

Developing a Scale to Investigate In-Service Special Education Teacher Efficacy for Serving Students from Culturally and Linguistically Diverse Backgrounds

Szu-Yin Chu^{1,*}

¹Department of Special Education, National Hsinchu University of Education, Hsinchu, Taiwan

*Correspondence: Department of Special Education, National Hsinchu University of Education, Hsinchu, Taiwan. Tel: 886-3-521-3132 #3320. E-mail: sychu@mail.nhcue.edu.tw

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Abstract

The purpose of this paper is to describe the development of the scale designed to investigate special education teachers' perceptions of their culturally responsive teaching (CRT) efficacy for teaching students from culturally and linguistically diverse (CLD) backgrounds. The scale includes three components: collective teacher efficacy, CRT self-efficacy, and CRT outcome-efficacy. Data were gathered and performed the following analyses: descriptive analysis, factor analysis, and Person's r correlations. The results of Cronbach's alpha for all three scales were considered adequate. The three-factor loading for CTE, the three-factor loading for CRT self-efficacy, and the two-factor loading for CRT outcome-expectancy were found. This newly developed scale of factor-loading findings were not consistent with previous studies because of differences in items, target populations, and focus of the current study. The findings of factor loadings for three scales Increases in special education teachers' ratings of the school's ability to provide adequate service for CLD students with disabilities were associated with increases in their perceptions of their ability to provide CRT instruction, and their perceptions about the connection between CRT practices and students' learning outcomes, although these correlations were low ($r = .24, .16$, respectively)

Keywords: *culturally responsive teaching; scale; special education; teaching efficacy*

1. Introduction

1.1 Introduce the Problem

Schools currently face many difficulties to serve students from culturally and linguistically diverse (CLD) backgrounds, not to mention that becomes significantly more complex when coupled with teaching these students with disabilities (Artiles, Trent, & Palmer, 2004; Cartledge & Kourea, 2008). Consequently, special education teachers face a more complex and multifaceted challenges regarding how to provide best education for CLD students with disabilities. The literature on culturally responsive teaching (CRT) suggests that teachers must take into account students' cultural backgrounds, language, learning styles, values, and the knowledge they acquire at home and within the community. The research on CRT also recognizes teacher efficacy as one of the attributes of successful teacher of CLD students (Chu, 2011, 2013; Siwatu, 2007). More recently, perceived collective teacher efficacy (CTE) has emerged as an organizational variable to examine efficacy beliefs in schools. Teachers with the perception of success, both at the personal and organizational level, are likely to continually persevere to succeed with students who have difficulties, and to devise unique and innovative strategies to elicit the academic improvement of all students (Goddard, Goddard, Kim, & Miller, 2015; Ross & Grey, 2006).

In spite of much research focused on the role of individual efficacy beliefs in teacher perception formation and subsequent teaching practices (e.g., Lamorey & Wilcox, 2005), little is known about the relationship among teacher efficacy, CTE, and CRT. Existing efficacy research has focused primarily on individual efficacy beliefs among teachers, with few studies examining the role of group norms or systems level mastery experiences in shaping individual efficacy perceptions (Goddard, Hoy, Hoy, 2004; Ross & Grey, 2006). In particular, there is no literature regarding the impact of settings (i.e., collective teacher efficacy) on special education teachers' CRT efficacy beliefs (Chu, 2010).

The construct of teacher efficacy has been defined through a psychological lens, whereas multicultural education theorists tend to view CRT on the basis of sociological frameworks (Oyerinde, 2008). In addition, a great deal of research exists, that uses the construct of teacher efficacy, with the majority of studies using experimental and correlational research designs. In contrast, the lack of empirical studies has been noted in the literature on CRT models literature (Artiles et al., 2004; Cartledge & Kourea, 2008; Oyerinde, 2008). A better understanding of the relationship between teacher efficacy and CRT is needed if we are to more effectively nurture teachers' growth in these areas, and to promote student achievement for all students. Theoretical perspectives are needed to understand the interface between CRT and teacher efficacy for special education. Separately, instruments are needed to measure teachers' CTE and CRT efficacy. Thus, the purpose of this manuscript is to describe Culturally Responsive Special Education Teacher Efficacy Scale (CRSETE), an online survey instrument has been designed to measure special education teachers' perceptions about their efficacy to serve CLD students with disabilities.

1.2 Theoretical Framework

1.2.1 Teacher Efficacy and Collective Teacher Efficacy

Teacher efficacy. The theoretical and empirical underpinnings of teacher efficacy have been derived from Bandura's (1977) theory of self-efficacy. Bandura (1977) also postulated that four sources of information contribute to the development of teacher efficacy beliefs: master experiences, various experiences, social persuasion, and physiological emotion arousal. On the basis of this perspective, Lamorey and Wilcox (2005) further proposed that teachers' efficacy (i.e., high or low teaching efficacy) is shaped by (a) vicarious observations of others' failure or success; (b) their own past failures or positive experiences; (c) negative or positive feedback; and (d) individual states (e.g. depression or optimism).

The measurement of teacher efficacy developed by Gibson and Dembo (1984) was more extensive and reliable, beginning with the formulations of Rand studies (Armor et al., 1976). Although the Gibson and Dembo measure has been the most popular teacher efficacy instrument to date, conceptual and statistical problems remain (Henson, Kogan, & Vacha-Haase, 2001; Tschannen-Moran & Hoy, 2001). The lack of clarity about the meaning of the two factors (teacher efficacy and outcome expectancy) and the instability of the factor structure make this instrument problematic for researchers.

