Co-Teaching in Student Teaching of an Elementary Education Program

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Abstract

Successful co-teaching relies on essential elements, such as collaborative planning, communication skills, partnership relationship, classroom application, knowledge base, and co-teaching approaches. The objective of this study is to examine if teacher candidates and cooperating teachers use different essential co-teaching elements to implement co-teaching at the beginning and end of student teaching. Twenty-six teacher candidates and sixteen cooperating teachers completed the Essential Elements of Co-Teaching (EECT) survey by the end of student teaching. The results show that teacher candidates and cooperating teachers use different co-teaching elements and approaches by the end of student teaching. Implications for student teaching are recommended.

Keywords: co-teaching, student teaching, elementary education program

Co-Teaching in Student Teaching of an Elementary Education Program

Student teaching is a core component of teacher education programs (National Council for Accreditation of Teacher Education, 2010). In the traditional model, teacher candidates spend the first few weeks observing cooperating teachers and students in the classrooms so that they can take over the class by themselves for the rest of the semester. Given the high-stakes of using state tests in evaluating school performance and teachers' effectiveness, cooperating teachers are worried about students' performance when teacher candidates take over the classes. Therefore, teacher educators look for different models of student teaching to address the concerns of the cooperating teachers yet also accommodate the needs of teacher candidates.

The National Council for Accreditation of Teacher Education (NCATE, 2010) recommends co-teaching, a new partnership between teacher candidates and cooperating teachers in teacher education programs, as a promising model. Teacher candidates and cooperating teachers usually participate in co-teaching workshops to learn about the essential elements of co-teaching, i.e., collaborative planning, communication skills, partnership relationship, classroom application, knowledge base, and co-teaching approaches (Chang, 2014). Even though these are essential elements of co-teaching, they are not static over the course of student teaching. Therefore, a better understanding of how these essential elements change during student teaching would encourage teacher education programs to adopt co-teaching in student teaching and give better guidance and supervision to teacher candidates and cooperating teachers.

Co-Teaching

Cook and Friend (1995) defined co-teaching as "two or more professionals delivering substantive instruction to a diverse, or blended group of students in a single physical space". Co-teaching has been used in special education where a general education teacher works with

a special education teacher to include a student with special needs in the mainstream classroom. Most studies on co-teaching have focused on special education settings (Murawski & Swanson, 2001), and most have shown benefits for students, teachers, and school organizations (Nevin, Cramer, Salazar, & Voigt, 2008; Hang & Rabren, 2009; Pearly, Dieker, & Kirkpatrick, 2012).

Even though co-teaching has a long history in special education, the use of co-teaching in student teaching outside the special education setting is a relatively new initiative. With the support of a Department of Education Teacher Quality Enhancement Partnership Grant in 2003, St. Cloud State University partnered with seventeen school districts and two businesses to develop and implement co-teaching in its student teaching programs. The St. Cloud Teacher Quality Enhancement initiative defined co-teaching in student teaching as "two teachers (a cooperating teacher and a teacher candidate) working together with groups of students; sharing the planning, organization, delivery and assessment of instruction, as well as the physical space" (Bacharach, Heck & Dank, 2004).

Approaches in Co-Teaching

Cook and Friend (1995) outlined a variety of classroom arrangements to implement co-teaching. The first approach is *one teaching, one assisting*. With this strategy, one teacher takes the lead in the classroom while the other observes students or assists students as needed. The second approach is *station teaching*. Station teaching divides instructional content into two or more segments to be presented at separate locations within the classroom. Both teachers teach one segment to one group of students and then repeat the same instruction with the other group of students. The third is *parallel teaching*, in which both teachers deliver the same instructional content to half of the class. The fourth is *alternative teaching*, which has one teacher instructing the large group while the other works with a small group of students who need enrichment or assistance. The fifth is *team teaching*, where both teachers share the

instruction of the whole class by taking turns leading a discussion or demonstrating a concept.

Heck and Bacharach (2010) modified these co-teaching approaches by Cook and Friend (1995) for use in student teaching. They kept *station teaching*, *parallel teaching* and *team teaching* the same. However, the *one teaching, one assisting* approach was broken into two approaches: *one teach, one observe*; and *one teach, one assist*. *One teach, one observe* is defined as one teacher takes primary responsibility for teaching while the other gathers specific observational information on students or the instructing teacher. *One teach, one assist* is used when one teacher has primary responsibility for teaching while the other assists students with their work, monitors behaviors, or corrects assignments. In addition, the *alternative teaching* approach also was broken into two approaches: *supplemental teaching* and *alternative teaching*. *Supplemental teaching* is used when one teacher works with students at their expected grade level while the other teacher works with those students who need to be re-taught, extended, or remediated. *Alternative teaching* is used when students are given different approaches to learn the same information.

