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Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs

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Abstract

Guided by the theoretical and empirical research on self-efficacy and outcome expectancy beliefs, and the *Culturally Responsive Teaching Competencies* [Siwatu, K.O. (2006a). *The development of the culturally responsive teaching competencies: Implications for teacher education*. Manuscript under review], two measures—the Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) and the Culturally Responsive Teaching Outcome Expectancy (CRTOE) Scale—were developed and administered to a sample of preservice teachers in the Midwest. The findings from this study suggest that preservice teachers are more efficacious in their ability to help students feel like important members of the classroom and develop positive, personal relationships with their students, than they are in their ability to communicate with English Language Learners. Preservice teachers' culturally responsive teaching outcome expectations was highest for the possibility that a positive teacher–student relationship can be established by building a sense of trust in their students. Item-specific means were lowest among the preservice teachers for the possibility that encouraging students to use their native language will help to maintain students' cultural identity. The implications for these findings for both research and teacher education are discussed.

Keywords: Culturally responsive teaching; Teacher self-efficacy; Self-efficacy and outcome expectancy beliefs

1. Introduction

Stemming from a concern over the schooling of students of color, Gay (2000), Irvine (1990), Ladson-Billings (1994a, b), Shade, Kelly, and Oberg (1997) and others have advocated for the implementation of equitable and culturally sensitive instructional practices. For some, this approach to teaching students of color is called *culturally responsive teaching* (Gay, 2000), whereas others refer to it as *culturally congruent instruction* (Mohatt & Erickson, 1981), *culturally appropriate instruction* (Au & Jordan, 1981), *culturally compatible instruction* (Jordan, 1985; Vogt, Jordan, & Tharp, 1987), or *culturally relevant teaching* (Ladson-Billings, 1994a, 1995).

No matter which term is chosen, there is general agreement that a culturally responsive pedagogy is an approach to teaching and learning that (1) uses students' cultural knowledge (e.g., culturally familiar scenarios, examples, and vignettes) experiences, prior knowledge, and individual learning preferences as a conduit to facilitate the teaching-learning

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process (curriculum and instruction), (2) incorporates students' cultural orientations to design culturally compatible classroom environments (classroom management), (3) provides students with multiple opportunities to demonstrate what they have learned using a variety of assessment techniques (student assessment), and (4) provides students with the knowledge and skills needed to function in mainstream culture while simultaneously helping students maintain their cultural identity, native language, and connection to their culture (cultural enrichment and competence).

As efforts to prepare culturally responsive teachers increase, a plethora of books and theme issues in journals have been dedicated to examining the conceptual framework of culturally responsive teaching and how best to prepare tomorrow's teachers for diversity (e.g., Dilworth, 1998; Hollins & Oliver, 1999; Irvine & Armento, 2001; Ladson-Billings, 1994a, b; Shade et al., 1997; Villegas & Lucas, 2002). Preparing culturally responsive teachers involves (1) transforming preservice teachers' multicultural attitudes (Cabello & Burnstein, 1995; Gay, 2000; Pang & Sablan, 1998; Phuntsog, 2001; Ponterotto, Baluch, Greig, & Rivera, 1998; Shade et al., 1997; Villegas & Lucas, 2002), (2) increasing their culturally diverse knowledge base (Avery & Walker, 1993; Barry & Lechner, 1995; Guillaume, Zuniga-Hill, & Yee, 1995; Hilliard, 1998), and (3) equipping them with the skills needed to effectively teach culturally diverse students (Leavell, Cowart, & Wilhelm, 1999).

In addition to these preparation efforts, Hilliard (1998) has argued that preservice teacher training should culminate in candidates demonstrating their actual competence for teaching in culturally and linguistically diverse educational settings. Using performance standards, Hilliard (1998) believes that preservice teachers should demonstrate their ability to effectively teach culturally diverse students prior to graduation. The development of these performance standards would be a positive step towards aligning the teacher education curriculum (e.g., coursework, field experiences, etc.), learning and performance objectives, and assessment of competence.

The limitation of this approach however, is that candidates' competence for teaching in culturally and linguistically diverse learning environments may not accurately predict their future classroom behavior. Using Bandura's (1997) Social Cognitive Theory as a basis for their reasoning, some researchers have argued that teacher educators should also attend to and assess preservice teachers' perceptions of their competence (i.e., self-efficacy) and other self-referent (e.g., outcome expectancy) beliefs that may more accurately predict future classroom behavior (Pajares, 2003). Herein lays the purpose of the current study.

2. The present study

As efforts to prepare culturally responsive teachers increase, there is a need for teacher educators to insure that teacher education candidates (1) are efficacious in their ability to execute the practices of culturally responsive teaching and (2) believe in the positive outcomes associated with this pedagogical approach. According to Social Cognitive Theory (Bandura, 1977), these beliefs may predict whether preservice teachers implement these culturally responsive teaching practices once they enter the classroom. Therefore, the purpose of this study is threefold. First, this study examines preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. Second, this study provides the data necessary to begin an initial exploration of the psychometric properties and factor structure of the *Culturally Responsive Teaching Self-Efficacy* and *Culturally Responsive Teaching Outcome Expectancy* scales. Third, this study examines the relationship between preservice teachers' efficacy and outcome expectancy beliefs.

3. Theoretical framework

3.1. Self-efficacy and outcome expectancy beliefs

In 1977, Bandura introduced the construct of self-efficacy in his often-cited article, "Self-efficacy: Toward a unifying theory of behavioral change." He defined self-efficacy as, "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). The development of the construct was based on the belief that effective functioning requires more than the acquisition of knowledge and skills and a level of competence (Bandura, 1986, 1993). Bandura believed that the development of a strong sense of efficacy was required to put the acquired skills to use (Evans, 1989). The acquisition of knowledge, skills, and competence are inadequate predictors of future behavior and action (Pajares, 1996). Knowledge

and action is mediated by a person's belief in their abilities to put the acquired skills to use (Bandura, 1977, 1986).

