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Brenda L. Barrio and Bertina H. Combes

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# General Education Pre-Service Teachers' Levels of Concern on Response to Intervention (RTI) Implementation

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Brenda L. Barrio<sup>1</sup> and Bertina H. Combes<sup>2</sup>

## Abstract

Revisions to Individuals with Disabilities Education Improvement Act (IDEIA) proposed alternative models, such as Response to Intervention (RTI), as a preventive measure that supports students at risk. As teachers' roles evolve in response to RTI, teacher preparation programs must adjust their focus and curriculum accordingly. A mixed-methods design was used to explore general education pre-service teachers' concerns regarding the implementation of RTI based on the Concerns-Based Adoption Model. Results suggest pre-service teachers focused their concerns on feeling unprepared and not understanding how to effectively implement RTI. These implications may guide teacher preparation programs as they assess the readiness of their pre-service teachers to effectively implement RTI.

## Keywords

Response to Intervention, teacher preparation practices and outcomes, research methods, learning disabilities

Today's schools face mounting challenges in responding to national and state initiatives, such as high-stakes testing, accountability, increasing student diversity, and collaboration with families. The enactment of No Child Left Behind (NCLB; 2002) intensified the roles and responsibilities for stakeholders in education. Pressures from NCLB in terms of accountability and high-stakes testing are a continued concern for many (Neal & Schanzenbach, 2010). Similarly, the reauthorization of the Individuals With Disabilities Education Improvement Act (IDEIA; 2004) challenged states, school districts, and teachers by revising how students with learning disabilities (LD) are identified. The term *learning disability* connotes academic difficulties combined with fundamental cognitive deficiency related to basic psychological processes (Kavale, Spaulding, & Beam, 2009). Response to Intervention (RTI) is an

educational framework focused on prevention and interventions based on research practices that support students at risk of failing. Students are supported by using with high-quality instruction and intervention, screening tools, and progress monitoring as methods of early identification (D. Fuchs & Fuchs, 2006; D. Fuchs, Fuchs, & Compton, 2004; D. Fuchs, Mock, Morgan, & Young, 2003).

In the past 10 years, extensive research on the implementation and effectiveness of RTI has been conducted (L. S. Fuchs & Vaughn,

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2012). One consistent finding is that teacher preparation is key to effective implementation and positive student outcomes related to RTI (Compton et al., 2012; Denton, 2012; D. Fuchs, Compton, Fuchs, & Davis, 2008; Gerber, 2005; Gersten et al., 2008; Vaughn et al., 2009). Zirkel (2011) suggested that there is a lack of uniformity in the implementation of RTI, as school districts and states are often confused about the manner in which RTI should be implemented. In addition, stakeholders on multiple levels (state, district, and school) are seeking to determine their roles in the implementation of RTI (Berkeley, Bender, Peaster, & Saunders, 2009; Zirkel, 2011). This study fills an important gap in the literature by exploring the concerns of one group of stakeholders, pre-service teachers, related to the implementation of RTI.

## Challenges in Implementing RTI

Prior to the introduction of RTI and other initiatives, such as inclusion, special education teachers had the primary responsibility of screening, assessing, and educating the majority of students with LD. According to D. Fuchs, Fuchs, and Stecker (2010), the roles of general and special education teachers have begun to blur. The blurring of roles is a result of increases in innovation that support an inclusive philosophy. Hilton (2007) explained that RTI significantly impacts how general education teachers instruct students and manage their classrooms. Increased responsibilities associated with RTI and inclusive approaches may exacerbate the pressure teachers feel associated with the NCLB standards and goals. Conderman and Johnston-Rodriguez (2009) found that general education teachers felt negatively about their skills related to key components of RTI (assessment, progress monitoring). Similarly, teachers' concerns are related to their lack of knowledge regarding the implementation of interventions and appropriate instruction (Greenfield, Rinaldi, Proctor, & Cardarelli, 2010). Greenfield et al. (2010) explained teachers' challenges include determining the quality and quantity

of evidence-based practices across time. They found the teachers view themselves as the main stakeholders in the RTI reform, but are discouraged by the components and challenges of implementation.

## Concerns of Pre-Service Teachers

Changes in educational policies, systems, and instruction may exacerbate teachers' concerns about their responsibilities (Kaplan, 2011). These concerns may be generated from shifts in theoretical frameworks, public policies, increased diversity in the classrooms, and instructional innovations (e.g., RTI). Emphasis on RTI, Positive Behavioral Interventions and Supports (PBIS), and other school-wide initiatives also broaden pre-service teachers' responsibilities and duties (Tillery, Varjas, Meyers, & Collins, 2010). When expectations for educators increase, it is important to develop teachers' knowledge about such initiatives as early as possible (Hagger & Malmberg, 2011). In addition to addressing teachers' concerns and needs, Tillery et al. (2010) noted that teacher preparation programs are useful for presenting new concepts to their pre-service teachers.

Studies show that general education pre-service teachers have concerns related to limited knowledge and preparation in many areas (Tillery et al., 2010). Sandholtz (2011) found that pre-service teachers are concerned about teaching strategies, planning and organization, behavior management, collaboration, and working with diverse students and families. Another major area of pre-service teachers' concerns is behavior and classroom management (Alvarez, 2007; Gunter & Jack, 1994; Rosen, Taylor, O'Leary, & Sanderson, 1990). Tillery et al. (2010) found that pre-service teachers were unfamiliar with innovations such as PBIS and RTI. They recommend enhancing teacher preparation in the areas of behavior management, pre-referral interventions, and working with students with diverse needs.

