Examining Opportunities to Learn in Special Education Teacher Preparation

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A Dissertation

Presented to

The Faculty of the Curry School of Education

University of Virginia

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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by

Hannah Morris Mathews, M.A.Ed.

May 2018

Abstract

The work of special educators is changing rapidly. Policy changes promoting inclusive education and accountability in K-12 settings require that teacher preparation programs strongly focus on preparing special education teachers who are knowledgeable and prepared for complex, demanding, and collaborative work (Brownell, Sindelar, Kiely, & Danielson, 2010). A growing body of research supports the assertion that special education teachers who enter the field with extensive training in teaching students with disabilities demonstrate significantly more effective classroom practice than those without training in the codified knowledge of special education (Feng & Sass, 2013; Nougaret, Scruggs, & Mastropieri, 2005; Sindelar, Daunic, & Rennells, 2004). However, little evidence exists that identifies the characteristics of exemplary special education teacher preparation programs or that examines these characteristics across programs (Brownell, McCallum, Colon, & Ross, 2005). This study seeks to address this gap in the literature through the development of the *Survey of Special Education Teaching Candidates* and, following this, using data from the survey instrument (n = 90) and interviews (n = 20) to describe special education teaching candidates' perspectives on their preparation experiences across five domains: extent of opportunities to learn instructional and collaborative practice; extend of instructional support from university supervisors and cooperating teachers; extent to which programs communicate a clear vision of teaching and learning for students with disabilities; candidates' beliefs about students, instruction, and inclusion; and candidates' teacher-self efficacy. The development of the survey and the subsequent data analysis are based on Kurz' (2011) opportunities to learn framework.

Through the use of confirmatory factor analysis, the scales that addressed perceptions of the program demonstrated acceptable to good model fit through the use of a multiple index strategy (Hu & Bentler, 1999) and moderate to strong reliability as indicated by factor reliabilities or internal consistency measures (Cronbach, 1951; Hair, Black, Babin, & Anderson; 2010). Clarity of vision, opportunities to learn high leverage instructional practice, and opportunities to learn explicit instruction practice were represented through three unidimensional models; instructional support and opportunities to learn collaborative practice were represented through a two-factor model. Correlations between scales were significant and positive, suggesting that together they represent the extent to which candidates perceive a system of associated learning experiences in special education teacher preparation. With the exception of the teacher self-efficacy scale—in which the expected three-factor model demonstrated acceptable model fit and strong factor reliability—the belief scales did not converge. Cronbach's alpha (Cronback, 1951) for the following scales was acceptable: internal attribution, external attribution, mutually beneficial instruction, specialized instruction, and inclusive instruction. Because the sample is small and specialized and the data violate the assumptions of the confirmatory factor analysis, results should be considered preliminary.

Survey data suggested that clarity of vision was consistent across programs, but the items did not reveal the nature of the preparation program's vision. Inductive analysis of interview data suggested three vision profiles that were consistent within, but not across programs: explicit instruction; general, responsive instruction; and supportive, inclusive collaboration. Two programs fell into each category. According to candidates, their program's vision was instrumental in shaping their beliefs about professional

practice. Following this, I explored trends in the survey data, reporting results for the whole sample, by teacher preparation programs, and by program profile.

Results from the descriptive analysis of survey data indicate that, from the whole sample, candidates reported more extensive opportunities to learn instructional than collaborative practice. Means at the program level suggested patterns that were consistent with their program profile. Significance testing revealed statistically significant differences with reference to opportunities to learn collaborative practice with Individualized Education Plan (IEP) teams. Post hoc tests highlighted that candidates in supportive, inclusive collaboration programs had significantly more extensive opportunities to learn in this domain than candidates in other program profiles.

In analyzing candidates' beliefs, candidates' beliefs were general as opposed to content specific. Internal attribution beliefs were low and external attribution beliefs were moderate to high. This indicated that candidates expressed more of an external attribution framework and, perhaps, saw themselves as being able to intervene to support students with disabilities' and struggling learners' needs in the classroom. Beliefs around mutually beneficial instruction and specialized instruction were less straightforward. The vast majority of candidates believed that instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities, but only about half of respondents believed that students with disabilities need unique instructional methods. Beliefs about inclusive instruction revealed that, though most candidates believed inclusive instruction promoted students' academic and social development fewer believed they were able to meet students' academic and social needs in inclusive settings. Significance tests revealed that candidates in explicit instruction programs had

statistically significantly higher external attribution beliefs than candidates in general, responsive instruction and supportive, inclusive collaboration programs. This suggests that these candidates' experience might prepare them with more concrete and practical tools to intervene and provide effective instruction to students with disabilities. Teacher self-efficacy was elevated, but normally distributed. Differences were not statistically significantly different by program profile.

For the most part, the program scales (opportunities to learn, program vision, and instructional support) were positively and significantly correlated suggesting a teacher preparation system as opposed to experiences working independently. Teacher-self efficacy was moderately correlated with most of the program scales. Internal attribution was significantly, negatively correlated with both opportunities to learn instructional practice scales, clarity of vision, and the teacher self-efficacy measure. Correlational analyses indicated that, for the most part, the other belief constructs were only marginally associated.

This study is limited by in the conclusions that can be drawn. The sample is small and specialized and the data is self-reported with only program documents as a triangulation point; though these patterns are interesting and speak to the problem of examining the workings of teacher preparation, they cannot be generalized to other teacher preparation programs. Nor can these data be used to draw conclusions about causation.

These data are valuable in helping researchers and teacher educators to look "under the hood" of teacher preparation. Practical implications include a) considering vision within teacher preparation as a way to anchor candidates' understanding of

professional practice, b) examining how preparation programs ready candidates to work in their instructional *and* collaborative roles, and c) considering how opportunities to learn can be leveraged to support the development of positive beliefs that foster inclusive practice. Implications for research include a) continued and more rigorous study of the survey instrument, b) the importance of using mixed methods to study opportunities to learn and beliefs with special education teacher candidates, and c) future studies that will examine how opportunities to learn high leverage practice in preparation predict performance in the field.

Department of Curriculum, Instruction, and Special Education
Curry School of Education
University of Virginia
Charlottesville, Virginia

APPROVAL OF THE DISSERTATION

This dissertation, "Examining Opportunities to Learn in Special Education Teacher Preparation" has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Michael J. Kennedy, Co-Chair

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Peter Youngs, Co-Chair

_____
Elizabeth Bettini

_____
Julia J. Cohen

_____
Ji Hoon Ryoo

Dedication

To the women who taught me to be a special education teacher,

Lori Korinek and Ella Sue Parker.

Thank you for mentoring me into a career worth loving.

Acknowledgements

I tend to make big plans that often result in me biting off more than I can chew. This dissertation was no exception to this lifelong pattern, and that fact that it even got off the ground is in no small part due to collaboration with a lot of wonderful people. First, I am thankful for the individuals who helped me access sites for this study and for the teacher candidates who were willing to take my survey and spend their summer hours talking with me; you all made this project possible. Thank you to John Romig, Wendy Rodgers, Kate Peeples, Elizabeth Stevens, and the numerous Curry teacher education students who helped me develop the survey and interview items. Thank you to Tracy Dien who volunteered to transcribe the majority of my interviews. Rebekah Berlin is an angel; without her support in thinking about my quantitative analysis on a regular basis I might have never finished. Meredith McCool was a supportive (critical) friend throughout the process of coding and recoding (and recoding…) my interview data. She pushed me to maintain a high standard. Nate Jones was instrumental in providing feedback and advice on the survey instrument and helping me shape the study. I am so excited for our future work together. I am so thankful for all these good people.

One of the best parts of this project has been the opportunity to collaborate with my committee. The support you all have provided during my entire time at Curry is immeasurable. Julie Cohen pushed me from the beginning to think about the implications of my work and has been a huge source of professional and emotional support throughout my time at Curry. Thank you for helping me find my way. Ji Hoon Ryoo provided (much needed) advice and guidance throughout my quantitative analysis and has always welcomed (many) questions from me as a student. His door was always open and I never

felt afraid to ask a question. Liz Bettini has (possibly unbeknownst to her) given me the words to describe myself as a professional and has been instrumental in me finding my identity as a researcher. Her feedback at all stages of this project from survey development to considering implications was a true gift that helped me remain excited for this profession in the midst of a dissertation.

I know for a fact that I never would have made it this far without the support of my co-chairs, Michael Kennedy and Peter Youngs. They have been there with me during some of my best and worst professional moments, but they never let me fall. Having advisors I can trust has made my time at Curry possible. Michael adopted me into the misfit crew that is MKRT, he helped me find my place in teacher education, and never, ever said no to any idea I put forward. He helped me think about how to make my work speak to a larger audience. I am so thankful to him for taking me onto his team and for his general excitement about research in teacher education. Peter is, without a doubt, a great mentor and teacher. From him, I have learned to take time when I need it to think and ponder. He never pushed me to get something done for the sake of getting it done, but instead encouraged me to think carefully about my work and the work of others. When I felt like I was unfocused or unprepared, Peter was able to remind me why I am here and what I want to do with this work. Thank you to you both. I cannot wait to continue our work together.

And finally, to Weston, who has encouraged me from day one that I was supposed to be here. You are a friend, a partner, and a teacher (which is the best compliment anyone can get from me). Thank you for loving learning. Thank you for being there for the journey.

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CHAPTER 1: INTRODUCTION

Policy changes over the last two decades have led to increased complexity in the work of special education teachers (Brownell, Sindelar, Kiely, and Danielson, 2010). The Individuals with Disabilities Act (34 CFR.300.39) mandates that schools provide students with disabilities (SWD) access to the general education curriculum. Furthermore, the Every Student Succeeds Act of 2015 (ESSA) mandates that schools be held accountable for the performance of all students on assessments that are aligned to the general education curriculum. With these policy changes, special educators' work has changed (Brownell et al., 2010). As accountability has become more pronounced, their work is increasingly focused on academic instruction characterized by the expectation that all students meet rigorous and academically demanding standards. At the same time, the move toward multi-tiered systems of support for the prevention of and intervention in cases of academic failure and the prominence of response to intervention has further redefined the profession as a collaborative enterprise (Jones, Bettini, & Brownell, 2016).

With these shifts, the work of special education is no longer isolated or segregated from the work of general education. Special education teachers are required to use intensive, specialized instructional techniques and to work collaboratively with multiple stakeholders to deliver expert instruction to struggling learners across multiple settings and content areas (Brownell et al., 2010; Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010). At the same time, there is increasing pressure on teacher preparation

programs (TPPs) to produce future special education teachers who can enact effective instructional and collaborative practice for students with disabilities (Leko, Brownell, Sindelar, & Kiely, 2015). With these changes, the discussion in teacher preparation has pivoted from merely providing the opportunity for certification to improving the effectiveness with which new special education teachers are prepared for this challenging and complex work.

In this shift, there is a significant amount of research being generated regarding promising practices in teacher preparation (Leko, Brownell et al., 2015). These include a wide array of innovative tools designed to provide teacher candidates with practice experiences and targeted feedback prior to entering the field (e.g., lesson study, video modeling, bug-in-ear coaching, virtual simulations; Benedict, Holdheide, Brownell, & Foley, 2016). This research coalesces around the idea that providing multiple, scaffolded opportunities to learn and practice in the context of coherent preparation programs is the foundation of developing high-quality professional practice (Darling-Hammond et al., 2006). This shift targets the development of candidates' professional practice (Feiman-Nemser, Tamir, & Hammerness, 2014; Jennett, Harris, & Mesibov, 2003; Richardson, 1996; Risko et al., 2008) and could be a way to foster positive beliefs about students, instruction, and inclusion that are relevant to the work of special education (Gibson & Dembo, 1984; Giddens, 2001; Jordan, Lindsey, & Stanovich, 1997; Stanovich & Jordan, 1998; Viel-Ruma, Houchins, Jolivette, & Benson, 2010). Thus, it is imperative that we evaluate the extent to which SETCs have practice opportunities and the extent to which these are associated with the development of special educators' understanding of and beliefs about their practice.

Yet, even with the increased attention on improving the quality of teacher preparation, the field does not have a strong sense of what is currently happening in special education teacher preparation at the programmatic level. From this perspective, the research base in this area is limited and lacks focus (Sindelar, Brownell, & Billingsley, 2010), making it unclear which changes have the potential to improve outcomes in the long-term (Lignugaris/Kraft, Sindelar, McCray, & Kimerling, 2014). Without established knowledge regarding teacher preparation in special education, how can we leverage what is known about teaching and learning to avoid the pitfalls of short-term solutions and develop program models that prepare special education teachers for this new era?

Background of the Problem

Looking at special education teachers as a unique group, a number of studies have addressed the connections between preparation experiences and practice by examining instructional effectiveness (Nougaret, Scruggs, & Mastropieri, 2005; Sindelar, Daunic, & Rennells, 2004), student achievement (Feng & Sass, 2013), and individuals' self-reported preparedness (Boe, Shin, & Cook, 2007). These studies highlight how the focus and extent of teacher preparation might serve as a lever for improved outcomes.

Studies of novice special educators' instructional practice highlight that teacher preparation experiences are associated with outcomes central to the "heart of teaching" (Sindelar et al., 2004, p. 220). Using a rating scale derived from the Danielson Framework for Teaching (Danielson, 2009), Nougaret and colleagues (2005) found that traditionally prepared special education teachers significantly and substantially outperformed teachers with emergency teaching licenses on measures of planning and

preparation, classroom environment, and instruction. Similarly, using the Praxis III assessment to examine the practice of teachers who were traditionally prepared, participated in university-district partnerships, and completed district add-on certifications (ETS, Dwyer, 1994), Sindelar et al. (2004) found that traditionally prepared special educators significantly outperformed teachers who entered the classroom through alternative routes on measures of instructional delivery. These included making instructional goals and procedures clear to students, making content understandable, and monitoring student learning and providing feedback. Interestingly, on rating scales designed to align with the content of the Praxis III, principals indicated that teachers who completed alternative route programs outperformed traditionally prepared teachers suggesting that these different rating might provide unique perspectives. Together, these studies suggest that the extent of preparation—not necessarily the pathway—is associated with novices' instructional practice.

Highlighting how the extent of preparation supports the development of effective teaching, two studies examined the relevance of learning experiences prior to teaching to in-field outcomes of importance: student achievement and feelings of preparedness. Feng and Sass (2013) examined the question of effectiveness using statewide data from Florida public schools, Defining certification as completion of a special education major or extensive coursework in special education prior to entering the profession, the authors found a positive, statistically significant relationship between special education certification and SWDs' achievement in reading and mathematics. This difference was equivalent to the difference between a novice teacher and a teacher with one to two years of experience. Finally, Boe and colleagues (2007) used the Schools and Staffing Survey

(1999 – 2000) to examine how amount of preparation was related to a number of self-reported outcomes of importance; the authors examined outcomes for both general and special educators. Amount of preparation was defined as the length of practice teaching and exposure to coursework relevant to special education (i.e., instructional adaptation and educational psychology), opportunities to observe classroom teaching, and feedback on their own teaching. Boe et al. (2007) found that special educators' extent of preparation was associated with their reported completion of certification, in-field assignment (as related to their area of certification), and feelings of preparedness for teaching their subject matter, selecting curricular materials, planning lessons effectively, and using a variety of instructional materials. These studies underscore that preparation is important for student achievement and affective outcomes tied to the retention of special educators (Billinsgley, 2004; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Together, these studies suggest that considering the quality of teacher preparation is integral to providing high quality and stable educational opportunities for students with disabilities.

Though there is a growing body of evidence that preparation has a significant and positive effect on novice special educators' instruction, student achievement, and feelings of preparedness in special education, we know very little about what defines exemplary special education teacher preparation at the programmatic level. Special education TPPs are far from standardized; researchers note that programs vary with regard to the types of field experiences they require; the ways in which they teach, model, and provide practice in collaboration; the ways in which faculty address inclusion and diversity; and the program-level visions of high-quality teaching and learning (Brownell, Ross, Colón, &

McCallum, 2005). Without a sense of the inner workings of these programs, it is difficult to isolate the characteristics that are integral to the development of effective and highly skilled special education teachers (Lignugaris/Kraft et al., 2014; Maheady, Smith, & Jabot, 2014). Though a foundation of knowledge in exemplary teacher preparation exists in general education (e.g., Boyd, Grossman, Lankford, Loeb, & Wycoff, 2009; Boyd, Lankford, Loeb, Rockoff, & Wyckoff, 2008; Darling-Hammond et al., 2006; Feiman-Nemser et al., 2014), in the field of special education has yet to develop a strong knowledge base regarding what constitutes exemplary teacher preparation.

Statement of the Problem

Though there is a growing body of research regarding innovations in special education teacher preparation, research examining special education teacher preparation at the programmatic level is limited. Understanding SETCs' preparation experiences in tandem with the complexities faced by novices struggling to adapt to multiple roles in their work is critical to improving professional practice, addressing the chronic issues of teacher retention and attrition, and improving outcomes for SWD (McLeskey & Billingsley, 2008). A framework employed for decades in studies of general education teacher preparation and K-12 learning (Floden, 2002), opportunities to learn (OTL) is a powerful vehicle for looking under the hood of preparation to consider the extent to which pre-service experiences address the current role demands of special educators and, therefore, prepare them for effective practice in schools. OTL can best be understood as constituting both an input and a process necessary for achieving a certain goal or outcome (Kurz, 2011). In special education teacher preparation, the content is the curriculum, or professional practice taught, and the process is the time and quality of instructional

pedagogy in pre-service experiences. With the growing body of knowledge regarding the level of expertise necessary to teach students with disabilities, the high expectations for novices as they enter the field, and the feelings of stress and burnout that special education teachers encounter as they are faced with a multi-dimensional and dynamic role (Brunsting, Sreckovic, & Lane, 2014), it is vital that scholars and practitioners in teacher preparation consider the ways and extent to which OTL are associated with candidates' understanding of their role and future practice.

Following trends in general education, scholars in special education have begun to address the problem of improving teacher preparation in two ways: through the identification and development of high leverage practices (McLeskey et al., 2017) and through an increased emphasis on the use of "structured, carefully sequenced, and closely monitored practical experiences" (Leko, Brownell et al., 2015; p. 28) in which SETCs are better able to hone their skill across the course of their preparation program. These changes focus the curriculum, or the content, of special education teacher preparation on highly skilled professional practice and then provide SETCs with opportunities to learn and apply these practices in their teaching. By focusing the curriculum on these opportunities, leaders in special education hope to better prepare teachers to address the challenges brought to the forefront by educational policy that calls for inclusive instruction, access to the general education curriculum, and improved academic achievement for SWD (Individuals with Disabilities Act, 34 CFR.300.39; Every Student Succeeds Act, 2015).

Current Research and Limitations

Special education teacher candidates' perceptions of their OTL, or the content,

time, and quality of their learning, are the primary focus of this study (Kurz, 2011). There is a significant body of work in general education that highlights positive associations between reported OTL and outcomes of importance for teachers and students (e.g., Anderson & Stillman, 2011; Blömeke, Suhl, Kaiser, & Döhrmann, 2012; Boyd, Grossman et al., 2009; Boyd, Lankford et al., 2008; Conklin & Daigle, 2012; Gresalfi, 2009; Grossman et al., 2009; Preston, 2016; Ronfeldt & Reininger, 2012; Schmidt, Houang, & Cogan, 2012; Wang & Tang, 2013). Yet, in special education, this line of inquiry remains relatively unexplored.

In special education, the research base in innovation and experimentation across individual courses and field experiences is growing (Maheady et al., 2014). Drawing on evidence regarding cognition and practice (Ericsson, 1996), scholars have begun to draw attention to the features of high-quality practice based opportunities to learn: modeling, paced and varied learning, coaching, provision of feedback, opportunity for analysis, and scaffolding of complexity (Benedict et al., 2016). Capitalizing on this new knowledge about the process of learning the professional practice of teaching, there is a growing body of research being conducted for the purpose of identifying and building evidence based on promising practices in teacher education. For example, studies highlight the utility of multi-media interventions to improve candidates' content knowledge and instructional demonstrations (e.g., Alves et al., 2017; Kennedy, Newton, Haines, & Walther-Thomas, 2012; 2016; Romig et al., in press). Researchers have also found that the use of performance feedback can increase pre-service teachers' provision of feedback, rate of praise, and fidelity of implementation in authentic classroom settings (e.g., Cornelius & Nagro, 2014; Rock et al., 2009). Other studies use simulations to address

instructional and collaborative challenges frequently encountered by special educators in the field (e.g., Driver, Zimmer, & Murphy, in press). Though this work is an important contribution and supports the development of future special educators' knowledge and practice (Benedict et al., 2016; Sayeksi et al., 2015), understanding these innovations in isolation from candidates' programmatic experience fails to clarify how to combine these pedagogies into a coherent preparation program with a specific vision of effective teaching and learning for SWD.

Leko and Brownell's (2011) grounded theory analysis of special educator learning is one of the only existing studies of OTL in special education. Although limited by its small sample, the authors' intense focus on the influence of individual characteristics and opportunities to learn across university coursework and field placements provide direction regarding the variables of significance in the present study. The findings from this study help us understand how OTL function in special education teacher preparation, but, as the authors outline, further research is needed to assess ways in which their model might be transferred to other settings.

A second aspect of teacher preparation that is largely missing from the discussion in special education is preparation program coherence, or the ways in which TPPs communicate a specific vision of teaching and learning across OTL. Again, though the literature in general education teacher preparation supports the importance of coherence in preparing new teachers to enact a specific vision of practice (e.g., Darling-Hammond et al., 2006; Feiman-Nemser et al., 2014; Hammerness & Klette, 2015; Tatto, 1996), the special education literature base is lacking in this area. In a review of program documents across TPPs, Brownell and colleagues (2005) found little evidence of

coherence within or across programs. It is unclear whether preparation program coherence in special education would function in ways that are similar to general education or whether the organization of special educations TPPs—in which the majority of programs are considered an additive or merged learning experience—function in the same way.

Finally, the work regarding outcomes for SETCs is limited. Though the extant literature emphasizes that beliefs about students, classrooms, and academic material and teacher self-efficacy are driving forces for instructional decision-making and practice in teaching SWD (e.g., Berry, 2006; Gibson & Dembo, 1984; Giddens, 2001; Hollenbeck, 2013; Jordan & Stanovich, 2003; Ruppar, 2011; Stanovich & Jordan, 1998), the empirical base with regard to SETCs' beliefs about inclusion, instruction, and their own teacher self-efficacy is lacking. Furthermore, we cannot assume that these beliefs function in the same way as those of general education teaching candidates. The limited literature regarding SETCs as a distinct group highlights the notion that their incoming beliefs are quite different from those of their general education colleagues and, therefore, their trajectory in teacher preparation is likely different as well (Leyser, Zeiger, & Romi, 2011; McHatton & Parker, 2013; Romi & Leyser, 2006; Shade & Stewart, 2001).

Although there is evidence that time in preparation, major, and extent of practice experiences are related to special education teachers' beliefs and teacher self-efficacy (Boe et al., 2007), in teacher preparation these claims rely heavily on surveys conducted in single courses during TPPs (e.g., Leyser et al., 2011; Romi & Leyser, 2006). These findings move us closer to understanding the ways that the learning opportunities provided through teacher preparation support special educators' development, but since

the authors focus primarily on single courses, it is difficult to apply their findings to candidates' programmatic experiences and to the field of special education teacher preparation broadly. Furthermore, because most studies used survey data alone, there are limits to the conclusions that the field can draw from the literature (Cronbach, 1975; Jick, 1979; Kiely, Brownell, Lauterbach, & Benedict, 2014). Along with these limitations, these studies fail to address the inner workings of teacher preparation and the quality of OTL that will improve outcomes for SETCs and, subsequently SWD, in the long run (cf., Leko, Kulkarni, Lin, & Smith, 2015).

Purpose and Significance of the Study

In this study, I am interested in understanding the ways that SETCs' perceptions regarding the content and extent of their opportunities to learn in preparation foster positive and influential beliefs about students, instruction, inclusive practice, and their own teacher self-efficacy. With the recent changes in special education policy and practice as a backdrop, this study addresses future special educators' preparation experiences across multiple institutions. Though there are several examples of studies that examine preparation experiences across institutions in general education (Boyd, Lankford et al., 2008; Boyd, Grossman et al., 2009; Darling Hammond et al., 2006; Feiman-Nemser et al., 2014), this has not yet been explored in special education. Despite the knowledge that teacher preparation provides a foundation for applying the codified knowledge of special education to the classroom (Feng & Sass, 2013; Nougaret et al., 2005; Sindelar et al., 2004), there is limited scholarship regarding the ways that preparation programs provide SETCs with opportunities to understand and practice their future work. In this study, I used survey and interview methods to collect data on SETCs

across multiple TPPs in order to describe associations between their OTL, their perceptions of vision within their preparation experiences, their beliefs about inclusion and instruction for students with disabilities, and their teacher self-efficacy. Because this line of inquiry is relatively unexplored in special education, in this study I draw on several bodies of literature to assemble a conceptual model that connects these variables with reference to the preparation of SETCs for the complex, demanding work of special education

CHAPTER 2: LITERATURE REVIEW

Exemplary teacher preparation programs (TPPs) are designed to cohere around a specific vision of teaching and learning, provide opportunities to learn (OTL) that support that vision, and promote strategies that support candidates' potential to enact that vision in their future work (Boyd et al., 2008; 2009; Feiman-Nemser et al., 2014; Darling-Hammond, 2014). As a system, the opportunities to engage in cycles of learning in teacher preparation provide fertile ground for the cultivation of positive beliefs about students, instruction, and self-efficacy (Leko, Brownell, Sindelar, & Murphy, 2012; Risko et al. 2008).

In this chapter, I review the literature regarding SETC's opportunities to learn (OTL), preparation program coherence, beliefs about inclusion and instruction for students with disabilities (SWD), and teacher self-efficacy for working with SWD. Table 1 provides a summary of the studies most central to this review, identifying contributions and limitations. I open the review with a discussion of research in teacher preparation and draw on three studies of special education teacher preparation programs. Next, I connect this discussion to the larger body of literature in OTL and establish the framework I will draw on in this study (Kurz, 2011; Leko & Brownell, 2011). I explain how this mixed methods study will incorporate empirical knowledge about OTL in general education teacher preparation to inform this model. In this section, I make an argument for examining the content, time, and quality of learning experiences in special education teacher preparation programs (TPPs) through the perspective of pre-service

teachers' opportunities to learn (Kurz, 2011). Following this, I review the literature regarding each of the constructs of interest in this study: opportunities to learn (OTL), preparation program coherence, and beliefs about inclusion and instruction, and teacher self-efficacy for working with students with disabilities. In each section, I define the construct broadly, synthesize the knowledge base with regard to general education teacher candidates, and then evaluate the work already conducted with special education teacher candidates (SETCs) in this area. Because the present study is focused on examining these constructs with reference to SETCs trained in traditional TPPs, I focus my analysis on studies that draw from this population. In reviewing the research regarding pre-service OTL, the construct most central to the present study, I focus on the factors of the conceptual model that affect the actual *opportunity* present in learning experiences: time, content, and quality (Kurz, 2011). I note what the literature in special education reveals about OTL in teacher preparation and then consider the ways in which the present study builds on previous work.

Next, I discuss preparation program coherence as a way of considering OTL within teacher preparation as an institutional endeavor. I define program coherence (Tatto, 1996), and explain the ways it can be supported structurally and conceptually in TPPs (Hammerness, 2013). Then, I note the importance of preparation program coherence in teacher preparation, considering the ways in which it can be leveraged to shape novices' beliefs, professional identity, and practices (Darling-Hammond et al., 2006; Feiman-Nemser et al., 2014; Tatto, 1996). I conclude this section by addressing the possible reasons for the lack of research in preparation program coherence in special education and how the present study addresses one aspect of this important construct. I

follow this with a discussion of the way I conceptualize instructional support from university supervisors and cooperating teachers as acting on candidates' experiences and supporting their learning process as they move from university-based OTL to enacting instruction in the field.

Finally, I examine empirical research that relates individuals' beliefs to the work of teaching. In this section, I explore ways in which researchers in teacher preparation have examined beliefs about inclusion, instruction for students with disabilities, and SETCs' beliefs about their own teacher self-efficacy. I review the belief literature in two sections: (a) beliefs relevant to inclusion and instruction for SWD and (b) beliefs about teacher self-efficacy for teaching students with disabilities. In each section, I define the construct and then discuss the ways that each of these belief categories relates to practice. Finally, I discuss how researchers have studied each belief category, what future studies in special education teacher preparation might learn from this small body of literature, and the limitations of the present body of work.

Table 1

Empirical Studies of Constructs

Construct	Authors	Sample	Methodology	Findings/Contributions	Limitations
Teacher Preparation Programs	Aksamit et al. (1990)	N = 1 TPP	Naturalistic case study (Qualitative)	• Identified characteristics of an exemplary integrated TPP; align with findings in general education	• Single TPP • Focus of study on an innovative TPP limits generalizability to Spec. Ed. teacher preparation • Do not address the development of SETCs within this program
Teacher Preparation Programs	Brownell et al. (2005)	N = 64 TPPs	Review of TPP descriptions, evaluations, reports, and published articles (Document Analysis)	• Significant variability across special education • Identified a lack of clarity and high levels of inconsistency with regard to mission and vision within and across TPPs	• Use of secondary data • All data was self-report • Limited opportunities for triangulation of sources and methods
Teacher Preparation Programs	Miller (1991)	N = 1 TPP	Case study (Qualitative)	• Identified connection between TPP, teacher candidates' practice, and student achievement in field placements within this TPP • Focused TPP can support TC development of teaching skills	• Single TPP • Focus on an innovative TPP limits generalizability • Lack of clarity regarding which special education skills/practices are being taught or assessed
Opportunities to Learn	Leko and Brownell (2011)	N = 6 SETCs N = 1 TPP	Multiple case study (Qualitative)	• Coherence across TPP and field placement influence appropriation of instructional practice in reading • Four factors are influential: (a) personal qualities and motivation, (b) access to knowledge in TPP, (c) expertise of CT to provide models and feedback, and (d) Practical OTL with SWD • Underscore the importance of content area OTL*	• Small sample size • Single TPP • Because of focus on reading content area, cannot empirically connect findings to other content areas*

Construct	Authors	Sample	Methodology	Findings/Contributions	Limitations
Preparation Program Coherence	*No empirical studies in special education*	---	---	---	---
Beliefs (Inclusion and Instruction)	McHatton and Parker (2013)	N = 56 N = 1 TPP Group comparison n = 25 SETC n = 31 GETC	Survey (Quantitative)	• SETCs had higher/more positive beliefs about inclusion in general than GETCs • SETCs' experienced slight decrease across time following inclusive field placement, yet beliefs remained positive • OTL in coursework can change SETCs' beliefs about inclusion	• Small sample size • Single TPP • Examines belief change over single course, not TPP • Use of a survey in isolation to examine beliefs limits interpretability of findings (Cronback, 1975; Jick, 1979; Richardson, 1996) • Constructs do not address content area academic instruction
Beliefs (Inclusion and Instruction)	Leko, Kulkarni et al. (2015)	N = 11 SETCs N = 1 TPP	Interviews, Artifacts (i.e., concept map, practically based assignments) (Qualitative)	• Attributed changes in belief to personal experiences, OTL in field placements and coursework • Differences between "core" beliefs which are less likely to change and those that are more likely to change • Prior experience in schooling and instruction shaped core beliefs • Access to knowledge and practical OTL helped beliefs about instruction become more flexible and responsive to needs of SWD • After course was completed, most reverted to more general beliefs • Underscore the importance of content area related OTL in forming beliefs*	• Small, homogenous sample • Single TPP • Because of focus on reading content area, cannot empirically connect findings to other content areas*

Construct	Authors	Sample	Methodology	Findings/Contributions	Limitations
Beliefs (Inclusion and Instruction)	Shade and Stewart (2001)	N = 194 N = 1 TPP Group comparison n = 122 GETC n = 72 SETC	Survey (Quantitative)	• OTL in coursework can change SETCs' beliefs about and attitudes toward inclusion • SETCs and GETCs showed statistically significant gains with regard to positive beliefs and attitude regarding statements about behavior, self-concept, and parent concerns • SETCs also showed statistically significant gains regarding class placement and motivation	• Single TPP • Examines belief change over single course, not TPP • Use of a survey in isolation to examine beliefs limits interpretability of findings (Cronback, 1975; Jick, 1979; Richardson, 1996) • Connections between items and constructs are not clearly articulated • Constructs do not address content area academic instruction in inclusive settings
Teacher Self Efficacy	Leyser et al. (2011)	N = 992 n = 687 GETC n = 302 SETC	Survey (Quantitative)	• Significant main effect for: (a) year of study, (b) major (SETC/GETC), and (c) intensity of training • Scores for GETC showed a decrease in self- efficacy for teaching low-achieving students across time; scores for SETCs remained the same but were higher than GETC • Single course in inclusion is insufficient to change PTE • Practical OTL or personal experience with individuals with disabilities was associated with higher self-efficacy for teaching low achieving students	• GTE subscale (Gibson & Dembo, 1984) is vulnerable to measurement error and scholars have questioned its construct validity • Use of survey to identify sources of teacher self-efficacy is limited (Cronback, 1975; Jick, 1979; Richardson, 1996)

Construct	Authors	Sample Unit of Analysis	Methodology	Findings/Contributions	Limitations
Teacher Self Efficacy (TSE)	Romi and Leyser (2006)	N = 1, 155 n = 286 SETC n = 654 GETC n = 150 neither	Survey (Quantitative)	• SETCs had significantly higher TSE than GETCs and others • SETCs were more supportive of inclusion that GETCs • Students with much experience with SWD had significantly higher TSE the group without experience • No differences were found between the group with some experience and the group with no experience	• GTE subscale (Gibson & Dembo, 1984) is vulnerable to measurement error and scholars have questioned its construct validity • Use of survey to identify sources of teacher self-efficacy is limited • Type of experience is not clearly delineated

*Content area focus in these studies is considered both a strength in that it adds to the literature in the reading content area and a limitation in that these studies, given their content area focus, cannot empirically speak to these constructs in other content areas. This warrants further exploration.

Teacher Preparation

The Effects of Teacher Preparation

In special education teacher preparation, scholars emphasize the powerful effects of teacher preparation (Boe et al., 2007; Feng & Sass, 2013; Nougaret et al., 2005; Sindelar et al., 2004). Researchers document that special education teachers who have received extensive training employ more effective instructional strategies (Nougaret et al., 2005; Sindelar et al. 2004). Not surprisingly, special education teachers who report experiencing extensive teacher preparation also report feeling better prepared for the work of teaching (Boe, Shin, & Cook, 2007). Furthermore, in large-scale studies in special education, researchers conclude that, for new teachers, the effects of teacher preparation on student achievement are positive and significant (Feng & Sass, 2013).

This is not to say that all special education TPPs instantiate preparation for effective teaching. The means through which TPPs train teachers are important. This includes the curriculum, pedagogy, and opportunities to practice and receive feedback made available to teachers during training. Drawing on literature in general education research, preparation programs that focus their efforts on engaging in the work of the classroom (e.g., opportunities to engage with teaching practice, examine the curriculum and standards used in schools, and learn about classroom management) produce teachers who are more prepared for practice (Boyd, Lankford et al., 2008; Boyd, Grossman et al., 2009). Furthermore, programs that provide experiences that support developing specialized expertise (e.g., content expertise in mathematics, special education, or in teaching in urban contexts) produce teachers who are more prepared for their work (Feng & Sass, 2013; Feiman-Nemser et al., 2014; Wang & Tang, 2013). Yet the depth and

extent of the opportunities teacher candidates are provided varies from pathway to pathway (Boyd, Lankford et al., 2008), from institution to institution (Brownell et al., 2005) and, within institutions, from program to program (Greenburg, McKee, & Walsh, 2013). This is especially true in the United States, where researchers have documented higher levels of variability across preparation programs when compared to other nations (Schmidt et al., 2011).

Exemplary Teacher Preparation Programs

Despite this variability regarding OTL across pathways, institutions, and programs, there is evidence of what works in teacher preparation. Though research in special education is limited (Goe & Coggshall, 2006; Lignugaris/Kraft et al., 2014), a number of research teams in general education have tackled the topic of teacher preparation over the past decade. Their findings offer guidance about the process of teacher learning and provide fodder for research in special education. Using qualitative, quantitative, and mixed methods, they have isolated the characteristics of exemplary TPPs (Boyd, Grossman et al., 2009; Darling-Hammond et al., 2006; Feiman-Nemser et al., 2014). In summarizing these studies, Darling-Hammond (2014) identified these characteristics of effective TPPs:

- coherent vision of teaching across coursework and field experiences
- clearly defined standards of professional practice that help to guide coursework and field experiences
- strong core curriculum that relates back to the practice of teaching
- carefully selected field experiences of at least 30 weeks that are consistent with the vision presented in university-based coursework
- use of case methods, teacher research, performance assessments, and portfolios to support pre-service teachers in applying learning to problems of practice
- strategies that explicitly help students examine and reflect on their beliefs and assumptions about learning and students
- strong, collaborative professional relationships among faculty

These characteristics give credence to the ways in which preparation is related to practice and how different types of preparation lead to distinct types of practice. This sets up a central premise of the present study: it is not just the act of completing a preparation program but the actual experience within the program that makes a difference in SETCs' professional formation. But what does research tell us about special education TPPs and what does research in special education teacher preparation tell us about the teaching and learning of practice in this field?

Special Education Teacher Preparation

Research emphasizes the importance of preparation experiences for effective teaching in special education (Feng & Sass, 2013; Nougaret et al., 2005; Sindelar et al., 2004). Nonetheless, this association reveals very little about the aspects of teacher preparation that are most effective in developing future special educators' practice. The field needs answers to two important questions. First, to understand what makes an exemplary TPP in special education requires research that examines what actually happens *within* preparation experiences to more effectively prepare special educators. Second, understanding how to improve outcomes for SWD necessitates research that examines variability across preparation programs. Research examining preparation programs in special education is limited, but three studies help summarize how this topic has been treated empirically and offer insight regarding the road forward (Aksamit, Hall, & Ryan, 1990; Brownell et al., 2005; Miller, 1991).

Miller (1991). Using case study methods, Miller (1991) documented the integration of the special education and English education departments in a single TPP with the goal of presenting whether candidates' feelings of competence change across

their preparation experiences. The author reported that the TPP used specialized units of study at the university, teacher candidates' experiences field-testing practices, student academic performance on the instruction delivered by teacher candidates in field placement classrooms, and pre-post measures of teacher candidates' feelings of competence. However, the author's analysis was limited to a focus on pre-post measures of candidates' self-report on their feelings of competence with certain teaching methods. The author stated that the pre-post measures used by the program varied, but that generally they consisted of a five-point Likert administered to teacher candidates regarding their feelings of competence. Using these limited data, the author determined that what teacher candidates learned within the university-based curriculum was related to their classroom practice in field experiences and that this practice was, in turn, related to students' academic progress.

Miller's work provides some evidence for the link between teacher preparation and student learning, but is limited by self-study and the focus on a single, idiosyncratic case. Furthermore, the author concluded that teacher candidates' perceptions of their competency with regard to skills for teaching special education improved. However, Miller failed to delineate what constituted this list of skills. Without referencing the practices that are effective for teaching special education or using a consistent measure, this study fails to provide the field with empirically sound findings or actionable next steps for preparing SETCs.

Aksamit et al. (1990). Employing naturalistic case-study methodology, Aksamit et al. documented another example of program integration. Across three site visits to one TPP, the authors collected narrative interview data with faculty, students, and alumni;

observed instruction within the TPP; and reviewed course documents. Through their work, they found four themes that described the program's focus: a developmental orientation, a focus on teaching critical reflection, a foundation of examining the research as it pertained to the classroom, and extensive field application. These characteristics align with several of the aspects of exemplary TPPs outlined in general education (Darling-Hammond, 2014; Darling-Hammond, Bransford, LePage, Hammerness, & Duffy, 2005), but again are limited by the focus on a single, exemplary case. Furthermore, perhaps as a byproduct of the merged program, the authors did very little to examine the development of special education teachers as a distinct group, leaving the reader with questions regarding the practices learned and their relevance to the development of SETCs ready for professional practice.

Brownell et al. (2005). In an attempt to unpack the features of special education teacher preparation and move the field beyond a focus on the idiosyncratic, Brownell and colleagues (2005) conducted a cross-institutional review of 64 special education TPPs using program descriptions, evaluations, reports, and published articles. The authors found special education TPPs to be lacking with regard to the markers of exemplary programs (Darling-Hammond, 2014), a contrast with the tightly aligned picture painted by Miller (1991) and Aksamit et al. (1990). TPPs were characterized by limited evidence of programmatic vision and, though almost all included extensive field experiences and a focus on collaboration, inclusion, and diversity, the research team found significant variability in the methods used to incorporate these into the program. For example, across the 84% of programs that provided extensive field experiences for SETCs, implementation was marked by the following: course-based assessment in the classroom

context, weekly seminars, case-based learning, and/or the use of portfolios to reflect on the connections between university coursework and field placements. Furthermore, while noting that 100% of reviewed TPPs emphasized collaboration, the authors also found that the methods through which this emphasis occurred fell anywhere along a continuum from providing knowledge of the skills necessary to collaborate, collaboration amongst faculty members and/or between schools and TPPs, the use of a cohort model, and requirements for student-to-student collaboration. In 84% of the TPPs reviewed, the focus on diversity and inclusion was poorly articulated, with definitions of diversity varying and scant discussion of the depth of instruction used to help SETCs understand the practices in the classroom.

Though this team's work takes the first step toward a cross-institutional understanding of special education teacher preparation and advances beyond self-study, this study is essentially a review of program documents and, despite its breadth, is limited by the use of secondary, self-reported data. Secondly, the use of program documents presents a one-sided view the teacher preparation experience and omits an important voice in this process: the SETC as learner. Brownell and colleagues (2005) recognized these limitations and, in their conclusion, used their findings to call for future research in special education teacher preparation and for further investigation into how TPPs are connected to improved practice.

Applying Special Education Teacher Preparation to the Present Study

The descriptive research regarding special education TPPs is clearly limited (Lignugaris/Kraft et al., 2014; Sindelar et al., 2010) and what is available tends to focus on self-study or program-reported data. Though these types of inquiry have value, the

programs studied—and therefore the results derived—are often idiosyncratic, making them difficult to apply to the larger problem of improving teacher education (Lignugaris/Kraft et al., 2014). Furthermore, all of these studies are limited because of dramatic shifts in the policy context surrounding K-12 education, inclusion of SWD, and teacher preparation in the United States. Aksamit et al. (1990), Brownell et al. (2005), and Miller (1991) each analyzed data collected prior to the implementation of IDEA and NCLB in 2004. As Brownell and colleagues assert (2010), we are in a new age in special education teacher preparation wherein we must consider how special educators are being prepared for complex, demanding, and distinct roles in schools and the pressures of accountability (Gersten, Keating, Yovanoff, & Harniss, 2001; Shepherd, Fowler, McCormick, Wilson, & Morgan, 2016; Zigmond & Kloo, 2011). This is a central focus of the present study. By describing SETCs' OTL effective practice across TPPs, I hope to examine the ways in which preparation experiences are associated with outcomes of importance for special educators.