The second type of expectancy belief that Bandura (1977) proposed was outcome expectations. Unlike self-efficacy, which is a belief that reflects individuals' belief in their capabilities to execute a specific task, outcome expectations concern the likely *consequences* of engaging in the specified behavior (Bandura, 1978, 1989, 1993; Pajares, 1996). More specifically, Bandura (1977) defined outcome expectancy beliefs as "a person's estimate that a given behavior will lead to certain outcomes" (p. 193). The formation of these beliefs is influenced by factors such as, personal experience and the observation of models (Schunk, 1991).

During the past decade, Bandura's (1977) social cognitive theory in general and the construct of self-efficacy in particular has received increased attention in educational research (Pajares, 1996). One such area of research has examined the efficacy beliefs of preservice and inservice teachers. Beginning in the early 1980s, researchers applied Bandura's self-efficacy construct to teachers. This area of research is better known as teacher efficacy.

The early measures of teachers' sense of efficacy were grounded in Rotter's (1966) Locus of Control framework. As the construct matured, a second strand of research emerged. This strand of research examined teachers' sense of efficacy through the theoretical lens of Bandura's (1977, 1986) Social Cognitive Theory (Labone, 2004; Soodak & Podell, 1998; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2001). The major contributors to the development and measurement of the construct of teacher efficacy were Gibson and Dembo (1984). Gibson and Dembo (1984) designed the Teacher Efficacy Scale (TES), which they believed contained two factors that resembled Bandura's (1977) self-efficacy and outcome expectancy belief constructs. In their often cited article, Gibson and Dembo (1984) wrote:

> If we apply Bandura's theory to the construct of teacher efficacy, outcome expectancy would essentially reflect the degree to which teachers believed the environment could be controlled, that is, the extent to which students can be taught given such factors as family background, IQ, and school conditions. Self-efficacy beliefs would indicate teachers' evaluation of their abilities to bring about positive student change (p. 570).

Gibson and Dembo labeled the first dimension of the teacher efficacy construct, *teaching efficacy*. This dimension reflected a teacher's belief that any teacher can produce positive student and learning outcomes despite facing external obstacles. The second dimension labeled, *personal teaching,* reflected a teacher's belief in their ability to bring about positive student and learning outcomes. They believed that the first and second dimensions of the teacher efficacy construct resembled, outcome expectancy and self-efficacy beliefs, respectively.

Twenty years after its birth, the TES remains the most used measure of teachers' sense of efficacy (Wheatley, 2005). Despite its widespread use, concerns regarding Gibson and Dembo's (1984) TES and their interpretation of the two-factor structure have surfaced in recent years (see Brouwers & Tomic, 2000; Henson, 2001; Soodak & Podell, 1998; Tschannen et al., 1998; Woolfolk & Hoy, 1990). Woolfolk and Hoy (1990) were among those questioning the interpretation of the factor labeled, *teaching efficacy*. They contend that this factor is not congruent with Bandura's description of the construct of outcome expectations. According to Woolfolk and Hoy (1990), a closer examination of the *teaching efficacy* factor reveals that it concerns the perceptions that teachers in general can overcome external factors (e.g., SES, home environment) that may influence student learning outcomes. Bandura (1977), however, contends that outcome expectations are individual judgments about the potential outcomes of their behaviors.

Due to these concerns regarding the factor analytic validity and the theoretical interpretation of the two components of Gibson and Dembo's model of teacher efficacy, it was believed that the best way to develop a new measure of teacher efficacy was to revisit Bandura's (1986, 2001) guidelines for constructing self-efficacy scales. The following section discusses the development of a new measure of teachers' sense of efficacy.

3.2. The development of a new measure of teachers' sense of efficacy

The development of the *Culturally Responsive Teaching Self-Efficacy scale* (CRTSE) and the *Culturally Responsive Teaching Outcome Expectancy scale* (CRTOE) was driven by three factors underlying culturally responsive teacher preparation and teacher efficacy research. First, many inquiries into the efficacy beliefs of teachers has focused on

their perceived confidence to be instructionally effective (Gibson & Dembo, 1984), manage effective learning environments (Woolfolk, Rosoff, & Hoy, 1990) and influence student learning (Ashton & Webb, 1986). Despite the changing demographics of today's schoolchildren, little research has been done to examine preservice and inservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. The development of the CRTSE and CRTOE would allow for these needed inquiries. Second, the growing theoretical concerns about existing measures of teachers' sense of efficacy fueled the need to construct a theoretically grounded instrument. Therefore, rather than patterning the development of the new instrument after the often-cited and used Gibson and Dembo (1984) TES, it was believed that the best approach would be to revisit Bandura's (1977) description of self-efficacy and outcome expectations and his theoretical guidelines for constructing self-efficacy scales (Bandura, 1986, 2001). Third, in light of increased efforts to prepare culturally responsive teachers, the development of the CRTSE and CRTOE would provide program administrators and teacher educators with a useful tool to assess the effectiveness of their program.

In his earlier work, Bandura (1977) described self-efficacy beliefs as being context-, task-, and domain-specific. Therefore, the ability of self-efficacy beliefs to predict future behavior and performance is dependent on whether the instrument closely corresponds with the criterial task (Bandura, 1986). In the context of culturally responsive teaching, the criterial task would reflect specific culturally responsive teaching competencies. These skills were identified using Siwatu's (2006a) *Culturally Responsive Teaching Competencies*.