Essential Elements of Co-Teaching

The positive impact of co-teaching on students, teacher candidates, and cooperating teachers is supported in various studies. First, the use of a co-teaching model in student teaching showed higher academic achievement for students in co-taught classrooms than in non-co-taught classrooms (Bacharach, Heck, & Dahlberg, 2010). Children in the co-teaching classrooms, where teacher candidates taking science method classes worked with cooperating science teachers, enjoyed science lessons more and showed fewer gender or age differences in their attitudes toward science than children not in the co-teaching classrooms (Murphy, Beggs, Carlisle, & Greenwood, 2004). Second, the teaching efficacy of teacher candidates in the co-teaching model was higher than those in the traditional teaching model (Cheong,

2010), and most teacher candidates perceived co-teaching as a valuable professional practice for both student learning and the teacher candidate's professional training (Darragh, Picanco, Tully, & Henning, 2011). Third, co-teaching was beneficial to cooperating teachers because they could directly verify and develop their own teaching skills and they had the opportunity to step back and reflect on another person's teaching (Nilsson & Driel, 2010).

What exactly happens in co-teaching to make such a difference for students, teacher candidates, and cooperating teachers? Bacharach, Heck, and Dahlberg (2008) invited university faculty involved in the implementation of co-teaching in student teaching to brainstorm on the essential elements of co-teaching. The researchers then developed a survey, What Makes Co-Teaching Work (WMCW), and asked cooperating teachers to examine and modify the elements to the success of co-teaching in a workshop. Additional focus groups were organized for teacher candidates and cooperating teachers to further discuss these essential elements of co-teaching. After analyzing the results, they identified five overriding themes as the essential elements of successful co-teaching in student teaching.

First, planning includes working together to plan for the instruction, sharing ideas and materials, coordinating tasks, and assigning tasks and responsibilities. Second, communication refers to actively listening to suggestions, feedback, and instructions; bouncing ideas off each other for genuine feedback and input prior to implementation; having a lot of give and take in conversations; intentionally addressing communication strategies; and picking up communication clues. Third, partnership relationship means respecting and trusting each other; knowing when to jump in; accepting different personality and teaching styles; and assisting the teacher candidates to develop rapport with all students. Fourth, classroom applications involve sharing leadership in the classroom, sharing control of the classroom, using co-teaching strategies to differentiate instruction, handling interruptions without stopping the class, and being attentive and present even when not giving instruction.

Fifth, the co-teaching knowledge base undertakes getting support and training, understanding the co-teaching strategies, and being able to explain the benefits of co-teaching to parents and students.

These essential elements are used in co-teaching workshops to train teacher candidates and cooperating teachers (Chang, 2014). Studies are needed to understand how these elements change so that teacher candidates and cooperating teachers are better able to implement co-teaching in student teaching.

Purpose of the Current Study

The objective of this study is to examine how teacher candidates and cooperating teachers use the essential co-teaching elements and co-teaching approaches at the beginning versus at the end of student teaching. Four research questions are asked:

(1) Are there any differences in the use of essential co-teaching elements (planning, communication, relationship, classroom applications, co-teaching knowledge base) at the beginning vs. at the end of student teaching?

(2) Are there any differences in the use of co-teaching approaches (one teach, one observe; one teach, one assist; station teaching; parallel teaching; alternative teaching; team teaching) at the beginning vs. at the end of student teaching?

(3) Are there any differences in the perceived effectiveness of the co-teaching approaches on children's learning and on the teacher education program at the beginning vs. at the end of student teaching?

(4) Are there any differences in the enjoyment and challenge of the co-teaching approaches at the beginning vs. at the end of student teaching?

Method

Participants

Thirty teacher candidates and twenty-nine cooperating teachers were invited to participate in a survey at the end of student teaching. Twenty-seven teacher candidates attempted the survey and twenty-six completed it, whereas eighteen cooperating teachers attempted the survey and sixteen completed it.