Thus, the concerns of general education pre-service teachers on teaching students with

disabilities in general education settings are well documented (Brownlee & Carrington, 2000; Conderman & Johnston-Rodriguez, 2009; Cook, 2002; Rademacher, Wilhelm, Hildreth, Bridges, & Cowart, 1998). With increasing numbers of students with disabilities in the general education classroom, these concerns are even more pressing. According to a recent report, 56.4% of all students with disabilities are included in the general education classroom for most of the day (i.e., 79% or more of the time), an increase of 13% from two decades ago (U.S. Department of Education, 1996; U.S. Department of Education, National Center for Education Statistics, 2012). As a result, general education teachers (and pre-service teachers) need to understand how to effectively teach this population, including those with LD (U.S. Department of Education, National Center for Education Statistics, 2012).

### Concerns-Based Adoption Model (CBAM) Framework

As RTI transforms the identification process, it is beneficial to understand the components of RTI and the changes it has initiated for all stakeholders. Burns (2007) highlighted the importance of observing and understanding the beliefs, behaviors, and attitudes of those who implement the innovation to sustain the desired change. Similarly, Holloway (2003) noted that teachers' attitudes, behaviors, and beliefs must be observed to make the change effective. Because teacher preparation programs are instrumental in shaping the foundation of practitioners' philosophies and methods, it is important to explore the impact of initiatives such as RTI on pre-service teachers (Denton, Vaughn, & Fletcher, 2003). Therefore, this study is theoretically based on the CBAM (Hall & Hord, 2011).

CBAM is based on the measurement, description, and explanation of the process of change experienced by teachers or pre-service teachers when implementing a new innovation or practice. CBAM is based on the theoretical assumption that change is an ongoing process in which personal experiences affect

the effectiveness of an innovation (Hall & Hord, 2011). Throughout CBAM, change is viewed as a process of personal experience involving growth in skills and feelings. It can be facilitated by interventions directed toward the innovation and its stakeholders (Hall & Hord, 2006). CBAM is a multi-part model with three components: Stages of Concerns framework, Levels of Use, and the Innovation Configuration. This study employs the Stages of Concern (SoC) framework.

The SoC assesses practitioners' feelings regarding the changes observed during the implementation of the innovation at different stages of completion (Hall & Hord, 2011). The framework includes four categories—Unrelated, Self, Task, and Impact—which encompass the seven SoC (Unconcerned, Informational, Personal, Management, Consequences, Collaboration, and Refocusing). According to CBAM, a practitioner at Stage 0, Unconcerned, has little knowledge or interest regarding the change (or innovation). In Stage 1 (*Informational*), the practitioner wants to learn more about the innovation (e.g., RTI) and its implementation. In Stage 2 (*Personal*), the practitioner is concerned about his or her own ability to implement the change and possible personal costs. Stage 3 (*Management*) begins when the individual starts to experiment with innovation, and concerns focus more on the logistics of the implementation. Stage 4 (*Consequences*) is focused on the impact of change on the student. In Stage 5 (*Collaboration*), the practitioner wants to work with others by improving the implementation. Finally, Stage 6 (*Refocusing*) focuses on making major adjustments to the innovation.

CBAM conceptualizes these stages as a developmental progression in which practitioners implementing change or innovation have certain concerns across all stages at different points (Kaplan, 2011). According to Horsley and Loucks-Horsley (1998), the CBAM SoC is primarily useful in improving professional development among practitioners. The literature suggests that identifying the concerns of pre-service teachers helps provide direction for targeted professional development and

enhancement of teacher preparation programs (Fuller, 1969; McFarland, 1998; Robichaux & Guarino, 2012). Although literature focused on the identification of teachers' concerns regarding an innovation has been presented, a gap within the literature exists regarding pre-service teachers' levels of concern regarding the implementation of RTI. To add to the literature, this study focused on exploring pre-service teachers' concerns about their future implementation of RTI.

## Purpose of the Study

The growing body of literature focused on teachers' levels of concern provides support for the impact that teacher preparation programs have on the successful implementation of innovations. Denton et al. (2003) explained pre-service teachers' philosophy, skills, and methods obtained during the teacher preparation program are directly connected with student outcomes. The identification of pre-service teachers' concerns provides the opportunity to enhance teacher preparation programs through targeted professional development (Fuller, 1969; McFarland, 1998; Robichaux & Guarino, 2012). As presented as the foundation of the CBAM framework, Fuller (1969) supported pre-service teachers' concerns impact on change in educational settings.

According to Stuart, Rinaldi, and Higgins-Averill (2011), teachers' ( $n = 26$ ) self-efficacy was greatly impacted after components of the RTI framework were successfully implemented over 2 years. They explain teachers' shifts in views regarding their roles in schools were enhanced by the implementation of RTI. In addition, the literature suggests teachers' concerns, beliefs, and attitudes positively change when they are supported by their administration and better prepared through continuous professional development (Greenfield et al., 2010; Spear-Swerling & Cheesman, 2012; Stuart et al., 2011). In relation to the preparation of teachers, the literature agrees that pre-service teacher preparation is key to the effectiveness of understanding and implementing RTI and its components

(McCombes-Tolis & Spear-Swerling, 2010; Vaughn et al., 2009).

