Theory & Practice in Rural Education (TPRE)
2019, Vol. 9, No. 2, Pp. 79-91
 ISSN:2642-7170
https://doi.org/10.3776/tpre.2019.v9n2p79-91

Co-planning Strategies for Mentor Teachers and Interns

Maureen Grady, *East Carolina University*
Charity Cayton, *East Carolina University*
Ronald V. Preston, *East Carolina University*
Rose Sinicrope, *East Carolina University*

Planning for instruction is a complex and important task, requiring teachers to consider content, lesson objectives, and student learning. Teachers' ability to attend to the complexity of planning differs with experience level, and planning is especially difficult for novices and preservice teachers. The authors examined the potential of co-planning during the internship experience to assist interns in making the transition from mathematics education students to mathematics teachers. The article describes six strategies to facilitate co-planning between mentor teachers and interns and shares implications for these strategies in other teaching contexts and relationships and for current and future research efforts.

Keywords: co-teaching, teacher preparation, co-planning, clinical experiences

Education places justifiable emphasis on student learning and instruction that leads to this learning. Planning is a critical component of teaching, during which "teachers make decisions that ultimately impact students' opportunities to learn" (Superfine, 2008, p. 11). Smith and Stein (2011) state that "good advance planning is the key to effective teaching" (p. 76). Planning is a complex task, involving consideration of such topics as what content to include and emphasize, what instructional tasks will most productively engage students, how to keep the classroom running smoothly, and how to provide equitable opportunities to learn for all students (Fennema & Franke, 1992).

The ability to attend to the complexity of planning differs with experience. Experienced teachers with extensive, well-organized knowledge of both pedagogy and student learning are more flexible and attentive than are novice teachers to the nature of students' learning opportunities as they create and plan instruction (Borko, Livingston, & Shavelson, 1990; Leinhardt & Greeno, 1986; Livingston & Borko, 1989). Interns represent one group of novice teachers that may have particular difficulty in planning instruction that focuses on student learning. The internship (sometimes referred to as student teaching) experience is a time when preservice teachers are transitioning to writing lesson plans focused on actual students rather than focusing on hypothetical students and using the specific lesson plan format required for a course assignment. Interns may find it difficult to adjust to a role where implementation of the lesson plan with a focus on student learning is more important than format. Added to this challenge is the fact that many experienced teachers may not write detailed lesson plans, leaving interns little access to the planning decisions made by their mentor, cooperating, or clinical teachers. Having interns and mentors co-plan lessons has the potential to aid interns in the transition from mathematics education students to mathematics educators. One of our interns spoke to this, saying, "[My mentor teacher] helped me think through planning and what my students needed to know and how I should deliver it."

The six co-planning strategies we describe have potential to support a wide range of teaching partnerships beyond interns and mentors. We believe these strategies could also benefit in-

service teachers (novice and experienced) as they plan across a range of contexts, including professional learning communities, collaborations between regular educators and special educators, and interactions of classroom teachers and instructional coaches.

Literature Review

Lave's (1991) theory of situated learning envisions a way of learning in which new practitioners to a field learn in an apprenticeship model. They work side by side with an experienced mentor, gaining knowledge of the profession and gradually assuming increasing responsibility. Our work with teaching interns is grounded in this understanding of enculturation into the teaching profession. Co-teaching and co-planning are a way of modeling the teaching internship in an apprenticeship model.

Many researchers have emphasized the critical need for co-planning within a co-teaching context (e.g., Howard & Potts, 2009; Magiera, Smith, Zigmond, & Gebauer, 2005). However, the importance of lesson planning, coupled with its complexity and difficulty, leads us to consider the merits of co-planning, regardless of the teaching context. We believe co-planning has potential for improving the planning process, particularly for interns.

There are many challenges to implementing co-planning with mentor teachers and interns. One challenge is the energy and will to work closely with another person. Duchardt, Marlow, Inman, Christensen, and Reeves (1999) note that a cooperative effort such as co-planning "requires people who are sensitive to one another's needs and who are willing to truly cooperate" (p. 188). Another challenge is finding an appropriate environment with few distractions and in which planning sessions can focus solely on planning. Murawski (2012) notes that "too often planning sessions become gripe sessions or share sessions" (p. 9). An environment is needed that helps keep planning in the forefront of the interactions. Perhaps the most difficult challenge is finding the time for co-planning (Friend, Reising, & Cook, 1993; Murawski, 2012; Sileo & van Garderen, 2010). As Murawski (2012) notes, and most teachers would readily second, "Teachers never have enough time to do everything they need to do, and this includes planning for instruction. Having to meet with another teacher to plan is that much more complicated" (p. 8).