Siwatu (2006a) conducted an in-depth literature review to identify these competencies. The primary key words used in the literary search were *culturally responsive teaching*, *culturally congruent instruction, culturally appropriate instruction, culturally compatible instruction*, and *culturally relevant teaching*. Secondary key words used in the search included but not limited to the following: *urban education, black education, social psychology and education, urban schooling, urban teachers, multicultural education, and anthropology and education*. These key words often identified the work of scholars in a variety of fields with interests in the schooling of today's culturally and linguistically diverse school population. Therefore, the identification of the culturally responsive teaching competencies took on a multidisciplinary approach. The competencies reflect the voices of scholars and practitioners who have called for the implementation of equitable and culturally sensitive teaching practices that have been commonly associated with a culturally responsive pedagogy.

According to Siwatu (2006a), these competencies reflect the essential skills and knowledge that are clearly identifiable among teachers who engage in culturally responsive teaching. These competencies are divided into one of four components: curriculum and instruction, classroom management, student assessment, and cultural enrichment. Using the culturally responsive teaching competencies as a guide, the development of the CRTSE and CRTOE scales began by writing several self-efficacy and outcome expectancy belief items that mapped onto each of the 27 competencies (see Table 1).

Bandura (2001) believes that self-efficacy scales should contain a variety of items that vary in their degree of difficulty (magnitude). Varying the level of difficulty would avoid ceiling effects and shed light on the types of tasks that individuals are confident in their ability to execute. Consistent with these guidelines, the CRTSE scale contains teaching practices on both sides of the easy–difficult continuum. The "easy" side of the continuum reflects skills related to general teaching practices (e.g., "I am able to use a variety of teaching methods," "I am able to build a sense of trust in my students"). The "difficult" side of the continuum contains the skills that reflect the more culturally sensitive and responsive teaching practices (e.g., I am able to teach students about their cultures' contribution to science," "I am able to implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture"). Qualitative studies have found that culturally responsive teaching consists of general teaching practices and culturally sensitive, equitable, and responsive teaching practices (Foster, 1994; Ladson-Billings, 1994a). Thus, the CRTSE scale reflects an integration of these varied practices.

Recently, there have been discussions about the best way to measure self-efficacy beliefs (Bandura, 2001; Lee & Bobko, 1994; Maurer & Pierce, 1998; Pajares, Hartley, & Valiante, 2001). In their study, Maurer and Pierce (1998) found that a 5-point Likert scale was a viable way to measure self-efficacy beliefs. These findings contradict Bandura's (1997) position about the downfalls of using Likert

Table 1
Using the culturally responsive teaching competencies to develop the culturally responsive teaching self-efficacy and outcome expectancy scales

Culturally responsive teaching competencies	Sample items from the culturally responsive teaching self-efficacy scale[a]	Sample items from the culturally responsive teaching outcome expectancy scale[b]
Culturally responsive teachers understand the cultural contributions of the cultures represented in the classroom. These contributions include those made to civilization, history, science, math, literature, arts, and technology. Culturally responsive teachers use this knowledge to design culturally relevant curricula and instructional activities.	I am able to: (a) teach students about their cultures' contributions to science. (b) design a lesson that shows how other cultural groups have made use of mathematics.	Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.
Culturally responsive teachers acknowledge the possible discontinuity between students' home culture and school culture and understand the consequences of the cultural mismatch (e.g., miscommunication, confrontations between the student and teacher). In addition, culturally responsive teachers design and implement interventions that minimize the consequences of the cultural mismatch.	I am able to: (a) identify ways that the school culture (e.g., values, norms, and practices) is different from my students' home culture. (b) implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture.	Acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems.

[a] *Culturally Responsive Teaching Self-Efficacy (CRTSE)*: teachers' beliefs in their ability to execute specific teaching practices and tasks that are associated with teachers who are believed to be culturally responsive.
[b] *Culturally Responsive Teaching Outcome Expectancy (CRTOE)*: teachers' beliefs that engaging in culturally responsive teaching practices will have positive classroom and student outcomes.

scales that contain a few steps. He believed that these scales were less reliable because they do not have the ability to differentiate between individuals who respond the same. Bandura (1997) contends, "including too few steps loses differentiating information because people who use the same response category would differ if immediate steps were included" (p. 44). In a follow-up study, Pajares et al. (2001) examined whether a self-efficacy scale ranging from 0 to 100 was psychometrically stronger than a traditional Likert formatted scale. They believed that 0–100 scales should result in greater discrimination than narrower Likert scales. The results of their study suggest that Bandura's assertions about the use of a scale with many options are empirically grounded. The 0–100 response format was psychometrically stronger compared to the Likert scale. In the current study, participants are asked to rate how confident they were in their ability to execute the practices of culturally responsive teaching using a scale ranging from 0 to 100.

In addition to the response format, the length of the scales were also influenced by Bandura's (1977) theory. Since self-efficacy beliefs mediate the potential influence that outcome expectancy beliefs have on behavior (Bandura, 1977, 1986) has argued that self-efficacy beliefs are a more powerful predictor of behavior than outcome expectations. If individual's efficacy beliefs were controlled, outcome expectations likely would not predict future behavior (Pajares, 1996). In light of this likelihood, the CRTSE scale was designed to contain a greater sampling of culturally responsive teaching practices compared to the CRTOE scale which elicits participants beliefs about the outcomes associated with this approach to teaching. Therefore, some items contained in the CRTSE scale are not reflected in the CRTOE scale. After following the protocol for instrument development, the two scales were pilot tested, refined, and the final drafts were administered to a sample of preservice teachers in the Midwest.

3.3. Research questions

This study was designed to answer the following research questions: (1) How efficacious are preservice

teachers in their ability to execute the practices of culturally responsive teaching? (2) Do preservice teachers believe in the positive outcomes associated with culturally responsive teaching? (3) What is the factor structure of the culturally responsive teaching self-efficacy and outcome expectancy scales? (4) What is the relationship between preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs?