According to Bandura (1977), outcome expectations involve a person's estimate that a given behavior will lead to a particular outcome, whereas efficacy expectations involve an evaluation of one's own ability to successfully execute the behavior to produce the outcome. Although the items that loaded on Gibson and Dembo's (1984) personal teaching efficacy factor more clearly involve such self-appraisals and therefore are reflective of efficacy expectations (e.g., "When the grades of my students improve, it is usually because I found more effective teaching approaches"), such efficacy expectations are also implied by many of the items on the general teaching efficacy factor. If teachers completing the scale do not distinguish between themselves (i.e., items worded in the first person) and teachers in general (i.e., items worded in the third person), most teacher efficacy scale would likely reflect efficacy rather than outcome expectations. For example, the item potentially reflecting an outcome expectation, "The influences of a student's home experiences can be overcome by good teaching," might be interpreted as "I can overcome the influences of a student's home experiences" This is clearly an efficacy expectation (Henson et al., 2001).

Collective teacher efficacy. A construct similar to teachers' self-efficacy is CTE (Goddard et al., 2004, 2015). Self-efficacy theory is extended to collective efficacy with the assumptions of social cognitive theory is applied at the organizational level (i.e., school) (Calik, Sezgin, Kavgaci, & Cagatay Kilinc, 2012; Goddard et al., 2000). Organizational agency depends on individual member's self-regulation, self-reflection, vicarious learning and knowledge as well as human agency. "The assumptions of social cognitive theory about the importance of vicarious learning and self-regulation also apply to organizations, although we must recognize that it is through individuals that organization act" (Goddard et al., 2000, p. 484). Furthermore, the individual's sources of information (i.e., master experiences, various experiences, social persuasion, and physiological emotion arousal) in the social cognitive theory are also sources of collective efficacy information (Goddard et al., 2004).

Two key elements have been identified in the formation of collective efficacy perceptions. First, the teacher analyzes the teaching task. Second, the teacher assesses the competence of the faculty to teach the tasks (Goddard et al., 2000). The outcome is the teachers' perceptions regarding the ability of the faculty to influence students' learning outcomes, or a judgment on collective efficacy (Bandura, 2000). Researchers (e.g., Goddard & Goddard, 2001; Knoblauch & Hoy, 2008) also suggest that teachers feel efficacious with certain students in specific settings. In other words, CTE refers to an individual teacher's perceptions of his/her own faculty's ability to cope successfully with events that challenge the group as a whole (Goddard et al., 2015; Ross & Grey, 2006). Furthermore, CTE is considered a

powerful construct for determining how schools can improve students' learning outcomes (Calik et al., 2012; Goddard et al., 2015; Ross, Hogaboam-Gray, & Gray, 2004).

1.2.2 Culturally Responsive Teaching

Researchers have described that efficacious teachers should apply this core CRT knowledge and skill when providing services for students who are CLD (Ford, Stuart, & Vakil, 2014; Chu & Garcia, 2014). Reflecting on two dimensions of teacher efficacy, CRT personal efficacy could be defined as teachers' perceptions of their ability to execute specific teaching practices associated with teachers who are believed to be culturally responsive, while CRT outcome efficacy could be described as teachers' perceptions that engaging in CRT practices will have positive classroom and student outcomes (Siwatu, 2007).

Essentially, the constructs of teacher efficacy and culturally-responsive teaching overlap considerably, even though they tend to fall under different disciplines. A better understanding of the interface between collective teacher efficacy and CRT is necessary if we are to understand how to nurture teachers' growth and promote student achievement. The following is a list of correlates of high collective teacher efficacy consistent with the goals of CRT:

- Teachers in this school are more persistent in their efforts, they play with different teaching strategies, they share responsibilities for student achievement, and temporary setbacks or failures do not discourage them (Ford et al., 2014; Goddard et al., 2000);
- Teachers in this school create meaningful learning environments that respond to students' backgrounds (Knoblauch & Hoy, 2008; Tschannen-Moran & Hoy, 2001);
- High collective teacher efficacy is associated with instruction experimentation, willingness to try a variety of materials/approaches, desire to find better ways of teaching, implementation of progressive and innovative methods, levels of organization, planning and fairness (Goddard et al., 2000, 2015);
- Teachers in this school are more likely to hold high expectations for student performance and they believe all students can learn (Goddard et al., 2000; Urton, Wilbert, & Hennemann, 2014);
- In this school, teachers need more professional training to work with difficult students, rather than give up on them (Ross, & Gray, 2006); and
- In this school, teachers are more willing to engage in trusting and collaborative relationships with their colleagues (Calik et al., 2012).

1.2.3 Implications of Collective Teacher Efficacy for CLD Students' Education

Collective teacher efficacy has been tied to student achievement and learning (Tschannen-Moran & Barr, 2004), cognitive development and functioning of students (Bandura, 2000), and job satisfaction and motivation (Caprara, Barbaranelli, Borgogni, Petitta, & Rubinacci, 2003). In other words, the number and classification of students, the responsibilities of the job, and the school climate can affect special education teachers' confidence levels of the classrooms and schools in which they choose to teach (Carlson et al., 2002). Teachers' collective efficacy is affected by their perceptions that the schools set realistic goals, were orderly and serious, and expected academic success (Goddard et al., 2004, 2015). When the school environment (or school climate) is positive and values CLD students and their parents, teachers tend to respect diverse learning styles, encourage students to succeed, and have high expectations for all students (Darling-Hammond, 2006; Tableman, 2004; Urton et al., 2014). A positive school climate influences the perceptions of teacher collective efficacy, enhances all teachers' performance, promotes higher student morale, and improves students' learning outcomes (Tableman, 2004; Tschannen-Moran & Barr, 2004).