Procedure

An elementary education program at a mid-sized state university in the Midwest adopted the co-teaching model in student teaching in six schools. At the beginning of the semester, teacher candidates and cooperating teachers participated in a half-day workshop on co-teaching. The workshop introduced the essential elements of co-teaching, i.e., collaborative planning (working together to plan for the instruction), communication skills (listening actively and bouncing off feedback), partnership relationship (respecting and trusting each other), classroom application (sharing leadership), and knowledge base (getting support and training); as well as co-teaching approaches (one teach, one observe; one teach, one assist; station teaching; parallel teaching; alternative teaching; and team teaching). Teacher candidates and cooperating teachers were expected to plan the instruction together, use different co-teaching approaches to teach the class together, and evaluate their instruction together.

During student teaching, university supervisors observed teacher candidates' teaching five times. Emails were sent to teacher candidates and cooperating teachers to invite them to participate in the current study during the last week of student teaching. Those who agreed to participate in the survey would go to a URL address of Qualtrics, an online survey software and insight platform, to access the online Essential Elements of Co-Teaching survey (EECT).

Instrument

The Essential Elements of Co-Teaching survey (EECT) was developed to examine changes in the use of the essential elements during student teaching. The first five questions were adapted from What Makes Co-Teaching Work (WMCW, Bacharach, Heck, & Dahlberg, 2008). The WMCW used a 6-point Likert scale to rate how important these essential elements were (1=Not at all important, 6=Extremely important), but the EECT used a 5-point Likert scale to rate how often these essential elements were implemented (1=Never and 5=Always) at the beginning versus the end of student teaching. There were 32 statements in the first five questions in five categories: collaborative planning (7 statements), communication skills (6 statements), partnership relationship (7 statements), classroom application (8 statements), and knowledge base (4 statements).

The last five questions were added by the researcher to examine the use of co-teaching approaches. First, participants were asked to rate how often (1= Never and 5=Always) they used the six co-teaching approaches at the beginning versus at the end of student teaching, i.e., one teach, one observe; one teach, one assist; station teaching; parallel teaching; alternative teaching; and team teaching. Second, they were asked to rate the effectiveness (1=Least effective, 6=Most effective) of the co-teaching approaches on children's learning and on teacher candidate preparation. Third, they were asked to order the enjoyment (1=Least enjoyable, 6=Most enjoyable) and challenge (1=Least challenging, 6=Most challenging) of the co-teaching approaches.

Results

Essential Elements of Co-Teaching

The first five questions on the Essential Elements of Co-Teaching survey (EECT) answered the first research question on how teacher candidates and cooperating teachers used essential co-teaching elements (planning, communication, relationship, classroom

applications, co-teaching knowledge base) at the beginning versus at the end of student teaching. Paired t-tests were used to compare the findings at the beginning and the end of student teaching. To indicate significant difference (α = .05) from Table 1 to Table 5, the symbol "*" was used for "Teacher Candidates, and the symbol "^" was used for "Cooperating Teachers."

Collaborative planning.

Teacher candidates rated statements in all aspects of planning higher by the end of student teaching (all *p*s < .05) with the exception of "planning together for co-taught instruction" (see Table 1). Cooperating teachers pointed out that teacher candidates assumed more leadership in planning, $t(12) = 3.77$, $p = .003$, and assigned more tasks to cooperating teachers and other adults in the classroom, $t(12) = 3.255$, $p = .007$, by the end of student teaching.

Table 1

The Use of Planning in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=24		Cooperating Teachers *N*=13	
1. How often did you and your co-teaching partner participate in the following instructional activities together at the beginning and at the end of student teaching?	Beginning	End	Beginning	End
• Planning together for co-taught instruction.	3.79(1.14)	4.08(1.06)	4.54 (.97)	4.38 (.87)
• The teacher candidate assumes leadership in planning and teaching lessons.	3.38(.92)*	4.25(.85) *	2.77 (1.3) ^	4.08 (.49) ^
• Sharing creative ideas and materials with each other.	4.29(.96) *	4.58(.72) *	4.31 (.75)	4.62 (.51)
• Coordinating tasks.	4.08(1.02) *	4.54(.72) *	4.15 (.99)	4.54 (.66)

• When leading instruction, the teacher candidate assigns tasks and responsibilities to the cooperating teacher and other adults in the classroom.	2.96(1.0) *	3.79(.88) *	2.15(1.07) ^	3.38(.96) ^
• Planning specifically not in generalities.	3.58(1.1) *	4.21(.78) *	3.31 (1.38)	4 (.91)
• Clarifying or making instructional decisions explicit.	4.0(1.02) *	4.5(.66) *	3.31 (1.44)	4 (.91)

Planning together was challenging to implement because of the use of team planning in elementary schools. Teachers of the same grade-level usually planned together every week for instruction and shared activities to be used in classrooms. Instead of planning together for co-taught instruction with their cooperating teachers, candidates had to plan with other teachers in the placement school. Candidates were not sure of their roles in this team planning. How much should candidates be involved in planning? Which ideas were appropriate to share? Even though teachers thought they had included candidates in planning together for co-taught instruction at the beginning of student teaching, candidates felt excluded. However, both candidates and teachers agreed that candidates assumed more leadership in planning lessons by the end of student teaching. When candidates were familiar with team planning, they were involved more in discussion and shared more ideas with other teachers.