4. Methods

4.1. Participants

The data for this study were drawn from a population of preservice teachers enrolled in two teacher education programs in the Midwest. Of the total sample ($N = 275$), 200 were female and 75 were male. Participants were asked to indicate their race/ethnicity: 255 indicated that they were White and 20 were non-white (e.g., Mexican-, Asian-, and African-American). The sample of preservice teachers had a mean age of 21.91 (SD = 4.87). The sample consisted of 42 freshmen, 63 sophomores, 97 juniors, and 73 seniors. The sample consisted of preservice teachers majoring in elementary ($N = 153$), middle level ($N = 18$), and secondary ($N = 104$) education. Participants in this study reported taking an average of 2.38 (SD = 1.35) classes addressing diversity in the classroom and completing an average of 1.49 (SD = .79) practicum requirements. When asked where they would like to teach once they graduate, 241 said public school and 125 preferred to teach in a suburban city with a population of 100,000–500,000.

4.2. Measures

Academic and Demographic Background Questionnaire: The purpose of the Academic and Demographic Background questionnaire was to obtain information from preservice teachers' academic and demographic background. Included in the questionnaire are items eliciting information from preservice teachers pertaining to their racial background, major, coursework, number of practica completed, feelings of preparedness, and experience in multicultural settings.

Culturally Responsive Teaching Self-Efficacy Scale: The CRTSE scale was constructed using the *Culturally Responsive Teaching Competencies* (Siwatu, 2006a) and Bandura's (1977) self-efficacy construct. The scale elicits information from preservice teachers regarding their efficacy to execute specific teaching practices and tasks that are associated with teachers who have adopted a culturally responsive pedagogy. The scale consists of 40 Likert-type items in which participants are asked to rate how confident they are in their ability to engage in specific culturally responsive teaching practices (e.g., "I am able to identify the diverse needs of my students") by indicating a degree of confidence ranging from 0 (no confidence at all) to 100 (completely confident). Participants' responses to each of the 40 items are summed to generate a total score. Participants who have higher scores on the culturally responsive teaching self-efficacy scale are more confident in their ability compared to those who were less confident in their abilities.

Culturally Responsive Teaching Outcome Expectancy Scale: The CRTOE scale was constructed using the *Culturally Responsive Teaching Competencies* (Siwatu, 2006a) and Bandura's (1977) definition of outcome expectancies—"a person's estimate that a given behavior will lead to certain outcomes" (p. 193). This 26-item scale is designed to assess teachers' beliefs that engaging in culturally responsive teaching practices will have positive classroom and student outcomes. Participants are asked to rate the probability that the behavior will lead to the specified outcome (e.g., "Using culturally familiar examples will make learning new concepts easier.") by indicating a probability of success from 0 (entirely uncertain) to 100 (entirely certain). Participants' responses to each of the 26 items were summed to generate a total score. Participants who believe in the positive outcomes associated with culturally responsive teaching will have higher scores compared to those who do not believe in the potential outcomes associated with this approach to teaching.

4.3. Procedure

Participants were given a packet of questionnaires to complete during regular class sessions. The packet of questionnaires contained the *Academic and Demographic Background Questionnaire, Culturally Responsive Teaching Self-Efficacy Scale,* and *Culturally Responsive Teaching Outcome Expectancy Scale.* The order in which participants completed these instruments were counterbalanced. Participants took approximately 20–25 min to complete the questionnaires in class.

5. Results

5.1. Descriptive analysis

Culturally responsive teaching self-efficacy: Preservice teachers' culturally responsive teaching self-efficacy was highest for ability to: "help students feel like important members of the classroom" ($M = 92.97$, $SD = 8.91$) and "develop a personal relationship with my students" ($M = 92.76$, $SD = 8.42$). Item-specific means were lowest among the preservice teachers for ability to: "greet English Language Learners with a phrase in their native language" ($M = 71.01$, $SD = 23.78$) and "praise English Language Learners for their accomplishments using a phrase in their native language" ($M = 71.48$, $SD = 23.56$). Participants in this study had a mean score of 3361.89 ($SD = 342.03$). High scores on the CRTSE scale indicate a greater sense of efficacy for engaging in specific instructional and non-instructional tasks associated with culturally responsive teaching. The scores for participants in this study ranged from 2270 to 3970. The descriptive statistics and factor loadings for the scale are presented in Table 2.

Culturally responsive teaching outcome expectations: Preservice teachers' culturally responsive teaching outcome expectations was highest for the possibility that "a positive teacher-student relationship can be established by building a sense of trust in my students" ($M = 93.49$, $SD = 8.62$). Item-specific means were lowest among the preservice teachers for the possibility that "encouraging students to use their native language will help to maintain students' cultural identity" ($M = 74.62$, $SD = 19.44$). Participants in this study had a mean score of 2245.46 ($SD = 224.08$). High scores on the CRTOE scale indicate a greater belief in the positive outcomes associated with culturally responsive teaching. The scores for participants in this study ranged from 1470 to 2600. The descriptive statistics and factor loadings for the scale are presented in Table 3.

5.2. Factor analysis

To examine the factor structure of the CRTSE and CRTOE scales, two principal component factor analyses were conducted. Two criteria were used to determine the number of factors to retain: Kaiser's (1960) criterion of eigenvalues greater than one rule and Cattell's (1966) scree test.

