12)
- [ ] Post-secondary

Other (please specify):

**4. Are you currently working as a special education teacher or a general education teacher?**

- [ ] Special Education Teacher
- [ ] General Education Teacher

If you are a general education teacher, what do you teach?

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| 60 |  |
Openness to Co-Teaching

In the following section, please think about co-teaching with a special education teacher (if you are a general education teacher) or a general education teacher (if you are a special education teacher). Please remember that your responses are completely anonymous and be honest about your feelings in regards to co-teaching.

Co-teaching: Two teachers (one special educator and one general educator; not assistants or volunteers) jointly provide instruction to a heterogeneous group of students (students with and without disabilities) in a single physical space (usually in the classroom, but one group may be pulled out to receive services).

*5. Please report your agreement to the following statements about co-teaching (from strongly disagree to strongly agree) by clicking on one circle for each row. The "other teacher" or "another teacher" is a special educator if you are a general educator and a general educator if you are a special educator.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t have time to plan with another teacher.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I don’t support teacher collaboration for any reason.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It is distracting for my students to have another teacher in the classroom.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My teaching improves when I work with another teacher.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>When both teachers help all students, it helps end the stigma of special education.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel comfortable approaching the other teacher to ask for help with students and content.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I like getting a different perspective on teaching and learning.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Different teachers have different strengths so two teachers complement each other.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
6. Please report your agreement to the following statements about co-teaching (from strongly disagree to strongly agree) by clicking on one circle for each row. The "other teacher" or "another teacher" is a special educator if you are a general educator and a general educator if you are a special educator.

<table>
<thead>
<tr>
<th>Statement</th>
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<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel comfortable offering suggestions to the other teacher or how to teach the students with IEPs.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It is difficult for me to collaborate with a teacher who has a different expertise because I am not familiar with what they teach.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I don’t like when other teachers comment on my instructional practices.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I like to be in charge of all aspects of my classroom.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I prefer not to collaborate with the teachers at my school for personal reasons.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Differences in teaching philosophy make it difficult to collaborate with other teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It is disruptive for me to have another teacher in the classroom.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Sometimes another teacher has a better rapport with some of my students.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It helps me to work with a more experienced teacher.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
7. Please report your agreement to the following statements about co-teaching (from strongly disagree to strongly agree) by clicking on one circle for each row. The "other teacher" or "another teacher" is a special educator if you are a general educator and a general educator if you are a special educator.

<table>
<thead>
<tr>
<th>Statement</th>
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<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would co-teach with a teacher even if we have very different, often conflicting, ideas about teaching.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am willing to compromise with another teacher, even though that means my ideas or decisions are not used sometimes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The other teacher fills in gaps in my knowledge on how to teach complex content to students who struggle with it.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I do not want to co-teach with a teacher who is not as effective as I am.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am willing to co-plan with another teacher, even if we have to meet every day after school past our contract hours.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I don’t have time to build a new co-teaching relationship.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would find it difficult to accommodate another teacher with a different teaching style.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I find it easier to teach on my own.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I like to collaborate with other teachers (special educators if you are a general educator or general educators if you are a special educator).</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
**Teaching Responsibilities**

This next section will ask you to discuss your feelings about collaborating with teachers with a different area of expertise (special or general education teachers). Please think about your collaboration relationships, especially when teaching math (unless otherwise specified).

Collaborative Teaching/ Co-teaching: Two or more teachers (including one special education teacher and one general education teacher; not assistants or volunteers) jointly provide instruction to a heterogeneous group of students (students with and without disabilities) in a single physical space (usually in the classroom, but one group may be pulled out to receive services).

* 8. Are you currently co-teaching?
   - Yes
   - No, I have never co-taught
   - No, but I have co-taught in the past.

* 9. Do you want to co-teach (one special educator and one general educator)?
   - Yes
   - No

* 12. Please rank the following collaborative teaching models from one (your LEAST favorite) to six (your favorite). Please think of your IDEAL collaborative teaching situation, not necessarily your current or previous collaborative situation.

<table>
<thead>
<tr>
<th>No Co-teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative Teaching: The majority of students remain in a large group setting, but some students work in a small group for preteaching, enrichment, reteaching, or other individualized instruction. The small group meets in the same room or can be pulled out to work with one of the teachers.</td>
</tr>
<tr>
<td>Parallel Teaching: Class is split into two heterogeneous groups, so each teacher instructs half of the class on the same material.</td>
</tr>
<tr>
<td>Team Teaching: Teachers work as a team to introduce new content, work on developing skills, clarify information, and facilitate learning and classroom management. They both teach the whole group at the same time.</td>
</tr>
<tr>
<td>One Teaching, One Supporting: One teacher plans and instructs, and one teacher provides adaptations and other support as needed.</td>
</tr>
<tr>
<td>Station Teaching: Student groups rotate through stations, some that have one teacher and some that offer independent work. Teachers teach different material to small groups and both teachers eventually teach every student.</td>
</tr>
</tbody>
</table>
Responsibility for Teaching Tasks during Co-teaching

In the following section, please think about your IDEAL co-teaching situation with a general education teacher and a special education teacher working together to teach grade-level content in the same classroom to students with and without IEPs. Even if you are collaborating in this way right now, please think about your IDEAL collaboration, not necessarily your current or previous collaboration. In that context, decide who should be responsible for what aspects of teaching.

13. If you were to co-teach, who would have the responsibility to PLAN LESSONS?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility

14. If you were to co-teach, who would have the responsibility to LEAD CLASSROOM DISCUSSIONS?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility

15. If you were to co-teach, who would have the responsibility to MODIFY THE CURRICULUM TO REACH STRUGGLING LEARNERS?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility

16. If you were to co-teach, who would have the responsibility to KEEP ORDER IN THE CLASSROOM (i.e., classroom management)?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility
17. If you were to co-teach, who would have the responsibility to CHOOSE THE CURRICULUM AND CONTENT?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility

18. If you were to co-teach, who would have the responsibility to DEVELOP ASSESSMENTS OR EXAMS?
   - My FULL responsibility
   - My responsibility with the other teacher’s help
   - EQUAL responsibility
   - The other teacher’s responsibility with my help
   - The other teacher’s FULL responsibility

**Personal Information and Teaching Context**

This section will ask some information about you, your experience and your current teaching details.

23. Year of your birth.


24. What is your gender?
   - Female
   - Male
   - Other