Communication skills.

Teacher candidates, $t(22) = 2.328$, $p = .03$, and cooperating teachers, $t(13) = 2.857$, $p = .013$, attended more to their partner's body language and non-verbal cues by the end of student teaching (see Table 2). Candidates also communicated more honestly with cooperating teachers even when it was difficult, $t(22) = 2.472$, $p = .022$, and cooperating teachers had more give and take in conversations with candidates , $t(22) = 2.188$, $p = .047$, by the end of student teaching.

Table 2

The Use of Communication in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=23		Cooperating Teachers *N*=14	
2. How often did you communication with your co-teaching partner at the beginning and at the end of the student teaching?	Beginning	End	Beginning	End
• Communicating honestly with my co-teaching partner even when it is difficult.	4.39(1.03)*	4.83(.49) *	4.5 (.65)	4.71 (.47)
• Actively listening to suggestions, feedback and instructions from my co-teaching partner.	4.87 (.34)	4.96(.21)	4.5 (.65)	4.64 (.5)
• Bouncing ideas off each other for genuine feedback and input prior to implementation.	4.48 (.85)	4.74 (.54)	4.43 (.65)	4.43 (.65)
• Having a lot of give and take in conversations between co-teaching partners.	4.26 (.96)	4.52 (.90)	3.93(1.0) ^	4.43(.85) ^
• Intentionally addressing communication strategies.	3.96 (1.19)	4.22 (1.04)	3.79 (1.12)	3.93 (1.0)
• Attending to each other's body language and non-verbal cues.	4.04 (.98) *	4.48(.79) *	3.86(.95) ^	4.5(.65) ^

After spending one semester together as co-teaching partners, candidates and cooperating teachers were able to establish a more collaborative relationship. Being a novice in the classroom, candidates might find it intimidating at the beginning of the semester to honestly discuss difficult topics with cooperating teachers. However, the longer they worked together, the better they attended to each other's body language and non-verbal cues. When cooperating teachers had more give and take in conversations with candidates, candidates also felt more comfortable in talking about difficult topics with cooperating teachers.

Partnership relationship.

Table 3 shows that cooperating teachers were stronger in all but two aspects of partnership relationship by the end of student teaching (all *p*s< .05): “accepting different personality and teaching styles,” and “openly assisting teacher candidates to develop rapport with all students.” Both teacher candidates and cooperating teachers rated the areas of “respecting each other”, “knowing when to jump in”, and “adjusting in the moment-making changes” higher by the end of student teaching (all *ps*<.05).

Table 3

The Use of Relationship in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=25		Cooperating Teachers *N*=16	
3. How often did you interact with your co-teaching partner at the beginning and at the end of student teaching?	Beginning	End	Beginning	End
• Respecting and trusting each other.	4.72(.66)*	4.88(.44)*	4.06(.85)^	4.63(.62)^
• Working well as partners-being in sync.	4.44 (.92)	4.64 (.76)	4.06 (.85)^	4.63(.62)^
• Knowing when to jump in.	4.04 (.94)*	4.6 (.71)*	3.5 (.97)^	4.38(.72)^
• Adjusting in the moment-making changes as you go along.	4.2 (.87)*	4.68(.56)*	3.63(1.03)^	4.44(.51)^
• Accepting different personality and teaching styles.	4.4 (.87)*	4.6 (.71)*	4.06 (.93)	4.31 (.70)
• The cooperating teacher openly assists the teacher candidate to develop rapport with all students.	4.52 (9.2)	4.6 (.92)	4.63 (.72)	4.69 (.6)
• Allowing my co-teaching partner to take a lesson or unit that I would really love to teach.	4.28 (.84)	4.4 (.67)	3.5 (.89)^	4.5 (.63)^

Interestingly, there was significant growth in more aspects of the partnership relationship for teachers than for candidates. The partnership relationship for candidates came from the mentorship of teachers hosting candidates in the classrooms, but the partnership relationship for teachers came from the work of candidates delivering instruction in the classrooms. It took time to build up the rapport to the extent that teachers were able to work with candidates as partners in the classrooms, and to allow candidates to assume a lesson teachers really love to teach.