Culturally Responsive Teaching Self-Efficacy Scale: A principal component factor analysis with varimax rotation of the 40 items yielded seven factors with eigenvalues greater than one, accounting for 67% of the variance in the respondents' scores on the scale. A scree test suggested that two or three factors could be extracted. Due to the variance in the number of possible factors that could be extracted, each of these factor solutions was examined. None of the multiple-factor solutions were interpretable, therefore, a one-factor solution was used in this study. The one-factor solution accounted for 44% of the total explained variance, which is somewhat lower than the 53% average of factor analysis studies (Henson & Roberts, 2001).

Factor loadings ranged from .39 for ability to "praise English Language Learners for their accomplishments using a phrase in their native language" to .79 for ability to "design instruction that matches my students' developmental needs." The efficacy scale proved to be a reliable measure. Internal reliability for the 40-item measure was .96, as estimated by Cronbach's alpha.

Culturally Responsive Teaching Outcome Expectancy Scale. A principal component factor analysis with varimax rotation of the 26 items yielded four factors with eigenvalues greater than one, accounting for 60% of the variance in the respondents' scores on the scale. A scree test suggested that two or three factors could be extracted. Due to the variance in the number of possible factors that could be extracted, each of these factor solutions was examined. Again, a multiple-factor solution was not interpretable; therefore, a one-factor solution was used in this study. This solution accounted for 45% of the total explained variance. Again, the percentage of variance explained was somewhat below the 53% average of factor analysis studies (Henson & Roberts, 2001).

Factor loadings ranged from .55 for "conveying the message that parents are an important part of the classroom will increase parent participation" to .75 "helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability" and "revising instructional material to include a better representation of the students' cultural group will foster positive self-images." The outcome expectancy scale proved to be a reliable measure. Internal reliability for the 26-item scale was .95, as estimated by Cronbach's alpha.

Table 2
Means, standard deviations, and factor loadings for items on the CRTSE scale

Items	*M*	SD	Factor loading
(1) Adapt instruction to meet the needs of my students	84.26	10.46	.63
(2) Obtain information about my students' academic strengths	86.62	9.76	.63
(3) Determine whether my students like to work alone or in a group	87.28	12.74	.60
(4) Determine whether my students feel comfortable competing with other students	82.06	13.80	.58
(5) Identify ways that the school culture (e.g., values, norms, and practices) is different from my students' home culture	80.64	13.57	.65
(6) Implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture	76.04	14.80	.75
(7) Assess student learning using various types of assessments	85.22	12.87	.73
(8) Obtain information about my students' home life	80.28	14.66	.65
(9) Build a sense of trust in my students	92.15	8.41	.63
(10) Establish positive home-school relations	85.06	12.49	.64
(11) Use a variety of teaching methods	89.95	10.22	.72
(12) Develop a community of learners when my class consists of students from diverse backgrounds	85.26	11.78	.73
(13) Use my students' cultural background to help make learning meaningful	84.16	12.52	.73
(14) Use my students' prior knowledge to help them make sense of new information	88.08	11.32	.68
(15) Identify ways how students communicate at home may differ from the school norms	81.05	12.52	.75
(16) Obtain information about my students' cultural background	85.51	11.50	.63
(17) Teach students about their cultures' contributions to science	74.40	18.70	.56
(18) Greet English Language Learners with a phrase in their native language	71.01	23.78	.41
(19) Design a classroom environment using displays that reflects a variety of cultures	85.03	15.63	.66
(20) Develop a personal relationship with my students	92.76	8.42	.61
(21) Obtain information about my students' academic weaknesses	88.40	9.40	.68
(22) Praise English Language Learners for their accomplishments using a phrase in their native language	71.48	23.56	.39
(23) Identify ways that standardized tests may be biased towards linguistically diverse students	78.58	17.47	.53
(24) Communicate with parents regarding their child's educational progress	87.72	11.11	.68
(25) Structure parent-teacher conferences so that the meeting is not intimidating for parents	88.41	11.03	.69
(26) Help students to develop positive relationships with their classmates	88.21	10.84	.74
(27) Revise instructional material to include a better representation of cultural groups	83.04	13.56	.70
(28) Critically examine the curriculum to determine whether it reinforces negative cultural stereotypes	83.61	12.95	.70
(29) Design a lesson that shows how other cultural groups have made use of mathematics	74.44	21.50	.47
(30) Model classroom tasks to enhance English Language Learners' understanding	83.28	15.51	.67
(31) Communicate with the parents of English Language Learners regarding their child's achievement	76.72	18.97	.53
(32) Help students feel like important members of the classroom	92.97	8.91	.64
(33) Identify ways that standardized tests may be biased towards culturally diverse students	80.79	16.39	.58
(34) Use a learning preference inventory to gather data about how my students like to learn	81.92	15.73	.63
(35) Use examples that are familiar to students from diverse cultural backgrounds	81.73	13.34	.74
(36) Explain new concepts using examples that are taken from my students' everyday lives	87.52	11.13	.67
(37) Obtain information regarding my students' academic interests	88.25	10.05	.74
(38) Use the interests of my students to make learning meaningful for them	90.36	9.38	.76
(39) Implement cooperative learning activities for those students who like to work in groups	89.66	10.54	.72
(40) Design instruction that matches my students' developmental needs	87.80	10.38	.79

5.3. Correlational analyses

It was hypothesized that there would be a positive correlation between preservice teachers' CRTSE and CRTOE. The results of the correlational analyses revealed a positive relationship between scores on the CRTSE and CRTOE scales, $r = .70$, $p < .001$. In general, the results suggest that if

Table 3
Means, standard deviations, and factor loadings for items on the CRTOE scale

