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The Renaissance Group

Co-Teaching Practices During Student Teaching

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Abstract

Accrediting organizations and regulations have compelled teacher preparation programs to establish partnerships with PK-12 schools to produce quality educators by utilizing effective teaching approaches such as co-teaching. The study examined co-teaching survey completed in the middle of student teaching. Data was collected from cooperating teachers and student teachers at different grade levels. The survey assessed participants' use of co-teaching strategies and the number of planning hours in each week. Pearson Correlations measured the relationship among the co-teaching strategies and the relationship between the co-teaching strategies and planning time. Results suggest there were more correlations among the co-teaching strategies for elementary student teachers. Three relationships were found in the middle school cooperating teachers data. Additionally, no correlations were found between any co-teaching strategies from either high school cooperating teachers or student teachers. The amount of planning time was shown to have no significant differences between any of the co-teaching strategies.

Keywords: Co-teaching, Teacher Education, Student Teaching

Introduction

Teacher preparation programs are continually refining their programs to improve teacher candidate quality. As student teaching is the culminating experience for teacher candidates, research has been conducted on ways to increase the quality of this experience (Darling-Hammond, 2010). Moreover, teacher preparation programs are compelled to find connections between coursework and clinical practice during student teaching (Darling-Hammond & Bransford, 2005). One study that focused on finding ways to enhance the quality of the student teaching experience was carried by the Blue Ribbon Panel (2010) Commissioned by the National Council for Accreditation of Teacher Education (NCATE). The study investigated how to prepare effective teachers and cited the co-teaching model at St. Cloud State University as showing success in linking teacher candidates' academic preparation and course work to school-based clinical experiences.

Co-teaching is the sharing of roles and responsibilities between a cooperating teacher and a student teacher (Friend, et al., 2010). According to Cook and Friend (1995), co-teaching is defined as "two or more professionals working together to deliver instruction to a diverse, or blended, group of students in a single physical space" (p. 14); this is the most acknowledged definition of co-teaching in the literature. Nonetheless, St. Cloud State University modified the definition of co-teaching to fit the student teaching context. It is defined as two teachers, a cooperating teacher and a teacher candidate, working together in a classroom with groups of students; sharing the planning, organization, delivery and assessment of instruction, as well as the physical space (Heck, Bacharach, Mann, & Ofstedal, 2005, n.p.).

Co-teaching in K-12 settings is enhanced by having the knowledge about one's partner approach to teaching (Keefe, Moore, & Duff, 2004; Murawski, 2003), determining preparedness to co-teach (Murawski & Dieker, 2004), clarifying roles, duties, and expectations (Friend & Biirsuck, 2002; Murawski & Dieker, 2004), scheduling joint planning time (Friend & Cook, 2002), and using effective communication that leads to problem solving and practical and productive discussions (Wood, 1998). According to Cramer, Liston, Thousand, and Nevin (2010), the co-teaching model of student teaching when applied effectively, allows teachers to integrate a variety of co-teaching strategies and group student candidates in ways that are not possible with just one teacher. This demonstrates that more explicit preparation for teachers who co-teach maximize the benefit of co-teaching opportunities (Cramer, et al., 2010).

With this in mind, the following literature review explores the meaning of co-teaching strategies; the benefits and challenges experienced during co-teaching; collaborative planning during co-teaching; and the implementation of co-teaching during student teaching. This study brings forth an understanding of the variance at different grade levels in the use of co-teaching strategies and how collaborative planning influences the employment of the different strategies.

Co-teaching Strategies

Co-teaching strategies include: One Teach, One Observe; One Teach, One Assist; Station Teaching; Parallel Teaching; Supplemental Teaching; Alternative or Differentiated Teaching; and Team Teaching. In One Teach, One Observe, either the teacher candidate or the cooperating teacher leads the instruction while the other observes for a specific behavior like questioning skills. In One Teach, One Assist, one teacher leads instruction while the other assists, an example might be that the one assisting would address student questions or prompt students to stay on-task. In Station Teaching, students are divided into two groups and each teacher leads a

segment of instruction and then the groups rotate. Parallel Teaching involves the teachers dividing the students in half and presenting the instructional material using the same teaching methods to increase student engagement in the lesson. Supplemental Teaching involves the two teachers dividing students based on their assessment data in order to provide further challenge or remediation. Alternative Teaching involves the two teachers designing two different approaches to teaching the same information adapting to learning preferences of the students.