A Conceptual Model of Special Education Teacher Learning

To structure this study, I consider how opportunities to learn knowledge and skills are associated with SETCs' beliefs about attribution, instruction, inclusion, and their sense of teaching self-efficacy (Brownell & Pajares, 1999; Kiely et al., 2014; Leko & Brownell, 2011; Leko, Kulkarni et al., 2015; Leyser et al., 2011; McHatton & Parker, 2013; Romi & Leyser, 2006; Shade & Stewart, 2001). According to Kurz' studies of opportunities to learn in K-12 settings (2011), understanding the depth of OTL considers three dimensions: the content, time, and quality of the total learning experiences. Leko and Brownell's work (2011) explores this idea in depth in special education teacher

preparation. Their model provides evidence for the recursive interaction of content, time, and quality within the broader context of special education teacher preparation. The authors highlight that these dimensions are associated with candidates' personal qualities, their motivation, and their access to knowledge. They put forth that that SETCs' experience in teacher preparation is associated with appropriation of knowledge into candidates' classroom practice. Capitalizing on the way OTL are conceptualized by Kurz and the relationships between OTL and other factors highlighted by Leko and Brownell, the model that serves as a foundation for this study looks at the system of a teacher preparation program. This includes the vision of that program as both a broad OTL (as in the preparation experience in total represents an opportunity to assimilate to a certain belief structure and appropriate certain markers of practice) and the particular OTL that take place in coursework, in field experiences, and in mentoring and supervisory relationships. Figure 1 depicts the conceptual model that aided in the planning of this study.

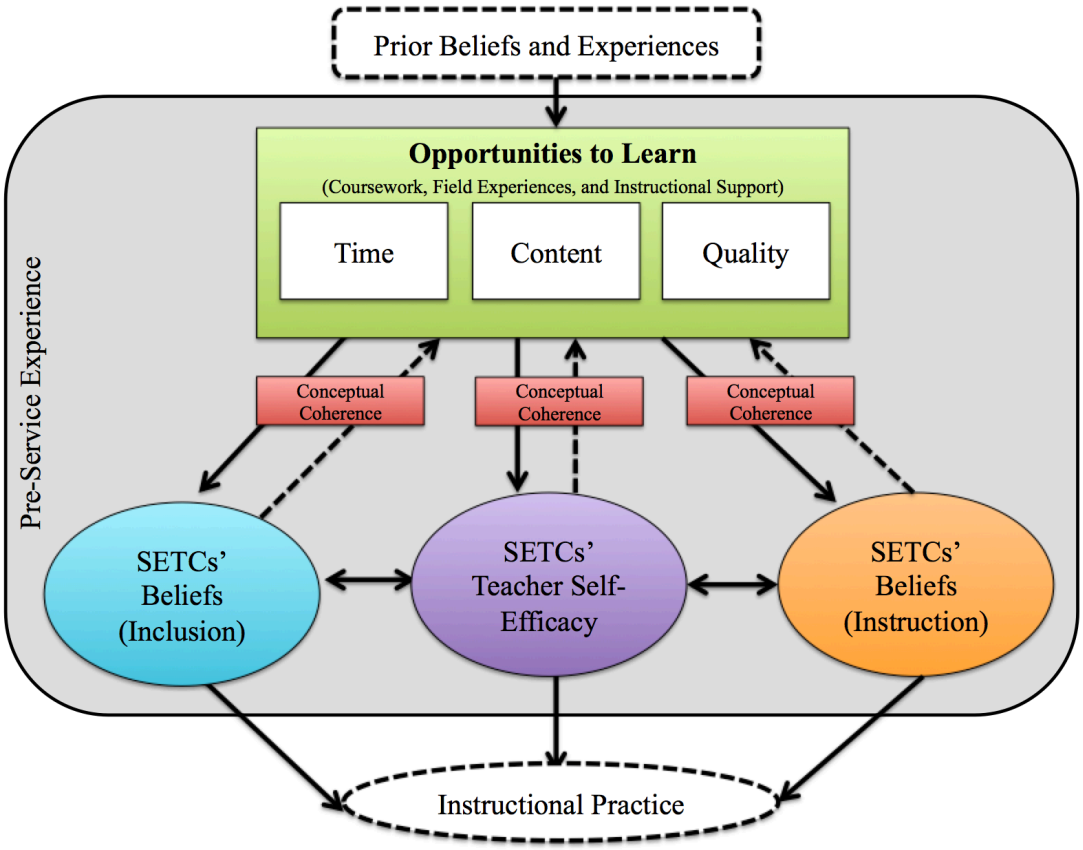

Figure 1. Conceptual model of teacher learning based on Kurz (2011) and Leko and Brownell (2011).

Opportunities to Learn

When studying teacher learning, considering whether pre-service teachers have been provided with a robust *opportunity* to learn is a critical question. In the context of teacher preparation, Schmidt and Maier (2009) define OTL simply as pre-service teachers' access to content, knowledge, and practice during preparation. Though some scholars examine this access as a dichotomized question indicating the presence or absence of content within a TPP (e.g., algebra, behavior management, adolescent development; Schmidt et al., 2008; Preston, 2016), this construct extends beyond a tally of the topics, coursework, and field experiences required by TPPs. The content, time, and

quality of OTL provide valuable information about teacher learning and can help describe the ways teachers are prepared across programs (Kurz, 2011; Anderson & Stillman, 2011; Boyd, Lankford et al., 2008; Preston, 2016; Schmidt et al., 2011). In thinking about these dimensions, it is also important to consider how the OTL provided to learners interacts with their individual characteristics (Engeström, 1999).

Though research in OTL within special education TPPs is limited, research in general education is extensive. Research ranges from in-depth self-study to regional and international survey work documenting OTL across contexts (Anderson & Stillman, 2011; Blömeke et al., 2012; Boyd, Lankford et al., 2008; Boyd, Grossman et al., 2009; Conklin & Daigle, 2012; Gresalfi, 2009; Grossman et al., 2009; Preston, 2016; Schmidt et al., 2012; Ronfeldt & Reininger, 2012; Wang & Tang, 2013). This scholarship provides guidance for operationalizing this construct and offers insight into the ways in which OTL might be applied to SETCs' preparation experiences. See. Figure 2.

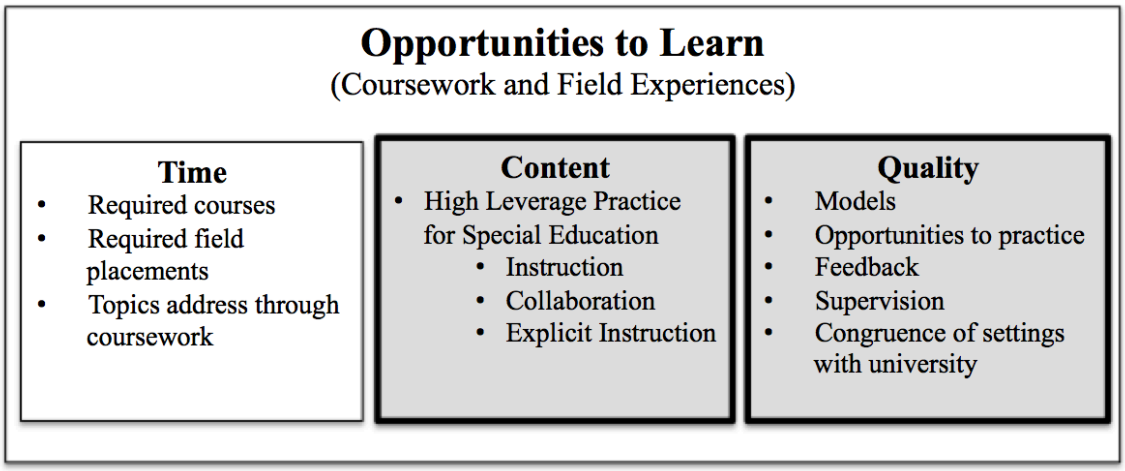

Figure 2. Opportunities to learn in teacher preparation: time, content, and quality (Kurz, 2011). Content and quality, noted in grey, are foregrounded in data collection and analysis. Time is a triangulation point assessed through document review.

Content of Opportunities to Learn

The content of teacher preparation is directly tied to how one conceives of teaching (Feiman-Nemser et al., 2014). An assumption underlying this study is that learning to teach is not an act of discovering practice in which candidates construct idiosyncratic, creative, or particular conceptions of teaching. Instead, teaching is complex, unnatural work that requires specialized knowledge and skills (Ball & Forzani, 2009; Windschitl, Thompson, & Braaten, 2011). Taking on this assumption moves the conversation regarding the content of teacher preparation away from theoretical learning applied to the individual experience and toward practical learning applied to increasingly complex settings (Benedict et al., 2016).

High Leverage Practice. In an effort to focus on a common conception of teaching practice (i.e., common content), teacher educators in mathematics, foreign language, reading, and science have assembled "high leverage practice" (HLP) frameworks to help guide teacher preparation in those fields (Boerst, Sleep, Ball, & Bass, 2011; Hlas & Hlas, 2012; Kucan et al., 2011; Windschitl, Thompson, Braaten, & Stroupe, 2012). These frameworks serve to organize the content of teacher preparation and, when applied thoughtfully, can provide structure to a program, enhance preservice teachers' understanding of their professional role, and position them to appropriate and enact high-quality practice as they move into the field (Feiman-Nemser et al., 2014). By definition, HLPs are practices that a) are needed with high frequency in teaching; b) novices can apply across curricula or instructional approaches; c) novices can begin to master; d) allow novices to learn more about students and about teaching; e) preserve the complexity of teaching; and f) have shown potential to improve student achievement.

Furthermore, HLPs are focused on the practices that are essential to enact a specific conception of effective teaching in the classroom (Ball, Sleep, Boerst, & Bass, 2009; McDonald, Kazemi, & Kavanaugh, 2013; Windschitl et al., 2012).

High Leverage Practice in Special Education. Researchers and teacher educators in special education have also begun the process of identifying HLPs particular to special education in order to provide a common framework and common content for teacher preparation and training (McLeskey et al.; 2017). Drawing on special education teachers' varied roles (Urbach et al., 2015; Vannest, Hagan-Burke, Parker, & Soares, 2011), the HLPs encompass 22 practices that address collaboration, instruction, assessment, and social/behavioral skills. When the content of teacher preparation is based on a practice framework that is particular to teaching and providing services to students with disabilities, one could hypothesize that the selected practices become the SETCs' toolkit for enacting a shared and coherent vision of effective teaching and learning when working in the service of students with disabilities. This study focuses on SETCs' opportunities to learn the practices in two of the four domains: instruction and assessment.

High Leverage Practice for Instruction. The instruction HLPs are considered the toolkit for effective instruction by the CEC and have been developed with the aim of specifying critical content for special education teacher preparation (McLeskey et al., 2017). Recognizing the importance of instructional design *and* delivery, the instruction HLPs include practices that focus on both aspects of effective instruction to ensure student success. The HLPs for instruction include explicit instruction as a framework.

Explicit instruction includes specific instructional design and delivery

components used to provide struggling students with instructional supports when they engage with content they could not learn independently or could not learn through the use of less guided methods (Archer & Hughes, 2011; Hughes, Morris, Therrien, & Benson, 2017; Rosenshine, 2012). In contrast to constructivist approaches to teaching, explicit instruction is characterized by a high level of teacher involvement and direction. In an effort to clarify the meaning of explicit instruction, Hughes and colleagues (2017) conducted a literature review of 16 years of research. Using their review to operationalize this term, they define explicit instruction as:

> a group of research-supported instructional behaviors used to design and deliver instruction that provides needed supports for successful learning through clarity of language and purpose, and reduction of cognitive load. It promotes active student engagement by requiring frequent and varied responses followed by appropriate affirmative and corrective feedback, and assists long-term retention through use of purposeful practice strategies (p. 4)

Because of its prominence in the field and its potential to help struggling learners make progress toward individual and collective goals, providing opportunities to observe and practice explicit instruction in methods courses and field placements is an important aspect of helping prepare SETCs for their professional roles. Prior research indicates that SETCs' opportunities to learn about, observe, practice, and receive feedback on explicit instruction are instrumental to the development of effective instructional practice for students with disabilities (Leko & Brownell, 2011). Despite a strong research base that supports its use with students with disabilities in reading, mathematics, and writing (e.g., Christenson, Ysseldyke, & Thurlow, 1989; Gersten, 1998; Graham & Harris, 2009; Graham, McKeown, Kiuhara, & Harris, 2012; Mastropieri, Scruggs, Bakken, & Whedon, 1996), qualitative research highlights the fact that SETCs who do not witness or reflect on explicit instruction in courses and field placements are less prone to enact this

framework in the classroom (Leko & Brownell, 2010). Examining the extent to which SETCs' OTL are focused on a vision of teaching and learning that includes this specialized instructional orientation provides valuable insight into the opportunities that TPPs provide for SETCs (whether purposefully or inadvertently). Understanding this could potentially differentiate between programs that are more or less attuned to the use of specialized instruction for students with disabilities.

The broader instructional high leverage practices, of which explicit instruction is a part, highlight the importance of planning through attention to identifying specific goals (HLP #11), systematically designing instruction to meet those goals (HLP #12), and adapting curriculum and tasks to meet those goals (HLP #13). For SWDs, providing targeted instruction includes planning instruction focused on the cognitive and metacognitive strategies that address the needs of struggling learners (HLP #14; e.g., collaborative strategic reading (Vaughn et al., 2011); self-regulated strategy development (Harris & Graham, 2003; Santangelo, Harris, & Graham, 2008), and keyword mnemonics (Fontana, Scruggs, & Mastropieri, 2007)). Another aspect teachers must consider when planning instruction is how to match the intensity of instruction with students' needs (HLP #20), including grouping, pacing, and using data from carefully and frequently planned opportunities to respond (McLeskey & Brownell, 2015). Each of these design decisions is theoretically associated with effective instructional delivery in the classroom.

Thoughtfully planned instruction requires effective delivery. This includes the use of strategies to enhance student engagement (HLP #18); flexible grouping to support different instructional aims (HLP #17); verbal, written, and visual scaffolds (HLP #15; Rosenshine & Meister, 1992); and positive and constructive feedback (HLP #22). Each

aspect of delivery should be used to support students in meeting, maintaining, and generalizing the content, skills, and processes addressed in long- and short-term objectives (HLP #21).

High Leverage Practice for Collaboration. Collaboration is another aspect of the content of special education teacher preparation. Though collaboration has been a mainstay of special education service delivery for decades, it was typically a part of contained clinical or therapeutic settings (i.e., relationships with para-professionals and families; Friend et al., 2010). Changes in special education law stress the importance of providing access to the general education curriculum—a feat often accomplished through heterogeneous teams of professionals (Individuals with Disabilities Education Act, 2004). Furthermore, though it is not explicitly mentioned in special education law, collaborative practice is widely recommended as a means through which schools support student progress (Jones, et al., 2016; Kraft & Papay, 2014; Ronfeldt, Framer, McQueen, & Grissom, 2015). Yet, despite being perceived as a foundational aspect of ensuring high-quality educational experiences for students with disabilities, collaboration is often poorly operationalized as merely "working together" (Friend & Cook, 2017).

In contrast to this elusive definition, scholars in disciplines outside of education note that collaboration or teamwork is actually a cognitively demanding task through which two or more people with unique roles and perspectives must interact in order to achieve a common, often complex goal (Salas, Dickinson, Converse, & Tannenbaum, 1992). The demand for interaction introduces even more complexity (Cooke, Keikel, & Helm, 2001); this is certainly true in teaching relationships in which general and special educators may hold distinct and unstated perspectives (Zigmond & Kloo, 2011).

Typically, the practice of collaboration or teamwork that help to buffer this complexity include communication—which creates a space where collaboration can occur (Erchul et al., 1999)—and trust—which facilitates collaboration even when content is delicate (Hallam et al., 2015). Friend and Cook (2010) note a number of skills involved in collaboration that are not inherent but should be examined and practiced: engaging of free will, common goals, parity, shared responsibility for critical decisions, joint accountability for outcomes, and resources held in common. These skills provide the foundation for the collaboration HLPs.

Consequently, this understanding of collaborative practice as complex practice makes an argument for providing extensive and purposeful OTL regarding the many facets of this often-misunderstood work. This also underscores that co-teaching, while a structure that requires collaborative practice, is not synonymous with collaboration, nor is collaboration synonymous with the philosophy of inclusion (Friend et al., 2010). One aspect of understanding the extent to which SETCs are afforded OTL collaborative practice includes addressing the relationships and sites wherein collaboration would take place. In the HLP framework, this includes working collaboratively with professionals (i.e., general educators, related service providers, instructional support staff; HLP #1) and families (HLP #3). It also includes organizing meetings and, in the course of those meetings, interpreting and communicating information with collaborative teams and using that information to design instructional plans (HLP #5; McClesky et al., 2017).

Time Allotted for Opportunities to Learn

When examining OTL, the second factor to consider is time, or the allotted time and focus of experiences. This type of OTL focuses on required coursework and credit

hours, topics or practices studied, and field experiences offered within TPPs (Wang & Tang, 2013; Schmidt et al., 2011). Researchers conclude that the allocation of time within TPPs is associated with important aspects of preparedness for the classroom including acquisition of pedagogical content knowledge, changes in beliefs with regard to students and instruction, and differences in classroom practice (Blömeke et al., 2012; Schmidt et al., 2011). Not surprisingly, researchers have also found associations between OTL and student achievement, although these findings are not consistent across all content areas and appear to be moderated by hours spent in field experiences (Boyd, Lankford et al., 2008; Boyd, Grossman et al., 2009; Feng & Sass, 2013; Preston, 2016). Though the time devoted to OTL is clearly important in teacher preparation, examinations that treat OTL as a purely quantitative variable potentially obscure the distinction between exemplary preparation experiences and average or even ineffective preparation experiences (Preston, 2016). In order to identify the mechanisms that produce these differences, researchers must use qualitative methods to understand the nature, or quality, of various OTL in teacher preparation.

Quality of Opportunities to Learn

Quality is another factor relevant to learning. This can include the instructional practices (such as models or case studies), the cognitive processes involved in learning, grouping formats, instructional resources, and the extent or intensity of learning experiences. Whereas studies of time and content rely heavily on quantitative data, studies of the quality of OTL draw primarily on qualitative and mixed methods data to explore and explain the differences across various opportunities (Anderson & Stillman, 2011; Conklin & Daigle, 2012; Grossman et al., 2009; Grossman et al., 2000; Leko &

Brownell, 2011). Qualitative researchers document how quality supports the development and maintenance of instructional practice, highlighting that effective OTL are characterized by repeated opportunities to access and engage with conceptual and practical tools in increasingly complex settings (Conklin & Daigle, 2012; Grossman et al., 2000; Leko & Brownell, 2011).

Opportunities to Learn in Special Education Teacher Preparation

Studies that speak to SETCs' OTL are few, lack focus, and tend to disregard the complex, multi-faceted nature of learning to teach (Lignugaris/Kraft et al., 2014; Sindelar, Bishop, & Brownell, 2006). Though there is a plethora of research on special education teacher training, two issues are relevant when considering the contributions of the existing body of work to program redesign. First, researchers often examine the contributions of individual courses or pedagogical innovations separate from examinations of teachers' characteristics and beliefs, coursework, or field experiences (e.g., Dieker et al., 2009; Dotger & Ashby, 2010; Fernandez, 2010; Rich & Hannafin, 2008; Sun & van Es, 2015). Although these studies contribute to our understanding of discrete aspects of teacher preparation (e.g., particular pedagogical innovations, field experiences, or assessments), they do not provide a comprehensive understanding of OTL across preparation. Secondly, the few studies that examine OTL across TPPs tend to focus on faculty perspectives of OTL (Harvey, Yssel, & Jones, 2015; McKenzie, 2009) Furthermore, because of the novelty of the HLP framework in special education, no studies at present examine OTL HLPs across special education teacher preparation. Though faculty perspectives are extremely valuable in understanding OTL from the program level, they fail to take into account the actual learners' perspective (i.e. SETCs).

The act of learning to teach is a socially mediated process (Engeström, 1999). Because of this, it is important to extend research beyond the objective (or programmatic) perspective of OTL (Martin & Dismuke, 2015). Though faculty and other stakeholders may make strides to actively and particularly shape the context in which learning takes place, learners' (or candidates') knowledge, beliefs, attitudes, and actions interact with their context to influence the extent to which they engage in the learning process (Gallimore, Golden, & Weisner, 1993).

Beyond studies of teaching innovations, studies in special education OTL that examine SETC development throughout a program are extremely limited. Though survey and in-depth qualitative studies report that in-service teachers believe their OTL within teacher preparation are important in preparing them for their work (Bishop, Brownell, Klingner, Leko, & Galman, 2010; Brownell & Pajares, 1999; Conderman, Johnston-Rodriguez, Hartman, & Walker, 2013; Zagona, Kurth, & McFarland, 2017), there is only one study to my knowledge that examines the influence of OTL on SETCs' beliefs and practice across pre-service experiences (Leko & Brownell, 2011).

Leko and Brownell (2011). In a qualitative case study of six SETCs' appropriation of pedagogical tools for learning, Leko and Brownell used grounded theory methodology to explore the process through which SETCs learn practice. The authors found that access was essential for SETC learning. They uncovered multiple ways for SETCs to access OTL including experiences prior to entering the TPP, university coursework and instructors, and—drawing on the importance of enactment for learning practice—the field placement. Building on previous work in special education teacher learning (Bishop et al., 2010), they found that certain aspects of the field placement

provided SETCs with access to OTL about reading instruction for students with disabilities: student need, setting, service delivery model, curriculum used, and expertise of the cooperating teachers.

For SETCs placed in inclusive contexts or with cooperating teachers who were less knowledgeable about the needs of students with disabilities, there were fewer opportunities to access models of and receive feedback aligned with an explicit instruction framework (Leko & Brownell, 2011). As a result, their levels of appropriation of pedagogical tools for teaching reading to students with disabilities suffered. On the other hand, SETCs who were placed in settings in which teachers taught using explicit instruction and gave feedback demonstrating expert understanding of the needs of students with disabilities showed higher levels of appropriation. Consistent with research in general education teacher preparation (Anderson & Stillman, 2011; Darling-Hammond, 2014), Leko and Brownell (2011) asserted that access to models and feedback that were consistent with the framework taught within methods courses was vital to these SETCs' learning and served as a source of teacher self-efficacy (Bandura, 1997). Though Leko and Brownell's work (2011) is limited in its ability to generalize because of the small and relatively homogenous sample, their grounded theory provides an in-depth examination of how OTL functions for individual SETCs.

Applying OTL to the Present Study

Leko and Brownell's work informed my design and methods. Drawing on Brownell et al.'s (2005) assertion that special education TPPs are highly variable, this work highlights the importance of attending to SETCs' experiences across TPPs. Additionally, this study supports conclusions regarding the influence of OTL on SETCs'

beliefs about instruction and inclusion and their teacher self-efficacy. Furthermore, the theory-generating work of Leko and Brownell (2011) was used in the development of the survey instrument and interview protocol, and in planning the appropriate analysis and reporting of qualitative and quantitative data. Additionally, their work provides guidance regarding the integration of data sources. The present study explores their findings across multiple TPPs by collecting survey and interview data.

Combining this work with what we know about exemplary teacher preparation illuminates the potential power of multiple, carefully designed OTL that communicate a shared understanding of instruction and collaboration in special education (Darling-Hammond et al., 2006). As a body of experiences, OTL are comprised of series of choices wherein some opportunities are provided or emphasized at the expense of others. It is in these choices that OTL give structure to teacher preparation, provide valuable information regarding the programmatic priorities of TPPs, and communicate a particular vision of teaching and learning that is instrumental in shaping beliefs (Blömeke et al., 2012; Leko & Brownell, 2011; Preston, 2016). Considering OTL in this way is particularly relevant in the next aspect of the conceptual model: preparation program coherence.

Program Coherence

Tatto (1996) defines preparation program coherence as the extent to which the individuals involved in educating new teachers such as faculty, cooperating teachers, and university supervisors share a vision of effective teaching and learning and the degree to which these individuals organize OTL in service of that vision. In coherent programs, teacher educators link theory with practice across learning experiences (Hammerness &

Klette, 2015). They integrate practices that draw attention to the program's vision across courses (Darling-Hammond et al., 2006). Finally, they systematically address these practices in mutually-reinforcing experiences where pre-service teachers have the opportunity to enact learning in increasingly complex settings as they move into the field (Benedict et al., 2016; Ericsson, 1996). Program coherence requires TPPs to attend to conceptual and structural aspects of preparation. Typically examined at the institutional or programmatic level, teacher candidates' perception of coherence is also crucial when exploring how they learn practice and the tools they take up from their preparation experiences (Grossman et al., 2009; Grossman, Hammerness, McDonald, & Ronfeldt, 2008; Grossman et al., 2000). What candidates learn is reflected in a) what is taught, b) the methods through which it is taught, and c) the extent to which that is connected to a clear vision of effective teaching. Figure 3 depicts the ways researchers operationalize program coherence in teacher preparation.

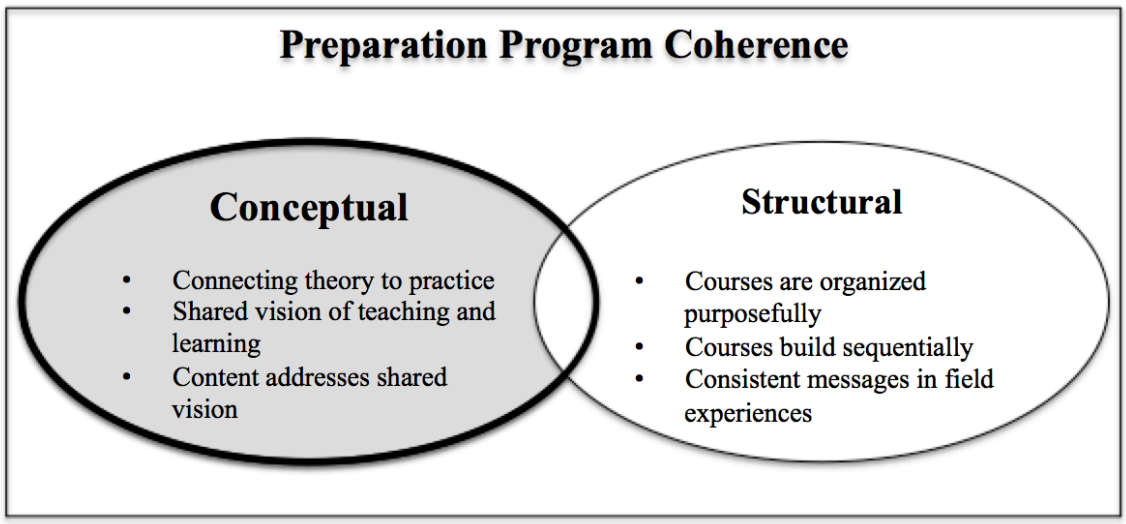

Figure 3. Interwoven aspects of preparation program coherence. As noted in grey, this study primarily emphasizes aspects of conceptual coherence.

Conceptual and Structural Program Coherence

Coherent TPPs have a strong conceptual foundation. They make deliberate connections between theory and practice, have a shared vision of teaching and learning, and are thoughtful about the ways in which the content of teacher preparation addresses that vision (Hammerness, 2006). This strong vision can serve as a conceptual tool for candidates as they move into the profession; guidelines such as explicit instruction, differentiated instruction, mastery learning, or inquiry-based learning are examples of conceptual tools (Grossman et al., 2000). For pre-service teachers and novices alike, these conceptual tools guide them to ground their future teaching in a common understanding of what is possible (Kennedy, 2006). They organize the strategies and practices learned in preparation—practical tools such as backward chaining, self-regulated strategy development, and opportunities to respond—such that candidates are able to readily draw on them while in dynamic school environments with increased pressure and responsibility (Grossman et al., 2000).

However, relying on vision and the tools that support vision without attending to the structure, or organization, of teacher preparation is insufficient for shaping future teachers' classroom practice (Hammerness, 2006). Structural coherence includes organizing coursework sequentially to communicate the program's vision of teaching and learning and also carefully determining field placements that support that vision across the TPP experience. Grossman and colleagues (2008) note that the following structures influence the strength of preparation program coherence across the TPP and field experiences:

- program oversight of the selection of cooperating teachers' experience
- extent of communication between faculty and university supervisors

- number of formal observations and supervisory visits
- degree to which assignments link coursework and field experiences
- number of courses that require students to complete a parallel practicum

So, attending *only* to conceptual or structural coherence is insufficient. Both aspects of program coherence are necessary to leverage its full power in teacher preparation (Feiman-Nemser, 1990). Through these distinct, but interwoven strands, candidates are provided the opportunity to practice applying a wide array of conceptual and practical pedagogical tools that help them to "construct and carry out" teaching practices as they move into the field (Grossman et al., 2000).

Influence of preparation program coherence. The traditional organization of TPPs into foundations courses, disciplinary methods courses, and field experiences has historically been at odds with the type of program coherence necessary to focus pre-service and novice teachers' classroom practice on a clear vision of teaching and learning (Brownell et al., 2005; Hammerness & Klette, 2015). Researchers connect this lack of coherence to difficulty transferring skills and strategies to contexts outside of the TPP (McDonald et al., 2013; Tatto, 1996). But TPPs can trade this fragmented practice for a focused mission, vision, and well-specified purpose.

Across several notable qualitative and mixed methods studies, researchers in general education teacher preparation have found the extent to which programs cohere around a vision, mission, or well-specified purpose to be indicative of the influence of the program on teacher candidates in three ways. These include belief change amongst pre-service teachers with regard to diverse learners, appropriation of practice during teacher preparation, and enactment of practice as they move into the classroom (Darling-Hammond et al., 2006; Feiman-Nemser et al., 2014; Hammerness, 2006; Hammerness &

Klette, 2015; Tatto, 1996). In TPPs that address structural and conceptual coherence, researchers have concluded that graduates' teaching practice takes on the philosophical commitments, social values, and distinctive pedagogies supported by their institution (Feiman-Nemser et al., 2014). Program coherence is not only an issue of institutional alignment and logical relationships noted in program documents and faculty experiences (Buchmann & Floden, 1992); it is an issue of identity formation for the pre-service teacher (Feiman-Nemser, 2001). Therefore, studying program coherence with the perspective of the pre-service teacher in mind is integral to enacting a vision of practice in the classroom (Grossman et al., 2008).

The Problem of Program Coherence in Special Education

Despite the growing body of evidence in general education, program coherence in special education teacher preparation remains virtually unexplored; as a field, we have a strong sense of practical tools through the development of evidence-based instructional practice but lack research that addresses how these build to a strong vision. In fact, an extensive search for empirical literature regarding preparation program coherence in special education returned no empirical results. This is understandable given Brownell and colleagues' (2005) review of TPP documents. Using philosophy (i.e., constructivism or positivism) as a proxy for vision or mission, the authors asserted that TPPs' articulation of vision or mission was often imprecise and blurred constructivism and positivism. The reasons for this lack of empirical attention have not been documented but could likely stem from disagreement about the role of special education teachers in public schools. Regardless of the source, the impact of a lack of coherence on SETCs' understanding of their future work is the same.

Disagreement about the role of special educators. One possible reason for poorly articulated program coherence in special education is a lack of agreement regarding the role of special educators amongst scholars and those shaping the field. Whereas some scholars retain a traditional, clinical understanding of special education as focused on intervention (e.g., Fuchs, Fuchs, & Stecker, 2010; Fuchs, Fuchs, & Vaughn, 2014), others believe that students with disabilities benefit from joint instruction that provides access to the general education curriculum (e.g., Florian, 2008; Friend et al., 2010). Yet, in reality, special educators are often required to move between clinical and collaborative roles in their daily practice. This often results in role ambiguity, conflict, and dissonance for new teachers (Billingsley, Carlson, & Klein, 2004; Gersten et al., 2001; Jones & Youngs, 2012; Mathews, Rodgers, & Youngs, in review; Vannest et al., 2011; Youngs, Jones, & Low, 2011). This lack of consistency regarding the role of special educators in K-12 practice is difficult to navigate and potentially makes establishing coherent special education TPPs quite difficult. Regardless of this challenge, given the struggles novice special education teachers experience with regard to role, responsibility, and identity, explorations of coherence in special education teacher preparation and how they position candidates entering the field are warranted.

Licensure outcomes and program models. Another challenge to preparation program coherence in special education is the issue of the different licensure outcomes and program models available in special education (Nevin, Thousand, & Villa, 2009; Pugach & Blanton, 2009). Special education programs often follow one of three models: discrete, integrated, or merged. Drawing on policy work in special education (Nevin et al., 2009; Pugach & Blanton, 2009), Table 2 defines each model. These models affect the

structural aspects of coherence and, in turn, the faculty collaboration and cooperation necessary to move toward conceptual coherence.

Table 2

Special Education Program Models.

Model	Definition
Discrete Model	• Special and general education coursework/field experiences are distinct and disconnected • Programs do not build purposefully on each other • Secondary licensure is considered a separate, additive curriculum • Minimal interaction across faculty
Integrated Model	• Purposeful effort made to integrate special education and general education coursework and field experiences • Special education retains professional identity, but builds on the base program • Faculty work collaboratively
Merged Model	• Purposeful effort to integrate special and general education • Special education and general education are merged into one pre-service curriculum • *All* candidates prepared to take on role of general and special education teacher • High level of faculty collaboration

Theoretically, each of these models would contribute differently to preparation program coherence and would require a different level of commitment to a shared vision. As Weiss, Pellegrino, Regan, and Mann (2015) note in their participatory action research of a co-taught teacher preparation course, collaborative work is predicated upon authentic partnership. Yet, there are often structures in place in the training of future special educators—such as the program models listed above—that inhibit this type of partnership. Beyond these structural aspects, there is the messiness of contrasting perspectives and expertise, another area that must be negotiated when philosophies, visions, and purposes are not initially complementary. Given the contemporary move toward inclusive education grounded in collaboration (Brownell et al., 2010), these challenges are certainly worth addressing.

Applying Preparation Program Coherence to the Present Study

In this study I examine conceptual coherence using existing work in general education to frame my investigation (Grossman et al., 2008; Hammerness, 2006; Hammerness & Klette, 2015; Tatto, 1996). I used this work to inform my instrument development; the survey instrument includes items derived from the survey used by Grossman and colleagues (2008) and the interview instrument draws questions from qualitative explorations of coherence (Cavanna, Pippin, Elreda, & Youngs, 2018). Additionally, I use the body of literature in general education and the theoretical barriers to coherence in special education as I consider the ways that conceptual coherence emerges in my qualitative analysis.

Instructional Support

When pre-service teachers' feelings of preparedness, efficacy, and career plans are examined as a function of their student teaching experience, researchers find that the most influential factor is not necessarily the *quantity* of student teaching or field placements. Rather, the *quality* of the experience—defined as the depth of support from faculty, cooperating teachers (CT), and university supervisors (US) for the development of a particular conception of teaching—is what is most instrumental in their development (Ronfeldt & Reininger, 2012). Instead of considering field experiences as monolithic, research suggests that the influence of instructional support varies with the extent to which it is aligned with the TPP's vision of teaching and learning and the extent to which candidates feel supported in enacting that vision in the classroom (Anderson & Stillman, 2011; Leko & Brownell, 2011). Thus, instructional support is associated with preparation program coherence.

Instructional support provided by USs and cooperating teachers CTs connects university-based coursework to field-based experiences. When these experiences are consistent or complementary with other pre-service experiences, these supports serve as an anchor for novices' practice (Anderson & Stillman, 2011; Leko & Brownell, 2011). When settings and feedback are congruent, instructional support personnel can influence how candidates' perceive their experience (Grossman et al., 2008) and the extent to which special educators in particular appropriate practice (Leko & Brownell, 2011; McCray, 2012). Instructional support personnel assist candidates in making sense of the guiding principles of their program as enacted in dynamic classroom environments. As an illustration, TPPs might endorse a particular approach to instruction (e.g., student-centered learning, inquiry, direct instruction). If pre-service teachers experience that same approach across methods courses, applied opportunities, and support experiences, it is more likely to be applied in their own practice.

Applying Instructional Support to the Present Study

An assumption of this study is that a high-quality field experience is not merely *being* in the classroom and witnessing enacted instruction. Support and feedback in the field experience are generally an influential part of SETCs' learning and have been tied to changes in candidates' practice in special education teacher education innovation studies (e.g., Rock et al., 2009; Scheeler, McAfee, Ruhl, & Lee, 2012). The university supervisor (US) and cooperating teacher (CT) provide direction and guidance for SETCs as they build their understanding of teaching students with disabilities through the field experience (Hanline, 2010). Additionally, working with personnel who are experienced in pedagogy and practice particular to special education provides SETCs with access to

models, feedback, and expertise as they practice enacting the strategies and skills they learn in their university-based program (Leko & Brownell, 2011; McCray, 2012: Rechia & Puig, 2011). These relationships provide support that helps candidates' develop their own practice and, in doing this, helps them to develop positive attitudes and beliefs about SWD. Research on field experiences suggests that the individuals who provide feedback and the space for reflection are an important aspect of helping SETCs to relate their applied learning back to their coursework (Buck, Morsink, Griffin, & Lenk, 1992: Nagro & deBettencourt, 2017); in this way, the US and CT serve as a way to enhance conceptual coherence by connecting coursework to the field. Facilitated by the US and CT, these connections have the potential to shape SETCs' beliefs about their students, instruction, inclusion, and their own self-efficacy (McCray, 2012).

Beliefs

Kagan (1992) defines teacher beliefs as the "tacit, often unconsciously held assumptions about students, classrooms, and the academic material to be taught" (p. 65). Beliefs can determine how individuals and groups define and organize tasks and problems, and because of this can potentially be strong predictors of behavior (Nespor, 1987). Yet, beliefs do not exist in isolation. Beliefs can cluster around certain domains or ideas (Richardson, 1996). However, these clusters of beliefs can be inconsistent and allow for contradictions in belief systems that might seem illogical (Kiely et al., 2014; Rokeach, 1968). As an example, teachers' beliefs about student ability might not be consistent across content areas. A teacher might believe that all students can make progress in reading but simultaneously believe that understanding of mathematics is a matter of innate ability. The cluster of beliefs about reading is inconsistent with the

cluster of beliefs about mathematics. This is one reason why some scholars have suggested that researchers should study beliefs within certain disciplines as opposed to general beliefs about students and classrooms broadly (Zeichner, 2005). The same assertion could be made of beliefs with regard to setting and context. Studies of special education instruction have found that *what* special education teachers believe is often related to *where* they are teaching (Roberts, 2013; Ruppar, Dymond, & Gaffney, 2011).

Another area where contradiction is evident is with regard to beliefs about inclusion of SWD and teachers' inclusive practice (Kiely et al., 2014). While teachers often report positive beliefs about SWD and inclusion, this does not necessarily indicate that they believe they can meet the needs of SWDs' in inclusive settings. Researchers note that, for both special and general education teachers, this contradiction emerges from concerns about implementation, such as resources and meeting the severity of students' needs (Cook, Semmel, & Gerber, 1999; DeSimone & Parmar, 2006; Scruggs & Mastropieri, 1996). However, this particular topic is not well researched indicating a gap in the literature (Kiely et al., 2014).

Considering the research base, special education teachers' beliefs—and SETCs' beliefs—likely vary across multiple dimensions. One goal of the present study is to examine this variation and how it might be associated with the opportunities afforded to candidates during their preparation. Beliefs filter the ways in which they engage with OTL and, therefore, likely influence their preparation for and commitment to practice (Hollingsworth, 1989; Richardson, 2003; Zhang, Wang, Losinksi, & Katsyannis, 2014). Yet, some researchers and scholars have argued that beliefs are not malleable, calling TPPs a "weak intervention" (Richardson, 1996, p. 113) for combatting the lifelong

accumulation of individuals' beliefs about teaching and learning (Lortie, 1978). This question is worthwhile and addresses the importance of considering the OTL provided in teacher preparation.

A Continuum of Beliefs: Internal to External Attributions

Studies of attribution beliefs emphasize the powerful relationship between teachers' beliefs and their instructional practice regarding SWD. Attribution emphasizes the sources to which teachers attribute students' success or failure: to problems within the student (internal attribution) or to problems in the environment (external attribution). The scholarship of Jordan, Stanovich, and colleagues provides compelling evidence for the connection between attribution beliefs and teachers' decision-making and instructional practice (Jordan, Kircaali-Iftar, & Diamond, 1993; Jordan et al., 1997; Jordan et al., 2010; Stanovich & Jordan, 1998; Wilson, & Silverman, 1991). Attribution beliefs exist on a continuum; teachers do not necessarily apply internal or external attributions at all times and in all situations. Table 3 provides a definition of the ends of this continuum with example teacher behaviors (Stanovich & Jordan, 1998).

This robust body of research focuses on the use of structured interviews, surveys, and classroom observations to examine the relationships between beliefs about attribution and teacher behavior. In developing these profiles, Jordan and colleagues (1991) collected interview data from various school personnel including 22 principals, 20 special education teachers in self-contained or segregated settings, 23 resource teachers, and 28 general education teachers. The research team then rated participants' statements; these ratings reflected the continuum noted in Table 3 (at this time called restorative or preventative). The authors found that belief systems were consistent within individuals

but, within and across roles, were quite varied. Furthermore, they found that belief systems between members of a school staff were mostly significantly correlated. This suggests that social learning could influence individuals' beliefs; in the context of the present study, it provides support for the idea of the TPP as a space for the development of beliefs that are instrumental in future special educators' practice.