Despite the challenges, co-planning seems to have sufficient potential benefits that overcoming its challenges is worthwhile. Teachers working in co-planning environments have more opportunity for collaboration (Badiali & Titus, 2010; Duchardt et al., 1999). The process may increase exchange of ideas and variety of instructional practices being piloted in the classroom. Novice teachers can learn about the planning process, taking advantage of expert knowledge about learners and curriculum materials and benefiting from the veteran teachers' knowledge of lesson pitfalls (Bacharach, Heck, & Dahlberg; 2008, 2010). According to Smith (2005), interns "learn about various aspects of teaching by participating in a community of teachers with guidance from a more experienced mentor" (p. 54). In addition, the expert teacher may also learn through the planning process, as there is increased opportunity for reflection on the plan and its implementation. With these potential benefits to novices and experts, as well as students, it appears worthwhile to consider how co-planning might be enacted in an internship setting.

The existing literature on co-planning provides considerations regarding creating a plan. For example, Bryant and Land (1998) talked about planning for cooperative grouping, vocabulary development, and planning for assessment. Murawski (2012) also provided some general directions for how teachers should work together to co-plan, such as "select an appropriate environment without distractions" (p. 9) and "determine regular roles and responsibilities" (p. 10). Howard and Potts (2009) stated that, "while it seems everyone or mostly everyone agrees that co-planning time is necessary for successful co-teaching, how should this planning time be used? The simple answer is 'to plan for the instruction!'" (p. 3). In this article we propose to move beyond this advice by offering specific strategies for how mentor teachers and interns may work together, defining roles and responsibilities for helping mentors and interns effectively co-plan for instruction.

Development of the Co-planning Strategies

Realizing the need to provide structure for mentors and their interns to co-plan, we sought to identify possible co-planning structures to support the transition from independent to shared planning. Because of the success of the co-teaching strategies (Bacharach et al., 2010; Murawski & Spencer, 2011) in supporting a paradigm shift from traditional student teaching to co-teaching using an apprenticeship model (Lave, 1991), we decided to use the co-teaching strategies as a structure for co-planning strategies.

We began with two of the researchers applying each of the co-teaching strategies (see Table 1) to a co-planning approach. For example, the co-teaching strategy *one teaches, one observes* was applied as *one reflects, one plans*. We defined each co-planning strategy, described how each might facilitate an apprenticeship approach to planning, and noted potential benefits and concerns for each. Next, together we analyzed the initial work and provided examples of each strategy from our combined 50 years of supervision experience in seven states and 20 different school districts. This work was presented to a research action cluster on improving clinical experiences for secondary mathematics teacher candidates. The enthusiastic response to these proposed strategies encouraged us to move forward in creating a professional development program to pilot these co-planning strategies with interns and mentors.

Two of us (M. Grady and C. Cayton) developed the co-planning strategies and provided professional development with them to multiple groups of mentors and interns. Each professional development session provided an opportunity for the community to further delineate the strategy, provide examples, and generate new variations in shared planning.

Table 1

Co-teaching strategies

Strategy	Description
One teaches, one observes	One teacher leads instruction, while the other teacher gathers specific information.
One teaches, one assists	One teacher works with the whole class, while the other teacher assists individual students or groups of students.
Station teaching	Students are divided into three or more small groups to go to stations or centers. Students rotate through multiple stations. Teachers can facilitate individual stations or circulate among all stations.
Parallel teaching	Both teachers take half the class in order to reduce student-teacher ratio. Groups may be engaging with the same or different content in the same or different ways.
Alternative teaching	One teacher works with a large group of students, while the other works with a smaller group providing reteaching, preteaching, or enrichment as needed.
Team teaching	Both teachers are in front of the class, working together to provide instruction.

Adapted from Bacharach et al. (2010) and Murawski and Spencer (2011).

Strategies for Co-planning

The range of experiences during the internship may be described as an iterative cycle that encompasses observing, planning, teaching, assessment, and reflection (see Figure 1). The quality of interactions between intern and mentor is critical not only to optimize relationship building but also to facilitate an intern's ability to plan for and implement instruction that includes high-leverage teaching practices (Ball, Sleep, Boerst, & Bass, 2009) with a focus on student learning. Consider two distinct internship paradigms, one traditional and one incorporating co-teaching. In both, the intern initially observes classroom instruction to become oriented to the norms and expectations of the internship placement; they are each then tasked with planning for instruction. The manner in which they are asked to plan is where the two paradigms diverge.

Traditional Internship Paradigm

In the traditional paradigm, interns are provided a set of course standards, a pacing guide, and possibly their mentor's instructional resources, and they are asked to create a lesson plan independently. Their mentor critiques this lesson plan once it is written. Frequently this lesson plan does not meet the mentor's expectations for quality instruction; interns then scramble to revise the lesson plan based on the mentor's critique. If the lesson plan is still not adequate, the planning and critique process is repeated, and eventually, the lesson plan is approved. However, there may now be insufficient time to reflect on the planning cycle and conceptualize quality instruction. Then the cycle begins again. This paradigm (see Figure 2), by leaving the interns working alone much of the time, may induce unnecessary stress, establish the mentor in an evaluative role, and hinder relationship building between the interns and their mentors. In addition, the mentors may experience stress because they must suspend their role in planning and responsibility for student learning (Ma, 2013).