This study was designed to answer the following research questions:

**Research Question 1:** What are the levels of concern of general education pre-service teachers regarding the implementation of RTI?

**Research Question 2:** What is the relationship between background variables of general education pre-service teachers and their rated areas of concern regarding the implementation of RTI?

**Research Question 3:** What are general education pre-service teachers' greatest concerns regarding the implementation of RTI?

## Method

### Research Design

A parallel mixed-method research design was used to better understand the factors influencing pre-service teachers' levels of concern regarding the implementation of RTI. The study explored differences in levels of concern regarding RTI between pre-service teachers at various levels of candidacy and type of certification, and investigated the pre-service teachers' greatest concerns regarding the implementation of RTI. A web-based questionnaire was constructed for the collection of quantitative data among all participants. Simultaneously, as a separate component of the study, two focus group interviews were conducted to provide in-depth qualitative data.

The rationale for utilizing a mixed-methods research design was to strengthen the results by utilizing the fortitude of both quantitative and qualitative data analyses (Teddlie & Tashakkori, 2009). The design provided inferences from the quantitative and qualitative results, integrated as a meta-inference. Although data from the survey and the focus groups were collected and analyzed separately, the findings were brought together to yield a more detailed analysis of the same phenomenon.

## Participants

An a priori power analysis was conducted to select the number of participants for the study (Cohen, Cohen, West, & Aiken, 2003; Stevens, 2009). According to Stevens (2009), a moderate to large sample will provide strong power. Stevens (2009) suggested using at least a moderate sample size ( $n = 100$ ) to detect about 67% of the canonical correlations. Unlike multiple regression, a sequential testing procedure supported by Mendoza, Markos, and Gonter (1978) can consider cases with varied sample sizes (i.e., 25-100) to provide significant canonical correlations. A total of 302 pre-service teachers from a large university accredited by the National Council for Accreditation of Teacher Education (NCATE) in the Southwest part of the United States were targeted to participate in this study.

All pre-service teachers were enrolled in the last two semesters of their teaching preparation programs while the study was conducted. Participants were enrolled in the Professional Development School (PDS) experience. This professional development model is a year-long experience that emphasizes practical application of content knowledge learned during the preparation program (Darling-Hammond, 1994). Students in PDS1 spent 2 days a week in a public school setting. Students in PDS2 returned to the same school the following semester for 5 days a week. The sample for the quantitative strand of the study included 100 general education pre-service teachers, or a total of 33% response of the total targeted sample. Within this sample, 49 participants were enrolled in PDS1 and 51 participants were enrolled in PDS2 (i.e., student teaching). Participants in the qualitative strand of the study were self-selected from the two homogeneous groups, PDS1 ( $n = 6$ ) and PDS2 ( $n = 8$ ). Homogeneous groups were purposefully selected as PDS2 pre-service teachers have more practical experience than those in PDS1 (Morgan, 1998). Homogeneous purposeful selection of participants is one manner in which purposeful sampling is conducted (Patton, 2000). The selection criteria for participants was based solely on enrollment in

either PDS1 or PDS2 and not based on any other factors such as age, race, ethnicity, or gender.

## Measures

Two separate measures were used to secure data for this study. The first measure was a 53-item questionnaire. The web-based questionnaire was divided into three parts and gathered pre-service teachers' demographic data, background knowledge about RTI, and information about their SoC regarding implementation of RTI. Part I of the survey included demographic questions—area of certification (elementary school education, middle school education), and PDS enrollment (PDS1, PDS2). The second part of the questionnaire (Knowledge of RTI) was developed by Kaplan (2011). It was originally designed to assess school psychologists' knowledge, attitudes, and amount of training in RTI. Finally, Part III, Stages of Concern Questionnaire (SoCQ; George, Hall, & Stiegelbauer, 2006) sought to obtain pre-service teachers' levels of concern regarding the implementation of RTI. The SoCQ has been widely used to assist researchers and practitioners in understanding and evaluating innovations as they develop and support professional development (George et al., 2006). As modifications were made to the original instruments, the validity for the newly created instrument was obtained. A pilot study with pre-service teachers ( $n = 31$ ) not participating in the study was conducted to observe reliability of the measures. Qualitative data were gathered through two focus groups using a semi-structured questionnaire. The two focus groups were conducted to seek comprehensive information about pre-service teachers' greatest concerns regarding the implementation of RTI. The questions were formulated for open-ended responses based on information gathered from the literature.

## Data Analysis

A mixed-method approach was used to answer the research questions in a comprehensive manner. A reliability analysis using Cronbach's

alpha determined the reliability of the survey to be in the excellent range at .91, and for the two main sections (i.e., Knowledge of RTI and SoCQ), the alpha coefficients were at .79 and .92, respectively ( $n = 100$ ; Litwin, 1995).

A canonical correlation analysis (CCA) was conducted to analyze the relationship between background variables regarding Knowledge of RTI (Independent Variable; IV) and the pre-service teachers' levels of concern according to the SoC framework (Dependent Variable; DV). CCA was selected because it limits the probability of committing a Type I error (Thompson, 1991). According to Sherry and Henson (2005), a CCA provides a broader technique, which examines variables that have multiple causes and effects closely related to the reality of human behavior. In this case, CCA was conducted to examine the relationship between two sets of variables: (a) pre-service teachers' knowledge of RTI (IV) and (b) pre-service teachers' SoC (DV). All assumptions (e.g., multivariate, sample size, multicollinearity) were tested during the analysis.