Subsequent studies examine the association between these beliefs and practice. Wilson and Silverman (1991) used structured interviews and a series of surveys to examine how these orientations were associated with beliefs about intervention. They found that teachers' belief systems (including attribution beliefs and teacher self-efficacy) predicted their preference for in-school special education services. Teachers with internal attribution beliefs placed the blame for a lack of progress on the student and possibly their families. They preferred services that would withdraw the student from classrooms and interventions that were delivered in a resource or excluded setting. Building on this work, Jordan et al. (1997) examined how scores on the same structured interview protocol were associated with general education teachers' interactions with students who were either at-risk or SWD. Teachers who expressed external attribution beliefs engaged in more academic interactions and greater use of strategies to engage students in critical or higher-order thinking than teachers who expressed internal attribution beliefs. The authors suggested that this reticence on the part of teachers with internal attribution beliefs was possibly due to difficulties managing classroom routines and establishing purpose in lessons. This lends support for the association between strong preparation (possibly that targets the development of strong management and instructional skills) and teachers' enacted beliefs. Finally, Stanovich and Jordan (1998) examined how these

beliefs predicted effective instructional practice. Using the structured interviews with principals and general education teachers and classroom observations, they found that teachers' score on the structured interview predicted the use of effective teaching behaviors in the classroom, suggesting that attribution beliefs are "grounded… [and] must somehow be attached to behaviors and classroom decisions that a teacher can discuss in an articulate manner" (p. 231). Furthermore, principals' composite score on the attribution scale strongly and significantly predicted effective classroom teaching, corroborating the previous findings that institutional norms are associated with instructional practice (Jordan et al., 1991).

Table 3

Attribution Beliefs (Stanovich & Jordan, 1998)

Internal Attribution Beliefs	External Attribution Beliefs
• Problems are within the student • Views problem as a "disease" entity • Emphasis on diagnosis • Attempts few or no interventions • Minimal interactions with colleagues to meet student's needs • Fails to link assessment and curriculum or intervention • Minimal contact with parents • *Also referred to as: fixed mindset, ability orientation, entity beliefs, pathognomonic beliefs*	• Problems result from interactions between student and the instructional environment • Attempts substantial intervention plans • Intensive work with support personnel • Approach student difficulties with a team-based approach • Links assessment, curriculum, and methods • Communicates with parents regularly • *Also referred to as: growth mindset, mastery orientation, incremental beliefs, interventionist beliefs*

Across the spectrum of methodologies from path analysis to in-depth multiple case studies, researchers have found that beliefs about attribution to be tied to teachers' skills and practice in the classroom and can predict the ways teachers interact with and make decisions about instruction in the service of students with disabilities including the

extent to which inclusive practice should or can be used to deliver services (e.g., Berry, 2006; Giddens, 2001; Hollenbeck, 2013; Hollingsworth, 1989; Jordan et al., 2010; Stanovich & Jordan, 1998). Furthermore, taking into account that beliefs exist in potentially contradictory clusters, beliefs could theoretically vary across this continuum as a function of content area or setting (Roberts, 2013; Ruppar et al., 2011; Zeichner, 2005).

Beliefs in Teacher Preparation

Likely due to the importance of beliefs about teaching and learning in shaping instructional and collaborative practice, research regarding beliefs is extensive (for reviews, see Kiely et al., 2014; Leko et al., 2012; Pajares, 1992; Richardson, 1996; Risko et al., 2008). Researchers have explored whether teachers' beliefs are malleable (Brookhart & Freeman, 1992; Nespor, 1987; Lortie, 1978), what kinds of beliefs are subject to change, and under which circumstances—possibly through OTL—beliefs can be changed (Leko, Kulkarni et al., 2015; Ruiz, Rueda, Figueroa, & Boothroyd, 1995).

Considering the clustering of beliefs noted earlier, beliefs that are most central to a person's identity as a teacher are the most difficult to change (Lortie, 1978; Rokeach, 1968). Yet, when pre-service teachers are given explicit opportunities to contrast their own beliefs with contradictory beliefs, researchers have found that change can occur (Richardson, 1996). In a review of 82 studies in reading teacher education, Risko et al. (2008) corroborated these findings, yet noted that belief change must be supported by specific structures in teacher preparation. These included acquiring new knowledge in methods courses, enacting new knowledge in classrooms, and maintaining supportive environments for experiencing new knowledge in action. Hollingsworth (1989) noted

that, for belief change to occur, supervisory assistance was necessary throughout this process. These studies support the contemporary argument for carefully structured, meticulously sequenced learning opportunities in teacher education (Benedict et al., 2016; Grossman, Smagorinsky, & Valenicia, 1999; Kazemi, Franke, & Lampert, 2009). In essence, the structures that are related to belief change in TPPs overlap with the characteristics of exemplary teacher preparation programs and illuminate the importance of examining OTL, preparation program coherence, and support together (Darling-Hammond, 2014). In providing teacher candidates the opportunity to experience and reflect on practice in increasingly complex ways, teacher preparation can create the space for change to occur in belief and practice.

Beliefs in Special Education Teacher Preparation

Despite this wide body of knowledge regarding beliefs and the importance of understanding SETCs' beliefs in preparing them for inclusive and collaborative settings, the majority of this work has been conducted with in-service general and special education teachers (e.g., Berry, 2006; Giddens, 2001; Hamilton-Jones & Vail, 2014; Hollenbeck, 2013; Jordan & Stanovich, 2003; McCray & McHatton, 2011; Urbach et al., 2015). Certainly, these perspectives are valuable. Yet, beliefs in place prior to crossing the threshold into professional practice are important to capture and understand separate from being fully immersed in school settings (Shkedi & Laron, 2004). Five studies examine the ways in which beliefs about inclusion and instruction are shaped by OTL in teacher preparation. They add to our understanding of the ways in which beliefs work in teacher preparation and highlight how the present study will contribute to this line of research (Leko, Kulkarni et al., 2015; McHatton & Parker, 2013; Shade & Stewart,

2001).

McHatton and Parker (2013) and Shade and Stewart (2001). Two studies provide insight regarding the ways in which knowledge can influence beliefs about inclusion for SETCs as compared to general education teaching candidates. Shade and Stewart's (2001) study comparing general (n = 122) and special (n = 72) education teaching candidates' beliefs about inclusion across a survey course without an accompanying field placement indicated that both groups showed positive gains with regard to their beliefs about inclusion. In a similar vein, McHatton and Parker (2013) assessed belief change for general (n = 31) and special (n = 25) education teaching candidates across a semester-long course and field placement focused on inclusive classrooms. The authors found general education teaching candidates' beliefs about inclusion became more positive across the course and that, even prior to the course, SETCs' beliefs about inclusion were more positive than their general education colleagues' beliefs. In contrast to Shade and Stewart's findings, even though SETCs' beliefs remained positive, there was a slight decrease/negative trend over the course of the semester following an inclusive field placement.

These studies highlight the notion that OTL in coursework and field experiences can change beliefs within a single semester, but the contrast between their findings raises questions regarding the ways in which SETCs' beliefs might change as a result of the quality and intensity of the OTL and the extent to which OTL are able to approximate practice (Grossman et al., 2009). Additionally, considering the role of content specificity in teachers' beliefs (Zeichner, 2005), the authors' use of a general measure of beliefs about inclusion is a limitation. Responses might have shown different patterns if

respondents were asked to state their beliefs about inclusive practice in reading, writing, or mathematics. Finally, the authors' use of surveys without more explanatory data limits the extent to which their findings reveal how OTL serve as sources beliefs for pre-service teachers.

Leko, Kulkarni, et al. (2015). Using interviews and artifacts collected during a single semester reading course and follow-up interviews five months later, Leko and colleagues studied 11 SETCs' belief formation. For the most part, the authors focused their analysis on beliefs about instructional practice. They concluded that SETCs' beliefs became more specific and tied to the codified knowledge of special education across the course of the semester. They also found that diverse types of beliefs were differently affected by the course experiences. Those beliefs considered as "core" (i.e., tied to identity and prior personal and schooling experiences) did not change, but they became more flexible with access to knowledge and practice, allowing the SETCs to think more specifically about student needs in reading. Disappointingly, in follow-up interviews five months later, without continued engagement in the course, most SETCs reverted to more general beliefs about instruction that were tied to their "core" beliefs as opposed to beliefs that communicated a specific understanding of reading instruction for SWD.

This study highlights the role of OTL as sources of beliefs about instruction, but also emphasizes the need to examine how different types of beliefs are affected by OTL. Furthermore, Leko, Kulkarni, et al.'s (2015) work emphasizes the need for belief studies that address this construct with regard to specific content areas. When considering this study, this strength is also a limitation. Since the authors focused on reading specifically, we cannot draw definitive conclusions about the level of specificity or the "core" beliefs

of SETCs in other content areas.

Applying Beliefs to the Present Study

This small body of work provides foundational knowledge regarding SETCs' beliefs about inclusion and instruction for SWD. It also provides insight into the ways beliefs are shaped by pre-service experiences. Disciplinary content, setting of instruction, and the complexity of student needs are related to beliefs. Beliefs are associated with institutional norms and social processes. Thus, exposure to high quality opportunities to learn is likely an important aspect in the formation of beliefs. However, as of yet, this has not been explored extensively with reference to SETCs. In the present study, I examine beliefs about ability and intervention across different content areas and more generally about inclusive instruction. Furthermore, given that these studies were all constrained by the focus on single courses within single TPPs, drawing a sample across multiple preparation programs addressed a gap in the literature. Finally—though I do not draw data chronologically across all OTL within TPPs—I use interviews to examine SETCs' perspectives regarding OTL as vehicles for belief formation across preparation.

Teacher Self-Efficacy

Teacher self-efficacy is a powerful belief concerned with a teacher's judgment of their individual capability to perform a task in the classroom (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). Scholars link teacher self-efficacy to a number of important outcomes regarding instruction for SWD (Kiely et al., 2014). Not only has teacher self-efficacy been associated with important outcomes for students (Jimmieson, Hannam, & Yeo, 2010; Reyes, Brackett, Rivers, White, & Salovey, 2012; Woolfolk Hoy & Davis, 2006; Zee & Koomen, 2016), it is also associated with teacher behaviors, skills,

and dispositions that are relevant for working with SWD including planning and organization (Allinder, 1994; Jordan & Stanovich, 1998), willingness to experiment with new methodology (Cantrell, Almasi, Carter, & Rintamaa, 2013; Cantrell & Hughes, 2008), fidelity of intervention implementation (Jennett et al., 2003), and persistence with struggling learners (Gibson & Dembo, 1984). Though teacher self-efficacy is extremely important in the classroom, few studies have empirically examined sources of this important belief (Klassen, Tze, Betts, & Gordon, 2011).

Sources of Teacher Self-Efficacy

Because teacher self-efficacy is most malleable early in the process of learning a new task (Hoy & Spero, 2005), an assumption underlying the proposed project is that OTL in pre-service can serve as sources of teacher self-efficacy. As a way of categorizing the experiences relevant to this construct, Bandura (1997) outlines four sources of self-efficacy: mastery experiences, vicarious experiences, verbal persuasion, and physiological states. Table 4 provides definitions of each of these sources and offers examples of how each source might be present in teacher preparation. According to Bandura's work, these sources essentially work in a feedback loop in which individuals amass experiences that either increase or decrease their self-efficacy. These experiences, in turn, influence the effort, persistence, and resilience with which individuals approach a given task in the future and the level of emotional distress (e.g., stress, depression) they are willing to expend in order to perform the task in the future.

Yet, according to Bandura (1997), self-efficacy is also situated, meaning the strength of self-efficacy in one area might not be indicative of the strength of self-efficacy in other areas. This assertion connects to scholarship regarding beliefs broadly

and to the importance of considering contextual variables such as content area, setting, and student population when thinking about the formation of teacher self-efficacy in special education (Zeichner, 2005; Leko, Kulkarni et al., 2015; Ruppar et al. 2011; Roberts, 2013). However, attending to the *importance* of context does not mean that teacher self-efficacy is merely a matter of context. It is associated with the quantity of experiences (Bettini, Park, Benedict, Kimerling, & Leite, 2016; Coladarci & Breton, 1997; Hoy & Spero, 2005; Ruble, Usher, & McGrew, 2011) and also the quality of amassed experiences (Jennett et al., 2003; Milner, 2002; Ross & Bruce, 2007, Sarıçam & Sakız, 2012). Within contexts, these experiences become sources of teacher self-efficacy.

Table 4

Sources of Teacher Self-Efficacy [a]

Source	**Definition**	**Examples of the Source from Teacher Education**
Enactive mastery experiences	• Allow an individual to enact a task or skill • Help a person to determine their success at a task or skill • Most robust source of beliefs regarding self-efficacy	• Practicum • Internships • Tutoring experiences • Simulations
Vicarious experiences	• Opportunity to see a task modeled • Allow individuals to compare themselves to a model • Important to model process as well as product • Most successful when the observer has relatively little experience with a task and the individual completing the task is similar to the observer	• Classroom or video observations [b] • Video analysis [b] • Case-based instruction [b]
Verbal persuasion	• Beliefs that others express regarding performance • Offers a chance for individuals to compare their work to the work of others • Challenge should be achievable to increase self-efficacy • Tasks that are out of reach negatively contribute to self-efficacy	• Feedback • University supervision • Mentoring
Physiological states	• Emotional response to stress • Level of stress necessary to complete a task or skill • Necessary to consider the source of stress when approaching a task • Individuals with higher levels of self-efficacy in a domain view this as a positive challenge; individuals with lower levels of self-efficacy view this as a detriment	• Stress and anxiety within teaching experiences • Reaction to teaching • Reflection on teaching

[a] These are hypothesized based on Bandura's (1997) framework and subsequent scholarship; [b] Should be examples of expert practice

Teacher Preparation as a Source of Teacher Self-Efficacy

Building on the knowledge base regarding in-service teachers' self-efficacy, an emerging body of work establishes associations between this construct and teacher preparation (Hoy & Spero, 2005; Jamil, Downer, & Pianta, 2012; McCray, 2012). Despite findings that teacher self-efficacy is at a high point at the culmination of teacher preparation and decreases in the first year of teaching (Klassen & Chiu, 2011), research would suggest that it is important to understand how TPPs might serve to enhance teacher self-efficacy. Knowing its influence on skills, practices, and beliefs about students (e.g., Gibson & Dembo, 1984; Giddens, 2001; Jennett et al., 2003; Zhang et al., 2014), strengthening teacher self-efficacy could potentially mitigate the stress of the first years of teaching and serve as a buffer for the burnout and emotional exhaustion that special educators face (Sarıçam & Sakız, 2014; Viel-Ruma et al., 2010; Yost, 2006). This is particularly relevant with regard to novice special education teachers, an especially vulnerable group (Billingsley, 2004; Youngs et al., 2011). However, I was only able to locate two studies that addressed TSE with SETCs as a distinct group within traditional TPPs. Though these studies provide a window into the ways in which preparation might serve as a source of TSE, they also highlight the dearth of research regarding this construct with this unique population of teachers (Leyser et al., 2011; Romi & Leyser, 2006).

Teacher Self Efficacy in Special Education Teacher Preparation

Using survey methods, Leyser et al. (2011) and Romi & Leyser (2006) found SETCs' teacher self-efficacy for teaching SWD was related to a number of factors: year of study, special education major, and extent of training or experience with SWD or low-

achieving students. Furthermore, practical experience with individuals with disabilities was associated with higher teaching self-efficacy for teaching low achieving students. In Romi and Leyer's analysis, post hoc tests revealed differences in the relationship between extent of experience and teacher self-efficacy. The difference was significant between pre-service teachers with much experience and those without experience, yet between teacher candidates with some experience and with no experience the difference was not significant.

These studies emphasize the importance of practical experience and training for supporting the development of professionals who feel prepared and able to work with students with disabilities. However, they are limited by several factors. First, the measures used in these studies drew on the Gibson and Dembo (1984) teacher self-efficacy scale; an instrument that researchers have found to have short-comings (Chesnut & Burley, 2015). As an illustration, Tschannen Moran and Woolfolk Hoy (2001) found that items on the general teaching efficacy scale of the Gibson and Dembo (1984) instrument did not consistently load onto the same scale and, in assessments of construct validity, claim that the scale is more a measure of outcome expectancy than self-efficacy. Additionally, because of the complex nature of beliefs, the use of survey research to identify sources of teacher self-efficacy is limited in its explanatory power (Richardson, 1996). Though surveys may provide a space for individuals to report their beliefs, understanding the ways in which beliefs cluster (e.g., across or within content areas) and the sources of those beliefs requires in-depth methods such as interviews.

Applying Teacher Self-Efficacy to the Present Study

Though Romi and Leyser (2006) and Leyser and colleagues (2011) clearly

determine that experience is relevant to developing SETCs' teacher self-efficacy, their findings raise several questions regarding the types of experiences, or the quality of OTL, that support higher teacher self-efficacy for SETCs in traditional TPPs. As proposed in this study, the use of multiple methods would help to answer this question. Furthermore, the measurement issues in these studies are important to note. The present study does not use the Gibson and Dembo scale (1984); based on a review of the literature, used the short form of the *Teachers Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001), a scale that has been tested using varied factor structures with preservice teachers (Duffin, French, & Patrick, 2012).

Hypothesized Associations Between Variables of Interest

Returning to the conceptual model that serves as the framework for this project (see Figure 1), I hypothesize a number of associations between the constructs of interest. According to the literature reviewed, OTL shape SETCs' practice in ways that are distinct from their general education peers. In this study, I fist hypothesize that SETCs will report varying levels of OTL, instructional support, and preparation program coherence across programs. Following this, I conjecture that OTL, instructional support, and program coherence will be associated because they constitute a system of learning. I also hypothesize that candidates' beliefs will be content specific and that their beliefs about inclusion will support the idea of inclusion but question their ability to enact inclusive practice to meet students' needs. Next, I hypothesize that SETCs' perception of the extent of their OTL high leverage practice will be positively associated with their reported teacher self efficacy, low internal attribution beliefs, and high external attribution beliefs. However, given the complex, multifaceted relationships among these

variables, the importance of an individual's prior beliefs and experiences, the ways in which beliefs function in clusters, and the limited number of empirical studies particular to SETCs' belief formation, I remained open to emerging findings across the phases of this project. Appendix A provides a table detailing this process.

Research Questions

In the present study, I address the empirical gaps and methodological needs identified in this review. In developing a picture of SETCs' perceptions of preparation program coherence and their OTL across multiple TPPs, this study contributes to the literature regarding patterns in special education teacher preparation and variability across TPPs (Brownell et al., 2005; Maheady et al., 2014). In exploring associations between the constructs of interest using quantitative and qualitative methods, this study will extend previous research regarding the degree to which special education teacher preparation is a source of SETCs' teacher self-efficacy and beliefs about inclusion and instruction. Finally, by examining SETCs' beliefs about inclusion and beliefs that support inclusion across three specific content areas, this study will contribute to the research regarding how pre-service special education teacher candidates' beliefs are formed. Though the importance of this type of analysis has been proposed in theory (Renzaglia, Hutchins, & Lee, 1997), to my knowledge, a study examining these associations has yet to be completed in special education teacher preparation. Using surveys, interviews, and document analysis as a point of triangulation, I will address the following research questions:

1. What degree of validity evidence supports the use of the *Survey of Special Education Teaching Candidates* as a means of assessing SETCs' perceptions

regarding their opportunities to learn high leverage practice for collaboration and instruction; their perceptions of the degree of conceptual coherence of their preparation programs; their beliefs about inclusion and instruction for students with disabilities (SWD) in reading, writing, and mathematics; and their self-efficacy with regard to teaching SWD? Do the scales included in the instrument function in a reliable manner when administered to SETCs following their student teaching experiences and prior to entering the field?

2. To what extent do SETCs report that their teacher preparation program communicates a clear vision of teaching and learning for students with disabilities?
    a. What program profiles emerge from candidates' perspectives of their teacher preparation program's vision of teaching and learning?
    b. In what ways do candidates perceive their teacher preparation program's vision of teaching and learning has shaped their beliefs about their professional roles and responsibilities?
3. To what extent do SETCs report experiencing opportunities to learn with regard to collaboration and instruction?
    a. To what extent do SETCs' report experiencing support from university supervisors and cooperating teachers in field placements?
    b. To what extent do SETCs report beliefs that are consistent with inclusive instruction and that promote inclusion of SWD in reading, writing, and mathematics?

4. To what degree are SETCs' reported pre-service opportunities to learn high leverage practices for instruction and collaboration and their support from university supervisors and cooperating teachers associated with their beliefs about inclusion, internal and external attribution, instructional practice, and their own teacher self-efficacy with regard to teaching students with disabilities?

CHAPTER 3: METHODOLOGY

This study employs a three-phase sequential mixed explanatory design (QUAN → quan + QUAL → QUAN + QUAL; Teddlie & Tashakkori, 2009) to develop a more comprehensive understanding of the association between the opportunities to learn (OTL) that special education teaching candidates (SETCs) report experiencing in their pre-service programs, their perceptions of instructional support and programmatic vision, and their beliefs about inclusion, instruction for students with disabilities (SWD), and teacher self-efficacy. The success of this study depends on identifying programs and SETC samples that will address these goals; collecting survey, interview, and program data that highlight the experience of SETCs across varied teacher preparation pro6grams (TPPs); and selecting strategies for data analysis that maximize the potential of the data collected in this study. Table 5 provides an overview of the key constructs and how these are measured across data sources. The remainder of this chapter describes the setting and sample selection process, methods, instrumentation, analysis, data integration, and limitations. Each phase is outlined in full, including sampling, data collection, and data analyses, prior to subsequent phases.

Table 5

Key Constructs and Data Sources

Opportunities to Learn (OTL) in Teacher Education Program	**Opportunities to Learn (OTL) in Field Experiences**	**Teacher Preparation Program Coherence**	**Beliefs about Inclusion**	**Beliefs about Instruction**	**Teacher Self Efficacy**
Extent and depth of SETCs' reported opportunities to examine and enact Special Education HLPs	SETCs' reported field placement hours and settings Expertise of university supervisor and cooperating teacher as reported by SETC Support of university supervisor and cooperating teacher during field placement as reported by SETC	Extent to which SETCs perceive a clear vision of teaching and learning across university experiences Extent to which that vision is conceptually coherent across their university experiences Emphasis of coursework with regard to the purpose of special education and the role of special educators	SETCs' extent of agreement with statements about a) how to best meet the needs of SWD, b) the needs of SWD in inclusive settings, and Experiences that contributed to beliefs prior to and during TPP (Nespor, 1987)	SETCs' extent of agreement with statements regarding teaching and learning across content areas: a) internal attribution across content areas, b) external attribution across content areas c) the importance of specialized instruction for students with disabilities d) the mutual advantage of using specialized instructional methods	SETCs' reported feelings of teacher self efficacy with regard to teaching SWD including instruction, engagement, and classroom management Ways in which OTL in university coursework and field experiences serve as sources of teacher self efficacy, as categorized by Bandura's (1997) framework
Data Sources: *All SETC survey items in D1 – D4; SETC interview; program document review (course descriptions and credit hours)*	*Data Sources:* *SETC survey items in E7 (1, 2, 4, and 5) and E9 (1, 2, 3 and 5); program document review (practicum focus and hours of practicum)*	*Data Sources:* *SETC survey items in B1 (1, 2, 3, 4, 5, 6, 8, and 9); SETC interview; program mission statement (as publically available)*	*Data Sources:* *SETC survey items F4 (3 and 4) and F5 (3 and 4); SETC interview*	*Data Sources:* *SETC survey items F1 (1, 2, 6, and 7), F2 (1, 2, 6, and 7), and F3 (1, 2, 6, and 7); SETC interview*	*Data Sources:* *All SETC survey items in C1 (Tschannen-Moran & Woolfolk Hoy, 2001); SETC interview*

Design

In conceptualizing this as a mixed methods study, I built upon Johnson, Onwuegbuzie, and Turner's (2007) definition of mixed methods as research in which researchers use quantitative and qualitative approaches together for the combined purpose of gaining a breadth and depth of knowledge and allowing for corroboration of findings. In using mixed methods to assess a single phenomenon, I was able to address research goals of triangulation, development, and complementarity (Greene, Caracelli, & Graham, 1989).

Through the use of varied data collection methods (i.e., surveys, interviews, and document review), I addressed the inherent weaknesses numeric survey methods and narrative interview data present when used in isolation (Jick, 1979). The use of publicly available program documents offered a point of triangulation regarding the opportunities provided to SETCs through each program, and helped to support claims regarding the preparation program coherence of included TPPs. Also embedded in the design are development goals; analysis in the quantitative phase was used to inform stratified sampling for the qualitative phase such that perspectives did not represent candidates with differing motivation levels (which Leko and Brownell (2011) have found to influence interpretations of their preparation). In the third phase, the meta-inference includes the use of inferences from the quantitative and qualitative data to formulate broad findings. To explain quantitative findings regarding coherence (later determined to be vision), I drew on the narrative interview data and information gathered from publicly available documents in order to provide context and background information; to understand whether patterns evident in qualitative data are represented in the larger

sample, I drew on quantitative analysis (Greene et al., 1989). In this phase, the intent was to elaborate on and then clarify findings from the first two phases of the study. By using large-scale survey data, I was able to generate a descriptive picture of SETCs' pre-service experiences across multiple institutions. In using interview data across sub-sample groups, I was able to better understand and interpret the TPP experiences SETCs report and, through their eyes, examine the influence of their TPP on their development as special educators. The study design is presented in Figure 4. I provide a map of the phases of the project, including data collection and analytic strategies in Appendix B.

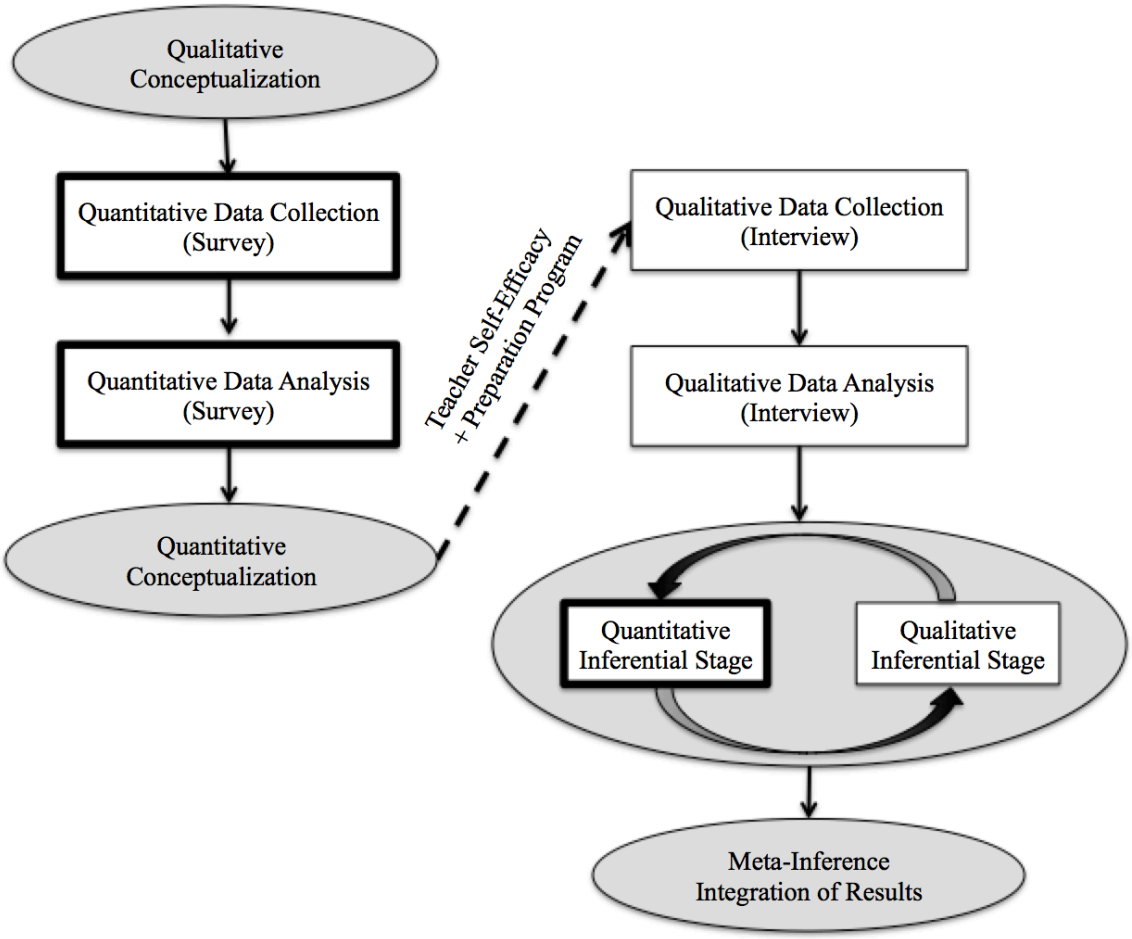

Figure 4. Research design: A sequential mixed explanatory design. Bolded boxes indicate the dominant data source at that stage.

Method

Sample

Research sites. In this study, after obtaining Institutional Review Board approval at all participating institutions, I collected data from SETCs across multiple traditional TPPs in the United States. Because of the focus on describing formal teacher preparation, alternative route, provisional licensure, and residency programs were not considered as sites for data collection. This helped to constrain the sample. I made efforts to draw a balanced sample, paying attention to program context when selecting institutions. Six institutions in the Mid-Atlantic (n = 3), South (n = 1), and Midwest (n = 2) agreed to participate in this study. See Table 6 for participants by site. Appendix C provides relevant information about each preparation program.

Table 6

Research Sites by Teacher Preparation Program

Site	Location	Focus	Surveys		Interviews	
			N	% of Total	N	% of Total
100	Mid-Atlantic	Research Intensive	16	17.58	3	15.79
300	Mid-Atlantic	Teaching Intensive	23	25.27	5	26.32
400	Midwest	Research Intensive	39	34.06	3	15.79
500	South	Research Intensive	8	8.79	3	15.79
600	Mid-Atlantic	Teaching Intensive	7	7.69	3	15.79
700	Midwest	Teaching Intensive	6	6.59	2	10.53

Participants. In phase one, I collected survey data from a purposive sample of SETCs across multiple institutions ($N = 90$; Onwuegbuzie & Collins, 2007). For this study, I used the following criteria in order to select participants that would maximally serve my goals. The following variables were used to determine inclusion. Participants should be a) SETCs, b) attending traditional TPPs c) who have completed their student teaching internship d) but are not yet employed as a full-time teacher. Within these

parameters, this study speaks to the experiences of SETCs graduating from traditional special education TPPs as they cross the boundary between the idealism of teacher preparation and the pragmatism of the first year of teaching. By using a clearly articulated sampling plan, this helped support the analysis of validity and reliability evidence supporting the survey as a measure of SETCs' OTL instruction and collaboration practices, reported instructional support, perceived preparation program coherence, beliefs about students, instruction, inclusion, and teacher self-efficacy (Fowler, 2009). Table 7 includes the characteristics of survey participants.

Table 7

Characteristics of Survey Participants

Characteristic	Number of Participants (n = 90)	%
Preparation Program		
100	16	17.58
300	23	25.27
400	30	34.06
500	8	8.79
600	7	7.69
700	6	6.59
Gender		
Female	83	93.3
Male	6	6.7
No Response	1	1.1
Race/Ethnicity		
White or Caucasian	84	93.3
Black or African American	3	3.3
Asian	3	3.3
Relevant Work Experiences (more than one year)		
Taught SWD in a setting other than a classroom	28	31.1
Instructional aid with SWD in a classroom	9	10.0
Worked with SWD (setting other than a classroom)	47	52.3
Professional position in the field of education	3	3.3
Professional position outside of education	16	17.8
Family Member, Friend, Classmate or Significant Other with a Disability		
Yes	51	56.7
No	39	43.3

Sampling: Interviews. At the conclusion of the survey, SETCs were asked whether they would be willing to participate in the second phase of the project. From this pool, I selected 20 participants based on two variables of interest: teacher self-efficacy and preparation program (i.e., university affiliation). I used the OSTSES data (Tschannen-Moran & Woolfolk-Hoy, 2001) to identify a purposeful stratified sub-sample ($n \geq 5$) at each strata (Onwuegbuzie & Collins, 2007; Patton, 2001); each strata represented SETCs with high-, moderate-, or low- teacher self-efficacy. Interview participants were drawn proportionally across TPPs so as to not privilege the perspective of individuals in one TPP. Using this frame, I created three groups from which I chose participants. Data collection continued until data saturation was evident.

Table 8

Characteristics of Interview Participants

Characteristic	Number of Participants (n = 20)	%
Preparation Program		
100	3	15.0
300	5	25.0
400	4	20.0
500	3	15.0
600	3	15.0
700	2	10.0
Gender		
Female	18	90.0
Male	1	5.0
No Response	1	5.0
Race/Ethnicity		
White or Caucasian	20	100
Black or African American	0	0
Asian	0	0
Family Member, Friend, Classmate or Significant Other with a Disability		
Yes	15	75
No	5	25
Family Member Who Works with Individuals with Disabilities		
Yes	6	30
No	14	70

Data and Measures: Quantitative Phase

During the quantitative phase, analyses examined quantitative relationships among variables and some aspects of the study (i.e., mean teacher self-efficacy score) informed sample selection in the qualitative phase of the study. Quantitative results were used to frame qualitative analysis; these results were also used to respond to or evaluate themes and patterns found in the qualitative data. Finally, results from quantitative analyses were used to frame the integration of data in the third phase of the study.

Instrumentation: Survey. Survey development began in spring of 2016. I used literature from general and special education regarding conceptual coherence, OTL, perceptions of support, and beliefs to compose questions. I also drew from other items used in research in teacher preparation. Beginning in the summer of 2016 and ending in winter of 2017, I conducted three phases of expert review and refinement and cognitive interviews using paper/pencil and online survey administration. After each review or series of cognitive interviews, I made changes to the content and format of the survey in order to better reflect the constructs of interest in this study. Because of the importance of careful survey development to the validity of a survey (*Research Question 1*), these steps are detailed in the first chapter of results.

Constructs measured. The finalized survey addressed the following constructs: a) OTL high leverage practices for special education during pre-service with regard to collaboration and instruction; b) SETCs' beliefs about inclusion; c) SETCs' beliefs about internal attribution; d) SETCs' beliefs about external attribution; e) SETCs' beliefs about specialized instruction; f) SETCs' beliefs about inclusive practice; g) SETCs' perceptions of preparation program coherence; and h) SETCs' perceptions of support from university

supervisors and cooperating teachers, and i) SETCs' individual teacher self-efficacy for teaching SWD. A copy of the instrument can be found in the attachment to this submission.

Constructs measured: Opportunities to learn. On the survey, SETCs were asked to report the extent of their OTL the high leverage practices for special education collaboration and instruction during their pre-service training (McLeskey et al., 2017). Response categories were spread across a five-point ordinal scale labeled: none, touched on it briefly, spent time discussing it, spent time discussing ***and*** doing it, extensive opportunity to practice and receive feedback. Using this scale, participants responded to each item by indicating the extent of their opportunity to learn practices for collaboration and instruction for special education. The survey contained 22 items regarding high leverage practices for instruction and seven items regarding high leverage practices for collaboration. Sample items are included below in Figure 5.

D4. Up to this point in your teacher education program how much opportunity have you had to learn about the following topics?

Darken one circle on each line.	None	Touched on it briefly	Spent time discussing it	Spent time discussing ***and*** doing it	Extensive opportunity to practice and receive feedback
Breaking down complex skills and strategies into smaller instructional units	O	O	O	O	O
Explicitly modeling skills and strategies	O	O	O	O	O
Using think-alouds to clarify the decision-making processes necessary to complete a task or procedure	O	O	O	O	O
Providing students with examples and non-examples of when skills or strategies would be used or applied	O	O	O	O	O
Providing opportunities for students to engage in guided practice	O	O	O	O	O
Planning for frequent and varied opportunities for students to respond during instruction	O	O	O	O	O
Providing immediate feedback during instruction	O	O	O	O	O
Providing opportunities for students to engage in independent practice	O	O	O	O	O

Figure 5. Sample opportunities to learn items.

Considering previous research on SETCs' opportunities to learn and the ways in which they access information regarding professional practice (Bishop et al., 2010; Leko & Brownell, 2011), I included a number of items to collet data with regard to SETCs' experiences in their field placements. These items probe the amount of time they spent in field placements working with students in general and special education populations, the settings in which they worked (e.g., self-contained, residential, community-based), their beliefs about their university supervisor and cooperating teacher, the number of observations they had throughout their student teaching, and the consistency of the messages they received from their university supervisor and their cooperating teacher regarding teaching and learning for students with disabilities. Sample items are included in Figure 6.

E1. Prior to student teaching, how much time will you have spent in classroom(s) as part of field experience (i.e., not student teaching or culminating internship experience) focusing on educational experiences specifically for students with disabilities in your preparation program?

Mark only one			
None	O	Between 61and 90 hours	O
Between 1 and 6 hours	O	Between 91 and 120 hours	O
Between 6 and 12 hours	O	Between 121 and 150 hours	O
Between 13 and 30 hours	O	Between 151 and 180 hours	O
Between 31 and 60 hours	O	Other *(please specify)*: _____	O

E7. To what extent do the following statements describe the supervisor* you had during your student teaching/internship? ****Your supervisor is the individual associated with your preparation program who is responsible for overseeing your student teaching/internship. If you have had more than one supervisor, refer to your most influential supervisor. If you did not have a supervisor, mark "Not Applicable" (N/A).***

Darken one circle on each line	Strongly disagree	Disagree	Agree	Strongly agree	N/A
My supervisor gave me useful feedback on my teaching	O	O	O	O	O
My supervisor provided feedback that was aligned with the theories and practices advocated in my methods courses	O	O	O	O	O
My supervisor and cooperating teacher held similar ideas about teaching and learning	O	O	O	O	O
My supervisor understood the needs of students with disabilities	O	O	O	O	O
My supervisor had experience as a special education teacher	O	O	O	O	O

Figure 6. Sample opportunities to learn in field placements items.

Constructs measured: Preparation program coherence. The survey included eight items regarding SETCs' perceptions of coherence in their TPP (after analysis, this was revised to indicate clarity of vision). I asked participants to indicate the extent of their agreement with statements about the programmatic vision and the ways in which that vision was consistent across coursework on a four-point categorical scale (i.e., strongly disagree, disagree, agree, strongly agree. Several of these items, though not exact replications, are drawn from other surveys used in research on coherence in teacher preparation (Hammerness & Klette, 2015; Jones, Youngs, & Frank, 2013).

Constructs measured: Beliefs. In order to probe SETCs' beliefs about student achievement, instructional practice across content areas, and inclusion, I asked participants to indicate the extent of their agreement with several belief statements on a four-point categorical scale (i.e., strongly disagree, disagree, agree, strongly agree). Analysis for this project included four items regarding beliefs about inclusion, four related to beliefs about student achievement in and instruction for SWD in mathematics, four related to beliefs about student achievement in and instruction for SWD in reading, and four related to beliefs about student achievement in and instruction for SWD in writing. Several of these items were drawn from other survey work in special education and teacher preparation (e.g., Jones et al., 2013; Katz, Miller, & Youngs, forthcoming). Across content areas (i.e., mathematics, reading, and writing) I designed parallel questions across content areas focusing on a) internal attribution, b) external attribution, c) specialized instruction, and d) mutually advantageous instructional practices (i.e., the extent to which candidates believed instructional methods that support students with disabilities were supportive of students without disabilities). In mixed methods studies of

beliefs and practice, researchers have identified each of these areas as influential in teachers' classroom practice for students with disabilities (Urbach et al., 2015; Vaughn, Moody, & Schumm, 1996). Sample items are included in Figure 7.

F4. To what extent do you agree with each of the following statements?

Darken one circle on each line	Strongly disagree	Disagree	Agree	Strongly agree
Students with disabilities require evidence-based interventions that specifically address their IEP goals and objectives	○	○	○	○
Direct special education services are necessary to help students with disabilities make progress	○	○	○	○
I can best meet students' academic needs in the context of a general education, co-taught, or inclusive classroom	○	○	○	○
I can best meet students' social-behavioral needs in the context of a general education, co-taught, or inclusive classroom	○	○	○	○
I base my success as a special education teacher on the performance of individual students, rather than on the performance of an entire group/class	○	○	○	○

Figure 7. Sample beliefs items.

Constructs measured: Teacher self-efficacy. The survey also included the short form of Tschannen-Moran and Woolfolk-Hoy's *Ohio State Teachers' Sense of Efficacy Scale* (OSTSES; 2001). Each item asked respondents to indicate their perceived capability with regard to 12 items on a scale of one to nine. Items included questions such as, "How much can you do to control disruptive behavior in the classrooms?" and "To what extent can you craft good questions for your students?" The OSTSES has undergone rigorous assessment and it is considered by many to be the most valid and reliable measure of teacher self-efficacy to date (Chesnut & Burley, 2015; Klassen et al., 2011; Tschannen-Moran & Woolfolk-Hoy, 2001). On the short form of this scale, each subscale consists of four items; researchers have found each subscale to have strong internal consistency when tested with inservice teachers: instruction ($\propto = .86$) management ($\propto =, .86$) and engagement ($\propto = .81$) For preservice teachers, there is a less distinguished factor structure, suggesting that one factor might be optimal for use with this population; however, in a comparative analysis of factor structure Duffin and

colleagues (2012) found the three factor structure to be acceptable for candidates who had completed student teaching. Additionally, validity assessments reveal that the long form of the OSTSES is positively correlated to other commonly used measures of teacher self-efficacy (i.e., scales used by Armor et al., 1976; Gibson & Dembo, 1984). The authors report strong intercorrelations between the long form and the short form of this scale (0.95 – 0.98), providing further evidence for its use within this study (Tschannen-Moran & Woolfolk Hoy, 2001). Regardless, they suggest that researchers conduct factor analyses when using the TSES with any population to determine the appropriate factor structure.

Teacher characteristics. Given the importance of individuals' characteristics and experiences prior to entering the TPP, the survey also asked several questions regarding background experiences and other characteristics of importance. This included items about their high school and undergraduate GPA, their education prior to entering the TPP, and their parents' level of education. Because of the importance of prior experiences such as having a family member or close friend with a disability in selecting in to special education (Zhang et al., 2014), the survey also included a set of items regarding their experiences working with individuals with disabilities prior to entering their TPP and whether they have a close relationship with an individual with a disability. Finally, the survey included one open-ended item that provided a space for individuals to describe their experiences with individuals with disabilities prior to entering their teacher preparation program. These data are collected but not applied in this analysis beyond sample description.

Data collection: Survey. Using a multiple-contact approach (as permitted by TPPs) I achieved a 61% response rate; across programs this ranged from a 33.3% response rate to an 88.9% response rate (100 = 88.9%; 300 = 82.1%; 400 = 57.4%; 500 = 33.3%; 600 = 50%; 700 = 54.5%). The participating TPPs sent survey contacts to eligible SETCs at four points between April and August of 2017. To improve response rate after the initial contacts, paper surveys were delivered through the U.S. mail. Even after receiving these surveys, all participants completed the survey online. Each participant received a $25 gift card for completing each survey and, if they chose to, an additional $25 for participating in each interview.