Reflecting on perceptions of collective teacher efficacy on diverse populations in special education, researchers suggest that schools tend to emphasize CLD students' inadequate skills and abilities, rather than focus on the knowledge such students bring to school, and using it as a foundation for learning (Gay, 2000; Moll & Gonzalez, 2004). When schools blame CLD students' failures on their perceived genetic deficiencies, inadequate parenting, and poverty, teachers in these schools tend to hold negative assumptions about students' intellect and behaviors; in turn, this prevents teachers from realizing that students are capable of learning (Gay, 2000; Milner, 2005). This deficit perception (Valencia, 1997) may influence perceptions of special education teachers' collective teacher efficacy to serve such populations. Furthermore, CLD students with disabilities did not receive appropriate special education services based on deficit thinking models as well as flawed institutionalized practices (Milner, 2005). The persistence of deficit views about these students and their families continues to have an impact on the education to which they have been exposed (Chu, 2011). Thus, schools that work with CLD students need to minimize negative perceptions of these students and their families to be successful in developing collective teacher efficacy. Teachers hold positive

perceptions about the school climates, both at personal and organizational levels, and these will affect the effort they put into their students (Calik et al., 2012). To be effective in working with CLD students with disabilities, special education teachers not only need to develop positive perceptions of collective teacher efficacy, but must also increasingly focus on utilizing culturally- and linguistically-appropriate and relevant practices to meet such students' needs.

1.3 Aims and Research Questions

Given continuous patterns of disproportionate representation of CLD students in special education as well as inadequate services, it is important to understand the relation between teacher efficacy and educational success with exceptional CLD students. However, limited research has been conducted in the last 15 years that focused on the influence of teacher efficacy on students with disabilities who are from CLD backgrounds (Paneque & Barbetta, 2006). Although the role of individual efficacy beliefs in teacher perception formation and subsequent teaching practices has been the focus of much research (e.g., Lamorey & Wilcox, 2005), little is known about the relationship among teacher efficacy, CTE, and CRT. Researchers (e.g., Siwatu, 2007) further suggest the interface between teacher efficacy and CRT, but they mixed in with the broader research on either teacher efficacy and/or CRT (Oyerinde, 2008). Therefore, theoretical perspectives are needed to frame the development of instruments to assess the interface between CRT and teacher efficacy for special education teachers who work with CLD students. The overall focus of this manuscript is to describe the development of scale in terms of surveying special education teacher efficacy for working with CLD students.

2. Method

2.1 Participants

Participants (N = 344) were in-service special education teachers who taught students with disabilities from CLD backgrounds. Among these participants, the gender ratio was approximately 4:1 (271 females to 73 males). The percentage of Caucasian teachers (n = 206; 60%) was representative of majority of the respondents than other ethnicities. Of the 344 respondents, 119 (35%) teachers indicated that they spoke a language other than English. The number of years teaching for participants ranged from less than one year to more than 15 years. This study included teachers from pre-K to 12th grade teachers, and just over one-half of them (n = 179; 52%) taught in inclusive settings, with the majority (73%; n = 252) teaching students with mild/moderate disabilities. Of the 344 respondents, the majority of participants (93%; n = 320) held special education teaching certifications. In terms of the category of the specialized certification in teaching ELLs, 68 (20%) teachers were English as second language endorsed, and 10 (3%) teachers held a Bilingual education certificate. Moreover, 261 (76%) participants attended professional development trainings focused on CLD students while the other 83 (24%) did not attend.

2.2 Instruments

The CRSETE consists of four sections: Background Information, Collective Teacher Efficacy (CTE), Culturally-Responsive Teaching Self-Efficacy (CRTSE), and Culturally-Responsive Outcome Expectancy (CRTOE). The survey questionnaire was adapted from existing measures of teacher efficacy designed for general educators: Collective Teacher Efficacy Scale (Goddard et al., 2000), Culturally Responsive Teaching Self-Efficacy Scale (CRTSS) (Siwatu, 2007), and Culturally Responsive Outcome Expectancy Scale (CRTOE) (Siwatu, 2007). Participants' background information was gathered with a demographic questionnaire that focused on participating teachers, including current teaching assignments, characteristics of students, years of teaching experience, teacher's educational level, types of teaching certification, effectiveness of professional development addressing diversity, and prior teaching training experiences. This questionnaire elicited information about teachers' background needed to group participants and the particular demographics were used to test for statistically significant relationships between these variables and efficacy beliefs.

The second section is the CTE scale, based on Goddard et al.'s (2000) two dimensions: general competence (6 items, items 1-6, e.g., "Teachers in this school can with most difficult students") and task analysis (6 items, items 7-12, e.g., "Teachers in this school believe students come to school to learn"). The 12-item scale is designed to understand special education teachers' perceptions about their school's orientation to school and community issues. All participants were asked to rate each item on a five point Likert-type scale ranging from (1) Strong Disagree to (5) Strong Agree. Lower rating scores reflect lower level of collective efficacy while higher rating scores reflect higher level of collective efficacy.

The third and fourth sections of the scale are CRTSE and CRTOE sub-scales, adapted from Siwatu (2007)'s

Preservice Teachers' Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Scale. The 20-item CRTSE scale was to understand participants' experiences related to teaching students with disabilities from CLD backgrounds. All participants were asked to rate each item on a five-point, Likert-type scale ranging from (1) Definitely No to (5) Definitely Yes. The purpose of the 12-item CRTOE scale was to understand how the beliefs of teachers about culturally-responsive teaching practices are related to student achievement/performance. Participants were asked to rate a five point Likert-type scale ranging from (1) very uncertain to (5) absolutely certain. Lower rating scores reflect lower level of culturally responsive teaching efficacy while higher rating scores reflect higher level of culturally responsive teaching efficacy.

A pilot study was conducted prior to the implementation of the survey instrument to determine the appropriateness of these modified instruments and to make needed revisions before full implementation of the study. Because three sections of the survey (CTS, CRTSE, and CRTOE) were directly adapted from previous studies, it was necessary to establish reliability and validity of the modified components. Cronbach's alpha was employed to determine the internal consistency reliability of the survey. The results yielded alpha coefficients for each section were 0.90 (CTE scale), 0.93 (CRTSE scale), and 0.84 (CRTOE scale) (Chu, 2013).