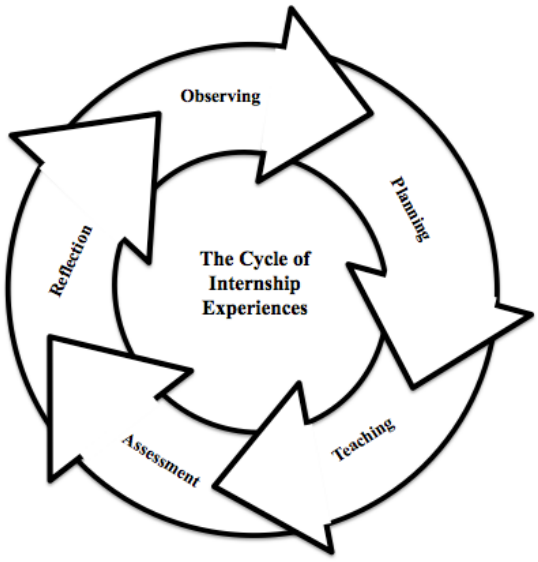

Figure 1. Experiences during internship. Adapted from *Moving beyond "sink or swim": A framework for 2:1 co-teaching in student teaching*, by C. M. Tschida & E. A. Fogarty, April 2016, paper presented at the American Educational Research Association Annual Conference, Washington, DC.

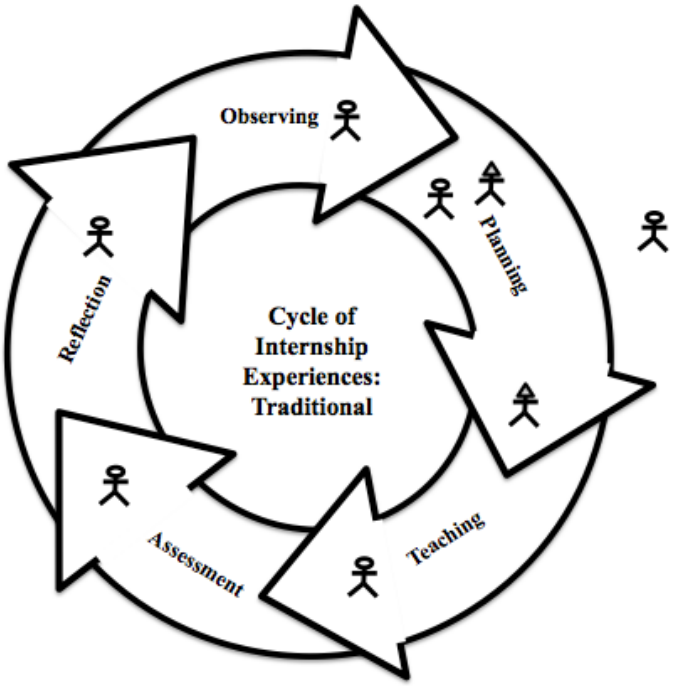

Figure 2. Traditional internship paradigm. Adapted from *Moving beyond "sink or swim": A framework for 2:1 co-teaching in student teaching*, by C. M. Tschida & E. A. Fogarty, April 2016, paper presented at the American Educational Research Association Annual Conference, Washington, DC

Co-teaching Internship Paradigm

In the co-teaching paradigm, in contrast, interns go through the same observation period, but rather than being sent off to plan in isolation, they and their mentor plan together, each bringing their individual knowledge and skill to the planning process. Planning decisions are made with the goal of optimizing student learning, instructional strategies (including co-teaching strategies) are selected appropriately, and together interns and their mentor reflect on instruction and the effect on student learning (see Figure 3). This planning and reflection process continues and evolves, providing interns with supportive opportunities to learn about the planning process and allowing them to assume increasingly more authority for planning and instruction. In contrast to the traditional paradigm, stress for interns is reduced, their mentor is seen as a partner, and positive professional rapport is established. Also, their mentor maintains an active role in planning and responsibility for student learning.

Research suggests co-planning is a critical component for successful co-teaching (Bryant & Land, 1998; Davis, Dieker, Pearl, & Kirkpatrick, 2012; Murawski, 2012). However, very little advice has been provided about how to co-plan effectively. We therefore propose six strategies to guide the co-planning process between an intern and mentor.

Co-planning Strategies

Our work is grounded in the research base for co-teaching (Bacharach et al., 2010; Murawski & Spencer, 2011). Preservice teacher preparation at our institution incorporates six co-teaching strategies adapted from these research studies (see Table 1). These strategies are embedded throughout practicum courses and a year-long internship for our preservice high school math teachers.