The final strategy is Team Teaching. During application of this strategy the teacher candidate and the teacher candidate naturally share the responsibilities for leading instruction (Bacharach, et al., 2010). See Appendix 1 for a chart defining the co-teaching strategies. Through the use of the various co-teaching strategies instruction can be differentiated, scaffolded, and presented in a variety of ways of supporting both teachers monitoring students learning and engaging students in continuous learning (Dugan & Letterman, 2008).

Benefits and Challenges in Implementation of Co-teaching Strategies

With studies continually investigating methods to enhance field experiences through collaborative approaches, research indicates several positive effects of co-teaching practices (Martin, Snow, & Torrez, 201; Bacharach, et al., 2010; Kamens, 2007). Studies that used surveys and summative assessments show co-teaching as having significant outcomes in teachers employing greater flexibility, increasing instructional time and responsiveness, focusing better on individual students' needs and applying differentiated instruction more regularly. Also noted is that co-teaching has an effect on improved classroom management skills, increased collaboration skills, enhanced understanding of the curriculum, increased confidence among teachers, and added opportunities to ask questions and reflect (Bacharach, et al., 2010; Santagata & Guarino, 2012; Salk, Frank & Beniek, 2004).

Using co-teaching during clinical experience increases the cooperating teacher and student teacher's skills with collaboration and integration of the co-teaching pedagogy within the classroom with the objective of providing unlimited opportunities for students' learning (Bacharach, et al., 2010; Kamens, 2007). Additionally**,** other co-teaching benefits identified by the Blue Ribbon Panel (2010) include; teacher candidates and cooperating teachers work as equal partners, teacher candidates receive guidance throughout the clinical experience, and both teachers have an understanding of the value for collaborative planning. Studies show implementation of co-teaching provides opportunities for teacher candidates to develop advanced collaboration dispositions and skills (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2005).

On a different level, the co-teaching approach promotes the building of stronger networks between universities and schools, provides more opportunities for placements, supports professional development for cooperating teachers, and meets the needs of P-12 students (Bacharach et al., 2010)**.** Despite studies showing the value of collaborative approaches, Wong and Glass (2011) pointed out that research on the relationship between student learning and collaborative approaches such as co-teaching in clinical practice is limited. Notwithstanding the evidence of the importance of applying co-teaching strategies, studies show that teachers have concerns with the effective implementation of the co-teaching approach due to a lack of training (Mastropieri et al., 2005); absence of administrative support (Dieker, 2001; Rea, 2005); and a lack of equal status in the classroom [Dieker *&* Murawski, 2003; Spencer, 2005). Studies suggest the need for more precise preparation for teachers in order to implement collaborative skills more effectively (Santagata & Guarino, 2012; Bacharach; Salk, Frank, & Beniek, 2004). Therefore,

co-teaching research inquiry must take over because of limited literature (Murawski & Swanson, 2001; Mowbray, Holter, Teague, & Bybee, 2003).

Co-teaching and Collaborative Planning

To discuss this further, co-planning requires the involvement and contribution of all co-teachers. Regular weekly co-planning sessions among co-teachers requires much effort because all teachers reflect upon their lessons, program objectives and goals, align the learning goals to standards, and provide input on assessments (Scantleburya, et al., 2008). Scantleburya, et al., (2008) viewed co-planning as a professional development activity because it provides a platform to share ideas, reflect on the past experiences and have a common understanding of the classroom to improve practice.

Scheduling joint planning time is a critical component in co-teaching (Friend & Cook, 2002; Murawski, 2005; Scantleburya, Gallo-Foxa, & Wassell, 2008). (Dieker, (2001) observes that it is better to plan more than plan less in new situations. Vaughn, Schumm, and Arguelles (1997) suggested that to have a successful co-teaching experience, teachers require a minimum of 45 minutes planning time each week without interruption. Another suggestion made by several teachers is to set aside a day or a half-day every six to eight weeks for planning time. During this time, the teachers will collaboratively plan and discuss the students' achievements as well as ways to modify instructional practices (Vaughn, et al., 1997).