Items	*M*	SD	Factor loading
(1) A positive teacher-student relationship can be established by building a sense of trust in my students.	93.49	8.62	.59
(2) Incorporating a variety of teaching methods will help my students to be successful.	91.96	9.57	.63
(3) Students will be successful when instruction is adapted to meet their needs.	89.59	10.31	.64
(4) Developing a community of learners when my class consists of students from diverse cultural backgrounds will promote positive interactions between students.	89.49	10.27	.68
(5) Acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems.	78.11	16.96	.59
(6) Understanding the communication preferences of my students will decrease the likelihood of student-teacher communication problems.	83.08	13.33	.67
(7) Connecting my students' prior knowledge with new incoming information will lead to deeper learning.	91.75	9.34	.68
(8) Matching instruction to the students' learning preferences will enhance their learning.	89.50	10.52	.73
(9) Revising instructional material to include a better representation of the students' cultural group will foster positive self-images.	87.58	12.15	.75
(10) Providing English Language Learners with visual aids will enhance their understanding of assignments.	90.01	12.50	.63
(11) Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.	87.38	12.91	.70
(12) Conveying the message that parents are an important part of the classroom will increase parent participation.	85.27	15.44	.57
(13) The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.	85.32	13.99	.72
(14) Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class.	76.82	17.03	.62
(15) Establishing positive home-school relations will increase parental involvement.	85.71	12.91	.69
(16) Student attendance will increase when a personal relationship between the teacher and students has been developed.	86.78	13.87	.64
(17) Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned.	88.33	12.17	.67
(18) Using my students' interests when designing instruction will increase their motivation to learn.	90.67	9.84	.72
(19) Simplifying the language used during the presentation will enhance English Language Learners' comprehension of the lesson.	85.02	14.40	.56
(20) The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution.	79.52	17.06	.63
(21) Encouraging students to use their native language will help to maintain students' cultural identity.	74.62	19.44	.62
(22) Students' self-esteem can be enhanced when their cultural background is valued by the teacher.	87.23	13.15	.76
(23) Helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability.	88.54	11.51	.75
(24) Students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources.	87.34	11.59	.71
(25) Using culturally familiar examples will make learning new concepts easier.	87.91	11.52	.69
(26) When students see themselves in the pictures that are displayed in the classroom, they develop a positive self-identity.	84.33	16.02	.62

preservice teachers are efficacious in their abilities to execute the practices of culturally responsive teaching, they tend to believe in the positive outcomes associated with this pedagogy. These results support the hypothesis that CRTSE and CRTOE are related constructs and are consistent with observations in prior research (e.g., Bandura, 1977; Dussault, Deaudelin, & Brodeur, 2004) that has shown a positive relationship between self-efficacy and outcome expectancy beliefs.

6. Discussion

The results of this study provide a glimpse of preservice teachers' CRTSE and CRTOE beliefs. This study also furnished the data needed to examine the factor structure of the two scales and their reliability estimates, and the relationship between preservice teachers' self-efficacy and outcome expectancy beliefs. In the space below, the findings of this study are discussed and areas of future studies are highlighted. The discussion concludes with a description how the two scales may be used in teacher education to prepare culturally responsive teachers.

6.1. Preservice teachers' CRTSE and CRTOE beliefs

The findings from this study suggest that preservice teachers are more efficacious in their ability to help students feel like important members of the classroom and develop positive, personal relationships with their students, than they are in their ability to communicate with English Language Learners. According to social cognitive theory, preservice teachers' perceived inability to greet and praise English Language Learners using a phase in their native language may be an indicator of their future behavior. This perceived inability may discourage these future teachers from attempting to greet and praise English Language Learners.

In general, the item-specific means suggested that preservice teachers' outcome expectations were highest in the belief that building a sense of trust in students would lead to the development of positive teacher–student relationships. On the other hand, this sample of preservice teachers was less likely to believe in the positive outcomes associated with encouraging students to use their native language. More work needs to be done to insure that teacher education candidates are introduced to the theory and practice regarding teaching linguistically diverse learners and expose them to competent models who are successful in teaching these students. An introduction to the theory and practice of bilingual education, and exposure to competent models may influence preservice teachers' self-efficacy and outcome expectancy beliefs.

According to the *Culturally Responsive Teaching Competencies* (Siwatu, 2006a), culturally responsive teachers know how to communicate with students who are developing a mastery of the English language (i.e., English Language Learners; Brown, 2003; Curran, 2003; Hollins, 1993; Jolly, Hampton, & Guzman, 1999; Moll, 1999; Schuhmann, 1992; Shade et al., 1997). Therefore, the above findings are important given the probability that tomorrow's teachers will teach students from linguistically diverse backgrounds (Cooper, Beare, & Thorman, 1990; Gallego, 2001; Guillaume et al., 1995; Ross & Smith, 1992; Taylor & Sobel, 2001; Torok & Aguilar, 2000; Zeichner, 1993). In Siwatu's (2006b) mixed method study, several preservice teachers in the face-to-face interviews expressed their concerns about teaching English Language Learners and their lack of preparedness for doing so. Due to these concerns, one preservice teacher stated she would rather not try to communicate with English Language Learners using phrases in their native language. When asked why she would *not* greet students in their native language, the participant had this to say:

> Because I will butcher it. That is just as bad as not doing it at all. You just butcher their language. I butcher names all the time. I feel so bad. It shows. It is worse than if you did not do it at all. I would not want to put the kid through that. I honestly would not want to embarrass myself like that (p. 51).

Despite these concerns, Jolly et al. (1999) cautions teachers from adopting this approach to interacting with English Language Learners. There are several positive outcomes that result when teachers go out of their way to learn how to pronounce the names of English Language Learners and display welcome signs throughout the classroom using phrases from the students' native language. For example, when these attempts are made by the teacher, students begin feeling like members of the classroom and learning community (Curran, 2003; Jolly et al., 1999).