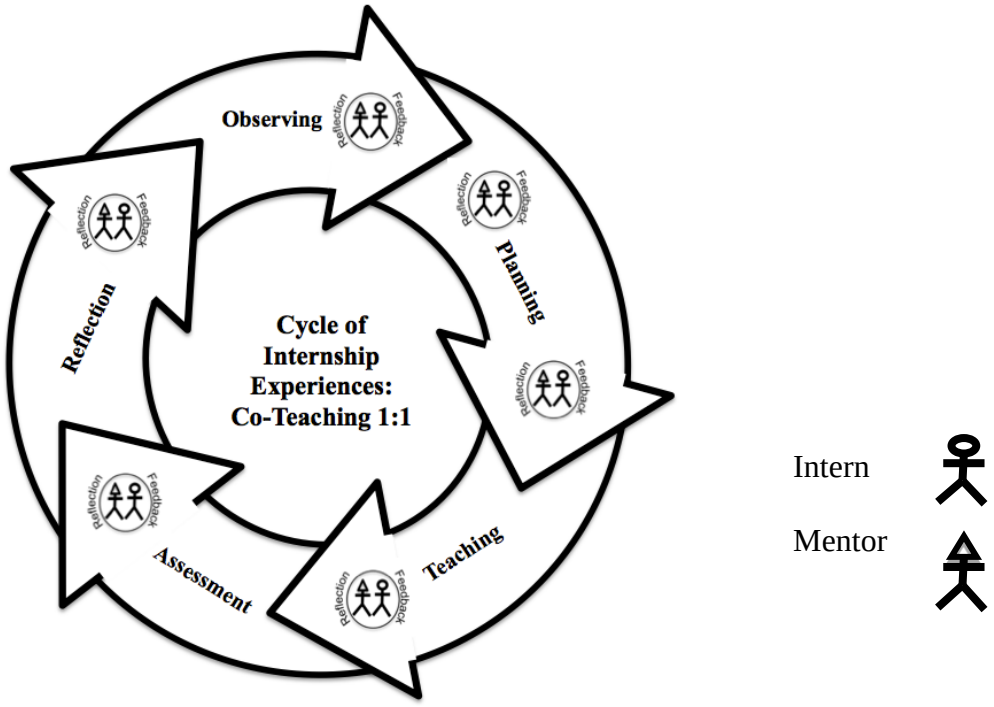

Figure 3. Co-teaching/co-planning internship paradigm. Adapted from *Moving beyond "sink or swim": A framework for 2:1 co-teaching in student teaching*, by C. M. Tschida & E. A. Fogarty, April 2016, paper presented at American Educational Research Association Annual Conference, Washington, DC.

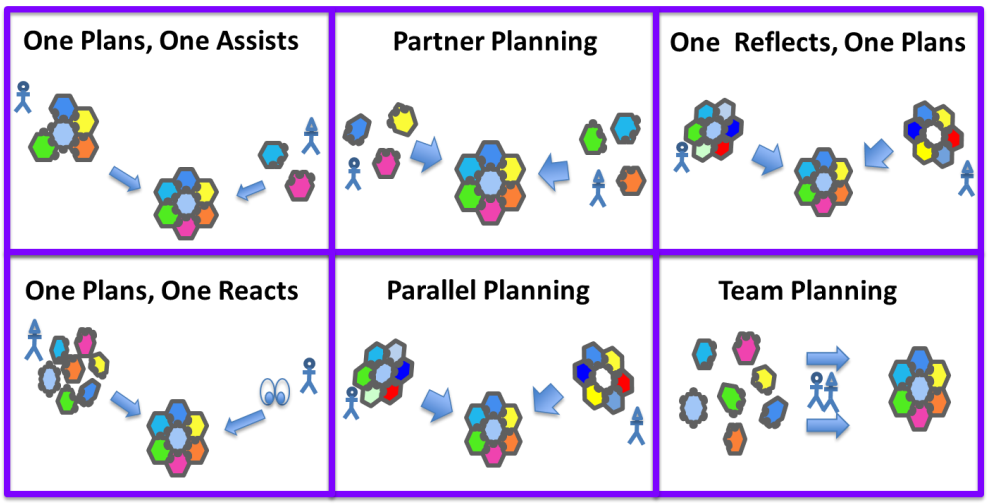

Figure 4. Co-planning Strategies

Feedback from interns and mentor teachers indicated that, while they found the co-teaching strategies beneficial, they felt further support was needed to incorporate co-planning effectively. The strategies shown in Figure 4 represent our efforts to define six co-planning strategies that complement and support co-teaching practices, to address an identified need and to improve the co-teaching internship experience. Below we discuss each of the strategies and provide suggestions for implementation.

One Plans, One Assists. With this co-planning strategy, one teacher has primary responsibility for the lesson while the other contributes discrete pieces to help fill in the plan. The co-teachers then work jointly to finalize the lesson plan. This strategy provides an opportunity for interns to contribute resources that may be new to the clinical teacher and produce better instructional materials (e.g., a more polished PowerPoint presentation). With this strategy not only do interns have the opportunity to see how a good lesson may be improved, but also the mentor and intern build rapport while negotiating the final plan jointly.

One concern is that, if the initial planning is done separately, individual components of the lesson may not mesh well. In this case, interns and their mentor will need to communicate and compromise on how to bring the pieces together. Initially mentors may provide major direction for the lesson plan, but the roles should reverse as internships progress. One example of this strategy would be for the mentor to develop the core of the lesson, while the intern finds a hands-on activity to help develop conceptual understanding, brings some higher-order questions from the literature to the planning session, or finds a video of a real world application. The pair would then build the lesson from these instructional components.