According to Tobin (2006), without co-planning, teachers will not have common understanding of the classroom they are teaching. Conversely, if co-planning is not implemented, then student teachers are consigned to marginal roles, for example, grading papers, and checking student work instead of undertaking central responsibilities and sharing an instructional role (Tobin, 2006). With the cooperating teacher having an authoritative position, the planning allows for a time to discuss the division of workload and teaching roles (Scantleburya, et al., 2008).

Cochran-Smith and Zeichner (2005) led the American Educational Research Association panel on the study of teacher education and indicated that more data are needed on the impact of student teaching on P-12 learners. Moreover, there is lack of research that investigates the impact co-planning has on the use of more advanced co-teaching strategies and the commonly used co-teaching strategies by student teachers and cooperating teachers at different grade levels (Santagata & Guarino, 2012).

Co-Teaching and Student Teaching

Student teaching is typically the capstone experience for teacher preparation programs in the United States. Therefore, the student teaching experience is viewed by teacher educators as having a great influence on one's professional growth (Feiman-Nemser & Buchmann, 1987). Dee (2012) pointed out that improving student teaching is imperative for teacher education programs and requires a partnership between higher education and P-12 institutions. Collaboration and development of formalized university and school partnerships to meet accrediting organizations requirements and regulations compel teacher education programs educators to improve the clinical practice experience for teacher candidates (Dee, 2012). Researchers continue to investigate strategies that can improve clinical practice through collaboration (Martin, Snow, & Franklin Torrez, 2011).Collaboration during clinical practice enhances student learning (Blue Ribbon Panel, 2010). More-over, an in-depth qualitative study, Goodnough et al. (2009) observed four pairs of student teachers and found that student teachers

placed in clinical practice with another peer gained professional experience through collaboration.

Additionally, a report completed by The Council of Chief State School Officers (CCSSO) Task Force on Educator Preparation and Entry into the Profession Members (2012) discussed that one of the teacher preparation programs requirements was to address the nature and quality of clinical practice experiences such as co-teaching. The report focused on the learner-ready teacher who is well prepared to teach at the first appointment and who can model and develop students' knowledge and skills and foster success. To accomplish this, the teacher would aim to support students to think critically and creatively, to problem solve, to be well-versed with the curriculum, collaborate with peers, and to have ownership of their education.

St. Cloud State University (SCSU) as the leading university that directed a co-teaching program had pairs of cooperating teachers and student teachers making decisions on when to use co-teaching strategies to better improve student learning (Bacharach et al., 2010; Tobin & Roth, 2006; Tobin, Zurbano, Ford, & Carambo, 2003). Based on research conducted at St. Cloud on co-teaching, students who were co-taught out-performed students taught by a single teacher or by a supervised student teacher using a non-co-teaching model (Bacharach et al., 2010). Additionally, co-teaching addressed concerns during student teaching such as power struggles between cooperating and student teachers.

Other challenges experienced during student teaching that can be resolved by a co-teaching approach include; the idiosyncratic nature of student teaching, attention to classroom management, and inadequate prospects for student teachers to link theory and practice (Smith, 2005). Co-teaching is an alternative approach in student teaching to support reforms in teacher education programs and provide additional and improved clinical experiences for teacher candidates (Bacharach, Heck, & Dahlberg, 2008). Moreover, U.S. Secretary of Education Arne Duncan (2009) viewed co-teaching as having an opportunity to improve partnerships between higher education and K-12 and increase student achievement (McDiiffie, Mastropiere, & Scruggs, 2009).Studies have discussed the rationale and implementation for co-teaching in various teacher education programs (Roth, Tobin, Carambo, & Dalland, 2004). Besides, few studies discuss the responsibilities of cooperating teachers and teacher educators in preparing teachers (Clift & Brady, 2005). However, co-teaching strategies when introduced into a teacher preparation program and conceptualized as important in addressing education reforms can promote collective teaching, respect, and responsibility within classrooms.