2.3 Procedures

After IRB and district approval were received, all prospective participants were notified via email inviting them to participate in the study. This email provided a description of the study, describe their rights as a participant, and include an embedded internet link to the survey questionnaire. Prospective participants were told that participation is voluntary, and that their consent was implied if they decided to complete the survey the researcher informed the participants that their participation is voluntary and anonymous. The first follow-up email was sent two weeks from the initial mail-out date, and a second follow-up email was sent a week later to remind potential participants that they had one more week to respond. The on-line data collection took about one month.

2.4 Data Analysis

Quantitative analyses were conducted using SPSS (Statistical Packages for the Social Sciences). The first statistical procedure yielded the analysis of the participants' demographic information: descriptive statistics, including frequencies, means, and standard deviation of the background information questionnaire items. A principle components factor analysis was performed to confirm the factor structure of three scales (i.e., CTE, CRTSE, CRTOE scales). Finally, the results of this study used bivariate analyses (e.g., correlation) to inspect the relationship among variables (CTE, CRTSE, and CRTOE).

3. Results

3.1 Descriptive Analysis

Collective teacher efficacy scale. Item-specific means and standard divisions for the data on the CTE scale are presented in Table 1. The original sores for participants in this study ranged from 2.67 to 3.64. Item means clustered around the midpoint (3.25) of the 1-5 rating scale, and the obtained standard deviations were ranged from 0.96 to 1.15. The items 5, 7, 9, 10, and 12 were measured negative responses, and these items were recorded for running factor analysis (i.e., negatively worded items were reversed scored so that positive attitudes are always reflected by higher mean scores). The most positive agreement was item 12, which indicated that respondents agreed teachers at their schools need more training to be able to create a barrier-free environment that facilitates learning for students with disabilities from CLD backgrounds ($M = 3.64$; $SD = 0.96$).

Culturally-responsive teaching self-efficacy scale. Item-specific means and standard deviations for the data on the CRTSE scale are presented in Table 2. The sores for participants in this study ranged from 3.65 to 4.62. Item means clustered around the midpoint (4.14) of the 1-5 rating scale, and the obtained standard deviations ranged from 0.64 to 1.15. Higher ratings on the culturally-responsive teaching self-efficacy scale are indicative of greater confidence among these respondents in their ability to engage in culturally-responsive teaching practices, compared to those who express less confidence in their abilities (e.g., rating of 1). The results revealed that in-service special education teachers perceived the highest of their ability in creating a caring, supportive, and warm learning environment for their students from CLD backgrounds ($M = 4.62$; $SD = 0.58$).

Table 1. Means and Standard Deviations for Items on the Collective Teacher Efficacy Scale

Item	M	SD	Factor Loading
Factor One			
1. Teachers in my school are confident that they can work with students with disabilities from CLD backgrounds.	3.45	1.02	.83
2. Teachers in my school are confident they will be able to motivate every student, including students with disabilities from CLD backgrounds.	3.32	1.03	.84
3. Teachers in my school believe every child here can learn, including students with disabilities from CLD backgrounds.	3.59	1.08	.83
4. Teachers in my school work together to produce meaningful learning for students with disabilities from CLD backgrounds.	3.59	1.02	.77
6. Teachers in my school are confident about increasing the levels of parental involvement, including involvement of parents of students with disabilities from CLD backgrounds.	3.42	1.00	.65
Factor Two			
5. Teachers in my school are not skilled in culturally and linguistically responsive teaching methods.	2.62	1.03	.75
7. Teachers in my school believe that the lack of appropriate materials makes teaching difficult for students with disabilities from CLD backgrounds.	3.24	1.09	.56
9. Teachers in my school believe that their students with disabilities from CLD backgrounds are not motivated to learn.	2.50	1.13	.60
10. Teachers in this school do not have the skills to deal with disciplinary problems of students with disabilities from CLD backgrounds.	2.67	1.15	.71
12. Teachers in my school need more training to be able to create a barrier-free environment that facilitates learning for students with disabilities from CLD backgrounds.	3.64	0.96	.60
Factor Three			
8. Teachers in my school believe that their students' home life provides many learning advantages, including students with disabilities from CLD backgrounds.	3.47	1.06	.88
11. Teachers in my school believe home and community environments support learning of students with disabilities from CLD backgrounds at this school.	3.49	1.03	.71

Culturally-responsive outcome-expectancy efficacy scale. Item-specific means and standard deviations for the data on the CRTOE scale are presented in Table 3. Participants' scores ranged from 3.74 to 4.69. Item means clustered around the midpoint (4.41) of the 1-5 rating scale, and the obtained standard deviations ranged from 0.62 to 1.07. Higher ratings are taken to be indicative that respondents are more confident that culturally-responsive teaching leads to positive learning outcomes for students. The results showed that in-service special education teachers had the highest of certainty in understanding different communication styles reduces misunderstandings between teachers, students and their families ($M = 4.65$; $SD = 0.64$).

3.2 Results of Factor Analysis

Three scales (CTE, CRTSE, and CRTOE) were analyzed using principal components factor analysis to assess the structure of latent variables. Two criteria were used to determine the number of components: (1) Kaiser's (1960) criterion of eigenvalues greater than 1; and (2) Cattell's (1966) scree plot test.

Collective teacher efficacy scale (CTE). Varimax rotation was used to obtain simple structure. Eigenvalues greater than 1 and scree plot suggested retaining 3 factors; initially a total of approximately 61% of the variance in the set of items was explained. Factor loadings are presented in Table 1. Factor 1 accounted for 28% of the variance and represented teachers' beliefs in their school teachers' abilities to work with exceptional students from CLD backgrounds. Factor 2 accounted for approximately 20% of the variance and represented teachers' perceptions of challenges to teaching exceptional students from CLD backgrounds. Factor 3 accounted for 13% of the variance and represented teachers' views on the importance of the family support in students' learning. The reliability of Cronbach's alpha for the 12-item measure was .83, which was considered adequate.