For the qualitative strand, data collected from the focus groups were examined by thematic analysis. The primary researcher and two assistant researchers identified themes. Thematic analysis assisted in uncovering pre-service teachers' challenges and concerns regarding the implementation of RTI in a more in-depth manner. According to Braun and Clarke (2006), thematic analysis allows for organization and rich detail of the data collected. Themes were formulated and identified. A deductive approach was used as theoretical interests had been formulated and supported by the literature.

A parallel mixed analysis of the data was conducted. The results of both quantitative and qualitative questions were considered in answering the research questions in a holistic manner. Although the two strands of analyses were conducted separately, inferences of the results were integrated to form meta-inferences (Teddlie & Tashakkori, 2009). This method provided answers to interlocking questions in the research.

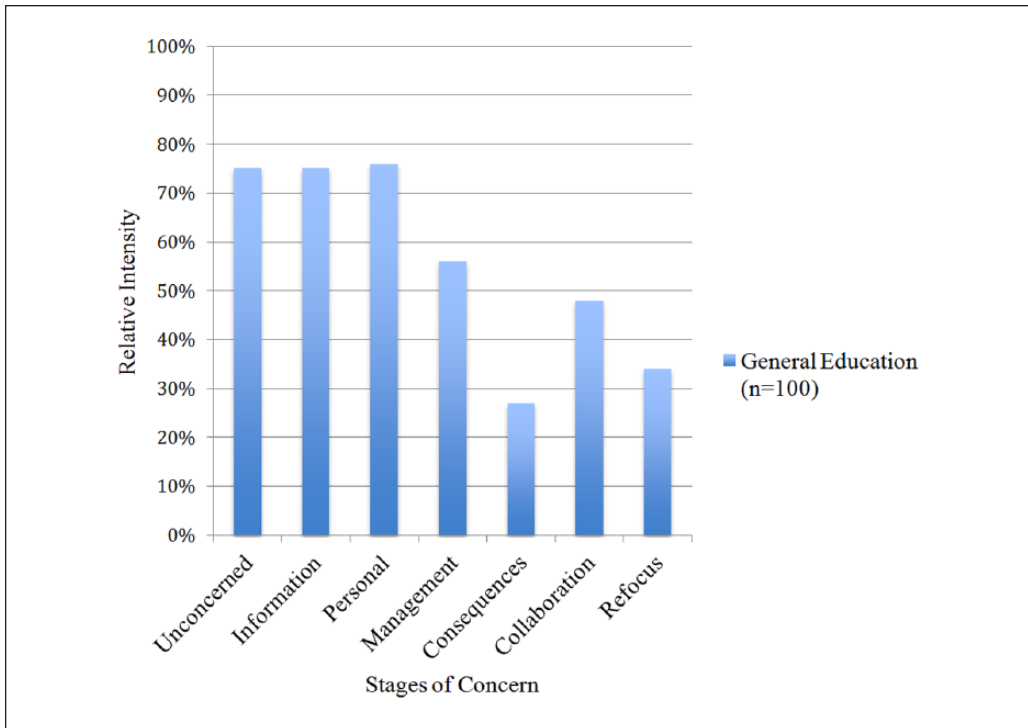
## Results

### Quantitative Findings

*Results from the SoCQ.* Related to Research Question 1, "What are the levels of concern of pre-service teachers regarding the implementation of RTI?" quantitative results explaining general education pre-service teachers' levels of concern according to the SoCQ were analyzed according to the guidelines of George et al. (2006). Overall results revealed general education pre-service teachers' highest levels of concern about the future implementation of RTI to be in the *Unconcerned*, *Informational*, and *Personal Stages* (i.e., 75%, 75%, and 76%, respectively;  $n = 100$ ; see Figure 1).

According to George et al. (2006), respondents in the *Unconcerned Stage* show a great lack of interest and engagement regarding the innovation (i.e., RTI). The *Informational Stage* explains the respondents' needs to learn more about RTI (e.g., what the innovation is, how it will be used, and what results it may show). Fuller (1969) explained that the *Personal Stage* indicates self-centeredness explained by an individual's concern about how the innovation may affect him or her. In other words, general education pre-service teachers showed low levels of interest and engagement in the implementation of RTI. These results suggest that they may exhibit high levels of information and knowledge seeking about RTI. Similar findings were reported by Dunn and Rakes (2011) about pre-service teachers' levels of concern related to learner-centered instruction.

*Relationship between knowledge of RTI and SoC.* For Research Question 2, "What is the relationship between background variables of general education pre-service teachers and their rated areas of concern?" a CCA was conducted using 15 variables related to knowledge of RTI as predictors of the seven SoC to evaluate the multivariate shared relationship between the two synthetic sets of variables. After a component analysis was completed on each set of variables (i.e., predictor and dependent variables), it was observed that only 7 of



**Figure 1.** General education pre-service teachers' levels of concern about RTI according to the Stages of Concern Questionnaire.

Note. RTI = Response to Intervention.

the original 22 variables were considered to be more parsimonious to the main constructs with a ratio of 14 participants to 1 variable (Stevens, 2009). The relationship between the two sets of variables (i.e., predictor and dependent variables) was negatively correlated, Wilks's lambda ( $\lambda$ ) = .016 criterion,  $F(105, 508.57) = 1.585$ ,  $p < .05$ . Wilks's  $\lambda$  indicated that 98.4% of the variance was explained between the predictor variable set (Knowledge of RTI) and the criterion variable set (SoC) in the full model (see Table 1). Therefore, the less knowledge general education pre-service teachers had about RTI, the higher the levels of concerns they had regarding the implementation of RTI.