Purpose and Research Questions

The teacher preparation program that provides the context for this study is a four-year bachelor program at a public U.S. university. At the end of the fourth year, students are placed in different neighboring K-12 schools for student teaching. In this placement, student teachers complete their final semester of coursework in teacher education prior to receiving their teaching certificate. Cooperating teachers are their mentors who provide a classroom for the student teachers to refine their teaching skills. Since research has shown the positive impacts of co-teaching, this study employed a survey to assess the level of co-teaching strategies used in elementary, middle and high schools. Therefore, the purpose of this study was to examine student teachers' level of implementation of co-teaching strategies in relation to planning time as reported by student teachers and cooperating teachers in the Fall 2012 academic term.

The research questions for this study were:

1. What co-teaching strategies according to student teacher reports were commonly used by

most student teachers during student teaching?

2. What are the differences and similarities according to the student teacher survey data among elementary, middle, and high school teacher candidates in the use of the various co-teaching strategies as reported by student teachers?
3. Based on teacher and student teacher survey data, what co-teaching strategies are used more frequently by student teachers at various levels (i.e., elementary, middle, and high)?
4. How do cooperating teacher and student teacher perceptions on the use of co-teaching strategies vary?
5. How does the quantity of planning time affect the use of co-teaching strategies?

Method

During the middle of the student teaching semester, cooperating teachers (CT) and student teachers (ST) were asked to complete a survey about the co-teaching experience (See Appendix 1 and Appendix 2 for the survey). Participants identified their certification level, e.g., elementary, middle, or high school. The survey asked participants to identify the number of hours student teachers and cooperating teachers planned together per week from one to six hours. Finally, participants were asked to assess the percentage of time they spent engaging in each of the seven co-teaching strategy from zero to 100%. To remind the participants, the co-teaching strategies were defined at the bottom of the survey.

The participants in the study included student teachers and cooperating teachers from elementary, middle, and high schools. The student teachers were enrolled in a large university in an urban area of the U.S. From the elementary program, 61% of cooperating teachers (n=54) and 62% of student teachers (n=55) completed the survey. In the middle grades program 95% of cooperating teachers (n=21) and 91% of student teachers (n=22) completed the survey. In the high school program, 46% of cooperating teachers (n=12) and 53% of student teachers (n=14) completed and returned useable surveys. See Table 1 for a summary of the sample. Results should be considered in light of the small sample size.

Table 1

Cooperating Teacher and Student Teacher Sample

	CT		ST	
	Population	Usable Surveys Returned	Population	Usable Surveys Returned
ELE	89	54 (61%)	89	55 (62%)
MS	22	21 (95%)	22	20 (91%)
HS	26	12 (46%)	26	14 (53%)

Data Analysis

To analyze the data, mean scores and standard deviations were computed on planning time and the seven co-teaching strategies: One Teach, One Observe; One Teach, One Assist; Station Teaching, Parallel Teaching, Supplemental Teaching; Alternative Teaching; and Team Teaching. Analysis of Variance (ANOVA) and Pearson correlations were also computed to analyze the relationships between data points. An ANOVA was used to examine the differences of time spent on the strategies and planning time among the three groups—elementary, middle, and high school. In addition, a t-test was used to assess the variance between cooperating teacher and student teacher perceptions on the use of co-teaching strategies. Pearson correlations measured the associations between the various measures.

Results

Research Question1:
What co-teaching strategies according to student teacher reports were commonly used by most student teachers during student teaching?

Elementary student teachers (ST) reported a large percentage of their time on One Teach, One Assist (26%) followed by Team Teaching (20%). Alternative Teaching (5%) and Parallel Teaching (9%) strategies were used infrequently.

For middle school student teachers, 30% noted that they mainly engaged in the Team Teaching and One Teach, One Assist co-teaching strategies. The next highest proportion of time was with One Teach, One Observe which accounted for 23% of their time during student teaching. Similar to elementary student teachers, Alternative Teaching (5%) and Parallel Teaching (10%) were the some of the lowest percentages of time for student teachers. In addition, student teachers had a limited time engaging in Station Teaching (9%).

For high school student teachers, the highest percentage of time was One Teach, One Assist (36%). The next highest percentage was for One Teach, One Observe (31%). Similar to the elementary and middle school student teachers, high school student teachers noted that a negligible portion of their time was involved Parallel Teaching (5%), Alternative Teaching (2%), and Station Teaching (3%). See Table 2 for these descriptive statistics.