Classroom application.

Both teacher candidates and cooperating teachers used more classroom applications (all with $p>.05$) with the exception of "being attentive and present during times when not directly providing instruction" (see Table 4).

Table 4

The Use of Classroom Applications in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=25		Cooperating Teachers *N*=13	
4. How often did the following activities take place in the classroom at the beginning and at the end of student teaching?	Beginning	End	Beginning	End
• Students in the class view the teacher candidate as a real teacher.	4.08(1.15)*	4.64(.70)*	3.54(1.05)^	4.54(.66) ^
• Sharing leadership in the classroom.	4.04(1.06)*	4.76(.66)*	4.0(1.0) ^	4.69(.48) ^
• Sharing control of the classroom.	4.12(1.09)*	4.68(.69)*	3.62 (.96) ^	4.62(.51) ^
• Using co-teaching strategies to differentiate instruction.	3.88(1.24)*	4.32(1.07)*	3.77 (.93) ^	4.54(.52) ^
• The teacher candidate is attentive and present even during times when you are not directly providing instruction.	4.88 (.44)	4.72 (.74)	4.46 (.78)	4.77 (.6)

• Handling interruptions without stopping the class.	4.2 (.92) *	4.56 (.92) *	4.0 (.91) ^	4.77(.44) ^
• Starting co-teaching within the first week of the student teaching experience.	3.64(1.25)*	4.52(.96) *	3.69 (1.5) ^	4.62(.51) ^
• The cooperating teacher is attentive and present even during times when you are not directly providing instruction.	4.48 (.82)	4.28 (.98)	4.69 (.48)	4.46 (.66)

Compared to traditional student teaching, candidates and teachers needed to establish rapport and a working rhythm before they were able to skillfully implement co-teaching in the classrooms. However, they were able to share leadership and control of the classroom, handle interruptions without stopping the class, and use co-teaching strategies to differentiate instruction by the end of student teaching. There was no change in being attentive and present when not directly providing instruction because candidates and teachers already were doing that at the beginning of student teaching.

Knowledge base.

Teacher candidates were better able to explain the benefits of co-teaching to parents, $t(25) = 2.848$, $p = .009$, and to explain the benefits of co-teaching to students, $t(25) = 2.518$, $p = .019$, by the end of student teaching (see Table 5). Neither the teacher candidates nor the cooperating teachers received more support or training from the university, nor did they understand each of the co-teaching strategies better by the end of student teaching.

Table 5

The Use of Co-Teaching Knowledge Base in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=26		Cooperating Teachers *N*=13	
5. How often did you learn about co-teaching at the beginning and at the end of student teaching?	Beginning	End	Beginning	End

• Getting support and training provided by the university.	3.42 (1.1)	3.46 (1.17)	3.0 (1.16)	2.85(1.07)
• Understanding each of the co-teaching strategies.	3.73 (1.08)	3.92 (1.06)	3.85 (.9)	4.0 (1.29)
• Being able to explain the benefits of co-teaching to parents.	3.27(1.28)*	3.69(1.49)*	4.0 (1.16)	4.62(.51)
• Being able to explain the benefits of co-teaching to students.	3.31(1.29)*	3.73(1.43)*	4.08 (.95)	4.54 (.66)

The co-teaching workshop given to candidates and teachers at the beginning of the student teaching semester was the only training provided by the university. During the semester, university supervisors observed candidates' teaching and discussed their observation with candidates, but no further support or training was given. The knowledge base of co-teaching for candidates or teachers remained the same by the end of student teaching. However, with personal experiences of implementing co-teaching, candidates could see the benefits of co-teaching and felt more confident that they could articulate them to parents and students.

Approaches in Co-Teaching

The six co-teaching approaches used in this study were: *one teach, one observe; one teach, one assist; station teaching; parallel teaching; alternative teaching; and team teaching*. Table 6 presents the results to the last five questions on the Essential Elements of Co-Teaching survey (EECT) about the approaches used in co-teaching. These results also answered the second research question on the use of co-teaching approaches, the third question on the effectiveness of co-teaching approaches, and the fourth question on the enjoyable and challenging level of co-teaching approaches.