Partner Planning. This co-teaching strategy is similar to *one plans, one assists* because each co-teacher takes responsibility for different portions of the lesson plan, bringing these pieces together to finalize the plan collaboratively. The distinction lies in the level of responsibility for each co-teacher. In the *one plans, one assists* strategy, one teacher is responsible for most of the lesson, with the other contributing a smaller portion. In *partner planning* the distribution of labor is equal. Both strategies require that a lesson be visualized as components, where initial planning can be done independently. This is a very efficient strategy due to the initial division of responsibilities.

Again, one concern is that the pieces of the lesson may not mesh well, and co-teachers need to negotiate and compromise to pull the pieces together into a well-developed lesson plan. An example of this strategy is having one teacher develop a hands-on task on volume of cones versus cylinders, while the other teacher develops a presentation of the derivation of the formulas. Each of these elements could then be blended into one lesson that builds procedural fluency from conceptual understanding.

One Reflects, One Plans. In this strategy mentors think aloud about the main parts of the lesson and interns write the plan. We acknowledge that it may be a challenging task for mentors to think aloud—it is more than simply talking aloud, it involves articulating what may be automatic, requiring mentors to ask, “How do I know how to plan?” Initially, mentors may think aloud about the main points of a lesson and interns write the lesson plan, confident that it is at least a reasonable fit for the content and students. We caution against excessive use of this strategy over time to avoid interns becoming too reliant on their mentor, hindering the development of their lesson-planning skills.

This strategy also has the potential for discrepancies to arise between what mentors speak aloud and what interns hear. It is important to have interns summarize key ideas and components of the lesson before finalizing the plan after the co-planning session. One advantage of this strategy is the transparency of the planning process for interns. One example of *one reflects, one plans* would be the mentor reflecting on a task to motivate a lesson on geometric transformations. The discussion may include discussion of potential resources for the intern such as helpful technologies and sources of useful examples.

Parallel Planning. With this strategy, each member of the co-teaching team develops an entire

lesson plan for a given topic, and then they bring these lessons together for discussion and integration into one plan. This approach provides an opportunity for teachers to learn from one another by comparing and contrasting activities, examples, and points of emphasis from each of their lesson plans. However, the duplication of work may make this strategy less efficient. Also, teachers may become heavily invested in their own plans, making collaboration more difficult. An example of this strategy is co-teachers each developing a lesson on using scale drawings. One teacher might create a lesson to enlarge drawings, while the other focuses on scales on maps to plan a trip. The two teachers then create a lesson that incorporates the best parts of each plan.

One Plans, One Reacts. For this co-planning strategy, one co-teacher plans a lesson independently and the other co-teacher makes suggestions for improvement. This type of planning/feedback is perhaps the approach most used in traditional mentor-intern settings. This strategy provides an opportunity for good feedback and discussion of lesson plan elements, primarily for interns from their mentor teacher.

With this strategy, interns' initial approach may not fit their mentor's expectations, and feedback is provided after the fact rather than in real time. Because of these drawbacks, we do not recommend this strategy for the early phase of the internship. Another concern is that interns may begin to feel like an assistant, which can be addressed by intentionally reversing roles, where mentors provide lesson plans for interns to reflect on and critique. For example, the mentor may prepare a lesson on solving systems of equations and the intern provides feedback on the set of examples chosen.

Team Planning. In this strategy both teachers actively plan at the same time and in the same space, with no clear distinction of who takes leadership. At any given time either teacher may take the lead in

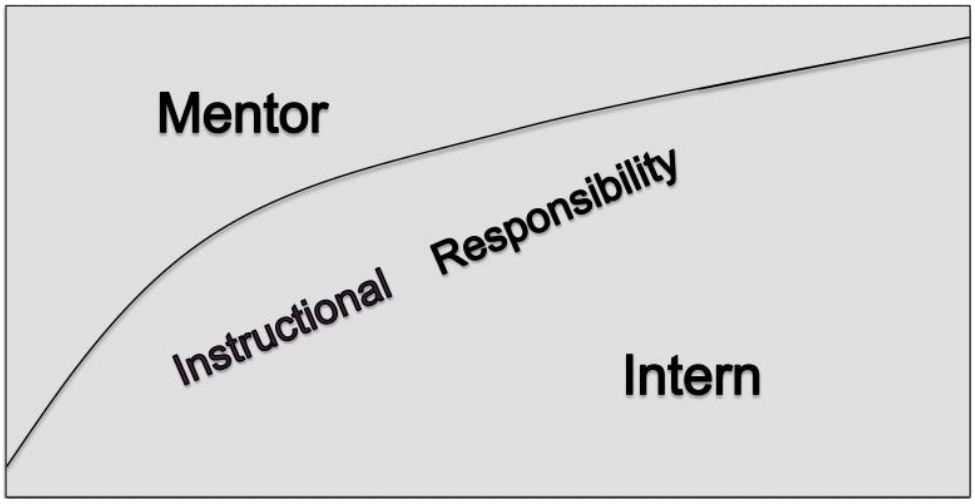

Figure 5. Instructional responsibilities for co-teaching internships. From *How co-planning and co-teaching influences mentor teachers during student teaching*, by P. Brosnan, M. Jaede, E. Brownstein, and S. Stroot, April 7, 2014, paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

suggesting tasks, questions, flow of the lesson, and so on. The plan is written in real time, collaboratively. The resulting lesson plan may be better than a plan done independently by either teacher. In this strategy, co-planning may be more efficient because feedback and collaboration happen in real time. However, one co-teacher, likely the intern, may be less prepared to contribute than the other. This is particularly true if this strategy is used early in the internship experience. In addition, successful implementation of this strategy requires a very high level of trust and communication.