Table 2
Portion of Time Spent by Student Teachers on the Co-teaching Strategies

Level		Observe	Assist	Station	Parallel	Supplemental	Alternative	Team
	N	%	%	%	%	%	%	%
ELE	55	16	**26**	14	9	13	5	**20**
MS	14	**23**	**30**	9	10	15	5	**30**
HS	20	**31**	**36**	3	5	9	2	19

Research Question 2:
What are the differences and similarities according to the student teacher survey data among elementary, middle, and high school teacher candidates in the use of the various co-teaching strategies as reported by student teachers?

Because the elementary sample size was much larger than the middle or high school sample causing a disproportionate sample size, the researchers sought to achieve a more balanced sample size for the ANOVA. Thus, the researchers randomly selected 14 teachers from each level (e.g., elementary, middle, high). SASS Procedure SurveySelect was used to facilitate sample selection.

To examine differences an ANOVA was run. There were no significant differences found between any of the co-teaching strategies or time spent planning. See Table 3 for means and standard deviations for each variable.

Table 3

Mean and Standard Deviations Among Co-Teaching Strategies and Planning Time

Level	N	Observe	Assist	Station	Parallel	Supple-mental	Alterna-tive	Team	Planning
ELE	14	0.157	0.236	0.118	0.054	0.150	0.054	0.261	4.714
		(.128)	(0.134)	(0.107)	(0.050)	(0.116)	(0.050)	(0.162)	(1.069)
MS	14	0.218	0.336	0.086	0.082	0.168	0.068	0.364	4.357
		(0.202)	(0.145)	(0.135)	(0.211)	(0.196)	(0.138)	(0.250)	(1.336)
HS	14	0.314	0.300	0.029	0.050	0.093	0.021	0.193	3.857
		(0.188)	(0.124)	(0.047)	(0.076)	(0.073)	(0.043)	(0.121)	(2.316)

Note. Standard Deviations appear below the means.

Research Question 3:
Based on teacher and student teacher survey data, what co-teaching strategies are used more frequently by student teachers at various levels (i.e., elementary, middle, and high)?

For elementary student teachers, there were many correlations among the co-teaching strategies. Based on elementary cooperating teacher data, relationships were found between One Teach, One Observe and the following strategies: One Teach, One Assist ($r = -.34$, $p. < .05$), Supplemental Teaching ($r = .45$, $p. < .05$), and Alternative Teaching ($r = .58$, $p. < .05$). A positive relationship was found between One Teach, One Assist and Supplemental Teaching, $r = .43$, $p. < .05$. Station Teaching was positively related to three co-teaching strategies as identified by elementary cooperating teachers: Parallel Teaching ($r = .48$, $p. < .05$), Supplemental Teaching ($r = .73$, $p. < .0001$), and Alternative Teaching ($r = .87$, $p. < .0001$).

Additionally, elementary cooperating teachers noted a relationship between Parallel Teaching and Supplemental Teaching ($r = .52$, $p. < .05$) and Parallel Teaching and Alternative Teaching ($r = .85$, $p. < .001$). Finally, Supplemental Teaching was related to Alternative

Teaching ($r = .81$, $p. < .0001$) and Team Teaching ($r = .49$, $p. < .05$).

Based on data from elementary student teacher responses, there were several positive connections between the co-teaching strategies. One Teach, One Observe was positively related to One Teach, One Assist ($r = .31$, $p. < .05$) and Alternative Teaching ($r = .65$, $p. < .05$). There was a positive relationship also between Parallel Teaching and Alternative Teaching ($r = .87$, $p. < .0001$)

Three relationships were found in the middle school cooperating teacher data. One Teach, One Observe was positively correlated to One Teach, One Assist ($r = .56$, $p. < .05$). In addition, Station Teaching was related to Supplemental Teaching ($r = .89$, $p. < .05$) and Alternative Teaching ($r = .95$, $p. < .05$)