Analytic Strategies: Quantitative Phase

Following the first phase of data collection, I conducted a series of analyses to explore associations between SETCs' self-reported OTL, instructional support, preparation program coherence, beliefs, and teacher self-efficacy: a) confirmatory factor analyses were used to assess the factor structure of the *Survey of Special Education Teaching Candidates*; b) descriptive statistics including means, standard deviations, and frequency counts to understand candidates' perspectives and beliefs; c) associations between reported opportunities to learn and beliefs about students, instruction, and their inclusion; and c) rank based non-parametric tests of OTL, beliefs about inclusion and instruction, and teacher self-efficacy were used to compare groups of SETCs across variables of interest.

Reliability analyses. To extend the validity and reliability evidence, I specified a confirmatory factor analysis (CFA) to test a measurement model for the scales included in the *Survey of Special Education Teaching Candidates* (i.e., OTL: collaboration high

leverage practices; OTL: instruction high leverage practices; preparation program coherence; support; and teacher self-efficacy). Given that I designed the instrument with the goal of assessing several specific constructs drawn from contemporary policy documents in special education (McLeskey et al., 2017) and established instruments (Tschannen-Moran & Woolfolk Hoy, 2001), the use of CFA as opposed to more exploratory analytic methods was appropriate for the present project. The purpose of testing the measurement model was to ascertain the extent to which the items included in the analyses represented an underlying construct and to evaluate a priori hypotheses about the scales included in the instrument. Combined with the validity evidence from the expert review and piloting of the instrument, these analyses would provide reliability evidence for each scale on the survey (*Research Question 1)* and support further development and refinement of the scales included in the instrument (Russell, 2002).

Data screening. Following data collection, all data were screened for missing values, unengaged responses, and to assess the assumptions of the tests to be used. Inspection revealed no missing values and no evidence of unengaged responses; however, two participants responded "not applicable" to each of the items included in the scale addressing support through university supervisors and cooperating teachers. In follow-up contacts, these participants reported that they did not have a university supervisor or cooperating teacher in their student teaching placements and, therefore, could not respond to these items. Thus, the sample size for the validity and reliability evidence *(Research Question1; n* = 88) differed slightly from the sample size for most other analyses conducted as a part of this project.

Data screening and design analysis also revealed that the scales violated the assumptions of confirmatory factor analysis: univariate and multivariate normality, sufficient sample size (n > 200), and use of a random sample. All indicators were ordinal in nature and therefore violated the assumptions of normality. As noted above, the sample size for this analysis was underpowered, thus the assumption of sample size was also violated. Finally, the sample consisted entirely of volunteers. Therefore the assumption of a random sample was also violated. Given these issues with the test, all results should be considered preliminary (Hancock, Mueller, & Stapleton, 2010).

Model fit. Model fit was assessed using Amos software (AMOS; Arbuckle, 2014). As suggested by several methodologists (e.g., Hu & Bentler, 1999; Jackson, Gillaspy, & Purc-Stephenson, 2009), I assessed model fit using a multiple index strategy (Hu & Bentler, 1999). I included the following indices in my analyses: chi-squared goodness-of-fit along with the corresponding *p*-value and degrees of freedom, the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the root mean squared residual (SRMR). Because the chi-squared goodness-of-fit index tends to be positively biased when used with a small sample, it was necessary to consider this index with reference to the other fit indices included in the model. I elected to use the CFI as opposed to the Tucker-Lewis index because it is robust to the error inherent in small samples and, when used in correspondence with other fit indices, is better able to accurately specify models regardless of sample size (Hu & Bentler, 1999; Kline, 1998). Following the guidelines articulated by Hu and Bentler (1999), where CFI > 0.90, RMSEA <.08, and SRMR < 0.08 indicates acceptable fit, I assessed fit for the models included in this analysis. Items with significant standardized factor loadings greater than

.4 were retained. When chi-squared statistics were significant, I used the other fit indices to specify the model recognizing the influence of sample size on this statistic. Additionally, modification indices informed post-hoc model adjustments. When a model was specified and fit was determined to be at least adequate, I calculated factor reliability using the formula put forth by Hair, Black, Babin, & Anderson (2010).

Factor reliability and internal consistency. To evaluate the internal consistency of the various subscales, I used a combination of factor reliability and Cronbach's alpha coefficients (Cronbach, 1951). For scales in which model fit was determined to be acceptable, I calculated factor reliability as opposed to internal consistency (Hair et al., 2010). This included the scales for a) preparation program coherence, b) opportunities to learn high leverage practice for collaboration, c) opportunities to learn high leverage practice for instruction, d) opportunities to learn explicit instruction, e) instructional support from university supervisors and cooperating teachers, and e) teacher self-efficacy. For scales in which model fit was not achieved through CFA—following assurance that the items met the assumptions of unidimensionality (Tavakol & Dennick, 2011)—I used SPSS (IBM Corp, 2013) to calculate the Cronbach's alpha coefficient, item-total correlations, or alpha if the item was deleted to develop the scale and assess the internal consistency.

Descriptive analyses. Following the collection of survey data, I used frequency counts to determine the extent to which SETCs in the total sample reported that their preparation program exhibited conceptual coherence, their perceived opportunities to learn high leverage practices for instruction (e.g., scaffold instruction) and for collaboration (e.g., facilitate effective meetings), their perceptions of coherence and

instructional support; and their beliefs about student ability, instructional practice, and inclusion. I looked for trends and patterns across the data and identified any items that were inconsistent with other similar items.

Additionally, using the latent constructs identified through the CFA and reliability analyses, I constructed composite scores using the results of the factor analysis to select items that would contribute to the scores: two composites addressing collaborative HLPs and two addressing instructional HLPs. Using the same process, I constructed scales for preparation program composites for conceptual coherence, support, teacher-self-efficacy, and each belief construct. To reflect SETCs' average experience, I calculated the mean of included items for each composite. Using these composites, I calculated descriptive statistics (i.e., mean, median, mode, and standard deviation) to examine the extent of OTL, clarity of vision, support, teacher self-efficacy, and beliefs. In my analyses, I used means and standard deviations for these composite scores to describe SETCs' perceptions of clarity of vision in their preparation program (*Research Question 2)*; the extent of their perceived OTL within their preparation experiences (*Research Question 3a*); their perceptions of instructional support (*Research Question* 3b); their beliefs attribution, instructional practice, and inclusion (*Research Question 3c*). These composites were reported at the program level and at the program profile level to look for trends.

Associations. Spearman's rank-order correlations were run to assess the association between SETCs' reported OTL, support, and clarity of vision and their beliefs about attribution, instructional practice, instruction in inclusive settings, and their own teacher self-efficacy (*Research Question 4)*. Analyses included evaluation of the association between OTL high leverage practices for collaboration, instruction, and

explicit instruction (using the composite scores) and beliefs composites (i.e., internal attribution, external attribution, specialized instruction, mutually advantageous instruction, and inclusive instruction). Based on visual inspection of scatterplots, the relationships between variables appeared to be monotonic so these data met the assumptions necessary for this analysis.

Group differences. I conducted non-parametric tests (Kruskal-Wallis H and Mann Whitney U) to identify differences across ordinal and categorical variables of interest in the study (i.e., variables relevant to preparation programs and teacher self efficacy). These tests are considered robust to outliers, non-normality, and unequal groups so they fit the purpose of this analysis (Field, 2009). I used these tests to examine differences in SETCs' reported OTL collaborative and instructional practice and differences in their beliefs about student ability, instructional practice, and inclusion. Because distributions were skewed across the data, the mean rank was used as a point of comparison for each group instead of the median. I used the Kruskal-Wallis test across qualitatively-developed program profiles to examine differences in perceived OTL and beliefs (*Research Question 3 and 4).* A series of three Mann Whitney tests were used to determine the differences between reported experiences in program profiles; no post hoc adjustments applied because the number of contrasts did not exceed the number of groups (Keselman, Games, & Rogam, 1979).

Data and Measures: Qualitative Phase

During the second phase, I interviewed a purposive subsample of SETCs across institutions. Analysis used a combination of inductive and deductive codes. Finally,

results from the qualitative phase were used to respond to quantitative claims in order to develop integrated findings.

Instrumentation: Interviews. Two sources informed the development of the semi-structured interview protocol: the literature review conducted in preparation for this study and preliminary analyses of quantitative data (descriptive analyses). I began interviews by probing SETCs' experiences with individuals with disabilities prior to entering their TPP as a way to understand their intrinsic motivations for entering special education. The interview then addressed the ways in which SETCs believed their preparation program provided them with access to OTL high leverage practices for instruction and collaboration and how these OTL influenced their teacher self-efficacy. Additionally, the interviews probed SETCs' beliefs about inclusion and instruction in special education and the extent to which experiences in pre-service served to form or shape those beliefs. Preparation program coherence was also addressed with regard to the ways in which programmatic and individual experiences were associated with these outcomes. In order to refine interview questions, I consulted with experts in qualitative methodology at the University of Virginia in the spring and again in the summer of 2017.

Data Collection: Interviews. In August of 2017, I conducted 20 in-depth semi-structured interviews over video-conference and phone calls. The semi-structured format allowed for an efficient use of time, but also included opportunities for follow up questions as needed. Interviews lasted between 55 and 90 minutes and were recorded and transcribed for analysis. Following each interview, I completed a structured analytic memo following Miles, Huberman, and Saldana's guidelines (2014) in which I noted ways in which the participant's responses correspond to my research questions; the extent

to which their responses did or did not corroborate their survey responses; emerging patterns, categories, themes, concepts, and assertions; and thoughts regarding possible codes. The interview protocol is included in Appendix D.

Analytic Strategies: Qualitative Phase

All interviews were transcribed and uploaded to Dedoose (Dedoose Version 7.0.23, 2016) for coding and analysis. Each transcript was tagged using the descriptor function to link it to the variables of importance: level of teacher self-efficacy (low, moderate, or high) and institutional context. Analysis consisted of four phases: establishing a coding scheme through a combination of inductive and deductive codes, identifying patterns in the data using visualization plots in Dedoose (2016), developing assertions through the use of analytic memos and data matrices, and searching for disconfirming evidence.

Establishing codes. Analysis consisted of a combination of deductive and inductive codes to analyze data. First, structure codes were developed deductively from the literature review and were used as a way to categorize data by construct (e.g., coherence, opportunities to learn, beliefs). Next, drawing on the excerpts within each structure code from this first phase of analysis, I used open, axial, and selective coding to generate categories, subthemes, and themes regarding each structure code: opportunities to learn, vision of preparation program, beliefs, role of special education teachers, and teacher self-efficacy. To develop a coding scheme that reflected the meaning found within the data, I began by reading through the transcripts of the twenty interviews and the corresponding memos generated during data collection. To ensure that my analysis would capture an emic perspective, I read line-by-line and labeled excerpts with process

(or gerund) codes (Charmaz & Keller, 2016) and *in vivo* codes drawing on SETCs' own words (Marshall & Rossman, 2014). Then, these individual codes were gradually combined into defined codes and themes that represented the experience found within the data. Using a constant comparative approach in the analytic phase, I generated and defined the more precise inductive codes within each construct that would be used in analysis (Glaser & Holton, 2007).

As an illustration, in some interviews SETCs discussed their teacher preparation program's perspective of the role of a special educator role as "coming alongside" students with disabilities. Excerpts in which SETCs explained that special educators should come alongside students or their colleagues were initially given the code "coming alongside." This was eventually combined into the process code "supporting." Through this process, I developed a coding scheme that reflected the data more accurately that the initial structure codes; these refined codes aided in my data analysis as I looked for relationships across and within codes. I recoded all data using this new coding scheme, applying these more precise codes. A section of the codebook and screenshots from analyses in Dedoose are included in Appendix E.

Identifying patterns. Following coding, I used data plots generated through Dedoose (2016) to understand the codes that were most relevant to my research questions. To generate an understanding of the perceived vision of special education within each preparation program (*Research Question 2a)*, I used bubble plots to examine how certain codes were present within teacher preparation program. Beneath the parent code "preparation program beliefs about role," I examined the ways in which the codes about special educators' role sorted the data. On these plots, three codes discriminated

between preparation programs: provide explicit instruction, provide strategies, and provide support.

Though integral to my second research question, these codes would be integral to the analysis of survey data for questions three, four, and five when I integrated qualitative and quantitative data. Using these plots, it was evident that within programs each candidate reported the same TPP vision across these three codes: explicit instruction, general strategy instruction, and support. In generating the program profiles, every candidate in a program had to report a similar belief about TPP vision and that had to be consistent with what they spoke about at the program level throughout their interview. Frequency counts are not reported because of the semi-structured nature of the protocol; some candidates spoke at greater length about their experiences than others. In other words, when developing the program profile for program 500, each candidate reported the same vision. Candidates in TPP 300 reported the same vision. Candidates in other programs (i.e., 100, 400, 600, and 700) did not report that explicit instruction was their program's vision of effective teaching and learning.

To understand the extent and nature of SETCs' opportunities to learn and beliefs (*Research Questions 3 and 4*), I used code co-occurrence tables to determine the codes that were most and least applied and the ways in which various codes were applied simultaneously. For example, I examined the extent to which the codes for Opportunities to Learn Instructional Practice and Opportunities to Learn Inclusion and Collaboration were applied with the sub-codes for modeling, feedback, and resources. To distinctions in vision across program profile, I used code tables sorted by profile to group data for analysis.

Development of data matrices. After using the data plots described above to examine the prevalence of and relationships between codes across preparation program and level of teacher self-efficacy, I reviewed the coded data and constructed analytic memos in order to reduce to the data to case-by-case assertions. Finally, I sorted these assertions into cross-case data matrices to compare and contrast themes within and across groups (i.e., preparation program and program profile; Miles et al., 2014). Data matrices allowed me to look at the ways in which themes diverged or converged within and across programs. Using these data displays helped me to develop qualitative assertions regarding SETCs' perceptions of their teacher preparation program's vision regarding the role of a special educator. Example data matrices are included in Appendix F.

Disconfirming evidence. After developing assertions, I reviewed transcripts to check for disconfirming evidence. Following the development of qualitative assertions, I reread the corresponding interviews, and added to my analytic memos in order to organize any evidence that was inconsistent with the broader assertion. Survey data was used to help understand the perceived OTL and beliefs of particular cases.

Analytic Strategies: Data Integration

Using a sequential explanatory design, quantitative findings were marshaled to inform the organization and use of qualitative assertions, and qualitative data were used as a way to further quantitative analysis (Ivankova, Creswell, & Stick, 2006). Complementary data were used to clarify and elaborate on initial results and assertions regarding SETCs' experiences. Research questions two, three, and four required analysis informed by both quantitative and qualitative data. Not all questions followed a strict QUAN → QUAL sequence; for each question, I used data in different ways. These

analytical decisions were identified above within the separate quantitative and qualitative stages; below, I describe how they were used in in the final stage of analysis as a complement to each other. Figure 8 provides a graphic depiction of this process across questions.

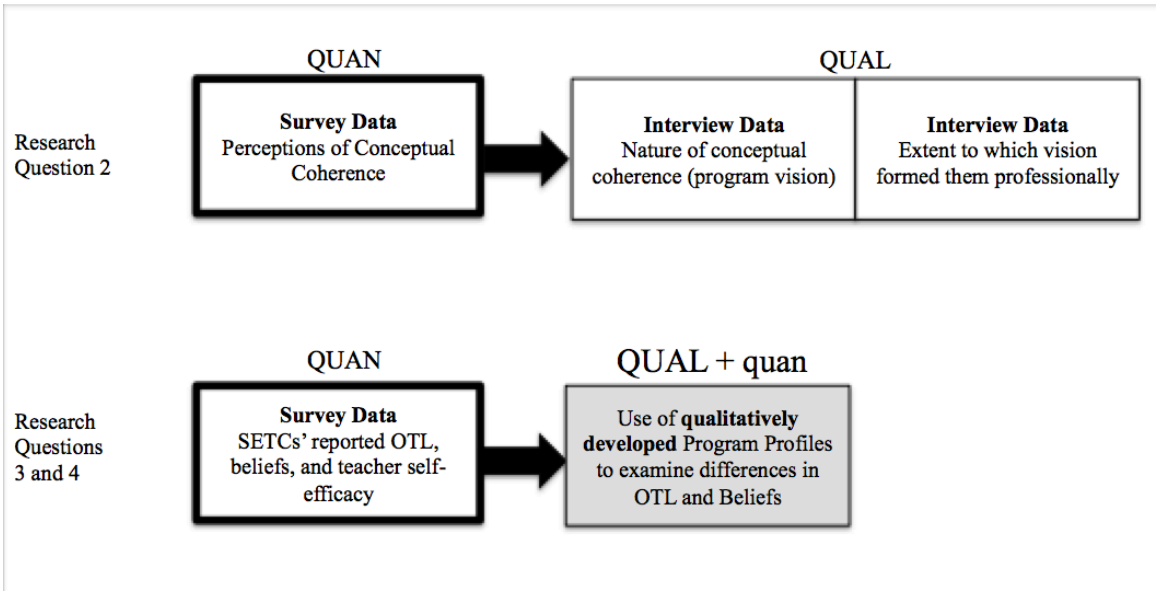

Figure 8. Data integration. This figure illustrates the ways that quantitative (QUAN/quan) and qualitative (QUAL/qual) data were integrated in the study. Upper case letters (QUAN or QUAL) indicate this was the primary data and analytic strategy for that analysis; lower case letters (quan or qual) indicate this was the secondary data and analytic strategy for that analysis. A grey box indicates both types of data were used.

Perceptions of conceptual coherence: QUAN → QUAL. I began data integration when conducting the analysis regarding SETCs' perceptions of conceptual coherence in their preparation experiences (*Research Question 2*). For this question, I analyzed survey data first to determine whether there were descriptive patterns or trends in the data that required further analysis (*Research question 2;* QUAN); I then used interview data to better understand the nature of the conceptual coherence SETCs

perceived in their experiences (*Research Question 2a;* QUAL). Qualitative data were eventually reduced to three program profiles and these were used in subsequent analyses. Qualitative analysis was also used to assess the extent to which candidates reported that their beliefs were formed by their experience (*Research Question 2b*; QUAL).

Opportunities to learn, instructional support, and beliefs across programs: QUAN → qual + QUAN. Next, I answered questions addressing the extent and associations between OTL and beliefs (*Research Questions 3 and 4)*. I began by using survey data to look for patterns in the whole sample for each item; then I used composite scores for OTL high leverage collaborative practice, OTL high leverage instructional practice, OTL explicit instruction, perceptions of instructional support, and SETCs' beliefs to describe SETCs' learning experiences across TPPs (QUAN). Additionally, I analyzed differences in these same composites across the program profiles developed in the previous qualitative analysis (qual + QUAN).

Triangulation: Publically Available Documents

Data collection: Documents. In order to triangulate the self-report data regarding OTL and program coherence collected through surveys and interviews, I gathered a number of program documents (Patton, 2001). This included publicly available documents such as program descriptions and mission/vision; course sequences and credit hours; and the frequency, duration, and allocation of field experiences as described in field placement or internship handbooks available online. These documents provide a baseline of the programmatic perspective (Boyd, Lankford et al., 2008) and contextual information regarding the program (Bowen, 2009). Information from program documents

was entered into a spreadsheet that was then used to assess the consistency of SETCs' reported OTL and other experiences in the field (Boyd, Lankford et al., 2008).

Analytic strategies: Documents. I analyzed course sequences, field experiences, and credit hours to ascertain the program expectations—to "set the floor" (Preston, 2016, p. 2)—and to establish the requirements of each program. This is purely for purposes of triangulation. Using the common template, I compared these data to each quantitative finding and qualitative assertions to search for confirming and disconfirming evidence. Appendix C provides information about the courses within each program as well as the mission and vision (either stated or inferred) from publically available documents. These data were important in assessing the accuracy of SETCs' claims about the prevalence of certain OTL and their TPPs' vision and mission. Even more so, this point of triangulation served as a way to highlight the difference between how TPPs present themselves and how the learners within the studied preparation programs perceive their experience.

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CHAPTER 4: DEVELOPMENT OF THE SURVEY OF SPECIAL EDUCATION TEACHING CANDIDATES

The goal of the present analysis is to investigate the empirical properties of the scales included in the *Survey of Special Education Teaching Candidates* when administered to special education teacher candidates (SECTs) following their student teaching in special education. In particular, I examine the development, factor structure, and internal consistency of the scales included in the instrument. This will help me to understand how the scales operate for this population and will enable me to generate a more refined depiction of SETCs' perspectives regarding their preparation experiences. In subsequent analyses within this project, these results will support a more robust understanding of the ways that the constructs examined through this instrument are related to SETCs' opportunities to learn (OTL) high leverage practices for special education within their teacher preparation program (TPP). By focusing on high leverage practices (HLPs), I will be able to look for patterns in SETCs' exposure to and engagement with the practices the field of special education deems foundational for developing special educators (i.e., high leverage practices). Additionally, this will allow me to explore candidates' development of teacher-self efficacy and beliefs that are related to effective and productive instruction for students with disabilities (Leko & Brownell, 2011).

In this section, I focus my analyses on the following research questions:

- What degree of validity evidence supports the use of the *Survey of Special*

- *Education Teaching Candidates* as a means of assessing SETCs' perceptions regarding their opportunities to learn high leverage practice for collaboration and instruction; their perceptions of the degree of conceptual coherence of their preparation programs; their beliefs about inclusion and instruction for students with disabilities (SWD) in reading, writing, and mathematics; and their self-efficacy with regard to teaching SWD?
- Do the scales included in the instrument function in a reliable manner when administered to SETCs following their student teaching experiences and prior to entering the field?

I begin with a review of the process through which I developed the scales included in the survey instrument and then discuss the decisions applied in exploring evidence of their content validity. Next, using confirmatory factor analysis (CFA), I describe the models used to inform the scales for other analyses included in this project. After this, I report the internal consistency of each of these scales to provide further evidence of their reliability for use with SETCs at this point in their career. I conclude this section with a discussion of the ways that these findings contribute to the development of the individual scales, help the teacher education community consider how we conceptualize and measure aspects of candidates' preparation experiences, and what was surprising in this phase of analysis.

Results

I used several methods to provide reliability and validity evidence for the subscales included in the *Survey of Special Education Teaching Candidates*. To support the content validity of the included scales, I engaged in several rounds of expert review

and piloting with the population of interest prior to data collection (i.e., SETCs). After finalizing the measure and collecting data from 90 participants, a CFA served as one source of reliability evidence (Kline, 1998). In using CFA, I was able to assess model fit for the scales included in this instrument. I examined the factor reliability for the items included in each scale to provide evidence regarding reliability. Finally, when evaluating the belief scales, I used internal consistency measures and considered item-total correlations and the corresponding alpha if items were deleted. Because of limitations due to sample size, all results are considered preliminary and should be interpreted as such (MacCallum, Widaman, Zhang, & Hong, 1999).

Expert Review and Piloting of the Scales

The scales included in the *Survey of Special Education Teaching Candidates* underwent extensive review and piloting prior to administration. This process was instrumental in ascertaining the extent to which the instrument could effectively measure the constructs included in the study. Three phases of expert review and piloting were conducted in an iterative fashion to design and evaluate the scales. These phases and changes are described below. Table 9 shows the questions addressed in each phase.

Table 9

Expert Review Questions

Topic	Prompts for Expert Review and Cognitive Interviews	Phase
Overall Content	Do you feel that this content is relevant to the constructs examined? Are there any key concepts that you think I should omit/include?	1, 2
Scales	Do you think the scales I included capture these constructs? Are there any scales that you believe might be incomplete or insufficiently powerful?	1, 2
Wording	Are the items clearly worded? Are there any words or phrases that might be confusing, misleading, biased, or double-barreled?	1, 2, 3
Response Categories	Do the response categories capture the full range of responses that participants might want to select? Are there any response options that you think are biased or unbalanced?	1, 2
Formatting	Is the formatting professional? Does the formatting help you	2, 3

	move through the survey easily? Is the formatting consistent throughout the survey?	
Survey Length	I know the survey is probably too long. Do you have any suggestions for shortening it?	1, 2

Phase one. In the summer of 2016, I developed a pool of items to include in the survey. Initially I drew on items included in other scholarly work in general education (Cavanna et al., 2018) and emerging documents in special education that detailed a list of 22 HLPs for special education (McLeskey et al., 2017). I had two experts in teacher preparation review the proposed survey and provide feedback. From their review, I decided to adjust the measure to include items that had been used specifically in special education research (Bettini et al., 2016; Jones et al., 2013) and to include a valid and reliable outcome measure for assessing teacher self-efficacy as opposed to items I had constructed. The Ohio State Teachers' Sense of Efficacy Scale: Short Form was added to the instrument as an outcome measure of importance (OSTES; Tschannen-Moran & Woolfolk Hoy, 2001).

During cognitive interviews at this stage, respondents were informed of the constructs I intended to study through the instrument (i.e., opportunities to learn HLPs for special education; conceptual coherence of teacher preparation programs; teacher self-efficacy; and beliefs relevant to inclusive practice). As they completed the survey, they were asked to think aloud as they processed the questions and response categories. Following this round of cognitive interviews, the belief items were broken out to address beliefs about internal and external attribution, instruction, and inclusion across three content areas. In this vein, one major addition to the survey was a separate block for writing instruction; previously the survey had only addressed English language arts broadly and mathematics. Considering that some students have disabilities that impact their written communication but not other aspects of literacy, this change was important

to consider. Other changes were minor and primarily addressed the wording of items to increase specificity and decrease respondent confusion. Several double-barreled items were broken into two (e.g., "collaboration with related service providers and instructional assistants" was broken into two separate items).

Phase two. Following these changes, the survey underwent another cycle of review and evaluation. After making the changes described above, I conducted three cognitive interviews. Following these interviews, I asked three experts in special education and teacher preparation to review the survey for the purpose of more adequately addressing the constructs included and then consulted with them by sharing my observations from cognitive interviews. First, I dropped two sections of the survey: OTL assessment practices and OTL social behavioral practices. In doing this, I hoped to focus the collected data on collaborative and instructional practice and to decrease respondent fatigue. Additionally, each of the OTL items was examined to assess grain size and the extent to which the item clearly reflected the essential content of a given HLP. Based on expert review, I decided to expand the item "Use explicit instruction" into eight items; these items drew on literature in the field that clearly defined the practices SETCs might be exposed to in learning how to teach SWD (Archer & Hughes, 2011; Hughes et al., 2017). I also added items to the section on preparation program coherence to address the potential lack of consistency across general and special education coursework.

Across expert review and piloting, this phase of the review also pointed to the need to refine the survey such that the instructions, items, and response categories reflected the construct of OTL. First, the response categories were changed to a five-

point ordinal scale instead of a categorical scale. The original response categories for OTL were designed to have respondents select any number of ways through which they were exposed to a practice (e.g., video, case study, reading), which was more akin to measurement of the pedagogies employed to teach SETCs than the extent of their OTL (Grossman et al., 2009). Though this constrained the instrument, I elected to make this adjustment in order to improve the content validity of the survey. To create an ordinal response pattern, the response categories used with the OTL items were designed to distinguish across five categories: category one (none), category two (touched on it briefly), category three (spent time discussing it), category four (spent time discussing and doing it), and category five (extensive opportunity to practice and receive feedback).

Phase three. The third phase of review included two cognitive interviews with SETCs focused on the formatting of the online survey instrument and an online trial of the instrument with peers. While phases one and two focused on refining the items and response categories, I concentrated my attention in phase three on translating the measure to an online format. Several changes to instructions and formatting were made to facilitate accuracy in responding. First, in the fifth response category for the OTL items, the words **receive feedback** were underlined and bolded. The intent of this change was to focus respondents' attention on the distinction between categories three and four. Second, when asking about cooperating teachers, qualifiers were separated out in the directions. This was necessary to help respondents who had both a special and general education cooperating teacher respond while addressing their perceptions of their special education cooperating teachers.

Measurement Model: Conceptual Coherence, Support, OTL, and TSE Scales

This section describes the process of assessing model fit for the scales included in this project. Each scale was evaluated separately in this phase of analysis. I tested the following hypotheses in this phase of analysis. I hypothesized that conceptual coherence would consist of a single factor with nine items included, the support construct would consist of two correlated factors, each OTL construct would consist of a single factor (i.e., a single factor for collaboration, instruction, and explicit instruction), and the OSTES scale would consist of three factors. I also hypothesized that the belief scales for internal attribution, external attribution, mutually advantageous instruction, specialized instruction, and inclusive instruction would represent four moderately correlated constructs. After testing the model fit, these scales were used to construct composites for use in the remainder of the dissertation (though some exceptions are noted in subsequent text). Rank order correlations between all of the scales developed for this study are provided in Appendix G Table 10 provides the final model fit statistics and factor reliability for each scale.

Table 10

Model fit for final scales in the Survey of Special Education Teaching Candidates

Fit Indices [a]	Clarity of Vision [b]	Instructional Support	OTL Collaboration	OTL Instruction	OTL Explicit Instruction	OSTES
CFI	.981	.972	.999	.943	.996	.931
RMSEA	.052	.075	.020	.078	.031	.086
SRMR	.0506	.0680	.040	.0609	.0425	.0640
χ^2 (df)	17.3(14) p= .241	47.497(32) p= .038	12.408 (12) p= .414	51.792(34) p= .026	18.460(17) p= .360	84.023(51) p= .002
Factor Reliability	.922	US: .92 CT: .96	Staff: .85 IEP: .89	.921	.943	ENG: .717 INST: .719 CM: .787
Model Fit Decision	Good	Acceptable	Good	Acceptable	Good	Acceptable

Note. [a] Fit indices are drawn from Hu and Bentler (1991); [b] this scale was originally hypothesized as addressing the broader construct of conceptual coherence but was refined through this analysis to address one aspect of conceptual coherence: clarity of vision; OTL = opportunities to learn; OSTES = Ohio State Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk-Hoy, 2001); US = university supervisor; CT = cooperating teaching; IEP =

individual education plan team; ENG = engagement strategies; INST = instructional strategies; CM = classroom management strategies.

Conceptual coherence in preparation programs. Researchers in teacher education define preparation program coherence broadly as the extent to which the individuals involved in educating new teachers share a vision of effective teaching and learning *and* the degree to which those individuals organize candidates' opportunities to learn in service of that vision (Darling-Hammond et al., 2006; Grossman et al., 2008; Tatto, 1996). According to Hammerness (2006), program coherence is simultaneously structural and conceptual. This means that TPPs are purposefully organized (structural coherence) to clearly communicate a common vision of effective teaching (conceptual coherence). To have one aspect without the other might result in a program that either organizes experiences in some logical manner but without a defined conceptual center, or espouses a clear vision in a disorganized manner such that it is undetectable by candidates or that candidates cannot enact it in an effective and efficient manner. Each aspect involves subparts that are interrelated and interwoven. This study examines perceptions of conceptual coherence by considering the ways that vision, emphasis, alignment, and consistency across experiences are a part of the larger construct. I hypothesize that these distinct but interrelated aspects of conceptual coherence contribute to the way SETCs make sense of the profession of special education. Clearly, candidates' perceptions of conceptual coherence in their preparation programs reflect both concrete and abstract aspects of their teacher preparation experience, making refined measurement of this construct quite challenging.

Conceptual coherence of special education teacher preparation programs. To examine SETCs' perceptions of the extent to which their preparation program

communicated a conceptually coherent vision of teaching and learning across the program, I developed a scale that drew on prior research in general education (Grossman et al., 2008; Hammerness, 2006; 2012a; 2012b; Hammerness & Klette, 2015; Tatto, 1996) and that also included items that would capture the ways in which TPPs emphasized the multiple roles and responsibilities of special educators. Also, several items were drawn from a study of general education elementary teacher preparation (Cavanna et al., 2018). The included items used a four-point Likert scale on which respondents indicated the extent of their agreement with a statement regarding their preparation program or their fit within that program. I hypothesized that this cluster of items would point to a unidimensional model of the broad construct of conceptual coherence. Though other studies have examined the structural aspect of coherence through program documents or syllabus review as opposed to teacher candidate reports (e.g., Brownell et al., 2005; Grossman et al., 2008), the structural aspects of the construct were not explored in depth as a part of this study. With this in mind, I hypothesized that the unidimensional model for conceptual coherence would have good fit and that, in turn, it would provide preliminary evidence regarding the reliability of this scale of the *Survey of Special Education Teaching Candidates*.

Perceptions of clarity of vision model fit. I tested the measurement model for SETCs' perceptions of conceptual coherence in their TPP using CFA. Originally, the model included nine items; model fit was acceptable across all indices but two items had an exceptionally low factor loading (.07; "Across general and special education courses, I hear conflicting views about teaching and learning"; .28 "Across courses I hear similar views about teaching and learning"). Examination of the other seven items revealed that

they had acceptable factor loadings (while retaining good model fit) and all addressed a particular aspect of conceptual coherence: the *clarity* of the TPP's vision of teaching and learning. Items that did not show strong factor loadings, though theoretically related to the broader construct of conceptual coherence, appeared to address different/similar views instead of the clarity of vision. Considering that clarity of vision is one important part of the construct of conceptual coherence, the single factor was retained with seven items. Results for the final model are provided in Table 10. The model for clarity of vision had good fit to the data (CFI = .981, RMSEA = .052, SRMR = .0506, χ^2(df) = 17.3(14), p = .241). In the final model all regression weights were above .4, indicating the included items had an acceptable correlation with the underlying construct of clarity of vision. Following model specification, the scale demonstrated adequate internal consistency, as demonstrated by a factor reliability of 0.922. See Table 11 and Figure 9 for the final model.

Table 11

Perceptions of clarity of vision: factor loadings

Item	Unstandardized Factor Loadings	Standardized Factor Loadings
My program articulates a clear vision of teaching and learning	1.04* (.18)	.75*
My approach to teaching fits with that of my teacher education program	.80* (.18)	.57*
My program clearly articulated the role of a special education teacher	1.29* (.23)	.74*
My program emphasized strong preparation for the procedural/legal requirements of being a special education teacher.	1.21* (.26)	.59*
My program emphasized strong preparation in specialized instruction for students with disabilities.	1.35* (.25)	.71*
Across special education courses, professors' views of teaching and learning were clearly aligned.	.91* (.25)	.44*
Across my general and special education courses, professors made explicit connections between concepts about teaching and learning.	1.00 (--)	.65*

* p < .01

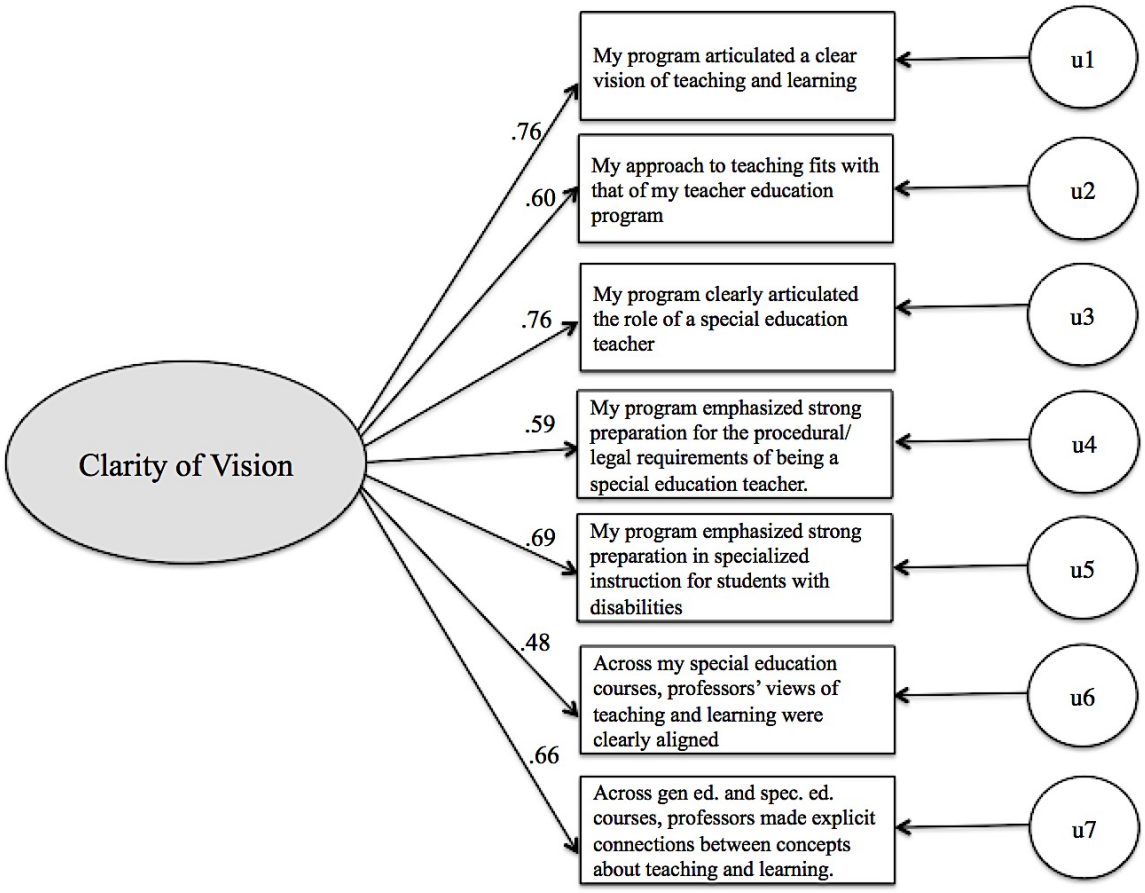

Figure 9. Graphic representation of clarity of vision model. This figure illustrates the indicators and factor loadings for the clarity of vision scale.

Instructional support in field experiences. A critical aspect of teacher preparation is the field experience or student teaching. This is especially true for SETCs; the environment in which they are placed and the professionals with whom they work can shape their conceptions of teaching and learning for students with disabilities in unique ways (Leko et al., 2010; McCray, 2012). Enacted classroom experiences have been found to shape candidates' understanding of the role of a special education teacher (Leko & Brownell, 2011; McCray, 2012) and their own understanding of effective instruction and collaboration (e.g., Hanline, 2010; Rock et al., 2009; Scheeler et al., 2012). Through interactions in a professional setting, instructional support in the context of field

experiences provide models and feedback for SETCs. Sometimes, this model is viewed as being aligned with their work in methods courses; other times, this model is viewed as being counter to their work in methods courses (Anderson & Stillman, 2011). In conceptualizing this scale, I drew on Bandura's self-efficacy theory (Bandura, 1997). Particularly, the scale was designed to capture the value of the US's and CT's modeling, expertise, and feedback as they work with SETCs. Both of these parties can be viewed by the SETC as being expert—a trustworthy model and a source of useful feedback—or can be viewed as a less than trustworthy or inadequate model, leaving the SETC with the task of independently making sense of their work with students with disabilities.

Instructional support scale. The ten items in this scale were designed to address the extent to which SETCs would describe these professionals (i.e., US and CT) as trustworthy, collaborative experts who provided feedback and, in the case of the CT, models of instructional practice consistent with the TPP (Bandura, 1997). Each item employed a four-point Likert scale in which respondents indicated the extent of their agreement with a statement regarding their US' or CT's expertise and skills (e.g., their experience as a special educator, the usefulness of their feedback and meetings). Each of these statements was selected for inclusion because of its connections to the literature regarding the ways that SETCs learn from these individuals in context (Leko & Brownell, 2011; McCray, 2012). Furthermore, I hypothesized that—because the US and CT are separate entities and, therefore, their support can be perceived differently— to achieve adequate fit and internal consistency this scale would require a two-factor model. Questions regarding the US would comprise one factor and questions regarding the CT would comprise the other factor. However, these professionals do not act in isolation on

the SETC's experience so I hypothesized that the factors would be correlated to reflect this relationship.

Instructional support model fit. Results from the CFA for this scale are provided in Table 10. My analysis revealed that the measurement model had acceptable fit to the data (CFI = .972, RMSEA = .075, SRMR = .0680, χ^2(df) = 47.497 (32) *p*= .038). All standardized factor loadings were above .6, indicating a strong relationship between the individual items and the two factors underlying the construct of support. To achieve this fit, several modifications were necessary. When all items from the two sub-scales were included, RMSEA did not meet criteria and one item had a low factor loading (.06; "My cooperating teacher taught in ways that were quite different from the methods I was learning in my special education university courses"). Additionally, to improve the RMSEA and achieve fit, I had to use two post hoc modifications. First, I had to correlate the items "My supervisor understood the needs of students with disabilities" and "My supervisor had experience as a special education teacher." These items were moderately correlated, suggesting that for an increase in one there was approximately a one-third of a standard deviation increase in the other. Second, I had to correlate the items "My cooperating teacher collaborated well with others" and "I had useful meetings with my cooperating teacher." Surprisingly, the correlation was strong and negative (- .66) between these items. Following model specification, the two factors included in this scale demonstrated strong factor reliability (US = .92; CT = .96). As hypothesized, the two factors were weakly correlated. A covariance of .25 between the two factors suggests that, for a one standard deviation increase in SETCs' perceptions of US support, there is approximately a one-quarter of a standard deviation increase is SETCs' perceptions of

CT support. This is logical given that there are typically several pre-determined points within the field experience in which the US's and CT's work is combined or coordinated (i.e., formal observations, trouble-shooting, evaluation). See Table 12 and Figure 10 for the final model.