Table 6

The Approaches Used in Co-Teaching (1=Never and 5=Always)

Question	Teacher Candidates *N*=26	Cooperating Teachers *N*=13
6. Co-teaching approaches *(1=Never and 5=Always)*	Candidates used more *parallel teaching* (2.69 vs. 3.0) and *team teaching* (3.15 vs. 3.5) by the end of student teaching.	Teachers used more *alternative teaching* (3.2 vs. 3.87) and *team teaching* (3.13 vs. 3.67) by the end of student teaching.
7. Effectiveness of co-teaching approaches on children learning. (1=Least effective, 6=Most effective)	Most: *Alternative teaching (4.5).* Least: *One teach, one observe (3.0).*	Most: *Alternative teaching (4.33).* Least: *One teach, one observe (3.13).*
8. Effectiveness of co-teaching approaches on teaching career. (1=Least effective, 6=Most effective)	Most: O*ne teach, one assist (4.32).* Least: *Parallel teaching (3.16).*	Most: *One teach, one assist (4.53).* Least: *Team teaching (3.47).*
9. Enjoyment of co-teaching approaches. (1=Least enjoyable, 6=Most enjoyable).	Most: *Station teaching (4.5).* Least: *One teach, one observe (2.8).*	Most: *Team teaching (4.73).* Least: *One teach, one observe (3.27).*
10. Challenge of co-teaching approaches. (1=Least challenging, 6=Most challenging).	Most: *Team teaching (4.48).* Least: *One teach, one observe (2.44).*	Most: *Parallel teaching (4.0).* Least: *One teach, one assist (2.13).*

Approaches used.

Even though *team teaching* was not the most frequently used co-teaching approach, both teacher candidates, $t(25) = 2.368$, $p = .026$, and cooperating teachers, $t(14) = 2.256$, $p = .041$, used more "*team teaching*" by the end of student teaching. In order to use *team teaching*, candidates and teachers had to incorporate the essential co-teaching elements in student teaching. No matter whether it was leading a discussion or demonstrating a concept, team teaching required good collaborative planning, communication skills, and a partnership relationship. In addition, there were increases in the use of "*parallel teaching"* for teacher

candidates, $t(25) = 2.309$, $p = .029$, and the use of "*alternative teaching"* for cooperating teachers, $t(14) = 2.646$, $p = .019$, by the end of student teaching.

Effectiveness of approaches on children learning.

Both teacher candidates and cooperating teachers rated *alternative teaching* as the most effective and *one teach, one observe* as the least effective for children's learning. In *alternative teaching*, one teacher instructed the large group while the other worked with a small group of students who needed enrichment or assistance. All children were able to receive instruction differentiated for their own needs.

However, in o*ne teach, one observe*, one teacher had primary responsibility for teaching while the other gathered specific observational information on students or the instructing teacher. No intervention was given to help those students who exceled or those who struggled.

Effectiveness of approaches on teaching career.

On the contrary to children's learning, teacher candidates and cooperating teachers rated *one teach, one assist* as the most effective approach for preparing teacher candidates for their future teaching career. This approach was familiar to candidates and teachers because it was used in the field experiences prior to student teaching when candidates served as teacher aids in the classrooms. When candidates helped teachers run the classrooms, they were learning how to be teachers.

In addition, even though candidates and teachers used *parallel teaching* and *team teaching* more by the end of student teaching, they thought these were the least effective approaches to prepare candidates for a teaching career. Teachers used *parallel teaching* when both delivered the same instructional content to half of the class, and they used *team teaching* when both shared the instruction of the whole class by taking turns leading a discussion or demonstrating a concept. In a regular classroom, there were not two teachers to do *parallel* or

team teaching. Candidates had to be able to plan lessons, design activities, deliver curriculum, assess learning, and evaluate instruction by themselves.

Enjoyment of approaches.

Teacher candidates enjoyed *station teaching* most whereas cooperating teachers enjoyed *team teaching* most. In *station teaching*, instructional content was divided into two or more segments to be presented at separate locations within the classroom. Candidates found *station teaching* fun to implement because children liked moving around the classroom to participate in different activities in different stations. Even though teachers thought *team teaching* was the least effective approach to prepare candidates for a teaching career, they enjoyed this approach most because it was challenging.

On the other hand, both candidates and teachers enjoyed the *one teach, one observe* approach least. In *one teach, one observe,* one teacher had primary responsibility for teaching while the other gathered specific observational information on students or the instructing teacher. This approach required the least preparation and interaction among children, candidates, and teachers.

Challenges of approaches.

Teacher candidates found *one teach, one ob*serve the least challenging, but cooperating teachers found *one teach, one assist* the least challenging. These two approaches required the least preparation and collaboration between candidates and teachers, thus the ease of implementing these approaches rendered them the least challenging.