A more in-depth analysis of the data revealed that general education pre-service teachers viewed RTI as an important aspect of their teaching. This is supported by the weight of the variable, which explains 76.4% of the predictor synthetic variable (i.e., Knowledge

of RTI). The weight for the dependent variable (i.e., SoC) is mainly obtained from the *Collaboration* stage with 53.1%. In conclusion, general education pre-service teachers may perceive knowledge of RTI as an important aspect of their teaching, and if knowledge is low, concerns about the implementation of RTI may increase. Specifically, the *Collaboration* stage may be primarily affected by the lack of pre-service teachers' knowledge. In addition, presence of multicollinearity within the Knowledge of RTI and the SoC variants (grade point average [GPA],  $\beta > 1$ ) was not evident, as the intercorrelations measured less than .80 (Nimon, Henson, & Gates, 2010; Stevens, 2009).

### Qualitative Findings

The primary researcher along with two assistant researchers analyzed transcribed files using the constant-comparison method to



**Table 1.** Canonical Solution for Knowledge of RTI Predicting Stages of Concern for General Education Pre-Service Teachers ( $n = 100$ ).

Variable	Function I		
	Coef.	$r_s$	$r_s^2$ (%)
rti	-.219	-.421	17.7
cba	-.092	-.348	12.1
progm	.119	-.220	4.8
selectpb <sup>a</sup>	-.148	-.253	6.4
Implebp	.148	-.196	3.8
Knowlepb	-.024	-.300	9
Innov	.119	-.112	1.3
Increase	-.1054	-.351	12.3
schoolimpl	-.139	-.681	43.4
rtiteach <sup>a</sup>	-.646	-.876	76.7
Future	-.087	-.714	51
Emph	.014	-.271	7.3
coursrti <sup>a</sup>	-.234	-.413	17.1
Courscba	.162	-.054	0.291
conf <sup>a</sup>	-.225	-.247	6.1
$R_c^2$			
Stage 0	.254	.473	22.4
Stage 1	.784	-.145	2.1
Stage 2 <sup>a</sup>	-.382	-.474	22.5
Stage 3	.449	-.071	0.5
Stage 4 <sup>a</sup>	-.289	-.580	33.6
Stage 5 <sup>a</sup>	-.793	-.729	53.1
Stage 6	-.270	-.365	13.3

Note. RTI = Response to Intervention; Coef. = standardized canonical function coefficient;  $r_s$  = structure coefficients;  $r_s^2$  = squared structure coefficient; rti through conf = knowledge of RTI variables; Stage = Stages of Concern raw scores.

<sup>a</sup>Variables selected after component analysis from Knowledge of RTI and Stages of Concern construct.

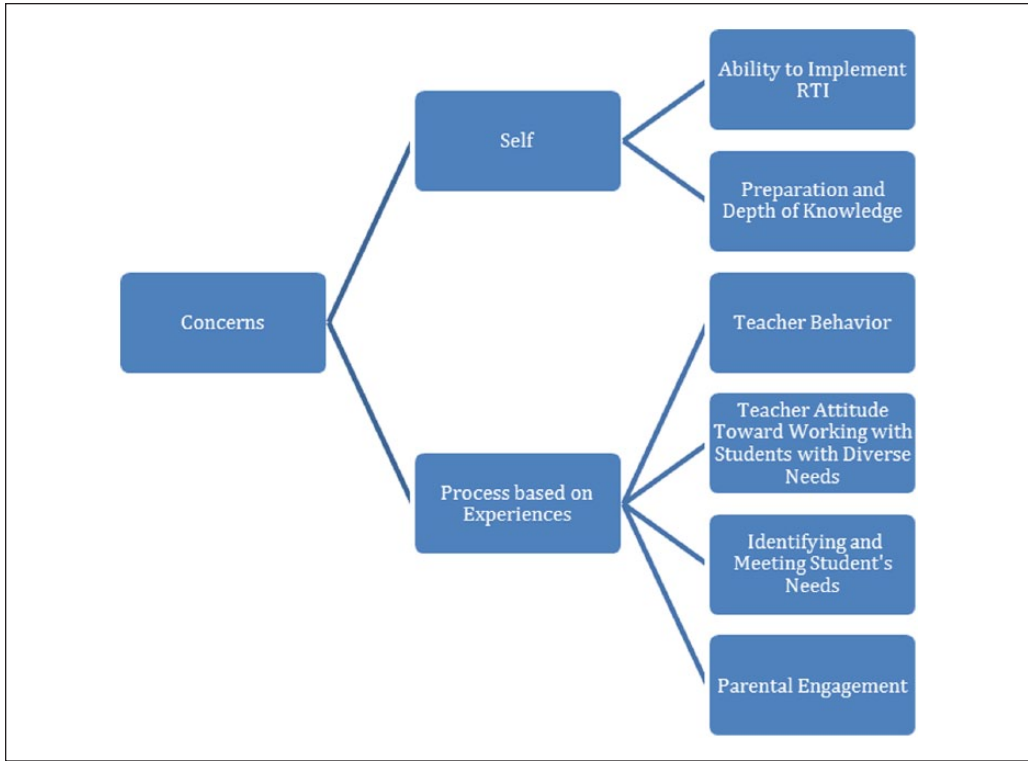
obtain themes (Charmaz, 2000). Constant comparison focuses on participants' views and perceptions of reality, rather than focusing on the researchers' perceptions of the participants' views. Thematic coding was validated using a group-to-group validation process (Morgan, 1997). After an independent review of the transcripts by the three researchers, seven major themes emerged for both focus groups: (a) *Teacher Focus*, (b) *Student Needs*, (c) *Documentation*, (d) *Experiences*, (e) *Training*, (f) *Understanding of RTI*, and (g) *Concerns*. Only the results related to the thematic code *Concerns* are

discussed as that code relates to Research Question 3, "What are pre-service teachers' greatest concerns regarding the implementation of RTI?"