Table 2. Means, Standard Deviations, and Factor Loadings for Items on the CRTSE Scale

Items	M	SD	Factor Loading
Factor One			
1.modify instructional activities and materials to meet the developmental needs and learning interests of my students with disabilities from CLD backgrounds.	4.35	0.77	.71
2.design appropriate instruction that is matched to English language learners' language proficiency and special needs.	4.02	0.97	.76
3.create a learning environment that reflects the various backgrounds of my CLD students.	4.07	0.88	.70
4.develop appropriate Individual Education Plans for my students with disabilities who are from CLD backgrounds.	4.42	0.76	.66
5.use my students' prior knowledge related to their cultural and linguistic backgrounds to help make learning meaningful.	4.10	0.87	.64
6.use various types of assessment that is matched to English language learners' language proficiency and special needs	3.86	1.02	.71
7.critically examine the curriculum to determine whether it appropriately represents CLD groups.	3.65	1.07	.57
9.use a variety of teaching methods to assist my students in learning the content.	4.51	0.66	.63
10.communicate with students with disabilities who are English Language Learners.	4.23	0.88	.48
Factor Two			
8.identify the differences between student behavior/communication at home and student behavior/communication at school.	4.01	0.93	.54
11.identify cultural differences when communicating with parents regarding their child's educational progress.	4.00	0.90	.69
12.implement interventions that minimize the effects of cultural mismatch between home and school.	3.79	0.90	.75
13.distinguish linguistic/cultural differences from learning difficulties for students with disabilities.	3.91	0.86	.73
15.assist my students to be successful by supporting the native language of my students with disabilities who have limited English proficiency.	3.75	1.15	.59
17. identify the ways standardized tests may be biased against students from diverse backgrounds.	3.74	1.03	.57
Factor Three			
14.create a caring, supportive, and warm learning environment for my students from CLD backgrounds.	4.62	0.58	.78
16.structure parent-teacher conferences (e.g., IEP meetings) that are comfortable to allow CLD parents to participate.	4.35	0.78	.58
18.build positive relationships with CLD parents.	4.44	0.70	.75
19.help my students develop positive interactions with each other.	4.51	0.64	.76
20.obtain information about my students' preferred learning styles (e.g., cooperation or individual work).	4.47	0.70	.71

Culturally-responsive teaching self-efficacy scale (CRTSE). Varimax rotation was used to obtain simple structure. Eigenvalues greater than 1 and scree plot suggested retaining 3 factors, initially a total of approximately 64% of the variance in the set of items was explained. Factor loadings are presented in Table 2 Factor 1 accounted for approximately 24% of the variance and represented teachers' beliefs in their skills and knowledge in working with CLD students. Factor 2 accounted for approximately 21% of the variance and represented teachers' views about the impacts of cultural and linguistic differences on learning. Factor 3 accounted for 19% of the variance represented teachers' confidence in relationships with CLD exceptional students and their families. The reliability of Cronbach's alpha for the 20-item measure was .95, which was considered a good scale.

Culturally-responsive outcome-expectancy efficacy scale (CRTOE). Varimax rotation was used to obtain simple structure. Eigenvalues greater than 1 and scree plot suggested retaining 2 factors; initially a total of approximately 65% of the variance in the set of items was explained. Factor loadings are presented in Table 3. Factor 1 accounted for approximately 44% of the variance and represented teachers' certainty on the relationship between instruction and

students' performance. Factor 2 accounted for approximately 22% of the variance and represented teachers' perceptions on the connection between home culture and students' learning outcomes. The reliability of Cronbach's alpha for the 12-item measure was .92, which was considered a good scale.

3.3 Results of Correlational Analysis

Pearson-Product-Moment Correlation Coefficient analyses were used to assess the relationship between three scales (CTE, CRTSE, and CRTOE). The results showed that there was a statistically significant difference between CRTSE and CRTOE scales ($r = .44, p < .01$). Moreover, the overall pattern between the two scales was moderate positive association, which suggested that the in-service special education teachers were confident in their ability to engage in culturally-responsive teaching practices and were certain of the connection between positive outcomes and such pedagogy.

Pearson-Product-Moment Correlation Coefficient analyses were used to assess the relationship between the three scales. The results showed that the relationship between CTE and CRTSE was significant ($r = .24, p < .01$), suggesting a weak positive association between two scales. The results also showed the relationship between CTE and CRTOE was significant ($r = .16, p < .01$), suggesting the weak positive association between two scales.

Table 3. Means, Standard Deviations, and Factor Loadings for Items on the CRTSE Scale

	1	2	Factor Loadings
Factor One			
1.Utilizing a variety of teaching approaches is helpful for students' learning processes.	4.69	0.62	.78
2.Students with disabilities from diverse backgrounds will be successful when special education instruction is adapted and modified for their cultural and linguistic characteristics.	4.34	0.81	.63
3.A variety of assessment strategies should be used to gain a complete picture of what students with disabilities from diverse backgrounds have learned.	4.61	0.68	.79
4.Students' learning becomes meaningful when teachers are aware of the cultural and linguistic backgrounds/needs of their students with disabilities.	4.49	0.77	.75
5.Understanding different communication styles reduces misunderstandings between teachers, students and their families.	4.65	0.64	.82
6.Using prior knowledge and culturally relevant examples motivates students' learning.	4.58	0.70	.79
7.Establishing positive home-school relations increases involvement of CLD parents.	4.53	0.72	.70
9.Matching instruction to students' learning preferences promotes students' academic performance.	4.56	0.66	.74
11.Students' self-esteem can be enhanced when their native languages and cultures are valued by teachers.	4.54	0.72	.67
Factor Two			
8.Understanding the discontinuity between students' home culture and school culture minimizes the likelihood of discipline problems.	4.14	0.93	.65
10.Encouraging the use of the native language for students with special needs will help to maintain students' cultural identity.	3.74	1.07	.85
12.Changing learning environments to be compatible with students' home cultures increases students' motivation to learn.	4.00	0.97	.84