Table 12

Perceptions of support: factor loadings for two-factor model

Factor	Item	Unstandardized Factor Loadings	Standardized Factor Loadings
US Support	My supervisor gave me useful feedback on my teaching	1.00 (--)	.92*
US Support	My supervisor provided feedback that was aligned with the theories and practices advocated in my methods courses	.93* (.079)	.88*
US Support	My supervisor and cooperating teacher held similar ideas about teaching and learning	1.04* (.090)	.77*
US Support	My supervisor understood the needs of students with disabilities	.98* (.102)	.81*
US Support	My supervisor had experience as a special education teacher	.84* (.147)	.63*
CT Support	My cooperating teacher gave me useful feedback with regard to teaching students with disabilities	1.00 (--)	.85*
CT Support	My cooperating teacher understood the needs of students with disabilities	.75* (.091)	.74*
CT Support	My cooperating teacher collaborated well with others (e.g., other teachers, administrators, instructional assistants)	1.15* (.116)	.89*
CT Support	I had useful meetings with my cooperating teacher to discuss my instruction	1.11* (.122)	.85*
CT Support	My cooperating teacher allowed me to try out the strategies and techniques I was learning in my special education methods courses.	.70* (.097)	.67*

Note. CT = cooperating teacher; US = university supervisor; * $p < .001$

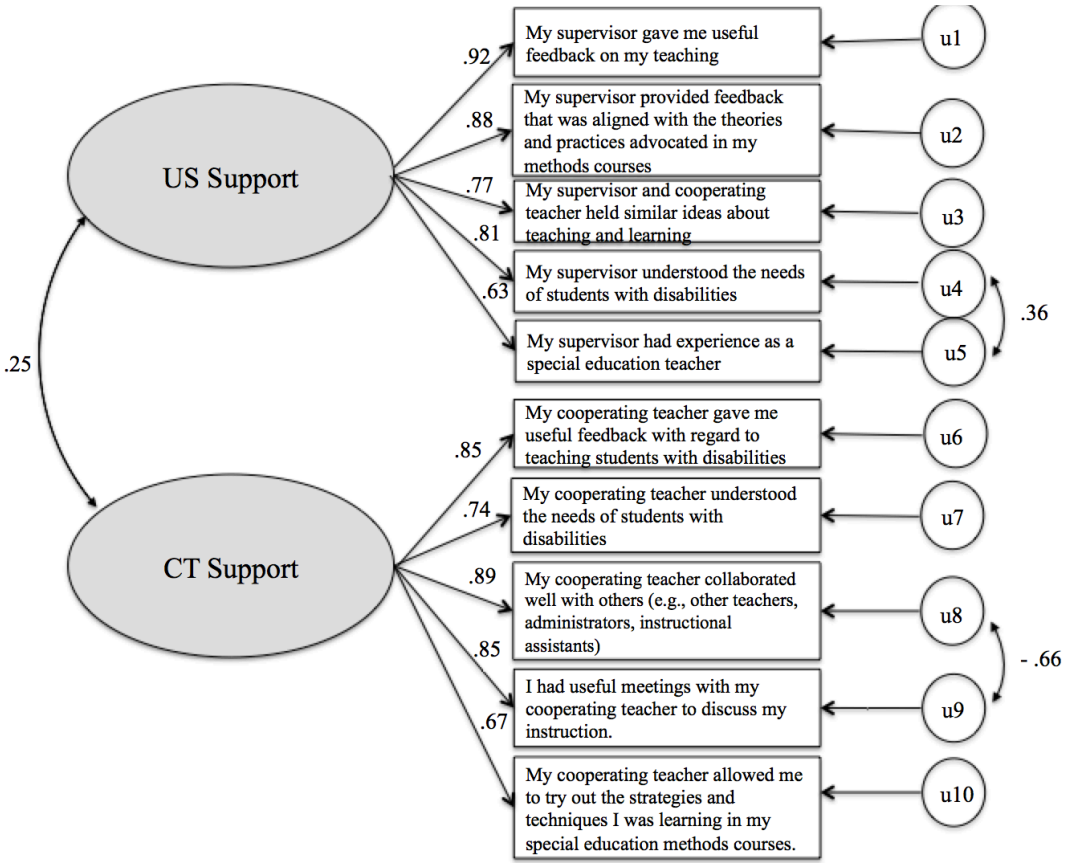

Figure 10. Graphic representation of instructional support model. This figure illustrates the indicators, factor loadings, and covariance across the two factors of the support scale. The two factors are weakly correlated (.25). The final model included the .36 correlation of one pair of residuals on the US subscale and a -.66 correlation one pair of residuals on the CT subscale.

Opportunities to learn high leverage practices. An assumption underlying this study is that OTL in special education teacher preparation should be focused on a particular content: practices critical to the work of teaching special education, or the High Leverage Practices for special education (McLeskey & Brownell, 2015). The HLPs, as defined by the Council for Exceptional Children (CEC; McLeskey et al., 2017), encompass 22 practices that address collaboration, instruction, assessment, and social/behavioral skills.

This study focuses on SETCs' opportunities to learn collaborative and instructional HLPs. The detailed focus on SETCs' opportunities to learn these HLPs within a number of the scales included in the *Survey of Special Education Teaching Candidates* was purposeful. By focusing the content of the survey in this way, the resulting data describe the extent to which SETCs reported experiencing opportunities to engage with the practices determined to be essential to educating their future students. Each item used a five-point ordinal scale in which respondents indicated the extent of their OTL collaborative and instructional practices: none, touched on it briefly, spent time discussing it, spent time discussing and doing it, and extensive opportunity to practice ***and*** receive feedback.

Opportunities to learn: collaboration high leverage practices. Collaboration is much more than "working together" (Friend & Cook, 2017). Predicated on skills that enhance professional communication and trust (Jones et al., 2016), collaboration for special educators is a means through which teams of professionals, families, and students work together toward a common goal (Friend & Cook, 2010). Teamed or collaborative relationships and interactions are dynamic, complex, and rely upon the inputs of various team members (Cooke & Gorman, 2009). The special educator not only develops relationships with each of these parties but also applies professional practice in order to coordinate their efforts in the service of students from pre-K through the transition to adulthood (Jones et al., 2016).

Opportunities to learn: collaboration scale. I drew the seven items on the opportunities to learn: collaboration scale from the HLP document in special education (McLeskey et al., 2017). In doing so, I selected practices in which SETCs would be

required to collaborate with others; for this reason, one practice was selected from the Assessment section of the HLP document to highlight the communication and coordination necessary to collaborate with families. In designing the scale, I originally hypothesized that the latent construct of opportunities to learn: collaboration would consist of a unidimensional construct that included collaboration with a number of stakeholders and required candidates to use the skills outlined by Friend and Cook (2017) in the role of collaborator.

Opportunities to learn: collaboration model fit. The first model included a single construct. However, I was not able to achieve model fit using this single construct. Though factor loadings were adequate and the unidimensional scale demonstrated an acceptable Cronbach's alpha ($\propto$ = .861; Cronbach, 1951), none of the established criteria for fit indices were met (Hu & Bentler, 1999). Examination of the correlation and covariance matrixes suggested that the construct of OTL collaboration might be better addressed as two factors: one that represented collaboration with staff and another that represented collaboration with families and the IEP team. This decision was theoretically justifiable. I hypothesized that the two factors would be moderately correlated. The first two factor model showed acceptable fit on most indices (CFI = .943, SRMR = .0725, χ^2(df) = 28.902(13) p = .007) but the RMSEA (.119) violated the established criteria for model fit (Hu & Bentler, 1999). Modification indices suggested that correlating two items on the OTL Collaboration: IEP team might improve the RMSEA. This adjustment was theoretically justifiable, given both items addressed working with IEP teams: a) interpreting and communicating assessment information to IEP team members and families, and b) working with IEP team members and families to design and enact

educational programs. This adjustment improved model fit such that all criteria were met (CFI = .999; RMSEA = .020; SRMR = .040, χ^2(df) = 12.408(12) p = .414).

Though this analysis is preliminary, this suggests that these OTL highlight distinct, but related practices. Between the two factors, there was a covariance of .66, signifying that for an increase of one standard deviation in SETCs' reported OTL collaborative practices for use with staff and colleagues, there would be approximately a two-thirds of a standard deviation increase in their reported OTL collaborative practices for use in the context of the IEP. Additionally, all standardized factor loadings were strong (i.e., greater than .6). For each factor, (Staff = .85; IEP = .89) factor reliabilities were strong. See Table 13 and Figure 11 for the final model.

Table 13

Reported opportunities to learn collaboration high leverage practices: factor loadings

Factor	Item	Unstandardized Factor Loadings	Standardized Factor Loadings
Staff	Collaboration with general education colleagues	1.00 (--)	.68*
Staff	Collaboration with related service providers (e.g., speech/language pathologists, occupational or physical therapists, counselors, psychiatrists)	1.43* (.22)	.83*
Staff	Collaboration with instructional support staff (e.g., assistants, paraprofessionals)	1.62* (.25)	.87*
IEP	Collaboration with families	1.00 (--)	.69*
IEP	Facilitating effective meetings with professionals and families	1.19* (.19)	.85*
IEP	Interpreting and communicating assessment information to IEP team members and families	.916* (.17)	.67*
IEP	Working with IEP team members and families to design and enact educational programs	.929* (.22)	.68*

Note. IEP = Individualized Education Plan; * p < .01

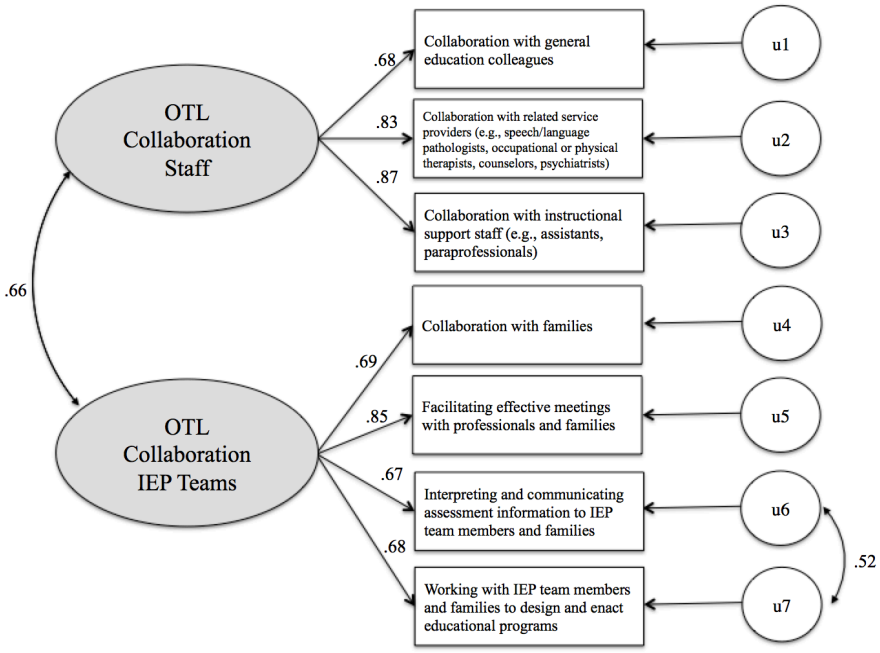

Figure 11. Graphic representation of opportunities to learn: collaboration high leverage practices model illustrating the indicators, factor loadings, and covariance across the two factors of the OTL collaboration scale. The factors are strongly correlated (.58)

Opportunities to learn: instruction high leverage practices. The instruction HLPs are considered the toolkit for effective instruction by the CEC and have been developed with the aim of specifying critical content for special education teacher preparation (McLeskey et al., 2017). Recognizing the importance of instructional design *and* delivery, the instruction HLPs include practices that focus on both aspects of effective instruction.

Opportunities to learn: instruction high leverage practices scale. The opportunities to learn: instruction high leverage practices scale includes ten items that reflect the majority of the instructional HLPs promoted by the Council for Exceptional Children (McLeskey et al., 2017). Explicit Instruction (HLP#16) is addressed within its own scale and the use of assistive technology (HLP#19) was removed from the instrument after initial rounds of review and cognitive interviewing. I hypothesized that

my analysis would reveal a unidimensional construct and that these items would demonstrate adequate fit and strong factor loadings because of their distinction as "high leverage" (McLeskey et al., 2017). Because of this distinction, these practices are, by nature, associated with a specific conception of effective instruction so—one could conjecture—that OTL these practices would be consistent across a program. Furthermore, I expected that to achieve adequate fit, it would be necessary to consider modification indices along with theory.

Opportunities to learn: instruction high leverage practices model fit. As shown in Table 10, the measurement model for opportunities to learn: instruction high leverage practices had adequate fit to the data (CFI = .943, RMSEA = .078, SRMR = .0609, χ^2(df) = 51.792(34), p = .026). Though the chi-squared statistic indicated poor fit, all other indices were acceptable. In order to include all of the instruction high leverage practice items in the model, I made two decisions. First, it was necessary to retain one item with weaker factor loadings (i.e., using flexible grouping). Second, following the initial model specification, I reviewed modification indices and chose to co-vary the residuals of two justifiably associated items: a) identifying long- and short-term learning goals for students and b) systematically designing instruction toward a specific learning goal. This modification to the original model was necessary because RMSEA did not meet the established criteria for acceptable fit without these modifications (Hu & Bentler, 1999). From this modification, a correlation of .33 between the residuals suggests that a one standard deviation increase in OTL goal identification would result in approximately a one-third of a standard deviation increase in OTL how to design instruction toward that goal. The final scale demonstrated a strong factor reliability (.921) providing further

evidence for the reliable use of this scale. See Table 14 and Figure 12 for the final model.

Table 14

Reported opportunities to learn instruction high leverage practices: factor loadings

Item	Unstandardized Factor Loadings	Standardized Factor Loadings
Providing positive and constructive feedback to guide students' learning	1.00 (--)	.63*
Identifying long- and short-term learning goals for students	1.12* (.23)	.66*
Systematically designing instruction toward a specific learning goal	1.23* (.24)	.66*
Adapting curriculum tasks and materials for specific learning needs	1.08* (.22)	.63*
Teaching cognitive and metacognitive strategies to support learning and independence	1.57* (.29)	.72*
Using flexible grouping	1.29* (.33)	.48*
Identifying and using strategies to promote student engagement	1.03* (.21)	.79*
Teaching students to maintain and generalize learning across time and settings	1.55* (.27)	.60*
Planning interventions that address the intensity of students' learning and/or behavior challenges	.99* (.21)	.58*
Planning and providing scaffolded supports	.99* (.19)	.66*

Note. * $p < .01$

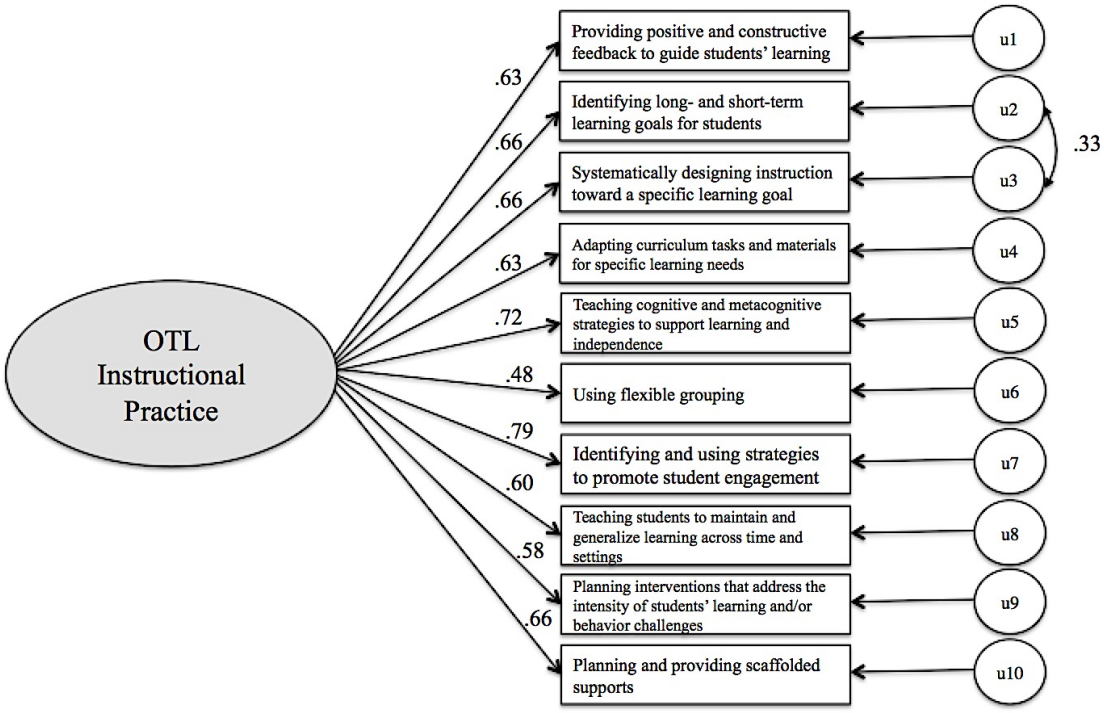

Figure 12. Graphic representation of the opportunities to learn: instruction high leverage practices model. This figure illustrates the indicators, factor loadings, and covariance employed in determining model fit. The final model included the .33 correlation of one pair of residuals: a) identifying long- and short-term learning goals for students and b) systematically designing instruction toward a specific learning goal.

Opportunities to learn: explicit instruction. The survey includes a specific focus on selected components of explicit instruction (HLP #16), a foundational aspect of effective special education (Archer & Hughes, 2010; Hughes et al., 2017; Rosenshine, 2012). Explicit instruction, while a practice, comprises are larger framework or instructional orientation that has been found to be instrumental in supporting the needs of students with disabilities.

Opportunities to learn: explicit instruction scale. I based the eight items on the Opportunities to learn: Explicit instruction scale on Archer and Hughes' (2010) conception of

explicit instruction and the Hughes et al. review (2017). In designing the scale, I understood that the items were interdependent in many ways, suggesting that the latent construct of opportunities to learn: explicit instruction was unidimensional and that all items in the survey would contribute to the latent construct. Additionally, because of this interdependence, I conjectured that examination of modification indices and covariance would be an important analytic consideration. For example, OTL techniques for conducting a high quality think-aloud would often include OTL techniques such as utilizing relevant examples and non-examples and also, within the think aloud, OTL varied ways for students to respond and for teachers to provide feedback.

Opportunities to learn: explicit instruction model fit. As shown in Table 10, the explicit instruction model had good fit to the data (CFI = .996, RMSEA = .031, SRMR = .0558, χ^2(df) = 18.460(17), p = .043) and adequate factor loadings. All loadings were above .5 indicating that the included items had an acceptable correlation with the underlying construct of SETCs' perceptions of OTL explicit instruction.

To achieve the fit described above, it was necessary to correlate three pairs of residuals. Without these modifications, CFI would not have met the criteria established in the project. As noted, the individual indicators on this scale represent aspects of explicit instruction that could be taught to SETCs in distinct or interrelated ways. In practice, these discrete skills are often utilized simultaneously during explicit instruction. Because of this, I determined that these modifications were justifiable and assessed model fit with each covariance included.

First, I correlated the error terms for a) breaking down complex skills and strategies into smaller instructional units and b) using think-alouds to clarify the decision-making processes necessary to complete a task or procedure. The correlation of .36 indicated that these two

indicators shared some of the variance necessary to achieve good model fit. For a one standard deviation increase in SETCs' OTL how to break down skills and strategies, there would be approximately a one-third standard deviation increase in the OTL how to employ a think aloud. Given that a skill underlying a high quality think aloud is articulating the discrete steps necessary to complete a task or procedure, I determined that this was theoretically justifiable.

Next, I examined the correlation between a) using think-alouds to clarify the decision-making processes necessary to complete a task or procedure and b) providing students with examples and non-examples of when skills or strategies would be used or applied. As in the previous modification, OTL how to conduct a think aloud often includes the provision of examples and non-examples. These techniques can be taught as discrete techniques but they would more likely be perceived as a part of the same OTL. The correlation of .39 between these indicators suggests that, when SETCs report a one standard deviation increase in OTL how to conduct a think aloud, there would be a little over one third of a standard deviation increase in OTL how to use examples and non-examples in the instruction of strategies and skills.

Finally, I included a correlation between a) providing opportunities for students to engage in guided practice and b) planning for frequent and varied opportunities for students to respond during instruction. Because guided practice is often a place within constructed lessons where teachers provide opportunities for students to respond, this covariance is logical when examining SETCs' perceptions of OTL. Again, a correlation of .37 indicates that a one standard deviation increase in OTL how to provide guided practice would be associated with approximately a one-third of a standard deviation increase in OTL how to provide students with opportunities to respond during instruction.

The final scale demonstrated strong internal consistency, as determined by a factor

reliability of 0.943, indicating a high level of reliability. See Table 15 and Figure 13 for the final opportunities to learn: explicit instruction scale.

Table 15

Reported opportunities to learn: explicit instruction factor loadings

Item	Unstandardized Factor Loadings	Standardized Factor Loadings
Breaking down complex skills and strategies into smaller instructional units	1.00 (--)	.51*
Explicitly modeling skills and strategies	.89* (.21)	.66*
Using think-alouds to clarify the decision-making processes necessary to complete a task or procedure	1.07* (.23)	.51*
Providing students with examples and non-examples of when skills or strategies would be used or applied	1.15* (.27)	.64*
Providing opportunities for students to engage in guided practice	1.34* (.29)	.79*
Planning for frequent and varied opportunities for students to respond during instruction	1.12* (.24)	.75*
Providing immediate feedback during instruction	1.43* (.31)	.75*
Providing opportunities for students to engage in independent practice	1.24* (.26)	.84*

Note. * p < .01

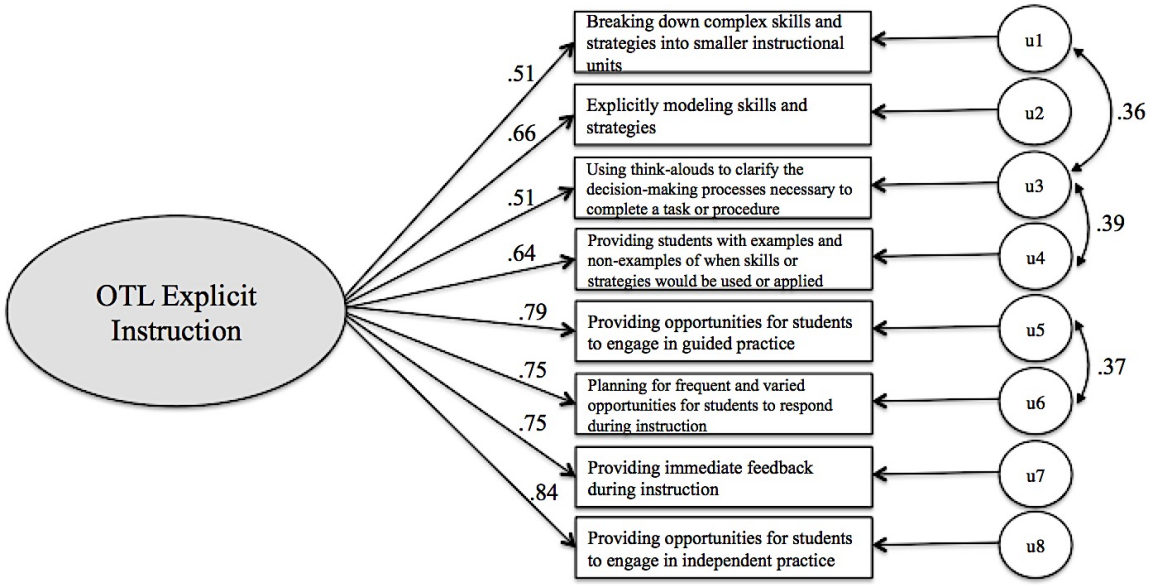

Figure 13. Graphic representation of the opportunities to learn: explicit instruction model. This figure illustrates the indicators, factor loadings, and covariance employed in determining model fit for the OTL explicit instruction scale. To achieve model fit, it was necessary to correlate three pairs of residuals. Correlations were theoretically justifiable.

Teacher self-efficacy. Teacher self-efficacy (TSE) is a belief construct that focuses on a teacher's judgment of their ability to perform a task in the classroom (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). Researchers find that this construct is associated with teacher behaviors relevant to the work of special education (Allinder, 1994; Cantrell, Almasi, Carter, & Rintamaa, 2013); consequently, it is also associated with important student outcomes (Jimmieson et al., 2010; Reyes et al., 2012; Woolfolk et al., 2006; Zee & Koomen, 2016).

Ohio State Teacher Sense of Efficacy Scale: Short Form. Included in the *Survey of Special Education Teaching Candidates* is the short form of the Ohio State Teacher Sense of Efficacy Scale (OSTES; Tschannen-Moran & Woolfolk Hoy, 2001). On each of the 12 items, participants indicate their perceived capability on a scale of one to nine. Prior research suggests the use of a three-factor solution: classroom management (CM), strategies for engagement (ENG), and instructional strategies (INST). With pre-service teachers, the authors have also stated that a one-factor solution could also be most reliable. I elected to test the three-factor solution and to assess model fit for these interrelated constructs. Because the OSTES has been subject to extensive study and revision (Tschannen-Moran & Woolfolk Hoy, 2011), I hypothesized that model fit would be adequate and require few post hoc modifications.

OSTES model fit. As shown in Table 10, using the three-factor model proposed by Tschannen-Moran and Woolfolk Hoy (2001) I was able to achieve acceptable model fit (CFI = .931, RMSEA = .086, SRMR = .0640, χ^2(df) = 84.023(51), p = .002). All regression weights were greater than .55 indicating a moderately strong relationship between the items in each factor and the latent constructs of TSE for classroom management, strategies for engagement, and instructional strategies. Table 16 and Figure 14 include the items in the scale and their

corresponding factor loading.

The correlation between factors revealed that, using the hypothesized solution, the three factors were distinct but strongly correlated (ENG and INST = .84; ENG and CM = .83; INST and CM = .77). In the final model, each of the factors demonstrated acceptable factor reliability (ENG $\propto$ = .717; CM $\propto$ = .787; INST $\propto$ = .719). This suggests that these item clusters can function as measures of unique aspects of TSE.

Table 16

OSTES: factor loadings for multi-dimensional factor

Factor	Item	Unstandardized Factor Loadings	Standardized Factor Loadings
Engagement Strategies	How much can you do to motivate students who show low interest in schoolwork?	.73* (.097)	.75*
Engagement Strategies	How much can you do to get students to believe they can do well in schoolwork?	.45* (.074)	.65*
Engagement Strategies	How much can you do to help your students value learning?	.65* (.086)	.77*
Engagement Strategies	How much can you assist families in helping their children do well in school?	1.00 (--)	.82*
Instructional Strategies	To what extent can you craft good questions for your students?	.67* (.141)	.55*
Instructional Strategies	How much can you use a variety of assessment strategies?	1.00 (--)	.75*
Instructional Strategies	To what extent can you provide an alternative explanation or example when students are confused?	.80* (.136)	.67*
Instructional Strategies	How well can you implement alternative strategies in your classroom?	1.02* (.150)	.78*
Classroom Management	How much can you do to control disruptive behavior in the classroom?	.92* (.151)	.68*
Classroom Management	How much can you do to get children to follow classroom rules?	.80* (.133)	.66*
Classroom Management	How much can you do to calm a student who is disruptive or noisy?	.94* (.132)	.79*
Classroom Management	How well can you establish a classroom management system with each group of students?	1.00 (--)	.76*

Note. * $p < .01$; These factor constructions are drawn from Tschannen-Moran and Woolfolk Hoy's (2001) work in developing and validating this scale for use with inservice and preservice teachers

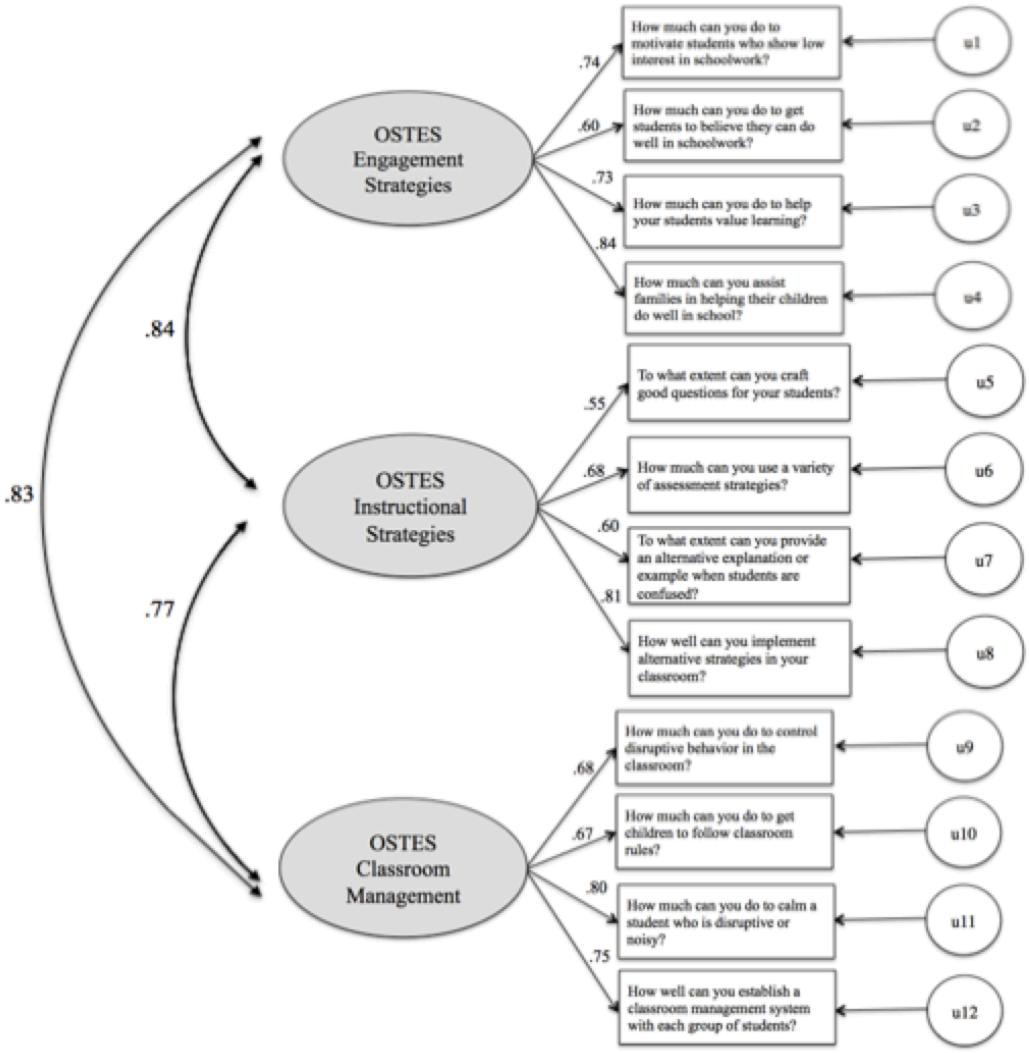

Figure 14. Graphic representation of OSTES model. This figure illustrates the indicators, factor loadings, and covariance employed in determining model fit for the proposed three-factor model (Tschannen-Moran and Woolfolk Hoy, 2001). The three latent factors were strongly correlated.

Internal Consistency: Belief Scales

I evaluated 16 items to construct beliefs scales to measure SETCs' beliefs regarding student ability and instruction across content areas and their beliefs about the benefits of inclusive instruction. Initially, I planned to conduct a CFA to develop a measurement model of four interrelated constructs that included SETCs beliefs regarding: a) internal attribution, b)

external attribution, c) specialized instruction for students with disabilities, and d) mutually advantageous instructional practice. I hypothesized that parallel items addressing these constructs across content areas would load onto four moderately correlated factors. I also hypothesized that another scale would focus on SETCs' beliefs regarding inclusive instruction. The CFA revealed that, as a single construct, the belief items demonstrated poor. Suggested modifications were inconsistent with theory. For this reason, I elected to examine each of these belief constructs using internal consistency (Cronbach, 1951). The hypothesized item clusters met the assumption of unidimensionality. Each scale reflected adequate to strong internal consistency and corresponding examination of item-total correlations and the alpha if deleted also supported the reliability of these scales. In Table 17, I provide the internal consistency for each scale. The correlations between these constructs are discussed in subsequent chapters of this project.

Table 17

Internal consistency of beliefs scales.

Construct	Items	Internal Consistency
Internal Attribution	• Mathematics is a subject in which natural ability matters more than effort • Reading is a subject in which natural ability matters more than effort • Writing is a subject in which natural ability matters more than effort	.811
External Attribution	• If students are underachieving in mathematics, it is most likely due to ineffective mathematics instruction • If students are underachieving in reading, it is most likely due to ineffective reading instruction • If students are underachieving in writing, it is most likely due to ineffective writing instruction	.802
Specialized Instruction	• In mathematics, instruction for students with disabilities should be different than instruction for students without disabilities • In reading, instruction for students with disabilities should be different than instruction for students without disabilities • In writing, instruction for students with disabilities should be different than instruction for students without disabilities	.750
Mutually Advantageous Instruction	• In mathematics, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities • In reading, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities • In writing, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities	.792
Inclusive Practice	• I can best meet students' academic needs in the context of a general education, co-taught, or inclusive classroom • I can best meet students' social-behavioral needs in the context of a general education, co-taught, or inclusive classroom • Instruction in general education or inclusive settings promotes the academic development of students with disabilities • Instruction in general education or inclusive settings promotes the social/emotional/behavioral development of students with disabilities	.771

Discussion

The findings presented in this chapter suggest that the scales included in the *Survey of Special Education Teaching Candidates* could provide useful information regarding the preparation experiences of future special educators and, therefore, could be a helpful contribution to the measurement of SETCs' perceptions of teacher preparation experiences. In addressing the proposed research questions with the available data, the CFA reveals acceptable or good model fit and acceptable to strong internal consistency for all tested scales. The majority of the hypothesized items were retained and post-hoc modifications were only applied if they were

theoretically justifiable and would improve the relevant fit indices. The process of assessing model fit highlights some important points particular to preparing special education teachers and measurement of candidates' perspectives regarding their experiences.

Conceptions of Instructional Practice

In planning my analyses regarding candidates' OTL instructional practice, I hypothesized that model fit would be achieved using two unidimensional scales regarding OTL: a) instruction high leverage practices and b) explicit instruction. My findings suggest that these individual scales point to a specific conception of effective teaching. This is reasonable given that the motivation behind the development of the HLPs for instruction was to more precisely define the special educators' toolkit and provide a framework for novices as they enter the field (McLeskey & Brownell, 2015; McLeskey & Zieglar, 2015; Windschitl et al., 2012). Given scholars' work to orient preparation and professional development toward a valid and unified understanding of effective teaching (as encompassed in the HLPs), this study serves as a contribution to the literature regarding the measurement of candidates' exposure to these practices.

In this study, I elected to address explicit instruction (HLP #16) as its own unidimensional scale. Originally included in the instruction scale as a single item (i.e., "use explicit instruction"), feedback during the expert review and piloting process highlighted the fact that—as is common in the discussion of high leverage practices (Ball & Forzani, 2009; Grossman & McDonald, 2008; Hlas & Hlas, 2012; Windschitl et al., 2011)—the grain size of this item compared with other items in the scale (i.e., "use flexible grouping") would be inconsistent. This analysis provides evidence that explicit instruction can be set apart from the other instructional high leverage practices. This points to explicit instruction less as a "practice" and more as a framework around which practices are organized (Archer & Hughes, 2010;

Hughes et al., 2017). This scale stands alone as opposed to functioning as a part of the OTL: instruction high leverage practices scale. However, in examining the individual items, it is also reasonable to assume a strong correlation between the OTL: explicit instruction scale and the OTL: instruction high leverage practices scale. See Appendix G for the correlations between the scales.

Conceptions of Collaborative Practice

Contrary to my hypothesis, the OTL collaboration scale required a two-factor model to achieve model fit. This suggests that OTL collaborative practice works across two domains: collaboration with staff as a part of service delivery and collaboration with stakeholders involved in the IEP process. This is consistent with the assertion that collaboration has changed from only contained relationships in clinical settings to relationships where individuals across settings and roles must work together (Friend et al., 2010, Jones et al., 2016). One explanation is that, though both represent the underlying construct of OTL collaboration, they capture different aspects of a special education teacher's collaborative role and the way that this role is enacted in schools (possibly one that is centered on instructional practice and service delivery and one that is centered on the procedure and guidelines essential to planning and communicating with diverse stakeholders regarding the IEP). This theory is bolstered by previous studies regarding time use and roles that highlight how inservice special educators' collaborative work with staff is distinct from the collaborative work that takes place in the IEP process (Urbach et al., 2015; Vannest et al., 2011; Wasburn, 2005; 2009).

Another plausible explanation is that SETCs' learning experiences regarding these types of collaboration would potentially be discrete and therefore housed in different coursework or site-based experiences affecting candidates' perceptions of these OTL. This is relevant given the

design of the included programs, specifically the required coursework (see Appendix C). Depending on the design of the TPP, SETCs might have distinct opportunities to discuss and practice these different types of collaborative practice. For example, certain TPPs might emphasize the IEP-related practices as a way to help SETCs build knowledge and skills around the legalities of determining, planning, and communicating about students' special education services. In focusing on access to the general education setting and providing specific instructional practice across settings, other TPPs might focus their attention more on working with staff to ensure effective service delivery on a daily basis. This highlights how the design of programs could send implicit messages regarding the ways special educators' roles converge and diverge.

The moderate correlation between these two constructs provides insight into the relationship between collaboration in the IEP process and collaboration in daily instructional practice. Likely this correlation indicates that candidates' learning experiences highlight how the collaborative practice with staff regarding service delivery is an extension of the collaborative work conducted in the IEP process. Conversely, this could also indicate that collaboration with staff is a part of informing the development of the IEP. In practice, it is likely that there is a reciprocal relationship between the two.

Perceptions of Coherence and Support in Teacher Preparation

The results from this work suggest that the scale for SETCs' perceptions of conceptual coherence is more accurately a measure of the clarity of vision. The refined clarity of vision scale is unidimensional and shows good model fit. Though the items included in the final model cluster around a central concept (i.e., clarity of vision), they do not address the converse of this statement (conflicting visions) or other concepts associated with conceptual coherence (i.e.,

alignment). I was surprised by the need for this adjustment; in developing the items as a measure of conceptual coherence, theory led me to hypothesize that attending to this conflict would be relevant to understanding the extent of conceptual coordination across general and special education and would provide important information regarding conceptual coherence outside of special education coursework. These analyses highlight the complexity of this construct. Because of this change, it is important to consider that data from this scale represent candidates' experiences of clarity of vision as opposed to their experiences of consonance or dissonance within their preparation experiences. Theoretically, a program could have a very clear vision that is evident to candidates but also include experiences that represent similar and divergent views of teaching and learning.

As hypothesized, the support scale required a two-factor solution to achieve model fit. This is reasonable because the supervisor and the cooperating teacher serve distinct but related roles in helping candidates access and enact knowledge in practice (Leko & Brownell, 2011). Yet, there were unexpected results. In particular, I was surprised by the weak correlation between the constructs because, though their roles are perceived as being separate, these individuals are part of a larger support system that is theoretically enhanced by coordination (Leko & Brownell, 2011; McCray, 2012). There are several plausible explanations for this finding. First—depending upon candidates' needs—when they perceive one individual as being ineffective or unhelpful the other could potentially step in as triage. Only one item on the combined scale specifically addressed coordination between these two individuals ("My supervisor and cooperating teacher held similar ideas about teaching and learning") and no items were included that asked them to indicate how these two sources of support worked together or to indicate where they received the most relevant support. Secondly, this could point to the value

candidates place on understanding and responding to the needs of their individual classroom placements or individual groups of students. Because US are not present in the classroom on a daily basis, candidates could potentially view their support as being less trustworthy or credible (Bandura, 1997). Research indicates the importance of the CT as a model of practice in candidates' development (McCray, 2012) and the ways that this relationship is pivotal in their development. For these reasons, their perceptions of support broadly might favor their relationship with the CT as opposed to the US.

Understanding Candidates' Beliefs

For this sample, the OSTES is best represented by the three factors proposed by Tschannen-Moran and Woolfolk Hoy (2001) and, consistent with recent research, is supported for use with candidates who have completed their student teaching (Duffin et al., 2012). This provides confirmatory evidence and adds to the literature base regarding the use of the OSTES as a measure of teacher candidates' self-efficacy. In contrast to the confirmatory findings regarding the OSTES, the models for beliefs did not converge. For this reason, model fit was not assessed. However, the Cronbach's alpha levels for each individual belief scale (i.e., internal attribution, external attribution, specialized instruction, mutually advantageous instruction, and inclusive practice) demonstrate strong internal consistency.

These findings provide evidence for three interesting points. First, for this sample, these scales operate in a reliable manner. This is certainly conceivable given the shared wording across items (i.e., "writing is a subject in which natural ability matters more than effort" and "mathematics is a subject in which natural ability matters more than effort"). Secondly, though the existing literature points to the domain specificity of beliefs (Rokeach, 1968; Zeichner, 2005), these findings suggest that, for this sample of SETCs, their beliefs are actually more

consistent across content areas than might be expected. This could be because in special education, teachers are prepared to deliver content using cross-cutting strategies (e.g., collaborative strategic reading (Vaughn et al., 2011); self-regulated strategy development (Harris & Graham, 2003; Santangelo et al., 2008), and keyword mnemonics (Fontana et al., 2007), so candidates' beliefs are clustered less around academic content area and more around the setting of instruction (Roberts, 2013; Ruppar et al., 2011). This could also point to an issue of timing. Due to their novice status, it is conceivable that at this point in their career candidates have not yet amassed enough experiences in working with students with disabilities to develop content-specific schema and instead revert to beliefs that are tied to their core beliefs about teaching and learning (Leko, Kulkarni, et al., 2015; Lortie, 1978; Rokeach, 1968). Furthermore, consistent with Leko, Kulkarni, and colleagues' findings from their study of preservice special education teachers' beliefs about reading instruction (2015), this could be because the included items addressed candidates' expressed beliefs, or those espoused in the absence of practice and action. As these researchers found, expressed beliefs are often general and fail to make specific reference to content area instruction. In the present study, candidates could be operating from expressed beliefs and therefore based on generalities.

Limitations

These findings are limited by both the data collected and the analytic decisions employed as a part of this study and therefore should be treated as preliminary. With regard to the data, there are several points to consider. First, the sample is small and underpowered. Though there are varied expectations regarding the sample necessary to complete a meaningful CFA (MacCallum et al., 1999), a general rule of thumb is that fewer than 100 observations are not recommended (Comrey & Lee, 1992; Gorsuch, 1983; Kline, 1979). Next, the sample represents

the perspectives of candidates across only six programs, which could potentially introduce further bias. For this reason, I cannot generalize beyond these programs. Third, the data is biased by the variables that are, or are not, measured. As discussed above, aspects of these constructs are not examined with these scales and therefore the conclusions should be carefully considered such that findings are appropriately considered with reference to the construct examined.

The analytic procedures utilized in this study are also a source of limitations. First, the decision to examine the scales individually presupposes that these are distinct constructs and fails to account for the relationships between constructs (i.e., OTL collaboration and OTL instruction). Correlational analyses provided in Appendix G highlight that there may be relationships between the scales that I was not able to test. Secondly, to achieve model fit it was necessary to apply post hoc modifications. Though each modification was theoretically justifiable, the correlation of residuals could point to additional latent constructs that are unaccounted for by the tested model. A larger sample or a more rigorous analysis could have accounted for these differences. Finally, issues of non-normality could present issues of MLS improper estimation (Curran, West, & Finch, 1996). For these reasons, these data should be treated as preliminary.