The theme of *Concerns* described comments made about lack of information or knowledge about RTI or its implementation. Two overarching categories emerged from this theme allowing for a more comprehensive explanation (see Figure 2). The first overarching category, concerns about Self, includes pre-service teachers' reservations about their ability to implement RTI as well as their preparation and depth of knowledge about the method. The second overarching category was concerns about the RTI process based on their experiences in public schools. Within this overarching category, several sub-categories arose: (a) ability to implement RTI, (b) preparation and depth of knowledge, (c) teacher behavior, (d) teacher attitude toward working with students with challenges, (e) identifying and meeting students' needs, and (f) parental engagement.

*Concerns about self.* General education pre-service teachers were concerned about themselves (Self) and their future implementation of RTI. In relation to the CBAM theoretical framework, these results are well aligned and supported. Furthermore, most participants expressed feeling confident about understanding the overall purpose of RTI, their role as general education teachers, and the support needed from their future administration. The participants, however, voiced concerns about their ability to effectively apply RTI in real-life settings. For example, a student in PDS1 stated, "My most fearful thing going into the school is that I don't know how to implement it." Another PDS1 participant noted,

I think we all kind of know the basics of RTI, and I think that we can kind of identify things through samples and observation . . . but I think at least for me, when we're talking about implementation, I'm thinking about moving through the tiers and things like that is what I don't feel as confident about because personally, I only recall really getting a pretty solid training in one class.



**Figure 2.** Subcategories of the *Concerns* theme.  
 Note. RTI = Response to Intervention.

Similarly, a PDS2 participant expressed concerns about Self and implementation with the following comments:

I'm worried about what am I going to do once I know what level they're on, because I know that if 50% of the kids I have are yellow and red kids, which would be like Tier II, Tier III interventions, then the others are green, so they don't need as much intervention, or a different intervention . . . So, I'm just worried about how do I implement all the intervention that they need as one person with 20-plus children?

In general, PDS2 participants expressed deeper levels of concern based on their experiences in public schools. Their concerns were more detailed; for example, they were able to describe their concerns related to the specifics of RTI (assessment, documentation, Tier I, Tier II). Participants in the PDS2 focus group also communicated their uncertainties about

time management, assessment, communication with parents and other professionals, and differentiation of instruction for students in special education. For example, one participant said, "I think that we do have a good introduction to *it*, but we still don't have all of the [knowledge about] . . . I guess, documentation and paperwork, and just that [knowledge of the] whole system."

Participants were also concerned about themselves (Self) related to their depth of knowledge of RTI. From a PDS1 participant, "There's only one class that I really remember dealing and talking about it at length, and, unfortunately, I haven't had the chance to sit in like Participant 4 and see teachers go through the RTI process." Another participant commented,

What is RTI? What is that? And then like for me, y'all have lots to say about it. I don't have

anything to say about it because I have not seen practical use of this. I don't remember that much from my course, and then I'm getting nothing in my practicum.

These findings support the quantitative findings and the need for further preparation of pre-service teachers' knowledge of the RTI model and its components.

Similarly, an interesting observation made by the researchers was pre-service teachers in PDS1 had misunderstandings related to the RTI process. Some focus group participants related RTI to the evaluation of students with disabilities and not as an early intervention method for students at risk of failing. Many participants wondered whether special education pre-service teachers received this type of preparation prior to graduating from the program. These findings suggest that pre-service teachers, like many in-service teachers, view the interventions and supports provided by RTI as a reactionary measure, rather than a preventive measure. The focus of general education teacher preparation programs regarding RTI in the past decade has focused on the individual components of RTI (i.e., evidence-based practices, progress monitoring, data-based decision making, culturally responsive pedagogies, screeners), rather than focusing on the combination of all RTI components as puzzle pieces coming together (Barrio, Lindo, Combes, & Hovey, 2014). These findings by Barrio et al. (2014) suggested the need for a more unified version of the purpose and components of RTI, as a preventive and early intervention model, taught in teacher preparation programs. In addition, research published in journals focused on general education teachers and teacher preparation programs should shift their focus to a more inclusive model and clear statement of purpose of RTI as a unified model, not its individual components (Barrio et al., 2014). This unified understanding of RTI begins with teacher educators and it trickles down to pre-service teachers, aiding in the betterment of understanding about the purpose of RTI and the possible reduction of concerns for their future implementation of this early intervention and preventive model.

*Concerns about the RTI process based on experience.* Both groups reflected on their PDS experiences related to RTI. Participants expressed concerns related to a need for collaboration between school personnel, teacher behavior related to students with diverse needs, identification of student for services, and the need to involve parents in the RTI process. For example, a PDS1 participant commented, "Just because they get put in RTI or they're at a Tier III, we still have to collaborate with all the teachers that they work with, and I think sometimes that's forgotten." Another noted, "I've witnessed a lot of struggle with getting everyone, parents, teachers, and everyone else involved, on board. I think all teachers, all schools could benefit from a better understanding."