An example of *team planning* would be co-teachers coming together to plan a lesson on exponents. Each would come in with lesson ideas and notes on the goals for the lesson. The co-teachers would discuss likely student difficulties, a possible sequence of tasks, and strategies for keeping the cognitive demand of the lesson at a high level.

Implementing the Co-teaching Strategies

The co-planning strategies presented above are not hierarchical, nor do specific co-planning strategies relate to a particular co-teaching strategy. Rather, the focus is on choosing a co-planning strategy that best supports the development of interns and facilitates student learning. In a co-teaching internship, the instructional responsibilities for interns and their mentor change over time. As Figure 5 indicates, mentors initially assume more instructional responsibility, guiding interns as they gradually increase their level of responsibility. Although interns eventually take on the majority of instructional responsibilities, within a co-teaching paradigm their mentor remains an active, participating teacher, sharing instructional responsibility throughout the internship experience.

Based on this model for instructional responsibility, the co-planning strategies might be utilized in the order presented in Figure 4. This would allow interns to gradually increase their responsibility in planning for instruction. We envision mentors implementing the *one plans, one assists* strategy by assigning specific instructional tasks to interns. For example, the intern might initially be responsible for finding and implementing a warm-up/bell-ringer activity and going over the homework, while the mentor focuses on new content with the students. The *one plans, one assists* strategy provides a transition for increasing interns' level of responsibility to approximately 50%, indicative of *partner planning*. Once interns have assumed more than 50% of the planning for instructional responsibilities, the use of *one reflects, one plans* (with the mentor reflecting) would be a logical next step to support interns in writing a complete lesson plan.

The critical component with each of these co-planning strategies is that mentors' expectations and processes of planning for student learning are made explicit for the intern. Subsequently, interns and their mentor could work on *parallel planning* to negotiate an optimal plan for student learning that incorporates the best ideas from each of their individual plans. This process allows interns to gain the expertise and efficiency in planning that allows them to transition to *one plans, one reacts*, where interns plan with minimal guidance from their mentor, who provides constructive feedback on the resulting plan. The ultimate goal may be for interns and their mentor to transition to *team planning*, where they co-plan in real time as colleagues.

This suggested order has no specific time frame for how long each strategy should be implemented before transitioning to another. Also once a strategy has been used it can be implemented again later in the internship. Ideally, interns and their mentor will use a variety of strategies throughout the internship. Our main point is that co-planning strategies need to be implemented in a way that scaffolds interns' progressive development for planning instruction that supports student learning effectively. We also feel it is important for earlier strategies to be used again, with the roles for interns and their mentor reversed. For example, *one plans, one assists* may be used toward the end of the internship when the intern carries out most of the instructional responsibilities, and the mentor assists by planning for small portions of the lesson.

Discussion

Effective planning is a necessary and complex activity when designing instruction focused on student learning. In-service teachers along a continuum of experience must address planning on

a daily basis. During coursework, preservice teachers usually compose lesson plans that adhere to specific formats for hypothetical students; however, planning instruction designed for implementation with actual students presents a new set of challenges during their internship. Co-planning has the potential to address many of these special challenges. Rather than a model in which interns are expected to create plans on their own for their mentor to critique, many of the co-planning strategies outlined here envision ways mentor teachers can scaffold interns' learning about planning and instruction. By taking increasing amounts of responsibility for lessons while being supported by mentor teachers, interns can likely make a more successful transition from student to teacher.

Implications

In addition to the potential benefits for interns and mentor teachers, these strategies may help teachers in other settings where they work and plan together. These strategies could be used with preservice teachers as part of methods courses prior to their internship experience. Learning to co-plan with their peers would provide opportunities not only to learn about the strategies but also to enact them, receiving feedback on the potential effectiveness of their lesson plans prior to their internship. This experience might also empower them to be more proactive in co-planning with their mentor teacher during their internship.

These strategies also play a crucial role in supporting internship experiences involving co-teaching. As advocated by others (e.g., Howard & Potts, 2009; Magiera et al., 2005), the need for quality co-planning is especially critical when mentors and interns are working in a co-teaching model. Two or more teachers can productively share instruction in a single classroom only when both actively participate in planning that instruction. The co-planning strategies outlined here provide models for that shared planning. No co-planning strategy is necessarily connected with a particular co-teaching strategy; rather, the content of the lesson and the relative strengths and needs of the teachers involved in the planning should dictate which co-planning strategy is used for planning any given lesson.