CHAPTER 5: PERCEPTIONS OF VISION

In this chapter, I address special education teacher candidates' (SETCs') perceptions of vision within and across teacher preparation programs (TPPs). For this section of analysis, I hypothesized that clarity of vision would vary by program. To test this, first, I draw on survey data to examine the extent to which respondents deemed their TPP to communicate a clear vision of teaching and learning for students with disabilities. Then, I use interview data to explore SETCs' understanding of the extent of that clarity and the vision promoted by each TPP. I present three program profiles to highlight the distinctions in vision. Finally, using the program profiles established through qualitative analysis as a grouping factor, I test whether SETCs' perception of clarity of vision is significantly different by program profile using composites from the survey. Because of the exploratory nature of my design, I use mixed methodologies to address the following research questions:

> To what extent do SETCs report that their teacher preparation program communicates a clear vision of teaching and learning for students with disabilities?
>
> a) What program profiles emerge from candidates' perspectives of their teacher preparation program's vision of teaching and learning?
> b) In what ways do candidates perceive their teacher preparation program's vision of teaching and learning has shaped their beliefs about their professional roles and responsibilities? Results

Perceived Clarity of Vision Across Teacher Preparation Programs

Using item-level frequency counts and composite scores developed based on the confirmatory factor analysis, I evaluated the extent to which SETCs perceived their TPPs communicated a clear vision of teaching and learning; items focused on shared vision and emphasis, alignment of views, and explicit connections across courses. Across the total sample, survey data revealed that the majority of SETCs agreed or strongly agreed that their TPPs exhibited a clear vision of teaching and learning for students with disabilities. See Table 18. For each item, less than 20% of respondents disagreed or strongly disagreed with positively worded statements regarding their perceptions of the clarity of vision in their teacher preparation experiences.

Table 18

Item Level Analysis: Clarity of Vision Items

	Strongly Disagree	Disagree	Agree	Strongly Agree
My program articulates a clear vision of teaching and learning	--	--	51.1	48.9
My approach to teaching fits with that of my teacher education program	--	2.2	58.9	38.9
My program clearly articulated the role of a special education teacher	--	10.0	43.3	46.7
My program emphasized strong preparation for the procedural/legal requirements of being a special education teacher	2.2	15.6	43.3	38.9
My program emphasized strong preparation in specialized instruction for students with disabilities	1.1	10.0	47.8	41.1
Across my special education courses, professors' views of teaching and learning are clearly aligned	3.3	16.7	52.2	27.8
Across my general and special education courses, professors made explicit connections between concepts about teaching and learning	--	6.7	60.0	33.3

I also examined composites scores from the survey at the program level to ascertain whether candidates in particular programs reported a lack of clarity regarding

vision and, if so, to what extent. Table 19 shows that, for the most part, the findings from item level analysis were consistent at the preparation program level. However, TPP 600 was a possible exception; within that program, SETCs' survey responses pointed to a less centered preparation experience. In order to understand the nature of candidates' perceptions of their teacher preparation experiences, it was necessary that I turn to my interview data to develop a more refined understanding of the programmatic visions communicated through these programs.

Table 19

Clarity of Vision Composite by Teacher Preparation Program.

	Teacher Preparation Program						
	100	300	400	500	600	700	Total
	n = 16	*n* = 21	*n* = 32	*n* = 8	*n* = 7	*n* = 6	*n* = 90
Mean	3.080	3.299	3.353	3.696	3.000	3.238	3.287
SD	.481	.460	.455	.269	.286	.233	.452
Median	3.000	3.429	3.357	3.786	2.857	3.285	3.286
Mode	2.86 [a]	3.57	3.00 [a]	3.86	2.71 [a]	3.29	3.29

Note. [a] Two modes were present in the data set; the lower of the two is presented

Shared Vision

Qualitative analysis of interview data revealed that, when asked about their program's vision of effective teaching and learning in special education, SETCs *within programs* reported a similar programmatic vision. Yet, as might be expected, this vision varied *across programs*. Drawing on SETCs' perspective as learners, data suggested three distinct visions around which, TPPs centered candidates' learning experiences: a) explicit instruction; b) general, responsive instruction; and c) supportive, inclusive collaboration.

Explicit instruction. In the first group, candidates from TPPs 500 and 300 emphasized that their program's vision of effective teaching and learning was centered on explicit instruction. Though one candidate noted that they enjoyed having a "variety of

perspectives" (which she did not clearly define), in TPP 300, the majority of SETCs reported that, within their special education master's coursework, their program communicated a consistent vision of teaching and learning for special education that was focused on explicit instruction, direct instruction, or clinical practice (as highlighted by Fuchs et al., 2014). This included acting as a clinician by focusing on students' specific instructional level, using direct, explicit, evidence-based instruction, and errorless teaching. As Tracey noted and others echoed,

> We have to act as clinicians… We're not [supposed to think] "This poor little kid. He has a disability. This poor little guy." We're supposed to go in there and be like, "He has this disability. This is going to be effective for him, and he's going to reach this goal." [We're] not using emotions to guide decisions. [We're] using knowledge, evidence… and research.

Similarly, SETCs from TPP 500 responded with specificity to questions regarding their TPP's vision of effective teaching and learning. Each interviewed candidate reported that, across special education faculty in their program, the vision was clearly rooted in a direct or explicit instruction framework. They frequently named the model-lead-test progression as the components of effective instruction and aptly linked it to what their TPP believed to be their role in the classroom. Mariah's explanation underscores the notion that direct, explicit instruction was at the heart of her preparation program.

> They're gonna go ... I mean, every class, direct instruction, direct instruction. Direct, explicit instruction. That rang true in every single class and I think that they can pride themselves on teaching us that. It got to the point where they'd ask a question, you would go, "Direct instruction has to be the answer." It's kind of like the Jesus question. [The answer is] always Jesus, we're good. So [the answer] was direct instruction for us.

Across TPP 300 and 500, candidates were required to take several classes in general education either before or during their masters program. Candidates noted that

the direct instruction model was not present in those classes and that what they learned in general education—a "very constructivist learning approach"—was the main source of inconsistency in their experience. For SETCs in these programs, this inconsistency was not a source of confusion. The consistent and aligned message in their special education courses about the importance of explicit instruction practice helped SETCs to make sense of experiences that were counter to this vision. For example, when asked about how to handle viewpoints that were inconsistent with the explicit instruction framework, Juliana responded,

> … [in general education] they don't talk a lot about the same methods of instruction… We would sit there, and as special [education] majors, all we would think is this is how we're going to script it, and this is how we're going to write it out, and it's going to have these components. I mean… we had that special [education] brain… I was definitely like, "I'm hearing it and I'm picking up on it and I know what they're saying, but I'm going to teach this other way".

Drawing on this coherence, other candidates reported how they recognized and responded to instruction as this vision was, or was not, enacted in school settings. For example, when discussing a poorly aligned practicum experience where instruction did not align with his TPP's vision of explicit instruction, Elliott shared the following:

> When I took over the class, I brought the standard [of explicit instruction] with me, so I just taught… what I learned about when I was being shown… I mean that was what I was taught to do, so that is what I was going to do.

This conceptually coherent experience—centered on a specific conception of instruction through which SETCs were able to process their experiences—was consistent across all interviews from both TPPs in this profile.

General, responsive instruction. In the second group, SETCs reported that their TPP's vision was anchored in a vision of using responsive instruction to meet diverse needs of all learners. In contrast to candidates in the explicit instruction group, these

SETCs did not tie their TPP's vision to any particular framework. The focus here was on a general, flexible vision of instruction that was designed to meet the diverse needs present in the classroom through research-based teaching practices.

SETCs in this group reported their program centered on a general vision of special education as responding to students' needs so they could access the general education curriculum. When discussing the TPP's vision of effective teaching and learning in special education, the SETCs in TPP 100 spoke about being a "bridge between the disability and their education" (Britney) or "thinking about what bridges we can build between our students and the general [education] curriculum or general [education] classroom. So serving as that bridge between our students and the general population" (Gwen). In TPP 100, candidates reported that the program's vision for how to be that bridge was rooted in "good teaching" and the use of research-based practices and strategies to ensure equitable access to the general education curriculum.

Similarly, SETCs from TPP 400 reported that their TPP's vision was also broad. When asked to define effective teaching in special education from the program perspective, these candidates struggled to provide a specific, action-oriented vision. Fiona noted that they "just used the word effective a lot." In contrast to the laser-like focus reported in the explicit instruction group, they relied on platitudes about teaching and learning such as special education teachers being "life long learners" (Fiona) and always working hard to find "the information to support [the] student" (Natalie). Candidates reported that their program stated that these characteristics and professional dispositions were what would make someone an effective special education teacher.

Candidates in both TPP 100 and TPP 400 worked toward a general education/special education dual certification; for this reason, they took a number of classes that were housed outside of special education and targeted their general education grade level or content area focus (e.g., general methods, social studies methods). SETCs in this group reported that the emphasis of general education coursework tended to be focused on using effective instructional practices to meet diverse needs (broadly defined), instead of emphasizing the specific needs of students with disabilities. Unlike SETCs in the explicit instruction group, they did not perceive their general education courses as having a view of effective teaching that was different from their special education coursework. Because the focus was broad, they reported that it was consistent, yet "very generalized" (Gwen, 100). Missy (100) stated that it was "pretty clear messaging because it was pretty general". Similarly, in TPP 400 the topic was either absent or subsumed into a broader discussion of meeting the needs of diverse learners. As Toni highlighted,

> I think just the general [education faculty] didn't really cover it. A lot of it was not even talked about or really covered in those classes, but the special [education] classes, really we went into depth and really talked about just that population. I don't really know. There was never really a time where we'd be in one class and we'd be like, wow, this professor said this for special [education]. There was never really that type of issue.

From TPP 100, Gwen spoke about a mathematics course for all elementary and special education majors that was co-taught by general and special education faculty. Her experience expanded on the lack of specificity with regard to special education reported in TPP 400. The course was supposed to target mathematics instruction for the general education population as well as students with disabilities. However, much like the SETCs in TPP 400, she reported that it was focused on practices for students without disabilities and that "there was one teacher who showed a lot of very effective practices for how to

teach math, but there was… rarely ever any mention of how to do this in a special [education] setting." The candidates reported leaving that specific class feeling unprepared to meet the needs of their students in mathematics despite having a good idea of effective mathematics teaching for students without disabilities.

Supportive, inclusive collaboration. In interviews, candidates in the final group—supportive, inclusive collaboration—appeared the least certain about their TPPs' vision of effective instructional practice. Yet, there were some common characteristics shared by SETCs in these programs that were not prominent in other TPPs. In interviews, these SETCs stated that their programs focused on providing educational opportunity for *all* students in inclusive settings through three channels: support, collaboration, and co-teaching. Although the general education setting was not viewed as the only setting in which students with disabilities should be instructed, SETCs in these programs indicated that their preparation emphasized the importance of inclusive instruction for students' development. For this reason, the programs prepared their candidates to support students and other teachers, to collaborate in the service with students with disabilities, and to use co-teaching models that promoted inclusive instruction. SETCs stated that in their programs they did not distinguish between effective teaching in special education and general education. Instead, their vision of teaching and learning in special education appeared to be much the same as in general education.

When discussing how their TPP would say they were to enact this vision in practice, the emphasis was on support and collaboration, but their understanding of how to achieve this support and collaboration was broad and poorly defined. Even with probing, candidates rarely were able to state professional moves for supportive,

collaborative teaching and learning in special education. The focus was more on doing whatever it takes to support students to achieve at their highest potential. Monica (600) interpreted this as being able to "work with a very large number of people" to support access to the general education curriculum. More specifically, Macy (600) stated that this support would take place through the use of "the six models of co-teaching" and—in doing this—would not differentiate between the work of the general and special education teacher:

> I should have a role as a special [education] teacher and a co-teacher in which I can provide support to everyone in that class and them probably not know if I was the [special education] teacher or the [general education] teacher.

SETCs from TPP 700 also reported that the vision of teaching and learning was not defined specifically for special education. Both Brandy and Lauryn were unwavering when they noted that the inclusion model was the focus of their TPP. Brandy explain that this meant they focused on "how to best include students with disabilities and involve them in the general education classroom to the best of their abilities… and having the general educators and general education students support that student."

The interviewed SETCs from TPP 700 shared that their program combined coursework with school-based experiences where the values of inclusive instruction were evident. Both SETCs from TPP 700 discussed how their professor brought guest speakers to courses to share about the experience of having a disability, receiving services, or being a family member of an individual with a disability. In their eyes, this experience was meant to underscore that their role with individuals with disabilities was one of support and collaboration. Lauryn said that this was encapsulated in the phrase "nothing about us without us." For her, the TPP repeated that vision as a way to drive home the

importance of supporting individuals with disabilities and their families. Both SETCs also asserted that these school-based experiences were significant in understanding their TPP's vision of inclusive instruction. Brandy noted that there was a "larger theme" of inclusion. For her, sharing about site visits as a part of coursework was one way this vision was communicated:

> [We had] a couple of class visits or school visits where our professor would be like 'Hey, this is a really good example of inclusion. I want you to look for this and then we'll discuss why it is afterwards'… [and afterwards] we would sit in a circle and each person would have noticed like the main theme overall but in different always.

In interviews, SETCs from TPP 700 also reported that their practicum experiences (which were distinct from the aforementioned site experiences) were consistent with their program's vision of inclusive instruction as effective instruction. Lauryn shared, "the beliefs that we've held through the teaching program… were expressed well in the placements."

As might be expected from the survey data, in interviews SETCs from TPP 600 reported that their preparation experience lacked certain elements of conceptual coherence. For the most part, this was a source of frustration. Generally, SETCs at TPP 600 perceived a lack of consistent expectations across courses and assignments (i.e., differences regarding whether objectives should be written with percentages or raw numbers, whether to script lesson plans, and whether you should read IEPs in advance of instruction) as detracting from the consistency and alignment of their experience. These are all examples of an impoverished sense of structural coherence. However, they also reported that a lack of buy-in to a larger conceptual vision on the part of faculty was disconcerting. When asked about shared understandings, several SETCs reported that

their faculty would read from a textbook and, when they were questioned would redirect students to the textbook. When asked about vision, Courtney stated that, "I am sure they would quote from a textbook." Monica shared the following anecdote regarding her experience learning about Response to Intervention (RTI).

> Sometimes they would be literally reading word for word out of a RTI book but then you'd asked a question and it would be like redirected back to the book. So I didn't feel like they really believed what they were teaching us.

This lack of consistency left these SETCs in TPP 600 feeling like this vision of supportive, inclusive instruction should be left up to individual interpretation. Courtney shared that the professors "let you mold your own path for what a special [education] teacher is based on what you see fit." She saw much of this individual interpretation as being tied to the practicum and how SETCs saw special education being enacted in the classroom as opposed to their experiences within the university based program.

Program Vision as Professionalization

According to survey data, the vast majority of SETCs (97.8) agreed or strongly agreed that their approach to teaching and learning "fit" with their TPP. This sense of fit was also evident in interview data. However, for this sample, this did not appear to be merely a matter of self-selecting into a particular program that aligned with their beliefs about special education. Across all sampled TPPs, interviewed SETCs viewed their professional selves as a product of their preparation experience. They reported that the beliefs and values they held regarding the roles and responsibilities assumed by effective special education teachers were shaped by the consistency and coherence of vision shared across their TPP. They stated that these messages were "drilled into our heads" (Mandy, 300) and that their own vision of effective special education was "verbatim what I was

taught" (Mariah, 500). When speaking about how her TPP prepared her, Macy (600) stated,

> I really feel like I'm a product of my program. I think that the values that I've grown to believe are instilled in me by my professors and my program. Those overall qualities that you asked me about, what makes an effective [special education] teacher, I would say that those are the most consistent things... I think those things were instilled in us from the very beginning and shaped me.

However, this process of professionalization occurred in different ways. Whether their learning experience *formed* or *solidified* their beliefs about the roles and responsibilities of effective special education teachers was associated with SETCs' previous experiences. Some SETCs reported that, prior to entering their TPP, they had a nonexistent or limited schema for understanding special education, so their preparation experience completely formed their understanding of what it means to be a special education teacher. For example, when asked whether her TPP changed her understanding of special education and students with disabilities, Britney (100) stated, "I don't know. I feel like I didn't go in with a lot of beliefs about students with disabilities." Similarly, Natalie (400) reported that the vision shared by her TPP was "really all that I know… so [my beliefs] didn't necessarily change. I just became more informed." Courtney (600) reported that her TPP corrected some misunderstandings about special education from her own educational experiences:

> I didn't really know much about special [education] besides the… groups that I was pulled out into… I just thought that special [education] was a really cool place that you went, and then you got candy, and it was a lot of fun. So it took me a while to really understand… what that really meant and I think with all the experience that I had, it definitely changed the way I saw it.

Others, who already had an established schema based on family, schooling, or prior professional work with individuals with disabilities, reported that their TPP further

solidified their understanding and, in some cases provided a framework to support what they already knew when they entered the program. The TPP "expanded upon what I already felt… it didn't necessarily change my view on that, it just emphasized… the importance of it" (Macy, 600). These SETCs stated that their preparation provided them with techniques to support enactment of the beliefs they held when they began their preparation. As an illustration, Tracey, whose brother has Downs Syndrome, noted that her experience in her TPP provided a framework to understand his needs and, therefore, to understand what was expected of her as a teacher. "I know how specific I always have to be with him. I think I always knew it a little bit. It wasn't until I got to [my TPP] when they were like, this is called explicit instruction. Then, I learned how to actually teach explicitly."

Triangulation: Program Statements of Mission and Vision

As a point of triangulation, I examined each TPP's statement of mission and vision through the use of publically available documents. These documents were inconsistent with some SETCs' perception of their program's vision of effective instruction in special education. Four of the six programs' websites stated a vision or mission that was aligned with evidence-based instruction (100, 400, 500, and 600) but this was not clearly expressed by candidates as a part of their TPP's vision of effective teaching and learning for students with disabilities.

Examining the program documents by profile was helpful in seeing where consistency and inconsistency might lie. In the explicit instruction profile (300 and 500), program documents for TPP 300 were unclear and did not respond to the most prominent aspects of the vision of effective teaching and learning reported by SETCs from that

program (i.e., explicit instruction). Instead, documents from this program highlight a need to advocate for students' needs and support their families. Documents for TPP 500 exhibited the strongest alignment with their mission and vision. In their mission statement, they centered preparation on evidence-based practice, data-based decision making, and using research to inform practice. Though they did not overtly name explicit instruction or direct instruction as the goal of their program, explicit instruction is a framework that includes these practices. In the general, responsive profile, both programs 100 and 400 highlighted the importance of evidence-based practice and effective or research validated instruction. This show some consistency, given that in interviews candidates reported using research-based strategies to inform instruction. Furthermore, interviewed SETCs in TPP 400 reported a focus on developing reflective practice and a disposition toward life-long learning; this was clear in their program's mission and vision. Finally, in the supportive collaboration profile, candidates from TPPs 600 and 700 reported a focus on supporting students across a wide range of needs through collaboration. For TPP 600, this was noted as one of the pillars of their vision, along with equity, evidence-based practice, advocacy and culturally responsive teaching. For TPP 700, there was no mention of collaboration in their mission statement. Rather the focus was on diversity, technology, and principled practice.

Discussion

The findings presented in this chapter draw on survey and interview data to better understand the extent and nature of programmatic vision in special education teacher preparation. Based on data from the clarity of vision scale of the *Survey of Special Education Teaching* Candidates, results highlight that candidates perceive their

university-based experience to have a clear vision of teaching and learning for students with disabilities. However, the programmatic vision shared in interviews varied by program. Across the six programs included in this study, three distinct visions of teaching and learning in special education emerged from qualitative interview data: explicit instructor; general, responsive instructor; and supportive, inclusive collaborator. As reported by candidates, this programmatic vision helped to position them as they entered the field and was instrumental in their professional formation. However, even though this perceived vision was consistent across interviews within each TPP, it was not necessarily reflected in publicly available program documents.

In the following section, I address several points raised by this analysis. First, I compare my findings regarding the clarity of vision with my hypotheses and discuss potential issues with the measurement of perceptions of vision in this study. Then, I explore how interviews with SETCs shed light on several problems of practice in special education teacher preparation: use of epistemology, conceptions of "good teaching," and roles and responsibilities of special education teachers.

The Extent of Programmatic Vision

In contrast to my hypothesis, survey analysis did not provide evidence of variability across TPPs with regard to SETCs' perceptions of the clarity of their TPP's vision. Instead, findings suggest that candidates generally believe their program clearly articulate a specific vision of teaching and learning. Though this lack of variability appears to be inconsistent with studies in general education where researchers have found that candidates' perceptions of conceptual coherence introduce a sizable portion of the variation in response patterns (Grossman et al., 2008), this could be due more to the

single aspect of conceptual coherence (a larger construct) addressed in this study. Though my results are surprising at first, a thorough examination of the instrument used in this analysis reveals that these may have less to do with candidates' perceptions of clarity and more to do with the construction of the scale.

In trying to capture the experience of SETCs as they move between special education and general education coursework in merged programs (Pugach & Blanton, 1992), this analysis was intentionally focused on experiences within candidates' university-based coursework. In constructing the scale, I drew on certain aspects of vision to examine the extent to which experiences across coursework (i.e., learning housed within the university) were centered on a) a common vision of teaching and learning for students with disabilities and b) a clearly articulated understanding of the role of special education teachers. As constructed, the scale did not target the field experience, an aspect of teacher preparation that researchers in general education have identified as an important mechanism for enabling candidates to carry their program's vision into the classroom (Darling-Hammond, 2014; Grossman et al., 2008; Hammerness & Klette, 2015). This is where this study—the first to explore any aspect of program coherence in special education—is limited. In isolating the clarity of vision SETCs experience across coursework, I did not attend to the multiple dimensions that would be highlighted in examining the complexity of field-based practice experiences and relationships with university supervisors and cooperating teachers (Benedict et al., 2016; Leko & Brownell, 2011; McCray, 2012). As constructed, the scale addresses the articulation of a shared vision and the extent to which the content of certain learning experiences address that

vision, but fails to address the extent to which the TPP as a whole makes deliberate connections between theory and practice (Hammerness, 2006).

Another problem with the scale is that it is focused only on experiences that *contribute* to that vision. Because development of the scale was informed by the factor analysis in the previous chapter as well as theory, the items that drew on the consistency of perspectives regarding teaching and learning for students with disabilities that SETCs experience as they move between general and special education coursework were not included in this analysis (Pugach & Blanton, 1992) This included two items: *Across general and special education courses, I hear conflicting views about teaching and learning* and *Across courses I hear similar views of teaching and learning*. Furthermore, other items in the survey instrument that examined dissonance between university-based coursework and experiences with university supervisors and cooperating teachers were included in separate scales. Responses on these items could have been a source of significant variability in the data set and broadened the construct addressed in this study.

A final point to consider when evaluating the findings from the survey is that, by design, the survey is agnostic to specific theories of teaching and learning for students with disabilities. Items were designed to identify the *extent* to which candidates reported a clear vision of teaching and learning for students, but the *nature* of that vision was not articulated in the items. As such, candidates' perception of clarity as reported on the survey instrument should not be interpreted as clarity around a single or similar vision. This is true both within and across programs. Prior research identifies that special education TPPs draw on varied—and sometimes multiple—epistemologies in establishing program vision (Brownell et al., 2005). Identifying epistemological

differences is integral to understanding candidates' developing conception of the role of special educators, their perceptions of their opportunities to learn, and their beliefs about teaching and learning. For this reason, interpretation of these findings must examine the ways that TPPs' visions about teaching and learning for students with disabilities serve to orient candidates as they move into the field.

The Nature of Programmatic Vision

In contrast to my findings regarding the *extent* of conceptual coherence, SECTs reported varied perspectives regarding *nature* or *content* of their TPP's vision of effective teaching and learning for students with disabilities. This confirmed patterns previously identified through document analysis of special education TPPs (Brownell et al., 2005). Drawing on SETCs' emic perspectives, this aspect of the study represents an important contribution to research in special education teacher preparation.

Epistemology. Consistent with Brownell and colleagues' findings from a review of program documents in special education teacher preparation (2005), candidates' depiction of their program vision highlighted the varied epistemological orientations present in special education teacher preparation. SETCs in explicit instruction TPPs reported that their experience was grounded in positivist thought (Lincoln & Guba,1994) and spoke about their program's emphasis on evidence-based practice as a tool to guide their development (Blanton, 1992). On the other hand, candidates in supportive, inclusive collaboration TPPs drew on more constructivist thought (Lincoln & Guba, 1994). According to these SETCs, their preparation experiences were characterized by collective examination that prompted them to examine their beliefs about students and instruction, to integrate new learning with prior knowledge, draw on broad sources of knowledge

about their students, and reflect on the impact of their instruction (Brownell et al., 2005). Candidates in the general, responsive instruction program drew from both bodies of knowledge. They spoke readily about the importance of using research-based practice and providing specific strategies to students, but they also spoke about being unsure of how to address students' challenges because of an emphasis on broad ideas of diversity within their programs. Particularly within these programs (TPPs 100 and 400), it was difficult to ascertain which tradition served to organize their experience and whether candidates were given the opportunity to make sense of the distinctions between these two orientations.

"Good Teaching". However, as research in general education teacher preparation highlights (Darling-Hammond, 2006; Feiman-Nemser et al., 2014; Hammerness, 2013), for these candidates vision represented much more than merely positions on knowledge and knowing. Epistemology might have been the foundation on which these TPPs were built, but interview data reflected that SETCs' perceptions of vision extended beyond philosophy. Candidates spoke of vision as representing programmatic goals for professional identity formation including the values, beliefs, and purpose of education that future special education teachers would enact in the field (Hammerness, 2013). In essence, the programmatic profiles that emerged from my analysis capture what "good teaching" meant for each program as communicated through opportunities to learn (OTL; Kurz, 2011). Consistent with research in general education (Feiman-Nemser et al., 2014; Hammerness, 2012a; Hammerness, 2013; Tatto, 1996), in programs where a clear vision was most evident, candidates' words suggested dialogue and reflection within a particular framework. This was most evident in programs oriented toward explicit instruction. In

programs where the vision of "good teaching" was less concrete, candidates spoke about their own interpretation as a vehicle for considering practice. Though they spoke of this as something often done in community, for candidates in these programs sensemaking emerged from the individual not necessarily the collective vision. This was most evident in programs oriented toward supportive collaboration.

The difficulty in identifying collective thought or vision around "good teaching" in special education writ large is a challenge (Kennedy, 2006; Pugach & Blanton, 2009). This analysis provided further evidence of this. For SETCs within these programs, their perspectives of their program's vision for teaching students with disabilities extended from tight, technical practice (i.e., explicit instruction; Archer & Hughes, 2010; Hughes et al., 2017; Rosenshine, 2012) to broad understandings of disability as diversity, or a part of addressing the needs of *all learners* across *all settings*. This finding speaks to a tension particular to the preparation of special education teachers: how might TPPs prepare candidates to "understand… pedagogies in relationship to how they might need to be shaped for students who have disabilities—without relegating those students to uninteresting and unmotivating school experiences?" (Pugach & Blanton, 2009, p. 579). While SETCs in explicit instruction programs spoke clearly about processing other models of instruction using their TPP's vision of "good teaching," candidates in the other profiles were less apt to do this, particularly those candidates in the supportive, inclusive collaboration profiles. This brings to light that programs that articulated a less concrete vision potentially did a disservice to SETCs and to their future students. By preparing candidates with broad understandings of "good" teaching, these data suggest that candidates entered the field without the mooring influence of a solid framework through

which they could make sense of their instruction, their students, and the roles they would take on in their school communities (Vannest et al., 2011; Wasburn Moses, 2005; 2009; Urbach et al., 2015).

Roles and Responsibilities. Similar to viewing their program's vision as a collective understanding of "good teaching," SETCs within different program profiles saw their preparation as pointing them toward different roles and responsibilities in K-12 settings. This further highlights how programmatic vision, in large part, shapes identity formation (Feiman-Nemser, 2001; Darling-Hammond, 2006). Yet, the question of identity and role looms large in special education. Novices and veteran teachers alike face the complexities of role as they enter the field, resulting in ambiguity, conflict, and dissonance (Bettin et al., 2017; Billingsley et al., 2004; Gersten et al., 2001; Jones & Youngs, 2012; Mathews et al., 2017; Youngs et al., 2011).

Across interviews, candidates' responses indicated that—drawing on the collective vision of their preparation program— they felt sure of the role they would take on as they entered the field. Their programmatic vision was a heuristic to illuminate, organize, and focus the "what" or the curricular content of their teacher preparation program (Boyd et al., 2008; Boyd et al., 2009; Darling-Hammond, 2006; Zeichner & Conklin, 2008). It set the normative floor for how they would enact their role in the field (Feiman-Nemser, 2001) and represented a macro-level OTL (Kurz, 2011). Interviews with candidates in explicit instruction programs showed that their work as clinical interventionists was in the foreground of their curriculum (Fuchs et al., 2010; Fuchs et al., 2014). In contrast, candidates in supportive, inclusive collaboration programs centered their work on the importance of supporting all students, teachers, and families as they

supported collaborative instruction with a preference for the general education setting (Florian, 2008; Friend et al., 2010). Finally, candidates in general, responsive instruction programs seemed to see their job as bridging these roles, both diagnosing learning needs in order to tailor instruction and then working with others to provide access in an equitable manner. Certainly it is true that novices will likely take on both clinical and collaborative roles in their daily work, but this analysis points to the possibility of OTL not addressing both aspects of professional practice (Vannest et al., 2011; Urbach et al., 2015; Wasburn Moses, 2005; 2009; Zigmond & Kloo, 2011).

Yet, within each profile, a programmatic vision that accounted for more than one role in a meaningful way was not evident to or reported by the SETCs. This prompts questions regarding whether their TPP's vision allowed for the development of opportunities to learn focused on the wide range of content needed to develop the professional knowledge, skills, identity, and beliefs necessary to provide the necessary, appropriate services to students with disabilities in K-12 settings. As the field moves toward multi-tiered systems of support, there is an impetus to develop special educators who are prepared for a profession through extensive preparation in both instructional and collaborative roles.

Limitations

These findings are limited in a number of ways. The issue of preparation program coherence is complex and is at once conceptual and structural (Hammerness, 2012) yet this analysis only addresses candidates' perceptions of programmatic vision. Though this chapter highlights the extent to which candidates perceived a shared vision, connected across theory and practice, and provides some insight into the thoughtfulness of their

preparation program in communicating that vision (Hammerness, 2006), this study targets only one aspect of conceptual coherence (i.e., vision) and does little to examine the structural decisions that are a part of developing and maintaining a coherent preparation experience (Feiman-Nemser, 1990; Grossman et al., 2008). Nor does this study provide evidence from other stakeholders in the TPP, thus making it difficult to determine the broader influence of epistemology, programmatic perspectives on "good teaching," and beliefs about the roles and responsibilities of effective special education teachers (Brownell et al., 2005). Furthermore, by nature, this study was intended to explore and illustrate how candidates in six programs experienced their programmatic vision. Findings from this chapter are not generalizable to the broader population of special education teacher preparation programs. That said, in the field of special education there is scant research that addresses questions of coherence and none that explores any aspect of this construct across preparation experiences. In this way, this analysis—though limited to exploring vision—is a unique contribution to the literature.

CHAPTER 6: OPPORTUNITIES TO LEARN AND BELIEFS

In this chapter, I explore special education teacher candidates' (SETCs') reported opportunities to learn (OTL) collaborative and instructional practice, their beliefs about students with disabilities and instruction, and their own teacher self-efficacy. To offer a clear description of their OTL and beliefs, I draw on items from the *Survey of Special Education Teaching Candidates* to describe OTL from the whole sample ($N = 90$) and across the program profiles established in the previous section. This analysis also reflects candidates' OTL through support experiences with university supervisors and cooperating teachers, an important OTL for SETCs' and pre-service teachers generally (Hanline, 2010; Leko & Brownell, 2011; McCray, 2012). I examine patterns across individual items using frequency tables to look for broad patterns in the data.

After this, I explore how SETCs' reported OTL and beliefs vary across the three program profiles established in the previous chapter by examining measures of central tendency. I report the results of significance tests for the following hypotheses. For this phase of analysis, I hypothesized that candidates in explicit instruction programs would report more extensive OTL explicit instruction than candidates in other programs; that OTL instructional practices would be more prevalent in explicit and general instruction profiles than supportive collaboration profiles; and that candidates in supportive collaboration programs would report more extensive OTL collaborative practice with staff and IEP teams. With reference to the particular OTL of support, I hypothesized that this would be consistent across profiles and there would be no statistically significant

differences. For beliefs, I hypothesized that candidates in explicit instruction programs would report significantly higher TSE, external attribution, and specialized instruction beliefs; I hypothesized that candidates in supportive collaboration programs would espouse beliefs in mutually advantageous instruction and inclusive instruction. For internal attribution beliefs, I hypothesized that there would not be statistically significant differences.

Finally, I use a Spearman's rank order correlation to assess the extent to which SETCs' reported OTL are associated with certain belief constructs. In this section, I address the following research questions:

To what extent do SETCs report experiencing opportunities to learn with regard to collaboration and instruction?

a) To what extent do SETCs' report experiencing instructional support from university supervisors and cooperating teachers in field placements?

b) To what extent do SETCs report beliefs that are consistent with inclusive instruction and that promote inclusion of SWD in reading, writing, and mathematics?

To what degree are SETCs' reported pre-service opportunities to learn high leverage practices for instruction and collaboration and their support from university supervisors and cooperating teachers associated with their beliefs about inclusion, internal and external attribution, instructional practice, and their own teacher self-efficacy with regard to teaching students with disabilities?

Results

In order to understand candidates' preparation experiences, I administered survey items regarding the extent of their OTL about high leverage practice (HLP) for special education. These survey items addressed opportunities to learn a) collaborative practice with staff, b) collaborative practice with IEP teams, c) high leverage instructional practice for special education, and d) techniques relevant to a particular high leverage practice, explicit instruction. To measure OTL across these four areas, SETCs responded to items regarding the extent of their learning experiences addressing each practice. This included opportunities to engage with and enact HLPs during their preparation measured across a five-point ordinal scale. At the low end, SETCs reported reading about the practice and touching on it in their coursework; at the high end, they reported extensive opportunities to enact and receive feedback on the practice. For this section of analysis, I used frequency tables and composite scores to measure aspects of the quantity and quality of SETCs' OTL across TPPs and program profiles. I then tested for differences across program profile using a Kruskal Wallis H test and the Mann Whitney U test for post hoc tests when necessary.

Opportunities to Learn

Frequency tables. First, I used item-level frequency tables to analyze the response patterns for each practice. See Tables 20, 21, and 22. Across all scales, data were negatively skewed suggesting that SETCs generally reported having extensive OTL in their preparation experiences. When considering the collaborative practices included in the survey, the majority of SETCs reported that their OTL included at least discussion of—if not time spent enacting—the practice. However, with the exception of

collaborating with general education teachers on the staff scale and interpreting and communicating information to stakeholders on the IEP scale, less than one quarter of SETCs reported having extensive opportunities to practice and receive feedback on collaborative practice.

In reporting OTL HLPs for instruction, more than half of the respondents indicated that they had extensive opportunities to enact and receive feedback on the majority of the included practices. Yet, there were three practices for which less than half of the sample reported the highest level of OTL: teaching cognitive and metacognitive strategies to support learning and independence (40%), using flexible grouping (35.6%), and teaching students to maintain and generalize learning across time and settings (28.9%). When considering SETCs' OTL the techniques associated with explicit instruction, more than half reported the highest level of OTL. Within this group of techniques (e.g., modeling, think aloud, guided practice, opportunities to respond), four showed the most extensive OTL: modeling (67.8%), guided practice (70.0 %), providing feedback (68.9 %), and independent practice (68.9%).

Triangulation: Required courses and practicum placements. The extent of SETCs' OTL, as reported through the survey, is consistent with my analysis of program documents. Five of the six TPPs listed a course in either collaborative or inclusive practice as a program requirement; however, there were not practicum placements listed that necessarily aligned to the content of the course. In interviews, candidates reported required practicum experiences that took place in inclusive settings, but did not report receiving the same type of feedback on collaborative practice as on instructional practice.

This would be consistent with the frequency data reported here (rankings between "spent time discussing" and "spent time discussing and doing it").

Program documents revealed that, across TPPs, candidates had extensive opportunities to practice in authentic settings prior to student teaching. Some of these opportunities were directly aligned with specific coursework while others were more general. Reviews of course sequences with regard to instructional practice revealed that five out of six programs included specific courses in reading methods for students with disabilities and (of those five programs) four included an associated practicum. As candidates reported in interviews, these practicum placements were often sites of feedback. They also provided layered opportunities to learn wherein SETCs could see a practice modeled, try it out in the classroom, and receive feedback. This was not the same for mathematics. Only two programs required SETCs to take mathematics courses that specifically addressed the needs of students with disabilities and none required an associated practicum. However, in interviews, candidates reported trying the methods out in their general practicum placements.

Table 20

Extent of Special Education Teacher Candidates' Opportunities to Learn High Leverage Practices for Collaboration

Composite	Item	None	Touched on it briefly	Spent time discussing it	Spent time discussing **and** doing it	Extensive opportunity to practice **and receive feedback**
Staff	Collaboration with general education colleagues	1.1	3.3	15.6	46.7	33.3
	Collaboration with related service providers	3.3	13.3	28.9	40.0	14.4
	Collaboration with instructional support staff	4.4	15.6	16.7	44.4	18.9
IEP Team	Collaboration with families	1.1	7.8	33.3	36.7	21.1
	Facilitating effective meetings with professionals and families	1.1	5.6	32.2	38.9	22.2
	Interpreting and communicating assessment information to IEP team members and families	1.1	4.4	27.8	42.2	24.4
	Working with IEP team members and families to design and enact educational programs	1.1	6.7	30.0	42.4	20.0

Table 21

Extent of Special Education Teacher Candidates' Opportunities to Learn High Leverage Practices for Instruction

Item	None	Touched on it briefly	Spent time discussing it	Spent time discussing **and** doing it	Extensive opportunity to practice **and** **receive feedback**
Providing positive and constructive feedback to guide students' learning	--	--	7.8	35.6	56.7
Identifying long- and short-term learning goals for students	--	2.2	7.8	36.7	53.3
Systematically designing instruction toward a specific learning goal	--	2.2	8.9	26.7	62.2
Adapting curriculum tasks and materials for specific learning needs	--	--	11.1	33.3	55.6
Teaching cognitive and metacognitive strategies to support learning and independence	--	6.7	12.2	41.1	40.0
Using flexible grouping	4.4	4.4	23.3	32.2	35.6
Identifying and using strategies to promote student engagement	--	--	8.9	35.6	55.6
Teaching students to maintain and generalize learning across time and settings	1.1	2.2	18.9	48.9	28.9
Planning interventions that address the intensity of students' learning and/or behavioral challenges	--	1.1	7.8	41.1	50.0
Planning and providing scaffolded supports	--	1.1	3.3	26.7	68.9

Table 22

Extent of Special Education Teacher Candidates' Opportunities to Learn Explicit Instruction

Item	None	Touched on it briefly	Spent time discussing it	Spent time discussing **and** doing it	Extensive opportunity to practice **and receive feedback**
Breaking down complex skills and strategies into smaller instructional units	--	--	13.3	33.3	52.2
Explicitly modeling skills and strategies	--	--	1.1	30.0	67.8
Using think-alouds to clarify the decision-making processes necessary to complete a task or procedure	--	2.2	10.0	24.4	62.2
Providing students with examples and non-examples of when skills or strategies would be used or applied	--	--	8.9	34.4	55.6
Providing opportunities for students to engage in guided practice	--	1.1	4.4	23.3	70.0
Planning for frequent and varied opportunities for students to respond during instruction	--	--	3.3	28.9	66.7
Providing immediate feedback during instruction	1.1	1.1	2.2	25.6	68.9
Providing opportunities for students to engage in independent practice	--	--	3.3	26.7	68.9

Composite scores. When considering the entire sample (n = 90), SETCs reported more extensive OTL instructional practices than collaborative practices. When examining OTL collaborative practice, SETCs' reported experiencing similar OTL collaborative practice with staff (M = 3.71, SD = .853) and OTL collaborative practice with IEP teams (M = 3.76, SD = .743). However, standard deviations indicated that, within this sample, the extent of SETCs' learning experiences varied. Regarding instructional practice, analyses revealed that for the whole sample OTL HLPs for instruction and explicit instruction were generally more extensive than OTL collaborative practices (OTL HLP for Instruction: M = 4.34, SD = .515; OTL Explicit Instruction: M = 4.55, SD = .584). Slightly smaller standard deviations suggest that SETCs' OTL instructional practice were more homogenous than OTL collaborative practice when considering all responses and that, for most SETCs, their preparation included extensive opportunities to enact and receive feedback on instructional practices aligned with the HLPs for instruction and an explicit instruction framework.

Examining OTL across TPPs revealed that SETCs reported differing OTL collaborative and instructional practice across programs. SETCs reported having the opportunity to learn collaborative and instructional practices, but the extent varied by program. For example, SETCs at TPPs 500, 300, and 100 reported more extensive OTL instructional practice than OTL collaborative practice. In these TPPs, instruction-focused OTL were generally greater than 4 (suggesting they "spent time practicing and receiving feedback") and collaboration-focused OTL were generally between 3 and 4 (suggesting they "spent time discussing and doing"). SETCs at TPPs 400, 600, and 700 reported that they received extensive OTL instructional practices,

but also received more extensive OTL collaborative practice with regard to either staff or IEP teams when compared to SETCs from other programs. Consistent with the previous analysis, standard deviations within TPPs indicated that SETCs' perceived OTL instructional practices were more homogenous than OTL collaborative practice. See Table 23.