4. Discussion

Although researchers (e.g., Siwatu, 2007) suggest the interface between teacher efficacy and culturally responsive teaching (CRT), the development of measures has involved predominantly general education participants and pre-service teachers (Chu, 2010; Chu & Garcia, 2014). Specifically, there was no literature regarding whether CTE beliefs may affect in-service special education teachers' CRT efficacy beliefs. This study focused on the development of instruments to assess the interface between CRT and teacher efficacy for special education teachers who work with exceptional learners from CLD backgrounds. The preliminary results of its use with 344 special education teachers were presented, and the focus of this paper was also to reveal procedures for scale construction, components

of the instrument, as well as the reliability analysis. Previous studies (e.g., Bandura, 2000; Urton et al., 2014) have demonstrated the relationships between self-efficacy, outcome-expectancy, and CTE. In addition to considering teacher efficacy, the construct of this study added two components, CRT and disability. The following sections will discuss how did this study expand previous constructs (Goddard et al., 2000; Siwatu, 2007) and the difficulties regarding comparing findings of factor-loadings to previous studies because of differences in items, target populations, and focus of the current study.

4.1 Constructs of CRT Efficacy Scales

The scale construct of CRT individual efficacy included two areas: (1) teachers' perceptions about their own abilities for engaging in CRT practices (i.e., CRTSE beliefs), and (2) teachers' certainty about the connection between CRT practices and students' learning outcomes (i.e., CRTOE beliefs). In the current study, the scale construct has expanded the understanding of CRT efficacy; specifically, three components were integrated: teacher efficacy, CRT, and disability. Special education teachers were the target population of the current study. In addition, because this study focused on teachers who taught CLD students with disabilities, scale items from the CRTSE and CRTOE were modified to reflect topics and practices relevant to special education roles, procedures, services, and programs.

Siwatu (2007) only specified the ranges of factor-loadings for the items of CRTSE and CRTOE scales. In his study, a principal component factor analysis with varimax rotation for CRTSE and CRTOE scales yield seven and four factors, respectively. However, the author did not further explain the meanings of those factors. In the current study, three-factor loadings of CRTSE scale were found, including teachers' beliefs in their skills and knowledge in working with CLD students, teachers' views about the impacts of cultural and linguistic differences on learning, and teachers' confidence in relationships with CLD exceptional students and their families. Moreover, two-factor loadings were found for CRTOE scale, such as teachers' certainty on the relationship between instruction and students' performance and teachers' perceptions on the connection between home culture and students' learning outcomes. When comparing the results of the current study to previous studies, the differences of numbers of factor-loadings should be taken into account. It is also difficult to compare findings of factor-loadings to previous studies because of differences in items, target population, and focus of the current study.

4.2 Constructs of CTE Efficacy Scale

Goddard et al. (2000) identified two elements in the formation of collective teacher efficacy: teaching tasks and group competence. The results from this study were not consistent with previous studies, and three-factor loadings were found, including teachers' beliefs in their skills and knowledge in working with CLD students, teachers' views about the impacts of cultural and linguistic differences on learning, and teachers' confidence in their relationships with CLD exceptional students and their families. The modified construct of CTE focused on serving students with disabilities from CLD backgrounds. In addition, CTE was used as a predictor for CRT beliefs, and evaluated by in-service special education teachers only (instead of by all school personnel). Although CTE was considered to be a group's shared beliefs, this study defined CTE as the special education teachers' perceptions of the entire school faculty's collective ability to teach CLD students with disabilities. Moreover, the construct of CTE in the current study was different from that used in previous studies; specifically, CTE beliefs were based on the perspectives of special education teachers only. Therefore, the findings suggest that three-factor loadings, instead of two key elements, better explain targeted participants' beliefs.

4.3 Relationship between CRTSE and CRTOE

Based on the assumption of high-efficacy teachers who were confident in engaging in CRT practices, the findings of the current study showed that well-prepared teachers (i.e., those with specialized certifications and effective professional training, etc.) had higher CRTSE beliefs. However, well-prepared teachers may not hold higher CRTOE beliefs. Since CRTSE was considered teachers' internal locus of control, teachers could predict if they were capable of CRT teaching. On the other hand, CRTOE was related to external locus of control. Based on assumptions of locus of control for the construct CRTSE and CRTOE, two hypotheses, along with the results of factor-loadings, were proposed to further explain their moderate association. First, because students with disabilities are also served in general education, their learning outcomes do not solely depend on special education teachers' instruction. When considering the connection between CRT practices and students' learning outcomes, participants may conclude that their students' learning outcomes result from both special education and general teachers' instruction. This hypothesis can also link to the first-factor loading of the CRTOE scale. Based on first-factor loading, participants strongly perceived the effect of instruction on students' learning outcomes. The results showed that they may have been more aware of how to use different teaching strategies to accommodate students' needs. However, when they evaluated the outcomes of CRT practices, these participants may have considered the influence of instruction

provided by all teachers rather than by themselves only.

The second hypothesis reflects on second-factor loading of the CRTOE scale, teachers' certainty about the relationship between home culture and students' learning outcomes. In the current study, teachers were seen to be less certain of the connection between cultural identity and positive learning outcomes. Research (e.g., Paneque & Barbetta, 2006) has also determined that teachers with low efficacy did not value the role of culture and language in the teaching–learning process. Employing deficit thinking, these teachers attributed students' failure to external factors, such as their home environments (Chu, 2011). Even though special education teachers were confident in their ability to serve CLD students, deficit thinking may have caused their uncertainty regarding the connection between CRT practices and students' learning outcomes (Ford et al., 2014). This hypothesis may support why there was not a strong association between CRTSE and CRTOE beliefs.

4.4 Relationship between Individual and Collective Teacher Efficacy

Previous studies (Goddard et al., 2015; Ross, & Gray, 2006) focused on the relationship between CTE beliefs and students' achievements. Researchers (Bandura, 2000; Urton et al., 2014) also proposed sense of CTE, which has been considered a significant factor for understanding individual teacher efficacy, but there were no empirical studies focusing on the relationship between CTE and individual teacher efficacy for engaging CRT practices. The current study specifically focused on how the CTE factor predicted both CRTSE and CRTOE beliefs.