As critical as co-planning is in a co-teaching setting, it is just as important in other internship models. Interns need support for learning to plan, and mentors and interns need to plan together to best support student learning. These co-planning strategies should be helpful to any mentor-intern pair as they work to find ways to plan together and to transition interns into roles of ever-greater responsibility for student learning.

When considering in-service teachers, these strategies provide ideas for a range of experience levels and teaching contexts. Consider the application of these strategies to support novice teachers as they enter the classroom. Since quality planning is likely to be with a challenge for beginning and struggling teachers, these co-planning strategies may provide a model for more experienced teachers to mentor novice and struggling teachers in planning instruction focused on student learning, as well as planning interactions between instructional coaches and teachers. Their potential also extends to professional-learning-community settings (Ochanji & Diana, 2011) in which teachers plan together for lessons to be implemented in their separate classrooms. Another application may be to assist subject-area teachers and special education teachers to share the workload of planning lessons beneficial for all students in a classroom. These strategies may also provide a way for teachers not accustomed to planning together to use co-planning to breathe new life into their instruction by planning with other teachers within their school or district or even across different school districts. Although the order and duration of implementation would likely vary in these contexts, strategies can help define roles and expectations in the planning process. Overall, there is a need for more sharing of ideas and improved planning for instruction. The co-planning strategies presented here provide some guidance on how to further this sharing.

Current and Future Research

While the need for co-planning in internship settings and beyond is widely acknowledged (Bryant & Land, 1998; Davis et al., 2012; Murawski,

2012), little guidance is available on strategies to productively engage in co-planning. In this article we have adapted the strategies from the co-teaching literature (Bacharach et al., 2010; Murawski & Spencer, 2011) to provide possible strategies for how two teachers might interact as they plan lessons together. While our research regarding these strategies is only beginning, early survey evidence suggests they provide some answers to the challenges faced by interns as they learn to plan. When asked to discuss the benefits and challenges of their co-planning experiences, recent graduates reported:

> Intern 1: Co-planning was fun, I felt like I was able to share the "burden" of thinking up lessons for my students to do, and creating tests with teachers that teach the same courses I did.
>
> Intern 2: I felt more prepared and comfortable in the classroom.
>
> Intern 3: It was helpful to have a professional to look over and critique my lesson plans. They helped me to think about my students, time, what they knew, and what they needed to work on when planning.
>
> Intern 4: [I was] more comfortable in my plans with co-planning; knowing someone will catch things I miss.

Similar to previous research (Friend et al., 1993; Murawski, 2012; Sileo & van Garderen, 2010), the greatest challenge reported dealt with finding adequate time to co-plan effectively.

Our current research efforts focus on the use of these strategies within 1:1 co-teaching in high school mathematics classrooms in rural, high-needs school districts. Our mentor teachers and interns have been trained in both the co-teaching and co-planning strategies, and we are collecting data to analyze their perceptions and use of these strategies. Data sources include surveys from mentor teachers and interns (administered before, during, and after the internship), interns' weekly journals, and classroom observations (four per mentor-intern pair) conducted throughout the semester-long internship.

While our research addresses only a 1:1 co-teaching model, we hypothesize these strategies will be helpful in other internship models or other settings in which two teachers seek to teach or to plan together for more effective instruction. As our data collection and analysis progresses, we hope to find evidence that informs our hypotheses and helps us refine our models. We are also working with universities across the United States to collect data from a variety of rural and nonrural settings, which will help us analyze how co-planning may vary across cultural, demographic, and geographic contexts. For the present, our goal is to present these co-planning strategies to a broader audience of teacher educators to begin a dialog surrounding a clear and present need for co-planning among mentor teachers and interns.

References

Bacharach, N. L., Heck, T. W., & Dahlberg, K. R. (2008). What makes co-teaching work? Identifying the essential elements. *College Teaching Methods and Styles Journal, 4*(3), 43–48. https://doi.org/10.19030/ctms.v4i3.5534

Bacharach, N., Heck, T. W., & Dahlberg, K. (2010). Changing the face of student teaching through coteaching. *Action in Teacher Education, 32*(1), 3–14. https://doi.org/10.1080/01626620.2010.10463538

Badiali, B., & Titus, N. E. (2010). Co-teaching: Enhancing student learning through mentor-intern partnerships. *School-University Partnerships, 4*(2), 74–80.

Ball, D. L., Sleep, L., Boerst, T. A., & Bass, H. (2009). Combining the development of practice and the practice of development. *Elementary School Journal, 109*(5), 458–474. https://doi.org/10.1086/596996

Borko, H., Livingston, C., & Shavelson, R. J. (1990). Teachers' thinking about instruction. *Remedial and Special Education, 11*(6), 40–49. https://doi.org/10.1177/074193259001100609

Brosnan, P., Jaede, M., Brownstein, E., & Stroot, S. (2014, April 7). *How co-planning and co-teaching influences mentor teachers during student teaching*. Paper presented at the

annual meeting of the American Educational Research Association, Philadelphia, PA.