Table 23

Comparison of Opportunities to Learn Composites across Teacher Preparation Programs

Composite	Profile	Teacher Preparation Program: Explicit Instruction		General, Responsive Instruction		Supportive, Inclusive Instruction		Total
	TPP	500	300	100	400	600	700	
	N	*n* = 8	*n* = 21	*n* = 16	*n* = 32	*n* = 7	*n* = 6	*N* = 90
Collaborative I Staff	*M*	3.67	3.70	3.25	3.89	4.10	3.72	3.71
	SD	.534	.942	.856	.861	.568	.854	.853
	Median	4.00	3.67	3.50	4.00	4.00	4.00	4.00
	Mode	4.00	3.00	2.67[a]	4.33	4.00	2.67[a]	4.00
Collaborative I Individualized Education Plans (IEPs)	*M*	3.59	3.35	3.58	4.12	3.68	4.04	3.76
	SD	.581	.899	.694	.622	.122	.679	.743
	Median	3.5	3.25	3.75	4.00	3.75	4.125	3.75
	Mode	3.00[a]	3.00	3.75	4.00	3.75	3.25[a]	4.00
Instructional Pı High Leverage	*M*	4.68	4.28	4.31	4.35	4.23	4.25	4.34
	SD	.377	.537	.621	.538	.394	.137	.515
	Median	4.8	4.20	4.28	4.45	4.30	4.30	4.35
	Mode	4.70[a]	4.00[a]	3.9[a]	5.00	4/20	4.30	5.00
Instructional Practice: Explicit Instruction	*M*	4.89	4.54	4.55 [c]	4.62	4.48	4.21	4.57 [b]
	SD	.182	.422	.584	.400	.785	.258	.469
	Median	5.00	4.63	4.88	4.75	4.75	4.25	4.75
	Mode	5.00	4.75	5.00	5.00	4.75[a]	4.25	5.00

[a] Multiple modes provided; [b] *N* = 89; [c] *n* = 15

Composite scores across program profiles. Table 24 displays descriptive data regarding SETCs' OTL for the total sample and by program profile. When considering the entire sample (*n* = 90), SETCs reported more extensive OTL instructional practices than collaborative practices. When examining OTL collaborative practice, SETCs reported experiencing similar OTL collaborative

practice with staff (M = 3.71, SD = .853) and OTL collaborative practice with IEP teams (M = 3.76, SD = .743). However, standard deviations indicate that, within this sample, the extent of SETCs' learning experiences varied. Regarding instructional practice, analyses revealed that for the whole sample OTL HLPs for instruction and explicit instruction were generally more extensive than OTL collaborative practices (OTL HLP for Instruction: M = 4.34, SD = .515; OTL Explicit Instruction: M = 4.55, SD = .584). Slightly smaller standard deviations suggest that the extent of SETCs' perceived OTL instructional practice were more homogenous than OTL collaborative practice when considering all responses and that, for most SETCs, their preparation included extensive opportunities to enact and receive feedback on instructional practices aligned with the HLPs for instruction and an explicit instruction framework.

Program profile comparison. The variation observed in qualitative and descriptive data led me to question whether the extent of SETCs' reported OTL would be consistent with their preparation program's vision of effective instruction (i.e., explicit, clinical instruction; general, responsive instruction; supportive collaboration). I hypothesized that the most evident differences would be between supportive collaboration programs (i.e., TPPs 600 and 700) and explicit instruction programs (i.e., TPPs 300 and 500) and that responsive instruction programs would represent a mix of the other two programs. Given their focus on collaboration, I hypothesized that SETCs in supportive collaboration programs would report more extensive OTL collaborative practice with staff and IEP teams than SETCs in clinical instruction programs. Conversely, I hypothesized that SETCs in supportive

collaboration programs would report less extensive OTL explicit instruction than SETCs in clinical instruction programs.

Results suggested a trend that would provide support for my hypothesis. When addressing OTL collaborative practice (staff), SETCs in supportive, inclusive collaboration programs reported a higher composite (M = 3.92, SD = .709) than SETCs in clinical instruction programs (M = 3.69, SD = .804). The results were similar for OTL collaborative practice (IEP teams); SETCs in supportive, inclusive collaboration programs reported a descriptively higher composite score (M = 3.84, SD = .485) than SETCs in explicit instruction programs (M = 3.41, SD = .822). When exploring OTL explicit instruction, the predicted distinctions were observed as well. SETCs in explicit instruction programs reported a higher mean OTL explicit instruction (M = 4.63, SD = .402) than SETCs in supportive collaboration programs (M = 4.36, SD = .597), though the distinctions were less pronounced. Furthermore, though SETCs in supportive collaboration programs were less likely in interviews to discuss specific instructional practices they would employ in the classroom (such as those articulated in the HLPs for instruction), they reported fairly extensive OTL commensurate with SETCs in the general, responsive and explicit instruction programs (M = 3.24, SD = .290).

Table 24

Opportunities to Learn Program Profile Comparison

OTL Composite		Preparation Program Type: Supportive Collaboration	Responsive Instruction	Explicit Instruction	Total
		n = 13	*n* = 48	*n* = 29	*N* = 90
Collaborative Practice: Staff	*M*	3.92	3.67	3.69	3.71
	SD	.709	.903	.840	
	Median	4.00	4.00	3.67	4.00
	Mode	4.00	4.00	4.00	4.00
Collaborative Practice: Individualized Education Plans (IEPs)	*M*	3.84	3.94	3.41	3.76
	SD	.485	.689	.822	.743
	Median	3.75	4.00	3.25	3.75
	Mode	3.75	4.00	3.00	4.00
Instructional Practice: High Leverage Practices	*M*	4.24	4.34	4.39	4.34
	SD	.290	.561	.523	.515
	Median	4.30	4.40	4.40	4.35
	Mode	4.30	5.00	5.00	5.00
Instructional Practice: Explicit	*M*	4.36	4.50	4.63	4.52
	SD	.597	.805	.402	.671
	Median	4.500	4.75	4.75	4.75
	Mode	4.25[a]	5.00	5.00	5.00

Note. [a] More than one mode is present; the lowest is presented.

Group comparisons. A Kruskal-Wallis H Test was conducted to assess whether differences in the observed patterns in OTL composites across preparation program profiles were statistically significant (explicit instructor (n = 29); general, responsive instructor (n = 48); and supportive, inclusive collaborator (n = 13)). Distributions of composites for OTL were not similar for all groups, as assessed through the use of pyramid plots and the Kolmogorov-Smirnov test. For this reason, mean ranks were compared as opposed to the median. Composites for OTL: Collaborative Practice IEPs were statistically significantly different across the three TPP profiles $\chi^2(2) = 9.518$, $p = .009$. See Table 25.

Table 25

Kruskal-Wallis H Test of Differences in OTL According to Program Profile

	χ^2	df	*P*
Collaborative Practice: Staff	1.323	2	0.516
Collaborative Practice: IEPs	9.518	2	0.009
Instructional Practice: High Leverage Practices	1.093	2	0.579
Instructional Practice: Explicit Instruction	2.902	2	0.234

As a follow-up assessment, I used Mann Whitney U tests to test for specific differences across program profiles. Because the number of contrasts did not exceed the number of groups, no alpha level corrections were applied (Keselman, Games, & Rogan, 1979). Post hoc analyses revealed statistically significant differences in OTL: Collaborative Practice IEPs between the explicit instruction (mean rank = 29.48) and general, responsive instruction (mean rank = 44.75) (p = .004) profiles and between the clinical, explicit instruction (mean rank = 18.97) and supportive collaborator (mean rank = 27.15) (p = .044) profiles. All other comparisons were not statistically significantly different with reference to program profile; for the most part, this was counter to the hypotheses that emerged after my qualitative analyses.

Instructional Support

The instructional support provided by university supervisors (US) and cooperating teachers (CTs) during teacher preparation are especially valuable for SETCs (Leko & Brownell, 2011; McCray, 2012). Because each candidate likely works in a different classroom during their internship or student teaching, I ran these analyses for the whole group to examine trends, looked at TPPs individually, and then compared program profiles.

Frequency tables. Results from item-level frequency tables reveal that, overall, candidates reported positive experiences with their university supervisors (US) and cooperating teachers (CT) in their program. See Table 26. The majority of respondents indicated that their supervisor gave them useful feedback (88.9%) that was aligned with their methods courses (91.1%). Candidates also believed that their US understood the needs of students with disabilities (81.1%), but nearly one third (31.1%) reported their US did not have experience as a special education teacher. Across the whole group, candidates reported that their US formally observed them (either through video or live observation) between two and 24 times; the distribution was positively skewed ($M = 6$, $SD = 3.92$).

Similarly, the vast majority of SETCs reported that they found feedback from their CT to be useful (91.1%), that their CT understood the needs of students with disabilities (93.3%), and that they had useful meetings with their CT (85.5%). They also indicated that their CT collaborated well with other school personnel, an important aspect of teaching special education (88.8%). Interestingly, though candidates reported being able to practice or try out the strategies they learned in their university-based coursework (94.5%), more than half of SETCs believed that their CT taught in ways that were quite different than those taught in their university based courses. When asked whether their CT served in the role of a general or special education teacher, 2.2% indicated that their CT was a general education teacher, 55.6% of respondents indicated their CT was a special education teacher, and 44.2% indicated their CT taught both special education and general education. This suggests

that the majority of SETCs experienced the mentorship of an individual licensed as a special educator.

Table 26

Special Education Teacher Candidates' Support Through University Supervisors and Cooperating Teachers

Construct	Item	Strongly Disagree	Disagree	Agree	Strongly Agree
University Supervisor	My supervisor gave me useful feedback on my teaching	3.3	6.7	30.0	58.9
	My supervisor provided feedback that was aligned with the theories and practices advocated in my methods courses	3.3	4.4	40.0	51.1
	My supervisor understood the needs of students with disabilities	4.4	13.3	22.2	58.9
	My supervisor had experience as a special education teacher	7.8	23.3	17.8	46.7
Cooperating Teacher	My cooperating teacher gave me useful feedback with regard to teaching students with disabilities	1.1	5.6	32.2	58.9
	My cooperating teacher collaborated well with others (e.g., other teachers, administrators, instructional assistants)	2.2	6.7	24.4	64.4
	My cooperating teacher understood the needs of students with disabilities	1.1	3.3	14.4	78.9
	My cooperating teacher taught in ways that were quite different from the methods I was learning in my special education university courses	8.9	28.9	24.4	35.6
	I had useful meetings with my cooperating teacher	1.1	11.1	32.2	53.3
	My cooperating teacher allowed me to try out the strategies and techniques I was learning in my special education methods courses	1.1	2.2	25.6	68.9

Note. Percentages do not sum to 100 due to missing responses. In follow up contacts, one SETC reported not having a university supervisor and two reported not having a cooperating teacher.

Composite scores across program profiles. Descriptive statistics at the program level confirmed that, across most programs, SETCs reported positive experiences of support with their US and CT. The experience of candidates in TPP

700 was perhaps less supportive, as the mode dipped below three indicating slightly less positive feelings regarding their experience with their US. See Table 27.

Table 27

Special Education Teacher Candidates' Support by Teacher Preparation Program

		Teacher Preparation Program						
		100	300	400	500	600	700	Total
University Supervisor Support *N* = 89	*N*	15	21	32	8	7	6	89
	M	3.22	3.00	3.47	3.78	3.61	3.33	3.35
	SD	0.65	0.97	0.68	0.36	0.43	0.75	0.75
	Median	3.00	3.00	3.75	4.00	3.75	3.25	3.75
	Mode	4.00	4.00	4.00	4.00	3.75	2.75	4.00
Cooperating Teacher Support *N* = 88	*N*	14	21	32	8	7	6	88
	M	3.60	3.30	3.22	3.44	3.19	3.44	3.33
	SD	0.34	0.39	0.53	0.33	0.45	0.46	0.45
	Median	3.67	3.50	3.42	3.50	3.17	3.58	3.50
	Mode	3.83	3.50	3.50	3.50	3.67	3.83	3.50

Group comparisons. As is shown in Table 28, there were no distinguishable trends in the descriptive data with regard to program profile, suggesting support through CT and US did not differ with regard to the vision of a TPP. A Kruskal-Wallis H Test was conducted to test this assumption across program profiles (explicit, clinical instructor (n = 29); general, responsive instructor (n = 48); and supportive collaborator (n = 13)). Because the distributions were dissimilar, mean ranks were used to conduct the test as opposed to the mean. The results were consistent with my hypothesis. Across program profiles, SETCs did not report statistically significant differences in the extent of support from their US ($\chi^2(2) = .721$, $p = .697$) or CT ($\chi^2(2) = .194$, $p = .907$).

Table 28

Special Education Teacher Candidates' Support

Composite		Preparation Program Profile			Total
		Supportive Collaboration	Responsive Instruction	Clinical Instruction	
		n = 13	*n* = 47	*n* = 29	89
University Supervisor Support *N* = 89	*M*	3.48	3.39	3.22	3.35
	SD	.59	.67	.91	0.75
	Median	3.75	3.50	3.75	3.75
	Mode	3.75	4.00	4.00	4.00
		n = 13	*n* = 46	*n* = 29	
Cooperating Teacher Support *N* = 88	*M*	3.31	3.34	3.34	3.33
	SD	.45	.51	.37	0.45
	Median	3.50	3.50	3.50	3.50
	Mode	3.67	3.50	3.50	3.50

Note. In follow up contacts, one SETC reported not having a university supervisor and two reported not having a cooperating teacher.

Beliefs

Frequency tables. I began by examining the individual items in the belief scales using frequency tables. Results are displayed in Table 29. Given the domain specificity of beliefs (Zeichner, 2005), I hypothesized that response patterns would differ by content area (i.e., mathematics, reading, and writing) and that, in general, SETCs' beliefs would support mutually advantageous instructional practice at higher levels than specialized instructional practice. I examined respondents' beliefs about the reasons for students' success or failure (i.e., internal and external attribution), instructional practice broadly defined (i.e., specialized instruction and mutually advantageous instruction), and the setting in which they could best promote and meet students needs (i.e., beliefs about inclusive practice). In general, SETCs response patterns indicated that their beliefs were general, as opposed to content specific.

Beliefs about attribution. In general, SETCs reported attribution beliefs that support inclusion of students with disabilities. First, I examined SETCs' internal

attribution beliefs, or their beliefs regarding the importance of ability as opposed to effort. The majority of SETCs disagreed or strongly disagreed with statements that signified an internal attribution belief, suggesting that candidates believed that ability was not fixed and that outcomes might altered through effort on the part of the student. Furthermore, because this pattern was evident across mathematics (92.2%), reading (92.3%) and writing (87.8%), this suggests that these beliefs were consistent across content areas. Next, I explored SETCs' external attribution beliefs. The majority of SETCs agreed or strongly agreed that ineffective instruction was most likely the cause of underachievement across mathematics (70.0%), reading (57.7%), and writing (63.3%) signaling that SETCs' general beliefs were consistent with external attribution. However, SETCs' response patterns on these items revealed slight differences across content areas, particularly with regard to reading. On these individual items, 42.2% of respondents strongly disagreed or disagreed that underachievement in reading was due to ineffective instruction as compared to 30.0% for mathematics and 35.5% for writing. Though this is a slight difference, these findings suggest that SETCs generally enter the field with the perspective that student achievement is not fixed and that effective (or conversely ineffective) instruction can shape outcomes for students with disabilities. Yet, their beliefs about reading instruction may operate differently than for other content areas.

Beliefs about instructional practice. SETCs' beliefs about instructional practice were not as clear-cut. First, I considered respondents' beliefs regarding the need for specialized instruction for students with disabilities. On these items, a slight majority of SETCs agreed or strongly agreed that instruction for students with

disabilities should be different than instruction for students without disabilities across mathematics (55.5%), reading (55.5%), and writing (53.3%). Next, I examined their beliefs regarding the use of instructional practices that benefit students with disabilities with the general education population. Interestingly, across mathematics (94.5%), reading (97.8%), and writing (96.7%) the vast majority of respondents either agreed or strongly agreed that instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities. This implies that, though a small majority of SETCs believe students with disabilities require certain instructional practices to make progress, the majority believe that these practices could also benefit other students in the general education setting. So, instead of seeing beliefs in specialized instruction as promoting exclusionary practice it is possible that beliefs in *mutually advantageous* specialized instruction could promote inclusive practice.

Beliefs about inclusive instruction. SETCs' beliefs provided some support for instruction in inclusive settings. The majority of respondents agreed or strongly agreed that inclusive instruction promotes students' academic (87.8%) and social emotional (93.3%) development. However, when asked whether they believed they could *best meet students' needs* in these settings, the response pattern was less pronounced. On these items, 66.7% of respondents agreed or strongly agreed that they could best meet students' academic needs in inclusive settings. When asked about their ability to meet social needs, there was still a difference between what candidates believed promoted students needs and how they could best meet student needs; 83.3% of SETCs agreed or strongly agreed with the statement. Though these

data do not address the reasons for this discrepancy, this does suggest a distinction between the ideal of inclusion and the SETC's beliefs about their ability in inclusive settings.

Table 29

Special Education Teacher Candidates' Beliefs

Construct	Item	Strongly Disagree	Disagree	Agree	Strongly Agree
Internal Attribution	Mathematics is a subject in which natural ability matters more than effort	27.8	64.4	7.8	--
	Reading is a subject in which natural ability matters more than effort	26.7	65.6	6.7	1.1
	Writing is a subject in which natural ability matters more than effort [a]	21.1	66.7	8.8	2.2
External Attribution	If students are underachieving in mathematics, it is most likely due to ineffective mathematics instruction	4.4	25.6	67.8	2.2
	If students are underachieving in reading, it is most likely due to ineffective reading instruction	1.1	41.1	54.4	3.3
	If students are underachieving in writing, it is most likely due to ineffective writing instruction [a]	1.1	34.4	58.9	4.4
Specialized Instruction	In mathematics, instruction for students with disabilities should be different than instruction for students without disabilities [b]	1.1	41.1	53.3	2.2
	In reading, instruction for students with disabilities should be different than instruction for students without disabilities [a]	3.3	40.0	53.3	2.2
	In writing, instruction for students with disabilities should be different than instruction for students without disabilities [a]	6.7	38.9	51.1	2.2
Mutually Advantageous Instruction	In mathematics, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities [a]	--	4.4	47.8	46.7
	In reading, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities	--	2.2	48.9	48.9
	In writing, instructional practices that are beneficial for students with disabilities are also beneficial for students without disabilities [a]	--	2.2	50.0	46.7
Inclusive Instruction	I can best meet students' academic needs in the context of a general education, co-taught, or inclusive classroom	1.1	32.3	47.8	18.9
	I can best meet students' social-behavioral needs in the context of a general education, co-taught, or inclusive classroom	1.1	15.6	62.2	21.1
	Instruction in general education or inclusive settings promotes the academic development of students with disabilities	--	12.2	67.8	20.0
	Instruction in general education or inclusive settings promotes the social/emotional/behavioral development of students with disabilities	--	6.7	53.3	40.0

Note. [a] $n = 89$; [b] $n = 88$

Composite scores. To compare SETCs' beliefs across TPPs, I used composite scores based on my assessment of internal consistency in the first phase of analysis. In general, beliefs were fairly consistent across all programs. The one belief construct where data followed a trend that I hypothesized by program profile was external attribution, where it appeared that candidates in TPPs 300 and 500 expressed beliefs that were more consistent with external attribution than candidates in TPPs 100, 400, 600, and 700. Results are provided in Table 30.

Table 30

Comparison of Belief Composites across Teacher Preparation Programs

Belief Composite		Teacher Preparation Program						Total
		500	300	100	400	600	700	
		n = 8	*n* = 21	*n* = 16	*n* = 32	*n* = 7	*n* = 6	*N* = 90
Internal Attribution	*M*	1.71	1.98	1.60	1.83	1.86	2.17	1.84
	SD	.700	.341	.505	.605	.178	.279	.515
	Median	1.83	2.00	2.00	2.00	2.00	2.00	2.00
	Mode	1.00	2.00	2.00	2.00	2.00	2.00	2.00
External Attribution	*M*	2.79	2.94	2.60	2.52	2.52	2.28	2.64
	SD	.353	.374	.519	.561	.466	.491	.513
	Median	3.00	3.00	2.83	2.67	2.33	2.17	2.83
	Mode	3.00	3.00	3.00	3.00	3.00	2.00	3.00
Specialized instruction	*M*	2.71	2.65	2.54	2.43	2.33	2.22	2.50
	SD	.628	.500	.485	.544	.354	.861	.555
	Median	3.00	3.00	2.67	2.33	2.33	2.33	2.33
	Mode	3.00	3.00	3.00	3.00	2.00[a]	2.33[a]	3.00
Mutually Advantageous	*M*	3.58	3.40	3.46	3.44	3.62	2.89	3.42
	SD	.496	.455	.607	.571	.405	.172	.528
	Median	3.83	3.33	3.50	3.33	3.67	3.00	3.33
	Mode	4.00	3.00	4.00	4.00	4.00	3.00	4.00
Inclusive Instruction	*M*	2.69	3.12	3.06	3.24	2.82	2.83	3.07
	SD	.438	.392	.478	.469	.746	.342	.492
	Median	2.63	3.00	3.00	3.25	3.00	2.88	3.00
	Mode	2.60	3.00	3.00	3.00	3.00	2.75[a]	3.00

Program profile comparison. I examined composite scores within program profiles to assess whether theoretically defensible belief patterns would emerge from

the data with regard to the belief scales constructed for the study and the OSTES measure of teacher self-efficacy. I hypothesized that SETCs across programs would have lower scores on the internal attribution composite, indicating general and consistent disagreement with an ability framework or fixed mindset. In contrast, I believed that the other composites (i.e., external attribution, specialized instruction, mutually advantageous instruction, inclusive instruction, and the various OSTES factors) would suggest differences between the supportive collaboration and explicit instruction profiles. Given their preparation in a defined, specialized instructional framework, I hypothesized that SETCs in explicit instruction programs would have higher scores on external attribution beliefs and specialized instruction than SETCs in supportive, inclusive collaboration programs. Conversely, because of their programs' support of collaborative and inclusive instruction, I hypothesized that SETCs from supportive collaboration programs would have higher scores on mutually advantageous practice and instruction in inclusive settings. Because instruction is foregrounded on the OSTES measure, I hypothesized that candidates from programs that were oriented toward instruction, as opposed to collaboration, would report higher scores across the OSTES, particularly with reference to instructional strategies.

Table 31 displays these descriptive data. Consistent with my first hypothesis, across program profiles SETCs showed general disagreement with internal attribution. However, when comparing composites across other belief constructs, some results were counter to my hypotheses. SETCs in explicit instruction programs reported beliefs that tended to be more consistent with an external attribution framework, specialized instruction, mutually advantageous instruction, and inclusive

instruction than SETCs in supportive, inclusive collaboration programs.

Table 31

Beliefs Program Profile Comparison

Belief Composite		Preparation Program Profile			Total
		Supportive Collaboration	Responsive Instruction	Clinical Instruction	
		n = 13	*n* = 48	*n* = 29	*N* = 90
Internal Attribution	*M*	2.00	1.76	1.91	1.84
	SD	.272	.578	.471	.515
	Median	2.00	2.00	2.00	2.00
	Mode	2.00	2.00	2.00	2.00
External Attribution	*M*	2.41	2.55	2.90	2.64
	SD	.474	.544	.368	.513
	Median	2.33	2.67	3.00	2.83
	Mode	2.00[a]	3.00	3.00	3.00
Specialized Instruction	*M*	2.28	2.46	2.67	2.50
	SD	.665	.522	.527	.555
	Median	2.33	2.33	3.00	2.33
	Mode	2.33[a]	3.00	3.00	3.00
Mutually Advantageous	*M*	3.28	3.44	3.45	3.42
	SD	.488	.577	.465	.528
	Median	3.00	3.33	3.67	3.33
	Mode	3.00	4.00	3.00	4.00
Inclusive Instruction	*M*	2.83	3.18	3.00	3.07
	SD	.572	.474	.443	.492
	Median	3.00	3.00	3.00	3.00
	Mode	3.00	3.00	3.00	3.00
OSTES Full Scale	*M*	7.26	7.75	7.55	7.62
	SD	.89	.79	.99	.88
	Median	7.58	7.83	7.83	7.75
	Mode	7.75	7.83	8.00	7.75
OSTES Classroom Management	*M*	7.35	7.70	7.66	7.63
	SD	.92	.83	.92	.87
	Median	7.25	7.75	7.75	7.63
	Mode	6.75	7.50	8.00	7.50
OSTES Instructional Strategies	*M*	7.19	7.92	7.78	7.77
	SD	1.09	.91	.85	0.94
	Median	7.75	8.00	8.00	7.88
	Mode	8.25	9.00	8.00 [a]	8.50
OSTES Engagement Strategies	*M*	7.25	7.64	7.22	7.45
	SD	1.04	1.06	1.44	1.20
	Median	7.50	7.75	7.50	7.75
	Mode	6.75	8.25	7.50 [a]	8.25

Note. [a] multiple modes exist, the smallest value is shown; OSTES = Ohio State Teachers' Sense of Efficacy Scale

Group comparisons. The patterns above suggest that there might be differences between explicit instruction programs and supportive collaboration programs with the most pronounced difference observed with regard to external attribution. I conducted a Kruskal-Wallis H Test to assess whether there were differences in SETCs' belief composites using preparation program profiles as a grouping factor (i.e., explicit instructor (n = 29); general, responsive instructor (n = 48); and supportive, inclusive collaborator (n = 13)). The Kolmogorov-Smirnov test and visual inspection of pyramid plots revealed that distributions of composites scores for beliefs were dissimilar for all groups; for this reason, I elected to use the mean rank as opposed to the median as a point of comparison. Table 32 provides the results of the test.

Table 32

Kruskal-Wallis H Test of Differences in Beliefs According to Program Profile

	χ^2	Df	*P*
Internal Attribution	3.76	2	0.153
External Attribution	10.41	2	0.005*
Specialized Instruction	4.62	2	0.099
Mutually Advantageous Instruction	1.61	2	0.446
Inclusive Instruction	4.88	2	0.087
OSTES Full Scale	3.20	2	.202
OSTES Classroom Management	2.74	2	.255
OSTES Instructional Strategies	4.70	2	.095
OSTES Engagement Strategies	2.35	2	.309

Note. OSTES = Ohio State Teachers' Sense of Efficacy Scale; * $p < .01$; two-tailed asymptotic

Composites for external attribution were statistically significantly different across the three TPP profiles $\chi^2(2) = 10.409$, $p = .005$. When considering this sample, there were no statistically significant differences across all other constructs with reference to program profile. Mann-Whitney U tests were used as a follow up

assessment without adjustments (Keselman et al., 1979). As hypothesized, post hoc analyses revealed statistically significant differences in external attribution scores between the explicit instruction (mean rank = 47.26) and general, responsive instruction (mean rank = 34.01) (p = .008) profiles and between the explicit instruction (mean rank = 24.98) and supportive collaborator (mean rank = 13.73) (p = .003) profiles. This difference was not statistically significant between the general, responsive instruction (mean rank = 31.96) and supportive, collaborative instruction (mean rank = 27.46) profiles. Counter to my hypotheses, no other differences were statistically significant by program profile.

Correlations Between Opportunities to Learn and Beliefs

A series of Spearman's rank-order correlations were conducted to assess the relationship between SETCs' reported OTL and their beliefs about attribution for success and failure in school, instructional practice, inclusive settings, and their own teacher self-efficacy. The full correlation matrix is available in Appendix G.

OTL and belief constructs. Table 33 provides bivariate correlations across the OTL and belief subscales. For this sample, the majority of belief scales did not exhibit statistically significant associations with OTL or with other tested belief scales. However, there was a statistically significant negative correlation between internal attribution beliefs and the extent of opportunities to learn high leverage practices for instruction, r_s (86) = -.307, $p < .01$ and between internal attribution beliefs and the extent of opportunities to learn explicit instruction, r_s (86) = -.298, $p <$ .01. For this sample, it appears that the extent of OTL instructional practice is associated with candidates' internal attribution beliefs, but that the extent of OTL

collaborative practice and candidates' internal attribution beliefs are not associated. Furthermore, it appears that the belief scales developed through this project are not associated with the TSE scales. There are weak correlations between inclusive instruction, r_s (86) = .220, $p < .05$ and mutually advantageous instruction and external attribution and mutually advantageous instruction, r_s (86) = .208, $p < .05$.

Table 33

Bivariate Correlations between Opportunities to Learn and Belief Scales

Composite	1	2	3	4	5	6	7	8	9
1. Collaborative Practice: Staff	--								
2. Collaborative Practice: IEPs	.564**	--							
3. Instructional Practice: High Leverage Practices	.386**	.384**	--						
4. Instructional Practice: Explicit Instruction	.236*	.152	.616**	--					
5. Internal Attribution	-.096	-.093	-.307**	-.298**	--				
6. External Attribution	-.130	-.162	.070	.077	.029	--			
7. Specialized Instruction	.033	-.042	-.149	-.154	.013	.061	--		
8. Mutually Advantageous Instruction	-.111	-.187	.199	.215*	-.265*	.208*	-.151	--	
9. Inclusive Instruction	.086	.081	.158	.087	-.073	.203	-.041	.220*	--

Note. * $p < .05$, ** $p < .01$; two-tailed asymptotic

OTL and teacher self-efficacy. Table 34 provides bivariate correlations across the OTL composites and the three subscales of the Ohio State Teacher's Sense of Efficacy Scale (OSTES). With the exception of teacher self-efficacy (TSE) for classroom management and opportunities to learn collaborative practice with staff, the composite scores demonstrated statistically significant correlations at the $p \leq .01$ level. In this analysis, the strongest correlations were evident between OTL collaborative practice for IEPs and the full scale (.445), instructional strategies (.431), and engagement strategies (.473) composites. From this, I can conclude that for this

sample, candidates' TSE and their perceptions regarding their OTL *both* collaborative and instructional practice are associated.

Table 34

Bivariate Correlations between Opportunities to Learn and Teacher Self-Efficacy

Composite	1	2	3	4	5	6	7	8
1. Collaborative Practice: Staff	--							
2. Collaborative Practice: IEPs	.564**	--						
3. Instructional Practice: High Leverage Practices	.386**	.384**	--					
4. Instructional Practice: Explicit Instruction	.236*	.152	.616**	--				
5. OSTES Full Scale	.301**	.445**	.391**	.401**	--			
6. OSTES Classroom Management	.124	.232*	.343**	.342**	.831**	--		
7. OSTES Instructional Strategies	.294**	.431**	.382**	.388**	.863**	.594**	--	
8. OSTES Engagement Strategies	.311**	.473**	.310**	.284**	.898**	.623**	.702**	--

Note. OSTES = Ohio State Teacher's Sense of Efficacy Scale; * $p < .05$, ** $p < .01$; two-tailed asymptotic

Teacher self-efficacy and belief constructs. Drawing on the associations established through examining the relationships between OTL and TSE and OTL and the beliefs constructs, my final stage of analysis examined the associations between the various belief scales (including the scales from the OSTES). Table 35 adds to the evidence reported in the previous two sections. The association between TSE and internal attribution is weak, yet significant and negative with regard to the full scale OSTES and the instructional strategies factor ($p < .01$). With the exception of internal attribution, for this sample, there is not a statistically significant association between TSE and the other belief constructs. Yet, there is a weak, negative, and statistically significant association between the internal attribution and mutually advantageous instruction constructs ($p < .05$), mutually advantageous instruction and external

attribution, and mutually advantageous instruction and inclusive instruction. This suggests that for this sample of SETCs, attribution beliefs and TSE might operate differently than beliefs about the effectiveness of certain instructional practices.

Table 35

Bivariate Correlations between Teacher Self-Efficacy and Belief Constructs

Composite	1	2	3	4	5	6	7	8	9
1. OSTES Full Scale	--								
2. OSTES Classroom Management	.831**	--							
3. OSTES Instructional Strategies	.863**	.594**	--						
4. OSTES Engagement Strategies	.898**	.623**	.702**	--					
5. Internal Attribution	-.289**	-.221*	-.322**	-.233*	--				
6. External Attribution	.050	-.021	.087	.038	.029	--			
7. Specialized Instruction	-.007	.076	-.023	-.046	.013	.061	--		
8. Mutually Advantageous	-.026	-.066	.119	-.075	-.265*	.208*	-.151	--	
9. Inclusive Instruction	.079	-.028	.176	.085	-.073	.203	-.041	.220*	--

Note. OSTES = Ohio State Teacher's Sense of Efficacy Scale; * $p < .05$, ** $p < .01$; two-tailed asymptotic;

Discussion

The findings presented in this chapter help us to better understand SETCs' teacher preparation experiences and how they are associated with candidates' beliefs. These data highlight the fact that in these TPPs, candidates report experiencing extensive opportunities to enact both collaborative and instructional practice. Yet, they report fewer opportunities to receive feedback on their enactment of collaborative practice than instructional practice. These data also reveal patterns that are relevant when considering how program vision shapes the experiences of candidates. Though there are few statistically significant differences on these measures of OTL for this sample of programs (with the exception of OTL

collaboration with IEP teams), the patterns showed a trend that was consistent with their program profile. Across profiles, the extent of support from university supervisors and cooperating teachers and the ways in which support reflected their TPPs' vision of effective teaching practice was consistent. With regard to beliefs, these data highlight the notion that SETCs' beliefs tend to be general as opposed to content-specific and that, for the most part, candidates espouse beliefs that lend support for inclusive practice (i.e., lower internal attribution, higher external attribution, and a belief in the value of inclusive instruction). Though not directly associated with any of the tested OTL, candidates in explicit instruction programs reported beliefs that were statistically significantly more oriented toward external attribution beliefs. Finally, in this study I found that candidates' perceptions of OTL, support, and vision were associated with beliefs associated with their own TSE and the extent to which they reject an internal attribution.

Special Education Teacher Candidates Opportunities to Learn

As expected, SETCs' perceptions of OTL (i.e., OTL collaboration with staff, collaboration with IEP teams, instructional practices, and explicit instruction) are significantly correlated constructs. This provides support for the theory that these constructs do not exist in isolation but are overlapping and integrated (McLeskey et al., 2017). Yet, though these domains are associated, this analysis presents some notable differences in the extent to which candidates reported OTL.

Across the TPPs surveyed in this study, SETCs reported more extensive OTL instructional practice than collaborative practice. What distinguished OTL across these two broad domains was whether candidates reported *receiving feedback* on their

enactment or rehearsal of practice. In general, most candidates reported receiving feedback on all instructional HLPs and the sub-practices or techniques that were a part of explicit instruction (HLP #16). In contrast, the majority of candidates reported OTL collaborative practice in which they spent time discussing and practicing, but did not report receiving feedback. There are several possible reasons for this distinction. First, in teacher preparation, where time is already at a premium (Brownell et al., 2010; Leko, Brownell et al., 2015; Sindelar et al., 2010), programs may be hesitant to allocate time and resources to teaching collaborative practices. Though research on special education teachers' roles and time use indicates otherwise (Urbach et al., 2015; Vannest et al., 2011; Wasburn-Moses, 2005; 2009), collaborative practice may well be understood as less relevant to the roles and responsibilities of a special education teacher as an active interventionist and therefore may be perceived as a less needed skill set. If a preparation program is operating from this perspective, skilled collaborative practice may be relegated to an individual's predispositions or personal characteristics.

Furthermore, though the field of education has an established body of evidence regarding instructional practice (e.g., Christenson et al., 1989; Gersten, 1998; Graham & Harris, 2009; Graham et al., 2012; Mastropieri et al., 1996), this is not true for collaborative practice in education. Without a body of evidence on which to build, instruction regarding collaborative practices—and therefore feedback on candidates' enactment of these practices—is likely thin. Thus, the extent of candidates' reported OTL might be based on school-based experience or general "soft skills" related to communication.

Descriptive statistics suggest that patterns regarding the extent of candidates' OTL were consistent with hypotheses regarding program profiles. However, significance tests revealed that the only statistically significant difference was with regard to OTL Collaboration: IEP. For this scale, candidates in the supportive, inclusive collaboration profile reported significantly more extensive OTL than candidates in other program profiles. It is possible that differences in OTL instructional practice may not be as pronounced because TPPs, as evidenced through program document review, focus the majority of their required courses on instruction. Therefore, feedback regarding instructional practices might be more evident to candidates because of repeated experiences. Another possibility is that operational definitions and understandings of instructional fidelity may vary across TPPs or faculty (i.e., instructional practices may be broadly interpreted/defined). Thus, it is possible that candidates' OTL, while labeled or identified in the same way (i.e., planning and providing scaffolded supports or systematically designing instruction), might be understood and implemented quite differently. As an illustration, SETCs in explicit instruction programs, where the focus is on a specific conception of instruction and on acquiring a specified set of practices, might understand the development and use of flexible groups (HLP #17) in a way that is distinct from candidates in general, responsive instruction programs or supportive, inclusive collaboration programs. So, the purpose and procedures of practice may vary depending upon the vision to which a preparation program subscribes, but this is not captured with the survey instrument alone.

Though all programs reported having courses that address the IEP process, the difference with regard to OTL collaborative practice with staff favored SETCs in supportive, inclusive collaboration programs. Returning to the program profiles established in Chapter Five is a helpful way to understand these differences. Examining the scale, there is an emphasis on family across all four items (see Table 13 and Figure 11). It is logical that, in a program where the vision is aligned with support and collaboration, that there would be significant differences on this scale. Candidates in supportive, inclusive collaboration programs, spoke readily about the ways in which they were exposed to a vision based on collaboration with students, families, general educators, and other stakeholders. Additionally, program documents included a focus on diversity and collaboration that was not as pronounced in explicit instruction and general, responsive instruction programs which may have accounted for some of these distinctions.

Special Education Teaching Candidates' Perceptions of Support

Most SETCs reported overall positive experiences of support wherein they valued the methods, practice opportunities, feedback, and meetings with their US and CT. This suggests that this relationship could be a source of TSE for these candidates and a positive extension of their university-based OTL (Bandura, 1997). From these relationships, candidates were likely able to access several sources of TSE that I hypothesized would be relevant for pre-service candidates. The finding that they had time and the permission to practice the methods from their TPP in their CT's classroom suggests they were able to access mastery experiences, a predominant source of TSE. Furthermore, the finding that the majority of candidates appreciated

the feedback and meetings with their US and CT, suggests they found these individuals to be trustworthy and valuable sources of modeling and social persuasion (Bandura, 1997). Consistent with prior research (Leko & Brownell, 2011; McCray, 2012), it appears that these support relationships were instrumental in candidates moving the vision of their TPP into classroom practice. There were no trends or significant differences in support across programs or program profiles, suggesting that support is not necessarily tied to the orientation of vision but an understanding of pre-service teachers' need for high quality support.

Special Education Teaching Candidates' Beliefs

Content-specific versus general beliefs. Counter to previous scholarship that highlights the content specificity of beliefs (i.e., beliefs about mathematics might be distinct and contradictory to beliefs about reading; Zeichner, 2005), this study suggests that SETCs' beliefs might not follow that same guideline. A likely reason for this is that special educators are prepared, in large part, to use cross-cutting strategies to address student needs across multiple content areas (Brownell et al., 2010). Another possible reason is that SETCs' content knowledge, and therefore their beliefs related to instruction, are still developing. Candidates may well have responded to these items by referring more to their beliefs about teaching and learning broadly as opposed to their beliefs about content areas more specifically (Leko, Kulkarni et al., 2015). Finally, it could be that these items don't capture the ways in which special educators think about students: on an individual basis (Zigmond, 2003; Zigmond & Kloo, 2011). It may be a question of "It depends…" as candidates and new teachers often consider the heterogeneity of their students' strengths and needs when thinking

about instructional decisions (Dieker et al., 2011; Gehrke & Murri, 2006; Youngs et al., 2011). Because these novices have just completed preparation experiences that likely target individualization, it may be that the use of survey responses without an opportunity to amend their response with a qualifying statement (e.g., I think for many students that this is the case, but it depends on…) presents a dilemma. Thus, candidates may trend positive in their response patterns.

Beliefs and program profile. Though I hypothesized that program profile would be associated with candidates' beliefs, the only statistically significant difference by program profile was in reference to external attribution. These findings suggest that candidates in explicit instruction programs are more likely to attribute student failure to environmental (and therefore malleable) factors. It could be that—in providing candidates with a highly-specified instructional framework from which they were expected to operate and specific tools that supported that framework—SETCs in these programs had more established beliefs about what kind of instruction is "effective" and, therefore, understood these environmental factors as being an influential aspect of student success or failure. This may be a part of their taking on beliefs that are more consistent with an external attribution (Jordan et al., 1997; Jordan-Wilson & Silverman, 1991; Stanovich & Jordan, 1998).

Associations between beliefs and teacher self-efficacy. Because these items were focused on intervention and instruction, a hallmark of the interventionist orientation and its connection with teacher self-efficacy (Jordan et al., 1993; Jordan-Wilson & Silverman, 1991; Stanovich & Jordan, 1998), I had anticipated identifying associations between the included belief scales and TSE. Yet, my findings suggest

otherwise. Though these beliefs are indirectly associated, my analysis suggests that the internal attribution and teacher self-efficacy scales—though theoretically associated with beliefs about external attribution, specialized and mutually advantageous instruction, and inclusive practice—might actually focus on a distinct type of beliefs. Instead of falling under the pathognomonic—interventionist framework (Stanovich & Jordan, 1998), these data suggest that these candidates' beliefs fall into two loosely associated groups: beliefs associated with instructional capability (i.e., internal attribution and teacher self-efficacy) and beliefs associated with the importance of instructional practice (i.e., external attribution, specialized instruction, mutually beneficial instruction, and inclusive instruction).

Associations Between Opportunities to Learn, Support, and Beliefs

From the present study, there is clearly value in considering how we structure opportunities to learn instructional strategies, practice, and receive feedback on both collaborative and instructional dimensions of practice. It could also be that attending to the practices that are a part of the OTL collaborative practice with IEP teams domain is particularly relevant to the development of special educators. Furthermore, it appears that more extensive OTL in the context of a TPP with a clear vision and strong support through university supervisors and cooperating teachers is relevant to their development of teacher self-efficacy.

Another belief that appears to be relevant to this system is internal attribution (Jordan & Stanovich, 1993). Though the correlations are weak, engagement with more extensive OTL instructional practice was negatively associated with internal attribution, the belief that academic failure is rooted in a child's fixed ability. Based

on these findings, increased opportunities to learn, practice, and receive feedback regarding instruction appear to be associated with a decreased tendency to attribute failure to a child. Yet, the story of attribution as revealed in these data is complex. Though candidates' exposure to more extensive OTL was associated with a decrease in internal attribution, associations between external attribution and the TPP variables examined in this study were not significant (i.e., OTL, support, vision). These associations did not even approach significance. This suggests that, based on these measures, internal attribution and external attribution are not two sides of the same coin. Because of its importance in predicting practice (e.g., Berry, 2006; Jordan et al., 2010; Stanovich & Jordan, 1998), thinking about attribution and targeting this construct within special education teacher preparation might be an important aspect of forming future teachers' practice.

Limitations

These findings should be considered within the context of their limitations. Though this chapter highlights interesting and relevant findings with regard to the way we prepare teachers, this aspect of the study is limited due to three overarching factors: sample, instrumentation, and analysis. With regard to sample, generalization is limited by both site selection and included participants. Though purposefully selected, sites were selected based on willingness to participate and may not reflect trends and patterns in special education teacher preparation broadly. This study included three research-intensive programs that are respected for their preparation of candidates while two of the three teaching intensive programs are historically known as teacher preparation institutions. These preparation programs may include more

intensive experiences both in classroom and clinical work than other preparation programs. Additionally, the selected sites were all traditional teacher preparation programs which precludes drawing conclusions about SETCs' OTL in residency programs or other alternative teacher pathways. With regard to sample, though the overall response rate was acceptable (61%), this was not consistent across TPPs. The range was broad, so the responses may be swayed by patterns in the TPPs with higher response rates. Furthermore, though all candidates were asked to complete the survey, this comprised a volunteer sample. It could be that candidates who did not complete the survey had experiences that diverge from what is reported here. With these things in mind, all findings should be considered for these sites and this sample only; they cannot be generalized to special education teacher preparation more broadly.