When administered to this sample of preservice teachers in the Midwest, the one-factor, CRTSE and CRTOE scales proved to be reliable measures of preservice teachers' (1) confidence to execute the practices of culturally responsive teaching and (2) beliefs about the expected outcomes of engaging in culturally responsive teaching. The reliability of both instruments may be inflated due to the large number of items in each scale. Despite this possibility of inflation, a conscious decision was made not to pursue the development of a short-version of the two scales. This rationale was made

based on how the two scales were initially developed. Since the items of the CRTSE and CRTOE scales map directly on to the *Culturally Responsive Teaching Competencies* (Siwatu, 2006a), it was believed that the items, if deleted, would no longer reflect each of the criterial tasks associated with this approach to teaching.

According to Bandura (1982, 1986), self-efficacy and outcome expectancy beliefs tend to be strongly correlated. In this study, the observed correlation of .70 between CRTSE and CRTOE supports the view that self-efficacy and outcome expectancy beliefs are in fact related, but also independent constructs. A literal interpretation of the correlation would suggest that as preservice teachers' culturally responsive teaching self-efficacy increase, so does their belief in the positive outcomes associated with this pedagogical approach to teaching in culturally and linguistically diverse environments. However, this may not always be the case. Bandura (1982, 1986) contends that it is possible for highly efficacious individuals to believe that success is unlikely and vice versa. In light of this possible relationship, Bandura posits that self-efficacy and outcome expectancy beliefs can form four distinctive patterns (i.e., high/high, high/low, low/high, and low/low). Each of these patterns can produce different behavioral (e.g., high engagement, withdrawal) and affective (e.g., self-assurance, self-devaluation) responses.

In the context of culturally responsive teaching a novice teacher may believe in the positive outcomes associated with culturally responsive teaching, but doubt his/her ability to execute the practices associated with this pedagogical approach to teaching. A closer examination of this teacher's training may reveal that he/she took several courses that indirectly discussed the positive outcomes associated with culturally responsive teaching. Noticeably missing from this training, however, may have been efficacy-building activities (e.g., observing the classroom behavior of culturally responsive teaching) that would help nurture positive self-efficacy judgments. Consistent with Bandura's (1982, 2001) beliefs, this novice with low efficacy and high outcome expectancy beliefs may feel disheartened (i.e., a negative affective reaction) when they believe in the positive outcomes of engaging in culturally responsive teaching but perceive themselves to be incompetent in executing these practices. A potential mixed method study may prove to be beneficial in examining (1) the similarities and differences between preservice and inservice teachers with different CRTSE and CRTOE belief patterns, and (2) the behavioral and affective responses of preservice and inservice teachers with different CRTSE and CROTE belief patterns.

While the correlation between the two constructs is high, caution should be taken when interpreting this finding. The high correlation may be a function of the sampled population of preservice teachers who like others may lack hands-on teaching experiences and opportunities to practice the skills and tasks associated with culturally responsive teaching. A cross-sectional study involving preservice, student, novice, and expert teachers may shed light on the developmental changes of teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs in addition to the relationship between the two constructs. Consistent with past research findings, it can be expected that these preservice teachers' efficacy and outcome expectancy beliefs will undergo developmental changes once they begin their teaching careers (Hoy & Woolfolk, 1990; Soodak & Podell, 1997; Woolfolk Hoy, 2000). If these studies are a prelude for what is to come, it can be expected that the correlation between the two constructs may decrease once preservice teachers in this study begin their teaching careers.

Another factor that may have influenced the item-specific means and the correlation between the two constructs is the demographic background of the participants in this study. Ninety-three percent of the sample was White American. A majority of the participants were from areas of the Midwest that does not have high concentrations of people from culturally and linguistically diverse backgrounds. Furthermore, these participants may lack meaningful experiences with culturally and linguistically diverse populations which may lead to misconceptions about cultural diversity and to the formation of counterproductive beliefs about diversity. The results from this study may not generalize to other samples of preservice teachers with different racial backgrounds and cultural experiences. Since the execution of many of the practices in the CRTSE scale requires some degree of cultural knowledge, future studies may examine the relationship between variables such as cultural knowledge and multicultural and racial attitudes and teachers' CRTSE and CROTE beliefs.

Before discussing how the two scales can be used in teacher education, it is worth pointing out that

the CRTSE/CRTOE scales do not contain an exhaustive list of skills and potential outcomes associated with culturally responsive teaching. As more quantitative and qualitative studies are conducted documenting the practices of culturally responsive teaching, it will be important that future CRTSE and CRTOE scales tap subject- and task-specific skills such as culturally responsive mathematics instruction and culturally responsive classroom management. The evolution of traditional teacher efficacy scales followed a similar pattern. For example, Gibson and Dembo (1984) introduced the Teacher Efficacy Scale and others modified it to tap more specific teaching practices in areas such as, classroom management (Emmer & Hickman, 1990), character education (Milson & Mehlig, 2002), special education (Coladarci & Breton, 1997), science education (Riggs & Enochs, 1990), health education (Kingery, Holcomb, Jibaja-Rusth, Pruitt, & Buckner, 1994), and instructional technology (Dussault et al., 2004).

6.2. Implications for teacher education

Recently, the value of teacher efficacy research to teacher educators and teacher education programs has been questioned (Wheatley, 2005). Coupled with the introduction of the *Culturally Responsive Teaching Self-Efficacy* and *Culturally Responsive Teaching Outcome Expectancy Belief* scales and recent questions about the value of teacher efficacy research, a discussion how the two scales can be used in teacher education to prepare culturally responsive teachers is warranted.

The value of item-specific responses. When the two scales are administered to preservice and/or inservice teachers, more weight should be placed on their item-specific responses rather than the global score. The global score fails to identify those aspects of culturally responsive teaching that teachers feel less efficacious and the related practices that they do not believe will lead to positive outcomes. For example, in this study, global scores on the CRTSE scale ranged from 2270 to 3970. Masked in the global score was the finding that preservice teachers were less efficacious in their ability to "greet English Language Learners with a phrase in their native language" and "praise English Language Learners for their accomplishments using a phrase in their native language." In this study, the most important findings were not participants' global scores on the two instruments but their item-specific responses.