Bryant, M., & Land, S. (1998). Co-planning is the key to successful co-teaching. *Middle School Journal, 29*(5), 28–34. https://doi.org/10.1080/00940771.1998.11495917

Davis, K. E., Dieker, L., Pearl, C., & Kirkpatrick, R. M. (2012). Planning in the middle: Co-planning between general and special education. *Journal of Educational and Psychological Consultation, 22*(3), 208–226. https://doi.org/10.1080/10474412.2012.706561

Duchardt, B., Marlow, L., Inman, D., Christensen, P., & Reeves, M. (1999). Collaboration and co-teaching: General and special education faculty. *Clearing House, 72*(3), 186–190. https://doi.org/10.1080/00098659909599625

Fennema, E., & Franke, M. L. (1992). Teachers' knowledge and its impact. In D. Grouws (Ed.), *Handbook of research on mathematics teaching and learning* (pp. 147–164). Reston, VA: National Council of Teachers of Mathematics.

Friend, M., Reising, M., & Cook, L. (1993). Co-teaching: An overview of the past, a glimpse of the present, and considerations for the future. *Preventing School Failure, 37*(4), 6–10. https://doi.org/10.1080/1045988X.1993.9944611

Howard, L., & Potts, E. A. (2009). Using co-planning time: Strategies for a successful co-teaching marriage. *TEACHING Exceptional Children Plus, 5*(4), Article 2. Retrieved from http://escholarship.bc.edu/education/tecplus/vol5/iss4/art2

Lave, J. (1991). Situating learning in communities of practice. *Perspectives on Socially Shared Cognition, 2*, 63–82. https://doi.org/10.1037/10096-003

Leinhardt, G., & Greeno, J. G. (1986). The cognitive skill of teaching. *Journal of Educational Psychology, 78*(2), 75–95. https://doi.org/10.1037//0022-0663.78.2.75

Livingston, C., & Borko, H. (1989). Expert-novice differences in teaching: A cognitive analysis and implications for teacher education. *Journal of Teacher Education, 40*(4), 36–42. https://doi.org/10.1177/002248718904000407

Ma, S. (2013). Better together? Considering paired-placements for student teaching. *School Science and Mathematics, 113*(2), 53–55. https://doi.org/10.1111/ssm.12005

Magiera, K., Smith, C., Zigmond, N., & Gebauer, K. (2005). Benefits of co-teaching in secondary mathematics classes. *TEACHING Exceptional Children, 37*(3), 20–24. https://doi.org/10.1177/004005990503700303

Murawski, W. W. (2012). Ten tips for using co-planning time more efficiently. *TEACHING Exceptional Children, 44*(4), 8–15. https://doi.org/10.1177/004005991204400401

Murawski, W. W., & Spencer, S. (2011). *Collaborate, communicate, and differentiate: How to increase student learning in today's diverse schools.* Thousand Oaks, CA: Corwin.

Ochanji, M., & Diana, T. J. (2011). Advancing professional learning communities during teacher education: Emerging trends with lessons from New York and California. In A. Bwire, Y. Huang, J. Masingila, & H. Ayot (Eds.), *Proceedings of the Second International Conference on Education* (pp. 849–862). Nairobi, Kenya: Kenyatta University.

Sileo, M., & van Garderen, D. (2010). Creating optimal opportunities to learn mathematics: Blending co-teaching structures with research-based practices. *TEACHING Exceptional Children, 42*(3), 14–21. https://doi.org/10.1177/004005991004200302

Smith, E. R. (2005). Learning to talk like a teacher: Participation and negotiation in co-planning discourse. *Communication Education, 54*(1), 52–71. https://doi.org/10.1080/03634520500076778

Smith, M. S., & Stein, M. (2011). *Five practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics.

Superfine, A. C. (2008). Planning for mathematics instruction: A model of experience teachers' planning processes in the context of a reform mathematics curriculum. *Mathematics Educator, 18*(2), 11–22.

Tschida, C. M., & Fogarty, E. A. (2016, April). *Moving beyond "sink or swim": A framework for 2:1 co-teaching in student teaching.* Paper presented at the American Educational

Research Association Annual Conference,
Washington, DC.

About the Authors

Maureen Grady, PhD, is associate professor of mathematics education at East Carolina University in Greenville, North Carolina. Her research interests center on developing a productive disposition toward mathematics in secondary students and on improving field experiences for preservice secondary teachers through co-planning and co-teaching. gradym@ecu.edu

Charity Cayton, PhD, is associate professor of mathematics education at East Carolina University in Greenville, North Carolina. Her research focuses on teachers' design and implementation of high-level tasks with a focus on technology and discourse, as well as co-planning/co-teaching in clinical experiences. caytonc@ecu.edu

Ronald V. Preston, PhD, is associate professor of mathematics education and director of students at East Carolina University in Greenville, North Carolina. His research interests include teacher change, implementation of mathematical modeling in middle school and high school classrooms, and the use of co-planning and co-teaching in the preparation of high school teachers of mathematics. prestonr@ecu.edu

Rose Sinicrope, PhD, is associate professor emerita of mathematics education at East Carolina University in Greenville, North Carolina. Her research focuses on mathematical conceptual understanding and the preparation of teachers of mathematics. sinicroper@ecu.edu