There are also limitations in the instrument, *The Survey of Special Education Teaching Candidates*. Though an aspect of this project provides evidence of the validity and reliability of this instrument and some of the scales are drawn from scales adopted for use in other studies, this was the first time that a majority of the items were used with this population (i.e., pre-service special education teachers). Findings should be considered within the limitations of the instrument as reported in previous chapters. Finally, there are limitations in data analysis. First, the analysis is descriptive and, therefore, cannot tell us about causation. We cannot assume that the beliefs reported are a result of SETCs' TPP experience; it could be that candidates entered their program with an established level of TSE or certain belief structures intact. Furthermore, the collapsing of programs into profiles—while interesting and relevant to the larger question of understanding vision and OTL—does highlight

problems of nested data. The results could be due to dependence among the data and, therefore, result in suppressed correlation coefficients and errors in interpreting the statistical significance of associations.

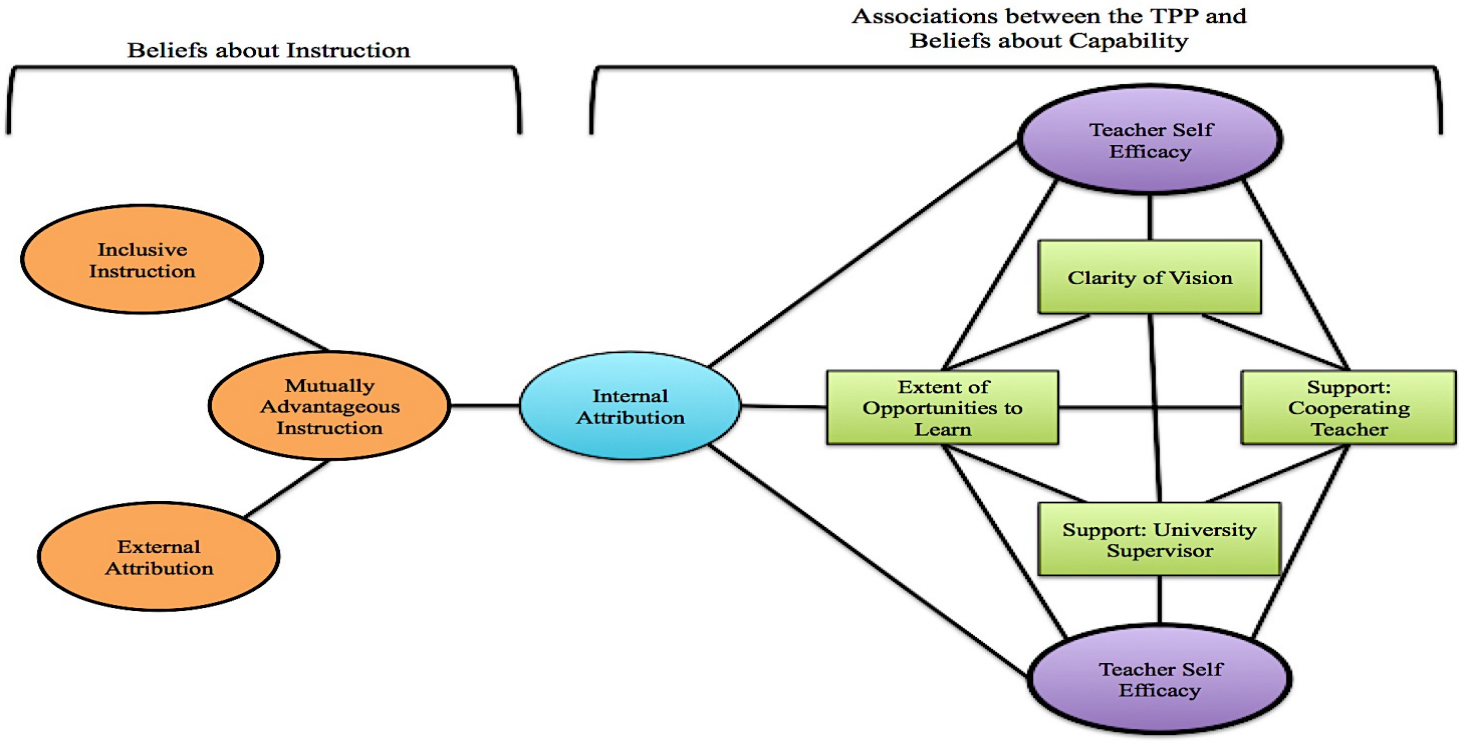

Figure 15. This figure depicts associations between constructs examined in this study. Green rectangles indicate opportunities to engage in practice in the TPP which are moderately associated with teacher self efficacy and internal attribution. They are not associated with beliefs about mutually advantageous instruction, external attribution, or inclusive practice (as shown in orange). As measured in this study, the TPP appears to be associated with beliefs regarding capability but not beliefs about instructional practice.

CHAPTER 7: IMPLICATIONS AND FUTURE RESEARCH

Today, novice special education teachers enter a field where the expectation is that they are prepared to: a) support all children in attaining college and career readiness standards and b) coordinate and communicate with collaborative teams in service of this goal (Leko, Brownell et al., 2015). Though research supports the connection between special education teacher preparation and effective instructional practice (Nougaret et al., 2005; Sindelar et al., 2004), increased student outcomes (Feng & Sass, 2013), and teachers' feelings of preparedness (Boe et al., 2007), research that looks "under the hood" of special education teacher preparation to describe *how* special education teaching candidates (SETCs) are prepared is limited (Sindelar et al., 2010). By exploring SETCs' perceptions of opportunities to learn (OTL) in their preparation experiences, their understanding of programmatic vision, and their beliefs about their own self-efficacy, students, instruction, and inclusion, this project was designed as an initial step in addressing this gap.

In this project, I hypothesized that there would be clear distinctions among SETCs' reported OTL, preparation program coherence, and support within TPPs and that these would be associated with their beliefs and teacher self-efficacy. In some ways, this broad hypothesis was incorrect. Instead of highlighting differences, for the most part survey data revealed that among the six programs included in this study. SETCs perceived similarities. Most candidates reported a) experiencing fairly extensive OTL high leverage practices that allowed them to discuss and enact high leverage practices, b) positive experiences with university supervisors and cooperating teachers that were aligned with their university-based TPP, and c) positive beliefs about students and their

own self-efficacy. However, when used in isolation, survey data painted an incomplete picture; interview data was integral to the process of understanding how preparation experiences varied and for what purpose SETCs were prepared (Cronbach, 1975; Jick, 1979). Analysis of interview data underscored the fact that candidates' perception of programmatic vision was not only cohesive within programs, but that it served to organize their understanding of their future role. As SETCs experienced their program's vision recursively across courses and experiences, their beliefs about themselves and their role were formed and solidified in accordance with that vision. Consequently, seemingly different professionals emerged from three distinct types of programs: explicit instructors; general, responsive instructors; and supportive, inclusive collaborators.

Implications for Future Research

This work represents the beginning of a line of research intended to improve teacher preparation, support the transition of novices into their professional role and, accordingly, improve outcomes for students with disabilities. Because it is a beginning rather than an end, the findings presented here raise a number of questions that will demand either further analysis of this dataset or application of this work to the design of future research studies. Implications for research fall under the following domains: a) measurement and methodology in special education teacher preparation research; b) instrument development and validation; c) relationships between OTL, program vision, and TSE; and d) relationships between programmatic vision and in-field practice.

Measurement and Methodology in Special Education Teacher Preparation Research

The use of the *Survey of Special Education Teaching Candidates* proved useful in this study for gathering data and evaluating themes and patterns in SETCs' reported TPP

experiences. Yet, as was evident through interviews (Jick, 1979), the instrument is limited in its capability to provide insight into the depth and breadth of SETCs' experiences. Conversely, the use of interview data alone would not have allowed for an understanding of the program or profile as a grouping variable and therefore would limit conclusions to individuals' experiences; thus, it would preclude rigorous examination of patterns across programs. This is the power of mixed methods research. The findings regarding program vision highlight this point: survey data told a story of homogeneity while interview data illuminated important programmatic distinctions regarding the formation of future special educators. It may be that, as a framework, OTL necessitates a pairing of breadth (quantitative data) and depth (qualitative data) to understand candidates' perceptions of learning at the programmatic level.

Building on this point, one avenue for future research would be to apply the Kurz (2011) OTL framework of time, content, and quality to the dataset to further investigate questions that emerged from survey findings. For example, though distinctions between the extent of SETCs' instructional and collaborative OTL highlight a difference regarding the provision of feedback, this finding tells us very little about the feedback that was actually provided or the nature of the "extensive practice" many candidates reported experiencing with reference to instructional practice. It merely suggests that candidates had many opportunities to enact practice and indicates the presence or absence of feedback. Though this is important to distinguish, it is certainly not the end of the story. As defined by Kurz, there are a number of ways that quality of OTL is operationalized (i.e., instructional practice, grouping formats, cognitive process expectations, and instructional resources). However, recall that Kurz' framework was designed with K-12

settings in mind. Though learning theory would support some common frames with regard to OTL (Ericsson, 1996), examining these variables and assessing whether other categories would more clearly define quality particular to special education teacher preparation could be a fruitful endeavor. This would help us to understand how and why certain teacher preparation experiences might be more effective in shaping candidates' understanding of professional practice in special education.

Instrument Development

The results from the confirmatory factor analysis (CFA) present another avenue for research. While promising, these data are limited by sample size and violated assumptions, so results regarding model fit are preliminary. Yet, the scales show potential. The expert review and piloting process provided evidence of the face validity and content validity of the scales, the models demonstrated generally good fit supporting the reliability of items included in the scales, and correlational analysis revealed significant associations between vision, support, OTL, TSE, and internal attribution. Future research should include steps to further refine the scales and to examine how they work together as a combined instrument including resampling to increase sample size such that the margin of error is decreased and conclusions drawn regarding the instrument and, therefore, SETCs' perceptions of their TPP might be more defensible.

Relationships Between Preparation and Practice

One assumption this study rests on is that experiencing an extensive amount of special education teacher preparation is related to more effective practice (Boe et al., 2007; Feng & Sass, 2013; Nougaret et al., 2005; Sindelar et al., 2004). Yet, this previous scholarship delimits specific categories to determine the extent of preparation focusing on

Kurz' (2011) conceptions of time and content by looking at hours in practice opportunities and course topics or, even more broadly, by categorizing teachers by the route through which they entered the classroom. Kurz' framework highlights a number of variables that may help to understand the mechanisms through which TPPs affect SETCs' classroom practice. Observational data during pre-service or induction might reveal differences regarding relationships between candidates' classroom practice and the adoption of certain content or vision foci (e.g., high leverage practices, explicit instruction, or a social justice framework), the systematic and carefully planned use of innovative teacher education pedagogies (e.g., simulated learning, video models, or reflective analysis), or the allocation of time during teacher preparation to various approximations of professional practices (Grossman et al., 2009).

Implications for Practice

This study provides several recommendations for special education teacher preparation programs in planning and refining their pedagogy to address the needs of contemporary schools: a) consider programmatic vision and what it communicates, b) connect OTL to programmatic vision and to practical tools that candidates can carry into the field, and c) consider how strengthening the connections across teacher preparation programs might promote the development of beliefs that support candidates' long-term commitment, professional practice, and their future students' well-being.

Vision as Identity Formation

These findings provide more evidence of Brownell and colleagues' (2005) claim that vision is fragmented in special education. The three program profiles reported here suggest very different perspectives on special education that appeared to provide SETCs

with incomplete visions of professional practice. The presence of a focused vision was generally reported on surveys and was unmistakable across interviews within programs. However, it is important to note that vision is communicated to candidates through implicit and overt actions, and that the vision SETCs take up is not always what was intended. Regardless of intention, in these programs vision served to induct candidates into a profession that, for many, had remained relatively obscured until this point. So, thinking about how, when, why, and for what purpose vision is communicated to candidates is an important first step in understanding preparation experiences at the practical level (Feiman-Nemser et al., 2014).

Though limited by the extent to which it addressed collaborative practice, the explicit instruction profile seemed to train teachers who were the most equipped for the specific role of special education teacher (Zigmond & Kloo, 2011). Their understanding of special education is best explained using Grossman and colleagues' pedagogical appropriation or pedagogical tools framework (Grossman et al., 2000; Leko & Brownell, 2011). These candidates spoke readily about the conceptual tools or guiding principles that shaped their understanding of practice and, for each interviewed candidate across both programs, this came directly from their experience in their TPP. Not only were they able to name a specific framework, but they also spoke about practical tools or techniques that supported that framework without prompting. Much like the pedagogies of practice framework applied in studies of general education teacher development (Grossman et al., 2009), these candidates spoke about how their OTL were focused on learning about, observing, dissecting, and replicating that practice. The results of these carefully planned cycles of enactment and reflection/analysis were evident in their discussions of their own

sensemaking process when they either encountered practice that contradicted the vision of explicit instruction or when they experienced failure. They went back to what Mariah called, "The Jesus Question" because they believed that every time explicit instruction was the answer.

The Buck Stops Here: Considering Collaboration in Teacher Preparation

Across sampled programs, these findings point to a greater focus on instructional than collaborative roles in special education teacher preparation. Perhaps this comes from time pressures in teacher preparation or from the (faulty) conception that teaching these "soft skills" is not the work of scholars. The reason is unclear. Yet these data suggest that within these six programs—some of which are nationally respected in teacher education—preparation for collaborative roles does not include attention to the same carefully structured sequences of learning that scholars find are as important for high quality practice-based preparation (Benedict et al., 2016).

This emphasis is counter to what we know about special education teachers' daily experiences. Studies of special education teachers' time use and roles reveal that instructional practice shares the stage with collaborative practice in K-12 settings (Jones & Youngs, 2012; Urbach et al., 2015; Vannest et al., 2011; Wasburn-Moses, 2005, 2009). Studies of stress reveal that factors such as role dissonance, ambiguity, and conflict (often associated with unmet expectations about job design) are predictive of the attrition and migration that plague the field and are detrimental to student outcomes (Bettini et al., 2017; Billingsley, 2004; Gersten et al., 2001; McCleskey et al., 2008). Yet, despite this knowledge, TPPs "pass the buck" on to K-12 settings to support novices in developing collaborative practice. What might it look like for TPPs to take ownership of this aspect

of their role and allow collaborative practice to share the stage with instructional practice? What might it look like for TPPs—instead of setting up a scenario of either/or as was suggested by my qualitative data—to equip SETCs with conceptual and practical tools to enact both bodies of work in the service of children?

Some might worry that this would water down service delivery or the professional work of special educators. Certainly, this shift would not negate the fact that special education is, in essence, a profession that views the concept of instructional intervention as powerful. However, it might be that in preparing teachers, we need to focus not only on the techniques and skills to *plan and deliver* evidence-based instruction that is aligned with explicit instruction but that we need to prepare them with techniques and skills to *advocate for* and *coordinate* delivery of evidence-based practice across settings (for an example, see Driver et al., in press). For novices, this is complex work that could involve understanding and communicating students' specific needs, drawing on evidence to present those needs to a team of diverse stakeholders with very different perspectives, teaching and supporting those stakeholders to enact instructional practice, maintaining a clear collection of data should revisions be necessary, and doing all of this while establishing trust through multiple, unplanned interactions. The work of collaboration is hard! For this reason, teacher educators need to take on a larger portion of the responsibility.

Beliefs in Special Education Teacher Preparation

Finally, this study highlights the notion that for this sample perceptions of a number of programmatic factors including vision, support, and OTL are positively moderately associated with the extent of candidates' teacher self-efficacy. Considering

that TSE is malleable early in practice, this is to be expected (Bandura, 1997). Nevertheless, the finding still has practical importance because of the empirical connections between teachers' classroom performance, planning and organization, willingness to experiment with new methodology, fidelity of implementation, and persistence with struggling students (for summaries see Kiely et al., 2014; Tscahnnen-Moran & Woolfolk Hoy, 2001).

Though this study cannot make any causal claims regarding the development of TSE through the TPPs included in this sample, there are associations between what these learners report regarding their programmatic experiences and their TSE. This work suggests that attending to the sources of TSE by providing high quality models of practice aligned with vision, allowing candidates to approximate practice in settings where they can achieve mastery and work toward higher levels of complexity, and providing feedback on practice could be integral to orienting SETCs toward instructional and collaborative success as they enter the profession. Even though the Ohio State Teachers' Sense of Efficacy Scale (OSTES) is oriented toward instructional roles, reported OTL instructional *and* collaborative practices, vision, and support were all significantly and positively associated with TSE. This suggest that, in TPPs where both are attended to, TSE might be further bolstered by the preparation experience.

Though studies point to candidates' elevated levels of TSE at the culmination of their TPP, it could be that thinking about how TPPs use time, content, and quality indicators to provide SETCs with access to a clear and actionable vision of practice (a conceptual tool) and strategies and skills that support that vision (practical tools) might ease what is typically a challenging transition into the field (Mathews et al., 2017).

Because the field of special education is characterized by high levels of stress, exhaustion, and teacher attrition (Billingsley, 2004: Sutcher et al., 2016), explicitly addressing the development of TSE in SETCs could serve to alleviate the stress of the first years of teaching and serve as a buffer for the burnout and emotional exhaustion experienced by special education teachers (Brunsting et al., 2014; Sariçam & Sakiz, 2014; Viel-Ruma et al., 2010).

Revisions to the Conceptual Framework: A Map for the Road Ahead

The conceptual model proposed at the beginning of this study, though informed by the literature in general education, proved to be somewhat limited for application in understanding preparation in special education. While the original model attended to the logic put forth by Kurz' (2011) conception of OTL as inputs and processes that target a specific goal through time, content, and quality and moderated by vision to produce certain beliefs, there were several ways in which the original model failed. As shown in Figure 15, the revised model provides clarity regarding how exemplary teacher preparation might be understood based on these data and charts a map for the road ahead in research and practice.

First, in the original model I noted that conceptual coherence was a factor that would (qualitatively) moderate candidates' interpretations of their OTL and, therefore, inform their beliefs. This placed conceptual coherence between candidates' perceptions of OTL and their development of beliefs as a lever; I assumed that a more coherent program would be associated with more prominent and more positive beliefs about students, inclusion, and instruction. Yet, as was evident following the first phase of analysis, this was not accurate nor what I was measuring. Throughout analysis of

quantitative and qualitative data, it was clear my focus was on programmatic vision, one aspect of conceptual coherence. This pivot helped me to refine my model and understand how, in these TPPs, vision was not a moderator but a heuristic—an overarching conceptual tool—that served to guide the content, time, and quality of the learning opportunities through which candidates were provided with practical tools (Grossman et al., 2000; Leko & Brownell, 2011). The updated theoretical model places vision in the position of an organizer, not a moderator. In exemplary special education TPPs, the programmatic vision is the tool through which candidates' attention is focused on the critical content of special education teacher preparation and a vision of what is possible (Kennedy, 2006). In exemplary teacher preparation programs, the various OTL would reflect this vision to candidates in clear and unmistakable ways and provide concrete strategies through which they can achieve that vision.

Second, the original model was inconsistent with preparation for the multidimensional roles and responsibilities of special education teachers. While I noted that it was important to consider the content, time, and quality of OTL, I did not account for the ways that OTL were used to communicate the varied roles and responsibilities of special education teachers (Urbach et al., 2015; Wasburn-Moses, 2009; Vannest et al., 2011). The revised model highlights the notion that in exemplary special education TPPs the vision with which OTL interact is a vision of *professional practice*, meaning it is predicated on the inclusion of both collaborative and instructional practice yet always in the service of improving outcomes for individuals with disabilities. The updated model also highlights the idea that for each domain there should be careful consideration of the unique but overlapping content, time, and quality of OTL. This is consistent with the

conception of high leverage practice in special education as an overlapping framework (McCleskey et al., 2017). Admittedly, because this study did not examine the other two domains of high leverage practice in special education (i.e., assessment and social behavioral practices), this model is still limited in the extent to which it addresses the full range of professional practice for special educators.

Third, the original model assumed that SETCs' beliefs regarding inclusion, instruction and self-efficacy would emerge and be associated with OTL in similar ways. Though I found positive and significant associations between the extent of OTL (including the OTL provided through vision and support) and candidates' reported teacher self-efficacy (TSE) and negative significant associations between OTL and internal attribution (which reflected candidates' beliefs about learners' success or failure), the other belief constructs regarding instructional practice appeared to be untouched by the extensive OTL reported by SETCs in this sample. What this suggests is that, because candidates have limited schema from which to establish beliefs about instructional practice in special education, prior schooling experiences may not serve to inform practice as they might in general education (Lortie, 1978). For this reason, TPPs might need to make clear connections between the content and process of instructional and collaborative practice OTL and better articulate programmatic beliefs regarding some of the foundational ideas of special education instruction.

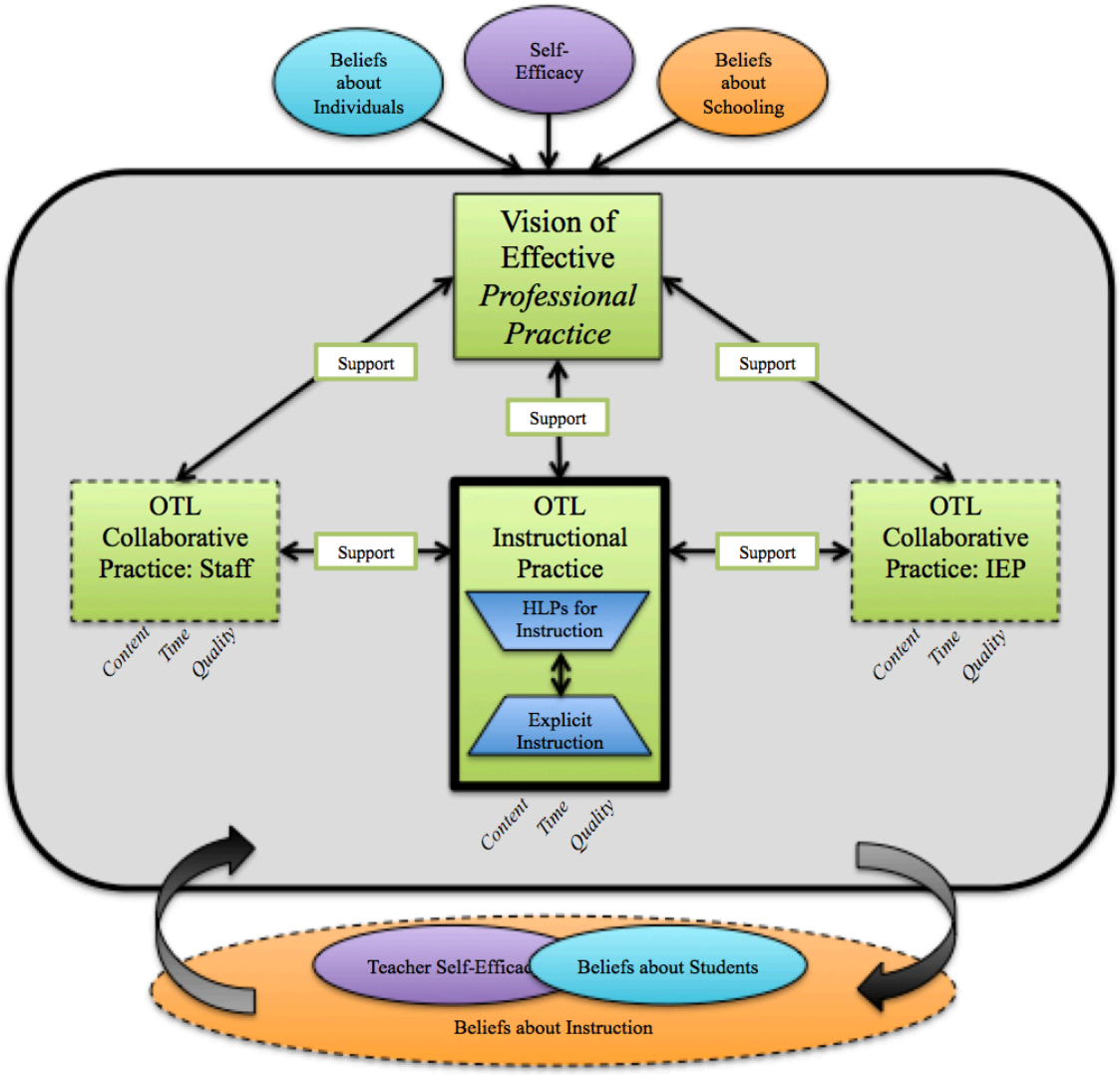

Figure 15. A theoretical model of special education teacher preparation.

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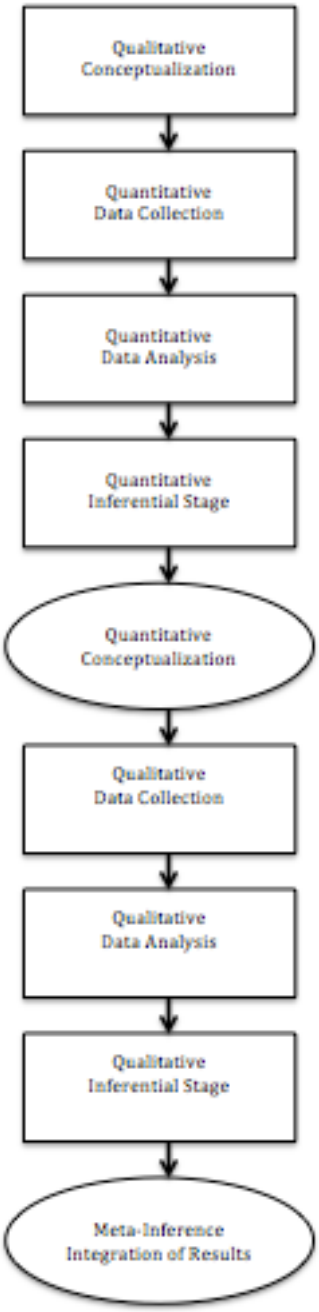
Appendix A: Original and Emerging Hypotheses

This table details the how my hypotheses emerged through the use of mixed methods. My hypotheses are listed on the left. Hypotheses that were established at the conceptualization of the project are marked as original hypotheses. Those that emerged from data analysis are marked as emerging hypotheses.

Hypothesis	Original	Emerging
SETCs will report varying levels of OTL	X	
SETCs will report varying levels of coherence	X	
SETCs beliefs will be particular to content areas	X	
SETCs beliefs will show a value for inclusion but concern about meeting students' need in inclusive settings		
SETCs beliefs will show low internal attribution and high external attribution	X	
OTL will be positively and significantly associated with TSE	X	
Factor structure (3 OSTES; 1 HLP instruction, 1 HLP collaboration, 2 instructional support)	X	
Across program profiles, SETCs will report significantly different OTL		X
Across program profiles, SETCs will report significantly different beliefs		X
Emerging hypotheses regarding OTL • SETCs in explicit instruction programs would report more extensive OTL explicit instruction than candidates in other programs • SETCs in explicit and general, responsive instruction programs would report more extensive OTL instructional practices than SETCs in supportive collaboration profiles • SETCs in supportive collaboration programs would report more extensive OTL collaborative practice with staff and IEP teams than SETCs in explicit and general, responsive instruction programs		X
Emerging hypotheses regarding beliefs • SETCs across programs would have lower scores on the internal attribution composite • SETCs in explicit instruction programs would have higher scores on external attribution beliefs and specialized instruction than SETCs in supportive, inclusive collaboration programs. • SETCs from supportive collaboration programs would have higher scores on mutually advantageous practice and instruction in inclusive settings than SETCs in supportive, inclusive collaboration programs • SETCs from programs that were oriented toward instruction, as opposed to collaboration, would report higher scores across the OSTES, particularly with reference to instructional strategies.		X

Appendix B: Mixed Methods Research Design

Stage/Phase	Procedure	Product
	• Review literature on constructs of interest • Articulate theoretical framework • Expert Review: Content Analysis	• Identify and describe constructs • Develop research questions • Develop instruments • Face validity of survey instrument
	• Administer survey at IHEs using digital and paper/pencil options	• Numeric data
	• Data screening • Descriptive statistics • Confirmatory factor analysis • Multivariate regression	• Descriptive statistics: means, standard deviations, frequencies • Factor loadings and factor scores • Associations • Construct validity of survey instrument
	• Examine patterns across data	• Quantitative findings • Description of OTL/beliefs • Relationships between latent variables (correlations)
	• From survey, identify potential participants for phase 2	• Phase 2 participants identified • Deductive codes for qualitative data: interviews
	• Solicit interviews with SETCs' • Collect publically available information for triangulation	• Text data: transcripts, memos, analysis of publically available documents
	• Review qualitative data: identify emerging themes and develop inductive codes • Develop cross case data matrices	• Inductively/deductively coded data • Data displays
	• Review data displays	• Identify themes across qualitative data • Develop qualitative assertions
	• Compare and contrast collective quantitative findings and qualitative assertions using sequential explanatory framework from Ivankova et al. (2006)	• Develop theory of teacher self-efficacy development for special education teacher preparation • Generate recommendations for policy and practice in the formation of Special Education teachers

Following the model and recommendations established by Creswell and Clark (2011) this depiction includes boxes to denote quantitative and qualitative aspects of the study, ovals to signal integration of methodologies, and arrows to indicate the flow of the study.

Appendix C. Characteristics of Participating Teacher Preparation Programs

Preparation Program	Vision	Undergraduate (5 Year)	Graduate	Reading and/or Writing Methods Course (SWD)	Reading Practicum Concurrent with Coursework	Mathematics Methods Course (SWD)	Mathematics Practicum Concurrent with Coursework	Behavior Management (SWD)	Behavior Practicum Concurrent with Coursework	Assessment	Inclusive Instruction or Collaboration	Legal and Policy Issues (e.g., IEPs, IDEA, etc.)	Number of Practicum Placements Prior to Student Teaching	Minimum Weeks in Student Teaching Internship
100	Evidence-Based Practice Effective Instructional Practice	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Undergraduate: 4 Masters: 3	16 [c]
300	Advocate for Students' Needs; Provide Support to Students' Families	Yes	Yes	Yes	Yes	No [a]	No	Yes	No	Yes	Yes	Yes	Undergraduate: 7 [b] Masters: 0	13
400	Evidence-Based Practice; Research-Validated Instruction; Developing Teachers as Thought Leaders	Yes	Yes	Yes	Yes	No [d]	No	Yes	No	No	Yes	Yes	Undergraduate Masters	15
500	Evidence Based Practice Data Based Decision Making Research to Inform Practice	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Undergraduate Masters	14
600	Collaboration; Equity and equality; Evidence-Based Practice; Advocacy; Culturally Responsive Teaching	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Undergraduate: 4 Masters	14
700	Diversity; Technology; Principled Perspective	Yes	Yes	No	No	No	No	No	No	Yes	No	Yes	Undergraduate: 3 Masters:	10

Notes. [a] Mathematics Methods merged with other methods courses; [b] Placements vary in length (one hour to a full semester); [c] split between a general

Appendix D: Interview Questions

Purpose: The purpose of this interview is to understand the perspectives of teaching candidates regarding their opportunities to learn, beliefs, and teacher self-efficacy. In particular, we are interested in hearing their views about the ways in which their pre-service opportunities to learn are associated with their beliefs about inclusion, instru and their own teaching self-efficacy.

---

1. Before we begin, could you state your name and share a bit about why chose become a special education teacher?

2. What do you believe makes someone an effective special educator? (Probe fo skills, beliefs, characteristics, knowledge)

3. How would you describe your teacher preparation program's vision of teachi and learning in special education? (Similarities or differences across faculty, coursework, field experiences; differences across special education and speci education courses)

4. How do you define the role of a special education teacher?
    a. How was this role presented to you in your teacher education progran
    b. Did your beliefs about what it means to fulfill this role (special educa teacher) change during your teacher preparation program? How?

5. Can you describe a learning experience that shaped your understanding of wh means to be a special education teacher? (can include methods courses, field placements, and/or internship/student teaching)

6. On your survey, you indicated that you had extensive experience with (fill in extensive experience practice). Is that accurate? Can you tell me about the opportunities you had to engage with this practice? (Probe for practice experiences, modeled experiences, feedback, and reflection) To what extent d this/these learning experience(s) make you feel ready and capable to do the w of special education?

7. Can you describe a time in which someone effectively modeled instruction fo students with disabilities for you? How did this model help you to feel prepar for the profession of special education?

8. What type of feedback did you get during your teacher preparation program? did that feedback support you in feeling prepared for the profession of specia education?

9. Tell me about the ways in which your teacher education program provided opportunities for you to learn about inclusion. Did these experiences change your beliefs about inclusion? How so? To what extent did these learning experiences make you feel ready and capable to do the work of special education in an inclusive setting?

10. Tell me about the ways in which your teacher education program provided opportunities for you to learn about collaboration. Did these experiences change your beliefs about collaboration? How so? To what extent did this/these learning experience(s) help you feel prepared to collaborate with others as a special education teacher?

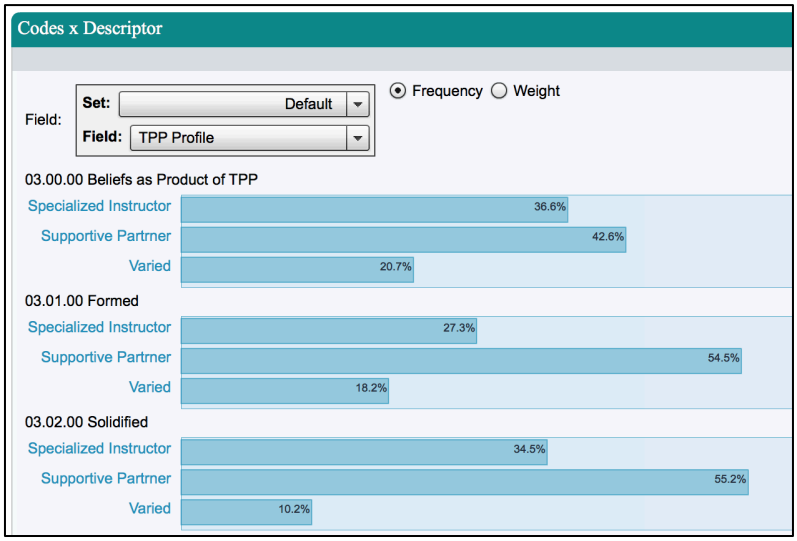
11. Tell me about a time during your teacher preparation program when you had to enact a teaching task—whether this was in the context of a methods course, field placement, or student teaching—and you felt that you struggled. How did you overcome this struggle? What supports from your teacher preparation program did you rely on, if any?

12. At the beginning of this session, I asked you to share your beliefs about the role of a special education teacher. Some things you noted were _____. To what extent are you prepared to fill that role this fall? To what extent do you feel your teacher preparation program helped you to prepare for this role?

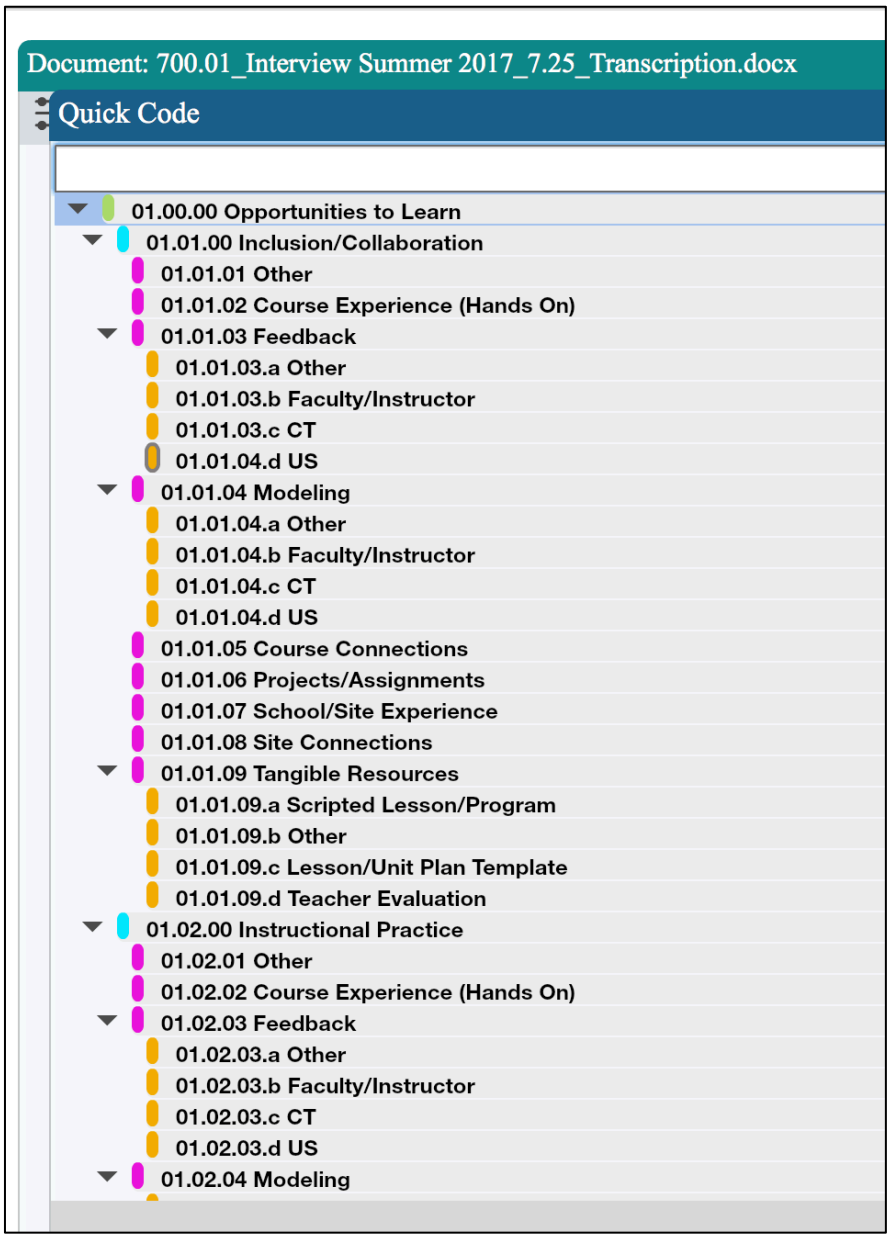
Appendix E: Coding of Qualitative Data

The table below shows some sample codes used as a part of this project.

Code	Definition	Example
OTL influences beliefs about SWD	SETC notes how OTL in either methods, practicum, or internship strengthened previous beliefs or influenced the development of new beliefs about SWD	SETC notes that his experience tutoring in a center for individuals with Downs Syndrome as a part of his practicum challenged his beliefs regarding the future hopes and dreams of students with ID.
OTL influences beliefs about instruction	SETC notes how an OTL in either methods, practicum, or internship strengthened or influenced their beliefs about reading instruction for SWD	SETC notes how her methods instructor and cooperating teacher both advocated for and modeled explicit instruction of phonics and decoding. This changed her beliefs about the ways in which reading instruction should be structured for SWD that impact decoding.
TPP Explicit Instruction	SETC articulates their program's view of effective teaching and learning is to provide explicit instruction	SETC discusses being a "clinician" and providing direct or explicit instruction to students
TPP Support	SETC articulates their program's view of effective teaching and learning is to support the child	SETC states that their role is one of support; she uses the words "come along side"
TPP Same as GET	SETC articulates their program's view of effective teaching and learning is the same for general education and special education teachers	SETC states that there is not a difference between general and special education, emphasizes the need for people to not be able to tell the difference between the two teachers.



This screenshot shows a data analysis tool on Dedoose used to sort data by program profile. The section above indicates the parent code Beliefs as a Product of TPP), which was developed inductively, and the child codes for formed beliefs and solidified beliefs.



This screenshot shows a segment of the online codebook for Dedoose. The segment above includes opportunities to learn about inclusion and collaboration. The green code is the parent code (opportunities to learn), the original structure code; the blue code

indicates a subcategory of the parent code. Pink and orange codes further delineate the coding scheme. So, using this I could tag an excerpt as OTL > Inclusion/Collaboration > Feedback > from CT.

Appendix F: Sample Qualitative Data Matrices

Program Number: (i.e., 100, 400, 600, etc.)

	TPP Vision of Teaching and Learning	**SETC Beliefs about Role**	**SETC Beliefs about Effective Spec. Ed.**	**Beliefs about the influence of the TPP**
Participant				
Participant				
Participant				
Notes				
Questions			**Disconfirming Evidence**	

Program Profile:

Program Number:

	TPP Vision of Teaching and Learning	**Evidence in Support**	**Evidence that Disconfirms**	**Questionable Evidence**
Program 100				
Program 400				

Appendix G: Full Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	OTL Collab. Staff	--														
2	OTL Collab. IEP	.564**	--													
3	OTL Inst. HLP	.386**	.384**	--												
4	OTL Explicit Inst.	.232*	0.164	.611**	--											
5	Clarity of Vision	.329**	.329**	.511**	.306**	--										
6	Support CT	0.152	.217*	.313**	.275**	.270*	--									
7	Support US	.417**	.357**	.318**	0.184	.242*	.392**	--								
8	OSTES	.301**	.445**	.391**	.411**	.390**	.211*	.300**	--							
9	OSTES CM	0.124	.232*	.343**	.368**	.293**	.252*	0.191	.831**	--						
10	OSETS IS	.294**	.431**	.382**	.375**	.373**	0.209	.249*	.863**	.594**	--					
11	OSTES ENG	.311**	.473**	.310**	.315**	.305**	0.086	.314**	.898**	.623**	.702**	--				
12	Int. Attribution	-0.096	-0.093	-.307**	-.296**	-.228*	-0.044	-0.177	-.289**	-.221*	-.322**	-.233*	--			
13	Ext. Attribution	-0.13	-0.162	0.07	0.056	0.045	-0.018	0.016	0.05	-0.021	0.087	0.038	0.029	--		
14	Specialized Inst.	0.033	-0.042	-0.149	-0.164	-0.038	-0.061	0.179	-0.007	0.076	-0.023	-0.046	0.013	0.061	--	
15	Inclusive Inst.	0.086	0.081	0.158	0.085	0.098	0.052	0.127	0.079	-0.028	0.176	0.085	-0.073	0.203	-0.041	--
16	Mutual. Advant.	-0.111	-0.187	0.199	0.187	0.127	0.011	0.032	-0.026	-0.066	0.119	-0.075	-.265*	.208*	-0.151	.220

Note. OTL = Opportunity to Learn; CT = Cooperating Teacher; US = University Supervisor; OSTES = Ohio State Teacher's Sense of Efficacy Scale; CM = Classroom Management; IS = Instructional Strategies; ENG = Engagement Strategies; * p <.05; ** p < .01; two-tailed