The data from the middle school student teachers produced many correlations. One Teach, One Observe was related to all the other strategies: One Teach, One Assist ($r = .61$, $p. < .05$), Station Teaching ($r = .78$, $p. < .05$), Parallel Teaching ($r = .96$, $p. < .001$), Supplemental Teaching ($r = .66$, $p. < .05$), Alternative Teaching ($r = .92$, $p. < .05$), and Team Teaching ($r = .65$, $p. < .05$). Station Teaching was correlated to Parallel Teaching ($r = 1.00$, $p. < .001$), Supplemental Teaching ($r = .96$, $p. < .001$), Alternative Teaching ($r = .99$, $p. < .001$), and Team Teaching ($r = .63$, $p. < .05$). Correlations also emerged between Supplemental Teaching and several of the other co-teaching strategies including: Parallel Teaching ($r = .80$, $p. < .05$), Alternative Teaching ($r = .89$, $p. < .05$), and Team Teaching ($r = .60$, $p. < .05$). Finally, Alternative Teaching was related to Team Teaching ($r = .94$, $p. < .05$), One Teach, One Assist ($r = .85$, $p. < .05$), and Parallel Teaching ($r = .97$, $p. < .05$).

There were no correlations found between any of the co-teaching strategies from either high school cooperating teachers or student teachers.

Research Question 4:

How do cooperating teacher and student teacher perceptions on the use of co-teaching strategies vary?

A t-test was conducted but not significant differences were found between cooperating teachers and student teachers at any of the three levels (e.g., elementary, middle, high) for any of the variables. Table 4 depicts mean and standard deviations for cooperating teachers and student teachers for time spent on co-teaching strategies and time spent planning.

Table 4

Mean and Standard Deviations for Cooperating Teachers and Student Teachers for Time Spent on Co-teaching Strategies and Time Spent Planning

Level		N	Observe	Assist	Station	Parallel	Supple-mental	Alter-native	Team	Planning
ELE	ST	55	.16 (.13)	.55 (.16)	.14 (.13)	.09 (.12)	.13 (.11)	.05 (.09)	20 (.19)	4.45 (1.51)
	CT	54	.15 (.13)	.54 (.26)	.16 (.17)	.09 (.12)	.17 (.17)	.04 (.08)	.23 (.21)	4.45 (1.37)
MS	ST	14	.23 (.16)	.36 (.15)	.9 (.13)	.10 (.23)	.15 (.18)	.05 (.12)	.30 (.24)	4.05 (1.39)
	CT	12	.21 (.16)	.33 (.16)	.9 (.12)	.05 (.09)	.17 (.20)	.06 (.12)	.26 (.21)	4.29 (1.27)

HS	ST	20	.31	.30	.03	.05	.09	.02	.19	3.86
			(.19)	(.12)	(.05)	(.08)	(.07)	(.04)	(.12)	(2.32)
	CT	21	.24	.34	.05	.05	.08	.03	.21	3.92
			(.16)	(.14)	.05	(.08)	(.07)	(.05)	(.13)	(2.31)

Note. Standard Deviations appear below the means.

Research Question 5:
How does the quantity of planning time affect the use of co-teaching strategies?

The amount of planning was shown to negatively relate to One Teach, One Assist as reported by elementary cooperating teachers ($r = -.40$, p. < .05). Elementary student teachers also confirmed this negative relationship between these two variables ($r = -.41$, p. < .05). Similarly, high school cooperating teachers responded that planning time was negatively related to One Teach, One Observe ($r = -.90$, p.<.001). No correlations emerged between any of the co-teaching strategies and planning time for middle school student teachers.

Implications and Conclusion

Kloo and Zigmond (2008) emphasized that focus should be directed on the way teachers implement co-teaching practice with the aim of varying co-teaching strategies and utilizing more advanced co-teaching strategies such as Team Teaching. Team Teaching is the most effective strategy when a classroom teacher and a student teacher collaborate and consequently share information, learn from one another, take risks, and progress as professionals (Murawski, & Dieker, 2008). In this study, the survey results about co-teaching experience by student teachers and cooperating teachers during the middle of student teaching revealed several implications related to commonly used co-teaching strategies, effect of planning time on implementation of co-teaching strategies, and what co-teaching strategies are used more frequently by student teachers at different levels.