The results revealed that there was a statistically significant relationship between CTE and CRTSE in addition to that between CTE and CRTOE ($p < .01$). The finding also supported the hypothesis that in-service special education teachers' CTE and CRTSE and their CRTOE beliefs would be positively correlated ($r = .24$; $r = .16$), but the associations were weak. The weak associations may reflect within-group diversity among special education teachers insofar as some special education teachers taught students in inclusive settings whereas some were in separate classrooms. In other words, that the associations between CTE and CRT efficacy beliefs were weak may mean that the degree of collaboration with general education teachers would vary across different types of settings.

In the current study, 179 respondents taught in inclusive settings while 146 participants taught in non-inclusive classrooms. The samples in each setting were considered balanced, which may have resulted in weak association. Moreover, special education teachers' CRT beliefs may not be consistent because each group of teachers may have different CTE beliefs. For example, teachers in self-contained classrooms may have fewer opportunities to collaborate with general education teachers than might teachers in inclusive settings. With fewer collaboration opportunities, those teachers who taught in self-contained classrooms might be uncertain of their school faculty's collective ability to serve CLD students. Therefore, educational settings can be considered a mediating factor influencing perceived CTE. Even though CTE was a statistically significant factor in predicting CRTSE beliefs, such mediating effects should be taken into consideration when explaining this relationship.

4.5 Implications and Future Direction

The overall objective of this paper is to describe the Culturally Responsive Special Education Teacher Efficacy Scale (CRSETE), a newly-developed instrument to measure special education teachers' efficacy for working with diverse exceptional learners. However, the constructs of disability and difference (CLD) have been combined in the current study. The findings of this study cannot identify whether teachers' responses could be influenced by each component or both components of the instrument. When participants responded to the items of the instrument, the researcher of the current study could not determine whether teachers focused on serving students with disabilities only or CLD students with disabilities. Moreover, the results cannot identify whether teachers focused on CLD students with disabilities when they answered all parts/items of the instrument.

Given the information in this preliminary study, the findings serve to raise a series of questions for future research. Specifically, CRT has been proposed as the best approach for CLD students, but special education teachers may not feel confident in engaging in such practices due to both internal and external factors. According to the results of this study, the association between CRTSE and CRTOE beliefs was moderate, which was not consistent with previous findings. Teachers with high self-efficacy for engaging in CRT practices may not hold the same level of outcome-expectancy. The instrument used for this study has been modified from the one used in previous studies because in-service special education teachers were the target participants. More information is needed to understand why teachers with high CRT self-efficacy did not consider providing CRT practices that may make a difference in students' learning outcomes and what factors can explain such a relationship.

The current study focused only on special education teachers evaluating their colleagues' abilities in serving CLD students with disabilities. Future studies should also examine CTE of other school personnel and determine whether

there are any differences of CTE when predicting CRT efficacy beliefs. In addition, previous CTE studies have not been done on students with disabilities, not to mention on exceptional students from CLD backgrounds. Based on the results of the current study, there seems to be a potential interaction effect involving disability and difference for predicting CTE beliefs. Studies are necessary to further examine how such a potential interaction effect influences CTE with the entire school. Finally, the results of this study only represent in-service special education teachers from three urban school districts in the Southwest. There is a need for additional research to establish the suitability of the current instrument for use with all special education teachers in the US.

5. Conclusion

Oyerinde (2008) identified a significant correlation between teacher efficacy and CRT techniques, but that study (Oyerinde, 2008) did not answer whether both constructs (teacher efficacy and CRT) could be under same discipline. In other words, the interface between teacher efficacy and CRT remained a question because no studies focused on in-service special education teachers. This study developed the construct that examined how teachers' individual and collective efficacy beliefs may mediate their beliefs about culturally-responsive teaching knowledge, skills, and behaviors in special education settings. This study expanded previous constructs (i.e., Goddard et al., 2000; Siwatu, 2007), and the current construct of culturally responsive competency for in-service teachers open the door potential areas of research. Teacher educators may use the findings of this new construct to prepare the increase of efficacy beliefs during their teacher-education program in the area of broadening teachers' knowledge and effective teaching methods.

References

- Armor, D., Conroy-Osequeara, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauley, E., & Zellman, G. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools* (Reprt No. R-2007-LAUDS). Santa Monica, CA: Rand Corporation.
- Artiles, A. J., Trent, S. C., & Palmer, J. D. (2004). Culturally diverse students in special education. In J. A. Banks & C. A. M. Banks (Eds.), *Handbook of Research on Multicultural Education* (pp. 716-735). San Francisco, CA: Jossey-Bass.
- Ashton, P., & Webb, R. (1986). *Making a difference: Teachers' sense of efficacy and student achievement*. New York: Longman.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychology Review*, 84(2), 191-215. <http://dx.doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9, 75-78. <http://dx.doi.org/10.1111/1467-8721.00064>
- Calik, T., Sezgin, F., Kavgaci, H., & Cagatay Kilinc, A. (2012). Examination of relationships between instructional leadership of school principals and self-efficacy of teachers and collective teacher efficacy. *Educational Sciences: Theory and Practice*, 12(4), 2498-2504.
- Caprara, G. V., Barbaranelli, C., Borgogni, L., Petitta, L. & Rubinacci, A. (2003). Teachers' school staff's and parents' efficacy beliefs as determinants of attitudes toward school. *European Journal of Psychology of Education*, 18, 15-31. <http://dx.doi.org/10.1007/BF03173601>
- Carlson, E., Brauen, M., Klein, S., Schroll, K., & Willig, S. (2002). *Study of personnel need in special education*. Rockville, MD: Westat Research Corporation. Retrieved from <http://ferdig.coe.ufl.edu/spense/KeyFindings.pdf>
- Cartledge, G., & Kourea, L. (2008). Culturally responsive classroom for culturally diverse students with and at risk for disabilities. *Exceptional Children*, 74(3), 351-371. <http://dx.doi.org/10.1177/001440290807400305>
- Cattell, R. B. (1966). The scree test for numbers of factors. *Multivariate Behavioral Research*, 1, 245-276. http://dx.doi.org/10.1207/s15327906mbr0102_10
- Chu, S.-Y. (2010). *The influence of perceived collective teacher efficacy, and contextual variables on individual teacher efficacy of special education teachers serving students from culturally and linguistically diverse backgrounds* (Unpublished doctoral dissertation). University of Texas at Austin.
- Chu, S.-Y. (2011). Perspectives in understanding the schooling and achievement of students from culturally and linguistically diverse backgrounds. *Journal of Instructional Psychology*, 38(3), 201-209.