Variance in teacher behavior related to RTI was discussed by the focus groups. Some participants attributed what they perceived as a negative view in the teacher's attitude, whereas other participants viewed negative behavior as a lack of proper training. Participants' comments included, "The challenge I see is the teacher not wanting to take the time to work with those students [at-risk]," and,

Teachers could truly benefit from a better understanding of what RTI is. Especially, I see a deficit between teachers who have been there for a long time, and use maybe different methods before RTI and might not be as familiar or have as much education on it, or those who think it is one thing and others think it's another, maybe more district-wide and for all districts, education on RTI is needed.

Finally, participants were concerned about meeting the needs of their individual students. One said,

I'm working with younger age groups and my teacher runs into trouble with age and developmental levels, that they cannot assess . . . a student until they reach age 8 to ensure you are compensating for differences based on the developmental level of the student.

In addition, another participant noted, "I have heard a first-grade teacher saying on multiple occasions, 'we doing the RTI. We're

doing the paperwork, but we can't get her any services. She's just too young." As it is presented throughout the literature, pre-service teachers' concerns about meeting individual needs has been thoroughly recorded (Brownlee & Carrington, 2000; Cavendish & Espinosa, 2013; Cook, 2002; Greenfield et al., 2010; Rademacher et al., 1998). With these further findings, it is evident that teacher preparation programs should evaluate their current practices toward preparing pre-service teachers how to better meet the needs of individual students from diverse populations.

Overall, the qualitative findings revealed that general education pre-service teachers expressed feeling unprepared for the real-life implementation of RTI. Similar to the themes that emerged from the work of Smith, Corkery, Buckley, and Calvert (2013) who studied teachers, the findings of this study suggest that pre-service teachers' concerns focus on understanding their specific roles as future teachers and their ability to teach to all the varying levels and abilities present in the classroom.

### *Mixed-Methods Meta-Inference*

Qualitative and quantitative results were considered in constructing a meta-inference about the concerns of general education pre-service teachers related to their future implementation of RTI. According to Greene, Caracelli, and Graham (1989), a complimentary justification of mixed methods "seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from another" (p. 259). A meta-inference of the results can be interpreted following the integrative framework suggested by Teddlie and Tashakkori (2009).

According to the descriptive results, as well as the emergence of themes, general education pre-service teachers focused their concerns on involvement in the implementation of RTI, not understanding the aspects of this innovation, and feeling unprepared to effectively implement RTI in the near future. Pre-service teachers' concerns were perceived as high due to the lack of knowledge about RTI.

This is supported by the CCA ( $n = 100$ ,  $p < .05$ ) and thematic concerns presented (e.g., lack of preparation, understanding, and experiences of the implementation of RTI).

A continuing theme throughout the PDS2 focus group meeting was the concern about the need for practical experiences with the implementation of RTI: "I feel like we have a good start with how to work with students with the RTI process, but I think we're lacking in how to really put action to the RTI process." In comparison, students in PDS1 remained hopeful about receiving more training their final semester of student teaching. It is important to note that the majority of participants believed their knowledge of RTI needed to improve.

In conclusion, an inference can be made that general education pre-service teachers' concerns are operating in the Self (*Unconcerned, Information, Personal* stages) and not in the Task (*Management* stage) or Impact (*Consequences, Collaboration, Reinforcement* stages) categories of the SoC framework (Fuller, 1969). Knowledge, which in this study, was derived from pre-service teachers' preparation program, independent reading, and professional development generated concerns about RTI. Those concerns cause them to desire to seek more knowledge about the subject. Concerns were also generated through experiences in the form of practicum, classroom observations, and participating in the research study. As a result of these experiences, pre-service teachers expressed the need for more extensive experiences related to RTI.

### **Discussion**

The purpose of this study was to explore general education pre-service teachers' levels of concern regarding their implementation of RTI. Existing literature has examined teachers' levels of concern about the implementation of RTI, but little has been written about pre-service teachers' concerns related to the topic (Greenfield et al., 2010; Spear-Swerling & Cheesman, 2012; Stuart et al., 2011; Tillery et al., 2010). Exploration using the mixed-method results of this study provides several

contributions to current literature concerning pre-service teachers' concerns. Outcomes revealed concerns represented at the *Unconcerned*, *Informational*, and *Personal* stages in the Self category of the SoC framework. The Self category indicates individual concerns such as personal involvement and commitment with little or general awareness about the implementation of RTI. The concept of self-concern was also evident in the qualitative data provided through the focus group. According to the literature, these concerns are observed in practitioners at beginning stages of implementing an innovation (Fuller, 1969; George et al., 2006; Hall & Hord, 2011; Landon, 2010).