First, the student teacher reports showed that high school student teachers remotely used other co-teaching strategies beyond One Teach, One Observe and One Teach, One Assist; with evidence of some moderate use of Team Teaching strategy. The study also showed frequent use of One Teach, One Assist co-teaching strategies in elementary school with moderate application of One Teach, One Observe and Team Teaching strategies. Conversely, middle school student teachers engaged more frequently in One Teach, One Assist and Team Teaching with moderate use of One Teach, One Observe. Precisely, there was evidence of greater use of Team-Teaching at middle school and moderate application of the same at high school and elementary school. Notable application of Team Teaching that applies higher degree of collaboration at all the grades levels could be associated with the initial co-teaching training the student teachers and cooperating teachers received before student teaching. Mastropieri et al., (2005) underscored the importance of training co-teachers to increase the implementation of more advanced co-teaching strategies, such as Team Teaching.

Even though the results indicated high school teachers had moderate use of Team Teaching, studies have shown co-teaching to be challenge at high school level because of teachers lack of knowledge or experience in a subject's content and absence of training in co-teaching practice (Linz, Heater, and Howard, 2008; Murawski & Dieker, 2008). Therefore, to increase the implementation of more advanced co-teaching strategies, such as Team Teaching, which was extensively utilized at middle school in this study, training must take precedence (Mastropieri et al., 2005). In addition, current findings underscore the use of the co-teaching

approach by student teachers in terms of planning and organizing instruction and also in delivering and assessing learning experiences as evidenced from the Bacharach, Heck, & Dahlberg (2010) study. Improvement in the effectiveness of applying co-teaching strategies by student teachers would require better preparation in the clinical model prior to student teaching without limiting it to one training.

Team Teaching in middle school is observed when both teachers assume active and passive instructional roles (Mastropieri & Scruggs, 2007). On the part of students, Team Teaching is beneficial because lesson instruction is carried out by both teachers who support students' discussion and are actively engaged in the management of the lesson and classroom behavior (Murawski, & Dieker, 2008). To have ongoing support of co-teaching training in schools, administrators must be educated about the practice in order to provide required material resources and have a better schedule that allows cooperating teacher to be well prepared to work together with a student teacher and instill critical collaborative skills required in co-teaching.

Second, even though the study showed no significant differences between any of the co-teaching strategies or time spent planning, studies have shown that the most important issue for many educators related to co-teaching is planning time (Dieker, 2001; Keefe & Moore, 2004). Limited planning time have student teachers engage in more passive roles of observing and assisting (Nierengarten & Hughes, 2010). In addition, co-teaching requires more planning time compared to a solo-taught class (Graziano & Navarrete, 2012). Planning by co-teachers allow self-reflection on how the co-teaching relationship is operational and assess how particular strategies are implemented to ensure effective application of co-teaching (Friend & Cook, 2007; Magiera et al., 2005; Mastropieri et al., 2005; Scruggs et al., 2007). So, while there is agreement that planning time is critical for effective co-teaching, it is important for both co-teachers to have equal investment and have equal standing in the classroom. Furthermore, collaboration during planning time allows the use of advanced co-teaching strategies because two individuals rather than one improves creativity and implementation of co-teaching strategies (Bacharach, Heck, & Dahlberg, 2010).

Third, results showed correlations of the different co-teaching strategies. For elementary student teachers, there were more correlations among the co-teaching strategies; as evidenced in the greater use of a variety of co-teaching strategies. Three relationships were found in the middle school cooperating teachers data. However, there were no correlations found between any of the co-teaching strategies from either high school cooperating teachers or student teachers. Elementary student teachers seem to engage in more co-teaching strategies as they differentiate lessons based on abilities and learning preferences and provide more small-group instruction. In high school classes, often there is less differentiation and teaching in small groups, preventing student teachers from implementing a variety of co-teaching strategies. Even with some studies suggesting that well-implemented co-teaching does benefit students (Rice & Zigmond, 2000; Walther-Thomas, 1997); there is need for research that further and examine the many variables that could affect the implementation of co-teaching strategies that will result to potential effective use of the practice (Friend, et al, 2010). However, some states have passed guidelines increasing the number of field hours required by all teacher candidates (Kentucky Administrative Regulation, 2013). Increasing high school field hours may help to address this disparity and increase school teacher candidates' skills in teaming prior to student teaching.