- Chu, S.-Y., & Garcia, S. (2014). Culturally responsive teaching efficacy beliefs of in-service special education teachers. *Remedial and Special Education, 35*, 218-232. <http://dx.doi.org/10.1177/0741932513520511>
- Chu, S.-Y. (2013). Teacher efficacy beliefs toward serving culturally and linguistically diverse students in special education: Implications of a pilot study. *Education and Urban Society, 45*, 385-410. <http://dx.doi.org/10.1177/0013124511409401>
- Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300-314. <http://dx.doi.org/10.1177/0022487105285962>
- Ford, B.A., Stuart, D. H., & Vakil, S. (2014). Culturally responsive teaching in the 21st century inclusive classroom. *Journal of the International Association of Special Education, 15*(2), 56-62.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research and practice*. New York: Teachers College Press.
- Gibson, S., & Dembo, M. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*(4), 569-582. <http://dx.doi.org/10.1037/0022-0663.76.4.569>
- Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*, 479-508. <http://dx.doi.org/10.3102/00028312037002479>
- Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2004). Collective efficacy beliefs: theoretical developments, empirical evidence, and future directions. *Educational Researcher, 33*(3), 3-13. <http://dx.doi.org/10.3102/0013189X033003003>
- Goddard, R., & Goddard, Y. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teacher and Teacher Education, 17*, 807-818. [http://dx.doi.org/10.1016/S0742-051X\(01\)00032-4](http://dx.doi.org/10.1016/S0742-051X(01)00032-4)
- Goddard, R., Goddard, Y., Kim, E. S., & Miller, R. (2015). A theoretical and empirical analysis of the roles of instructional leadership, teacher collaboration, and collective efficacy beliefs in support of student learning. *American Journal of Education, 121*(4), 501-530. <http://dx.doi.org/10.1086/681925>
- Henson, R., Kogan, L., & Vacha-Haase, T. (2001). A reliability generalization study of the teacher efficacy scale and related instrument. *Educational and Psychological Measurement, 61*(3), 404-420. <http://dx.doi.org/10.1177/00131640121971284>
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141-151. <http://dx.doi.org/10.1177/001316446002000116>
- Knoblauch, D., & Hoy, A. W. (2008). "Maybe I can teach those kids." The influence of contextual factors on student teachers' efficacy beliefs. *Teaching and Teacher Education, 24*, 166-179. <http://dx.doi.org/10.1016/j.tate.2007.05.005>
- Lamorey, S., & Wilcox, S. (2005). Early intervention practitioners' self-efficacy: a measure and its applications. *Early Childhood Research Quarterly, 20*, 69-84. <http://dx.doi.org/10.1016/j.ecresq.2005.01.003>
- Milner, R. (2005). Stability and change in US prospective teachers' beliefs and decisions about diversity and learning to teach. *Teaching and Teacher Education, 21*, 767-786. <http://dx.doi.org/10.1016/j.tate.2005.05.010>
- Moll, L., & Gonzalez, N. (2004). Engaging life: A funds of knowledge approach to multicultural education. In J. Banks & C. McGee Banks (Eds.). *Handbook of research on multicultural education*, (2nd Ed.) (pp. 669-715). NY: Jossey-Bass.
- Oyerinde, S. A. (2008). *A correlational study of teacher efficacy and culturally responsive teaching techniques in four public middle schools*. Unpublished doctoral dissertation, University of Missouri-Kansas City.
- Panegue, O., & Barbeta, P. (2006). A study of teacher efficacy of special education teachers of English language learners with disabilities. *Bilingual Research Journal, 30*, 171-193.
- Ross, J. A., & Gray, P. (2006). Transformational leadership and teacher commitment to organizational values: The mediating effects of collective teacher efficacy. *School Effectiveness and School Improvement, 17*(2), 179-199. <http://dx.doi.org/10.1080/09243450600565795>
- Ross, J. A., Hogaboam-Gray, A., & Gray, P. (2004). Prior student achievement, collaborative school processes, and collective teacher efficacy. *Leadership and Policy in Schools, 3*(3), 163-188. <http://dx.doi.org/10.1080/15700760490503689>

- Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education*, 23, 1086-1101. <http://dx.doi.org/10.1016/j.tate.2006.07.011>
- Tableman, B. (2004). School climate and learning: Best practice brief (No. 31). East Lansing, MI: Michigan State University, University-Community Partnerships.
- Tschannen-Moran, M., & Barr, M. (2004). Fostering student achievement: The relationship between collective teacher efficacy and student achievement. *Leadership and Policy in schools*, 3(3), 187-207. <http://dx.doi.org/10.1080/15700760490503706>
- Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805. [http://dx.doi.org/10.1016/S0742-051X\(01\)00036-1](http://dx.doi.org/10.1016/S0742-051X(01)00036-1)
- Urton, K., Wilbert, J., & Hennemann, T. (2014). Attitudes towards inclusion and self-efficacy of principals and teachers. *Learning Disabilities – A Contemporary Journal*, 12(2), 151-168.
- Valencia, R. R. (Ed.). (1997). *The evolution of deficit thinking: Educational thought and practice*. Washington, DC: The Falmer Press.