The lack of knowledge about the implementation of RTI may account for pre-service teachers' increased concerns. Qualitative data provided in-depth information supporting self-reported quantitative data about the participants' knowledge of RTI and its implementation. Many of the pre-service teachers' concerns focused on being unprepared to implement RTI in a real-world setting, even after exposure to the innovation through PDS1 and PDS2. A study conducted by Spear-Swerling and Cheesman (2012) examining pre-service teachers' ( $n = 142$ ) knowledge about RTI showed that 52.1% were familiar with RTI models and 14.8% were not familiar at all with the model. The overwhelming majority, 66.9%, continued to struggle with the implementation of RTI. Results from this study support these findings, as participants in both focus groups expressed concerns about their lack of knowledge and experience with the implementation of the RTI model. This suggests a need for adaptation of the current teacher education curriculum and addition of intentional practical experiences related to RTI. As supported by Watkins' (1999) findings, higher levels of concerns are related to pre-service teachers' lack of experience. The lack of pre-service teacher preparation could translate to feelings of inadequacy when teaching students with diverse needs after they exit their programs and enter their classrooms (Cavendish & Espinosa, 2013).

A recurring theme throughout the study was pre-service teachers' need for practical experience and knowledge about the implementation of RTI. Minimal knowledge about the purpose of RTI and its three tiers seemed to increase concerns in pre-service teachers. According to Tillery et al. (2010), variation in teacher preparation programs and insufficient practical experience can cause a disconnect between theory and practice. Throughout the focus group meetings, pre-service teachers discussed the need for more practical experience to close this gap, preferably at earlier stages of their program. Overall results suggest that an increase in practical knowledge for pre-service teachers during their teacher preparation program could decrease the concerns uncovered in the study. Further research is needed to make appropriate recommendations to improve teacher preparation in a broader context.

### Limitations

The moderate range of the sample population obtained in the study could be considered a limitation (Stevens, 2009). It is also important to note that the sample was generated from a large metropolitan area in a Southwest region of the United States, limiting generalization to pre-service teachers in this type of teacher preparation program. Potential bias introduced by self-selection for the qualitative strand of the study could potentially minimize generalizations made from the meta-inferences (Clark & Creswell, 2008). Prudence should also be considered when interpreting the results of the CCA due to possible suppressors in the Knowledge of RTI synthetic variable as well as the SoC synthetic variable. According to Nimon et al. (2010), suppressors can increase the predicted power of a canonical variate confounded within a set of variables. It is important to consider that other variables (e.g., practical experiences before and during PDS, experience outside university courses, personal readings) may also play a key role in general education pre-service teachers' concerns regarding their future implementation of RTI.

## Conclusion and Implications for the Field

This study enhances the literature focused on teacher preparation programs and RTI by providing several stakeholders (e.g., teacher preparation programs, school administrators, and school systems) with the results of pre-service teachers' levels of concern, knowledge, and attitudes toward the implementation of RTI. As noted by Robichaux and Guarino (2012), an important facet of teacher preparation programs is an understanding of pre-service teachers' levels of concern regarding the implementation of an innovation. It is critical that pre-service teachers' foundational skills be aligned with current innovations. Explicit and direct instruction of the RTI process and its components, as an early intervention model, must be included in each course in a teacher preparation curriculum. It is recommended that teacher educators increase pre-service teachers' practical experiences for each component of RTI (Cavendish & Espinoza, 2013), as well as experiences with the process and implementation of this innovation (McCombes-Tolis & Spear-Swerling, 2010). To address the possibility that the problem results from a lack of RTI experience in clinical settings (i.e., schools) rather than a lack of practice in college classes, advanced practicums, and student teaching should include explicit experiences through partnerships with local school districts (Hawkins, Kroeger, Musti-Rao, Barnett, & Ward, 2008; Little et al., 2014). As explained by Hawkins et al. (2008), field experiences related to RTI in local schools should focus on the assistance of the design and evaluation of targeted interventions at each tier in an interdisciplinary, team-based manner. For example, reinforcing RTI implementation skills through action-research projects could provide better understanding and experience of the RTI model and its components in clinical settings (LePage et al., 2010). These action-research projects could not only benefit pre-service teachers, but it could add to the professional development of in-service teachers. In addition, it is important for teacher preparation programs to be

intentional in their placement of pre-service teachers in school districts that practice the RTI model with fidelity.

Through the use of action-research projects and explicit field experiences, pre-service teachers could bridge the research-to-practice gap that we continue to experience (Stringer, 2013). To continue closing this gap, institutions of higher education should renew their commitment to build and strengthen their relationships with surrounding communities and school districts. Similarly, school administrators and school systems need to be aware of the critical need for first-year teacher support and professional development for the successful implementation of RTI (Conderman & Johnston-Rodriguez, 2009). According to Bartell (2004), first-year teachers' experiences have long-term consequences related to teacher effectiveness. First-year teacher mentorship is highly recommended by the literature as a support to increase teacher effectiveness (Hellsten, Prytula, Ebanks, & Lai, 2009). Aside from the support and provision of professional development by school administrators and the school systems, a specifically defined RTI process could reduce the concerns of general education teachers (O'Connor, 2007).

Findings from this mixed-methods study extend the literature regarding novice practitioners' levels of concern about the implementation of RTI, and the findings provide wider support for the use of the CBAM model to guide professional development for educators. Most importantly, the results of this study could potentially enhance curriculum development in teacher preparation programs that will better prepare pre-service teachers for implementation of future innovations.

More extensive research about RTI that further focuses on the impact teacher preparation programs have on pre-service teachers' knowledge, skills, and concerns on specified areas that encompass RTI is needed. It is also important to pay close attention to pre-service teachers' self-efficacy beliefs about models such as RTI before they make the transition to teaching. Finally, further investigations could focus on the curriculum changes that general

education teacher preparation programs are making regarding innovative practices and models, as they experience changes in policy and a push for the implementation of new practices.

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