Limitations

One of the reasons for limited studies by researchers is lack of clear definition of co-teaching that would ensure the practice is implemented across the co-teaching studies in a consistent and defensible manner (Mowbray, et al, 2003). This concern was addressed in this study by making sure the teachers were trained about the different co-teaching strategies and the co-teaching strategies were defined at the bottom of the survey as a reminder. Although this study took place during the middle of student teaching, all the cooperating teachers and student teachers for different grade levels completed the survey despite a small size of participants; 45 cooperating teachers and 47 student teachers. Even with the small groups, findings suggest that planning had no influence on the use of a variety of co-teaching strategies. In addition, the ideas explored in this article indicate that teachers may have had exposure to different co-teaching strategies influencing the frequent or moderate use of advanced Team Teaching strategy.

Future Research

This research shows differences across program levels and a need to provide more training on the use of the different co-teaching strategies to increase the use of advance co-teaching strategies. In addition, further research is needed to examine the underlying causes for the variances among program areas in implementing co-teaching strategies. As teacher preparation institutions examine ways to improve teacher quality, co-teaching provides a model to enhance teacher collaboration skills that would prepare teacher candidates to obtain and apply new knowledge and skills that would increase student achievement and growth. Today, teacher preparation programs are expected to prepare teacher candidates who are professionally ready and can demonstrate mastery of subject content and effective instructional approach that meets the needs of all diverse learners and holds the learners to high expectations (Council of Chief State School Officers, CCSSO, 2012).

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Appendix 1

WKU Co-Teaching Mid-point Checkpoint: student teacher Form

WKU Co-teaching Mid-point Checkpoint

student teacher Form

Student Teacher's Name: _____	School Name: _____	Level: (Preschool, ELE, MS, HS) _____

How many hours a week do you co-plan with your teacher? Circle the number of hours below.					
1 hour	2 hours	3 hours	4 hours	5 hours	6 or more hours

What percentage of the time are you engaged in each of the co-teaching strategies? Make sure your total amount of time equals 100%. For example, 50% Team Teaching and 50% Alternative (50 + 50 = 100).											
One Teach, One Observe	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
One Teach, One Assist	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Station Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Parallel Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Supplemental	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Alternative	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Team Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%

Turn in completed form to WKU University Supervisor.

Appendix 2
WKU Co-Teaching Mid-point Checkpoint: cooperating teacher Form

Co-teaching Mid-point Checkpoint: *cooperating teacher Form*

Student Teacher's Name: _____	School Name: _____	Level: (Preschool, ELE, MS, HS) _____

How many hours a week do you co-plan with your teacher? Circle the number of hours below.					
1 hour	2 hours	3 hours	4 hours	5 hours	6 or more hours

What percentage of the time are you engaged in each of the co-teaching strategies? Make sure your total amount of time equals 100%. For example, 50% Team Teaching and 50% Alternative (50 + 50 = 100).											
One Teach, One Observe	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
One Teach, One Assist	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Station Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Parallel Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Supplemental	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Alternative	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%
Team Teaching	0	10 %	20 %	30 %	40 %	50%	60%	70%	80%	90%	100%

Turn in completed form to WKU University Supervisor.

Co-teaching Strategies
One Teach, One Observe – one teacher has primary instructional responsibility while the other gathers specific observational information on students or the (instructing) teacher.
One Teach, One Assist – an extension of one teach, one observe. One teacher has primary instructional responsibility while the other assists students' with their work, monitors behaviors, or corrects assignments.
Station Teaching – the co-teaching pair divide the instructional content into parts –Each teacher instructs one of the groups, groups then rotate
Parallel Teaching – each teacher instructs half the students. The two teachers are addressing the same instructional material and presenting the material using the same teaching strategies.

Supplemental – this strategy allows one teacher to work with students at their expected grade level, while the other teacher works with those students who need the information and/or materials extended or remediated.
Alternative – Alternative teaching strategies provide two different approaches to teaching the same information. The learning outcome is the same for all students however the avenue for getting there is different.
Team Teaching – Well planned, team taught lessons, exhibit an invisible flow of instruction with no prescribed division of authority. Using a team teaching strategy, both teachers are actively involved in the lesson. From a students' perspective, there is no clearly defined leader – as both teachers share the instruction, are free to interject information, and available to assist students and answer questions.