This focus on the value of the item-specific responses should not devalue the usefulness of the global score. While the item-specific responses are potentially more informative, global scores allow for the use of more inferential statistical analyses. These analyses and the related findings may prove useful in answering critical questions about teachers' sense of efficacy. For example: (1) what is the relationship between teacher background variables (e.g., experiences with diverse learners, teaching experiences) and their CRTSE and CRTOE beliefs (correlational analysis)? (2) What factors predict preservice teachers' CRTSE and CRTOE beliefs (multiple regression)? (3) What is the relationship between different CRTSE and CRTOE belief patterns of preservice teachers and the number of courses they have taken addressing issues of cultural diversity in the classroom and the number of practicum requirements completed (analysis of variance)?

Item-specific means on the CRTSE and CRTOE scales may prove to be useful to teacher educators and program administrators who are interested in fine-tuning efforts to prepare culturally responsive teachers. On the other hand, global scores may be used by educational researchers who are interested in knowing more about CRTSE and CRTOE and the factors that influence the formation of these beliefs. For this reason, it is important when reporting the findings of teacher efficacy research that item-specific means and global scores are presented.

Designing efficacy-building interventions. If the findings of teacher efficacy research, as it relates to culturally responsive teaching, are to improve the preparation of culturally responsive teachers, it is important to focus on those pedagogical aspects in which preservice teachers feel less efficacious and the related practices that they do not believe will lead to positive outcomes. Since the items on the CRTSE and CRTOE scale map on to at least one of the culturally responsive teaching competencies (Siwatu, 2006a), item-specific means are better able to identify which competencies need to be better emphasized during teacher training. Therefore, focusing on item-specific responses may spur the design of efficacy-building interventions and justify the need to develop new courses or revise existing courses to expose preservice teachers to specific aspects of culturally responsive teaching. Below is an example how item-specific information from the CRTSE scale might be used to improve the preparation of culturally responsive teachers.

Included in the Siwatu's (2006a) *Culturally Responsive Teaching Competencies*, is a statement that reads,

> Culturally responsive teachers understand the cultural contributions of the cultures represented in the classroom. These contributions include those made to civilization, history, science, math, literature, arts, and technology. Culturally responsive teachers use this knowledge to design culturally relevant curricula and instructional activities (p. 7).

The CRTSE scale contains two items that map on to this competency. The first item is designed to examine preservice teachers' efficacy to teach students about their cultures contributions to science (item # 17). The second item examines preservice teachers' efficacy to design a lesson that shows how other cultural groups have made use of mathematics (item # 29). If teacher educators administer the CRTSE scale to teacher education candidates over a 2-year span and find that preservice teachers consistently doubt their abilities to execute the practices highlighted in items 17 and 29, they may resort to integrating efficacy-building activities into the math and science methods courses. The main components of this intervention may include:

(1) After reading selected sections of Irvine and Armento's (2001) book, *Culturally Responsive Teaching: Lesson Planning for Elementary and Middle Grades*, with the assistance of the course instructor, the participants discuss the characteristics of a culturally responsive lesson plan. The discussion is supplemented with several concrete examples.
(2) Participants attend a lecture by an African/African American historian who discusses the noteworthy contributions made by African/African Americans in science and mathematics. To supplement the lecture, students are assigned to read selected sections of the following books: *Math and science across cultures: Activities and investigations from the Exploratorium* (Bazin, Tamez, & the Exploratorium Teacher Institute, 2002) and *Nile Valley Contributions to Civilization* (Browder, 1995).
(3) Participants are given an assignment that involves identifying a math or science topic that they would like to teach and gather additional information from the library on the contributions made by African/African Americans related to the topic.
(4) The instructor demonstrates how to create and implement a culturally responsive lesson that integrates the cultural contributions of African/African Americans. To demonstrate this process the instructor uses Meichenbaum's (1977) cognitive modeling approach. To supplement this demonstration, participants are required to observe a teacher implementing a culturally responsive lesson.
(5) Using the information that they gathered in Step # 3, participants design a lesson (with instructional activities) that incorporates the cultural contributions of African/African Americans in science or mathematics.
(6) Participants are then required to present their lessons to the class. After receiving feedback from the course instructor and their classmates, each participant presents the lesson to a group of elementary or middle school students.
(7) In the final step of the intervention, after presenting the lesson, participants are given the opportunity to engage in self-assessment and reflection. In addition, each participant meets with the cooperating teacher whose classroom they presented the lesson, to discuss their performance. The cooperating teacher should be instructed to provide the participant with a combination of performance-, motivational-, attributional-, and strategy-oriented feedback.

To be successful in building students' sense of efficacy, the intervention should contain mastery and vicarious experiences. According to Bandura (1977), mastery experience is the most influential source in the development of self-efficacy. Another key feature of this intervention is the exposure to competent teachers with successful experience executing the practices of culturally responsive teaching. Exposure to a competent model is vital since research has shown that individuals are likely to imitate the behavior of those they believe are competent (Bandura, 1986).

Despite these questions and issues in teacher efficacy research, the constructs' ability to predict future behavior should increase efforts to prepare culturally responsive teachers. These efforts should focus on increasing teacher education candidates' competence and confidence to execute the practices associated with this pedagogical approach of teaching culturally and linguistically diverse students. In

doing so, teacher educators should integrate efficacy-building interventions into existing and new courses, while simultaneously documenting the positive student and teaching outcomes associated with culturally responsive teaching.

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