Teacher candidates found *team teaching* the most challenging, but cooperating teachers found *parallel teachin*g the most challenging. *Team teaching* required candidates to be in sync and to adjust to the moment with teachers, whereas *parallel teaching* required teachers to make sure that candidates taught the same content in the same way.

Discussion

This study examined how teacher candidates and cooperating teachers used essential co-teaching elements (planning, communication, partnership relationship, classroom applications, co-teaching knowledge base) and co-teaching approaches (one teach, one observe; one teach, one assist; station teaching; parallel teaching; alternative teaching; team teaching) by the end of the student teaching semester.

Results showed that candidates and teachers used different essential co-teaching elements by the end of student teaching. First, for collaborative planning, candidates were better in all aspects of collaborative planning except planning together for co-taught instruction. Second, for communication skills, candidates and cooperating teachers attended more to their partner's body language and non-verbal cues. Candidates also communicated more honestly with cooperating teachers even when it was difficult, and cooperating teachers had more give and take in conversations with candidates. Third, for partnership relationship, candidates were better in "respecting each other", "knowing when to jump in", and "adjusting in the moment-making changes." Cooperating teachers were stronger in all aspects of partnership relationship except "accepting different personality and teaching styles," and "openly assisting teacher candidates to develop rapport with all students." Fourth, for classroom application, candidates and cooperating teachers used more classroom application except "being attentive and present during times when not directly providing instruction". Fifth, for knowledge base, candidates were better able to explain the benefits of co-teaching to parents and to students.

Results also showed that candidates and teachers used different co-teaching approaches by the end of student teaching. First, both teacher candidates and cooperating teachers used more "*team teaching*". Candidates also used more parallel teaching and teachers used more alternative teaching. Second, both rated *alternative teaching* as the most effective and *one*

teach, one observe as the least effective for children learning. Third, both rated *one teach, one assist* as the most effective for preparing teacher candidates for their future teaching career. Candidates rated *parallel teaching* and teachers rated *team teaching* as the least effective approach. Fourth, teacher candidates enjoyed *station teaching* most but cooperating teachers enjoyed *team teaching* most. Both candidates and teachers enjoyed *one teach, one observe* the least. Fifth, teacher candidates found *team teaching* the most challenging, but cooperating teachers found *parallel teachin*g the most challenging. Teacher candidates found *one teach, one ob*serve the least challenging, but cooperating teachers found *one teach, one assist* the least challenging.

With a better understanding of how candidates and teachers used essential co-teaching elements and co-teaching approaches, Table 7 suggests some strategies for using co-teaching in field experiences and student teaching.

Table 7

Implications of Co-Teaching for Field Experiences and Student Teaching

1. Expanding co-teaching to field experiences. • Early field experiences: *one teach, one observe* & *one teach, one assist*. • Later field experiences: *station teaching* & *alternative teaching.* • Student teaching: *parallel teaching* & *team teaching*.
2. Developing evaluations of co-teaching essential elements. • Develop a rubric to evaluate how teacher candidates and cooperating teachers utilize collaborative planning, communication skills, partnership relationship, classroom applications, knowledge base, and co-teaching approaches.
3. Offering more university support and training. • Collaborative planning: a timeline with suggested implementation guideline. • Communication skills & partnership relationship: a paired workshop between teacher candidates and cooperating teachers handling difficult situations. • Classroom applications: feedback from university supervisors. • Knowledge base: articles, research findings and videos. • Co-teaching approaches: anecdotes, videos or focus groups.
4. Promoting the essential elements of co-teaching. • Collaborative planning: weekly team planning & yearly curriculum mapping.

- Communication skills & partnership relationship: teacher aids, resource teachers, volunteers & teacher candidates.

Expanding co-teaching to field experiences.

Bennett and Fisch (2013) found that the introduction of a unit in field experience that included minimal reading on co-teaching, a focused observation of teachers in a co-teaching environment, and the opportunity to share these reflection in an online discussion forum, enabled candidates to engage in a meaningful discussion of the challenges and benefits of co-teaching. However, more can be done than changing candidates' attitudes and knowledge about co-teaching.

Not only can teacher education programs use co-teaching in student teaching, they can also extend co-teaching to field experiences. Without much classroom experience, the use of *one teach, one observe* and *one teach, one assist* in early field experiences can help familiarize candidates with the routine of the classrooms. In *one teach, one observe,* the role of candidates is more than being peer reviewers to teachers. When teachers teach, candidates can observe students' behavior or teachers' instruction to gather specific observational information. For example, candidates may observe students to determine how well they understand directions or the instructional content. In *one teach, one assist*, candidates can assist students when they don't understand or are experiencing difficulties. For example, candidates may help teachers passing out worksheets, preparing materials, answering students' questions, assisting students with their work, monitoring students' behaviors, or correcting assignments.

After becoming familiar with the classroom routine, candidates can use what they have learned from the methods classes to do *station teaching* or *alternative teaching*. In *station teaching,* the instructional content is divided into parts and the students are divided into groups. Teachers can lead a station while candidates can run another station. Students may spend a designated amount of time at each station. In *alternative teaching,* different

approaches to learning the same information are provided. Teachers may lead a large group of students at their expected grade level while candidates work with a small group of students who need enrichment or assistance. The small group instruction can prepare candidates for whole-class instruction in student teaching.

With experiences in small group instruction, candidates can use *parallel teaching* and *team teaching* in student teaching. In *parallel teaching*, students are divided into half and given the same instructional material and teaching strategy. When teachers deliver the instructional content to half of the class, candidates can deliver the same instructional content to the other half of the class. In *team teaching*, teachers and candidates share the instruction, freely interject information, assist students, and answer questions. Candidates and teachers may share the instruction of the whole class by taking turns leading a discussion or demonstrating a concept. Instead of using all of the co-teaching approaches during student teaching, co-teaching approaches should be used in early field experiences when candidates are unfamiliar with the classrooms and in later field experiences when candidates are taking methods classes.

Developing evaluation of co-teaching essential elements.

To evaluate the use of co-teaching in student teaching, the evaluation should incorporate the co-teaching essential elements such as collaborative planning, communication skills, partnership relationship, classroom applications, knowledge base, and co-teaching approaches. During the semester of student teaching, teacher candidates are evaluated by cooperating teachers and university supervisors. Even though co-teaching is used in student teaching, the evaluation focuses only on teacher candidates' solo instruction. There is a disconnect between the use of co-teaching and the evaluation of teacher candidates in student teaching.

In addition to using a rubric to evaluate teacher candidates' solo instruction, a rubric should be developed by the university supervisors, teacher candidates, and cooperating teachers to see how teacher candidates and cooperating teachers utilize these co-teaching essential elements. Some essential elements may not be in use when university supervisors are observing in the classrooms. Therefore, this rubric should be used by teacher candidates and cooperating teachers to self-evaluate their use of the co-teaching essential elements.

Offering more university support and training.

In addition to co-teaching workshops at the beginning of the student teaching semester, the university should provide more support and training to teacher candidates and cooperating teachers on co-teaching throughout the semester. To foster collaborative planning, a timeline for suggested implementation for teacher candidates and cooperating teachers would help promote planning for co-taught lessons. To strengthen communication skills and establish a partnership relationship, a paired workshop between teacher candidates and cooperating teachers could focus on strategies for handling difficult situations, such as constructive criticism on teaching, disciplines, and behaviors. To encourage the use of co-teaching in the classrooms, university supervisors might provide feedback on what they have observed in their visits to the classrooms. To increase the knowledge base of co-teaching, articles, research findings, and videos of co-teaching can be distributed to teacher candidates and cooperating teachers, as well as being discussed in the co-teaching workshop. To experience different co-teaching approaches, teacher candidates and cooperating teachers from different classrooms can use anecdotes, videos, or focus groups to share their experiences of successes and challenges in using co-teaching.

Promoting the essential elements of co-teaching.

Co-teaching is usually implemented by two teachers. However, essential elements of co-teaching can be promoted even when only one teacher is present in the classroom. In most

schools today, it is unlikely to have two teachers in the same classroom. However, the essential elements of co-teaching are not restricted by the number of teachers. For example, there are different types of instructional planning in the classrooms, so collaborative planning is needed. Teachers from different subjects at the same grade may participate in weekly team planning, and teachers of the same subjects across different grades may participate in yearly curriculum mapping. In addition, classroom teachers may have to communicate and work with teacher aids, resource teachers, volunteers, and teacher candidates. Therefore, schools may have more than one adult in one classroom, so communication skills and partnership relationship are needed.

Conclusion

When teacher education programs promote co-teaching in student teaching, they usually conduct training workshops including the essential co-teaching elements (planning, communication, relationship, classroom applications, co-teaching knowledge base). This study provides insight into how the use of these elements changes by the end of student teaching. Understanding these shifts would benefit teacher candidates and cooperating teachers in adopting co-teaching in student teaching and expanding co-teaching to field experiences.

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