**Use of the CREDE Standards among Career and Technical Education Teachers
with Large Percentages of Hispanic Students**

by

Amy L. Dyar

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Approved by

Leane Skinner, Chair, Professor of Curriculum and Teaching
Elisha Wohleb, Associate Clinical Professor of Curriculum and Teaching
Chih-hsuan Wang, Associate Professor of Educational Foundations, Leadership, and
Technology
Jamie Harrison, Assistant Professor of Curriculum and Teaching

Abstract

Access to career and technical education (CTE) programs may play a significant role in Hispanic students' academic success; however, little research had been conducted on the best practices employed by CTE teachers to meet the academic needs of Hispanic learners. The purpose of this quantitative survey study was to investigate best practices used by CTE teachers to meet the needs of Hispanic students. Specifically, the researcher investigated teachers' use of the Center for Research on Education, Diversity, and Excellence (CREDE) standards to meet the unique cultural needs of Hispanic students. In addition, the researcher explored the influence of three factors on teachers' use of the CREDE standards. These factors included teachers': (a) generation, (b) years of teaching experience, (c) CTE program area (agricultural education; business marketing/education; family and consumer sciences; trade, engineering; and technical education; health sciences education), and (d) school district. The theoretical framework for this study was based on Vygotsky's (1978) sociocultural theory, upon which the CREDE standards were developed. Fifty-five CTE teachers from Alabama, Tennessee, and South Carolina completed the online survey. Relationships between study variables were assessed using ANOVAs. Results indicated that participants used all five CREDE standards, on average, very often. Results also indicated use of the CREDE standards differed by

program area taught, but not by school district, generation or years as a CTE teacher.

Results may be used by administrators and other educational leaders to implement

professional development to fill in gaps in practice and knowledge among CTE teachers.

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I. NATURE OF THE PROBLEM

Introduction and Background

Hispanics make up the largest and fastest-growing minority group in the United

States (Holub et al., 2014). The 2010 U.S. Census Bureau reported that the Hispanic

population increased from 35.3 million to 50.5 million between 2000 and 2010 (Ennis,

Rios-Vargas, & Albert, 2011). As a result, the populations of Hispanic and English

language learners (ELLs) in U.S. public schools have increased dramatically. As this

growth has occurred, the achievement gap between Hispanic and Caucasian students has

widened significantly (Madrid, 2011). For example, the high school dropout rate for

Hispanics in 2009 was 17.6%, but only 5% for Whites (Chapman, Laird, Ifill, & Kewel

Ramini, 2011).

In recent years, educators, policymakers, and researchers have become

increasingly concerned about the educational barriers that Hispanic students face (Perry

& Calhoun-Butts, 2012). In 2007, 21% of Hispanics between the ages of 16 and 24 were

high school dropouts (Cataldi, Laird, & KewalRamani, 2009). In 2009, only 12% of the

Hispanic population had earned bachelor's degrees, compared to 31% of the general

population (Pew Hispanic Center, 2009). Despite the low levels of high school

graduation and college completion, the Pew Hispanic Center (2009) reported that 89% of

Hispanics valued college education. As Perry and Calhoun-Butts (2012) stated, "This

brief statistical snapshot is disturbing and should serve as a call for all stakeholders to

work together in preventing school dropout while promoting college, career, and

workforce readiness" (p. 478).

In addition to educational barriers, career readiness is another issue among the Hispanic population. Researchers have explored the role of perceived barriers and acculturation in students' academic outcomes (Perry & Calhoun-Butts, 2012) and found that culture and access to career and technical education (CTE) programs may play a significant role in students' senses of career-related self-efficacy (Gushue, Clarke, Pantzer, & Scanlan, 2006). While participation in CTE program curriculum can have a significant impact on the success of Hispanic students (Burtnett, 2014), little research has been conducted on the topic. Specifically, a gap exists in the research regarding CTE teachers' use of best practices to meet the learning needs of Hispanic students.

Standards created by the Center for Research on Education, Diversity, and Excellence (CREDE, 2004) (See Appendix E) may provide CTE teachers with a guide for meeting the learning needs of this student population. The standards, referred to in this dissertation as the "CREDE standards," were developed from over 30 years educational research on culturally and linguistically diverse K-12 students (Yamauchi, 2009). These standards include (a) Joint Productive Activity, (b) Language and Literacy Development; (c) Making Meaning; (d) Complex Thinking; and (e) Instructional Conversation. The CREDE standards were chosen for the current investigation because they are applicable across student grade levels, populations, and content areas. The standards are described as follows:

1. Joint productive activity: involves collaboration between teachers and students to create learning products (i.e., assignments, projects, classroom conversations, etc.);

2. Language and literacy development: involves the development of competence in the language of instruction through student-student and student-teacher interaction;

3. Making meaning (or contextualization): involves embedding instruction in the interests, experiences, and skills of students', students' families, and the community;

4. Complex thinking: involves challenging students' cognitive complexity through assistance and clear feedback; and

5. Instructional conversation: involves engaging students through dialogue.

Purpose of the Study

The purpose of this study was to investigate best practices used by CTE teachers to meet the learning needs of Hispanic students. Specifically, the researcher investigated teachers' use of the Center for Research on Education, Diversity, and Excellence (CREDE, 2004) (See Appendix E) standards to meet the unique cultural needs of Hispanic students. In addition, the researcher explored the influence of four factors on teachers' use of the CREDE standards. These factors included teachers' (a) generation, (b) years of teaching experience, (c) CTE program area (agricultural education; business marketing/education; family and consumer sciences; trade, engineering, and technical education; health sciences education), and (d) school district.

The study sample was drawn from the current population of CTE teachers in the top three U.S. states with the fastest-growing Hispanic populations: Alabama, Tennessee, and South Carolina (U.S. Census Bureau, 2010). Ultimately, CTE program participation may help Hispanic students become successful citizens in today's global economy. Thus,

it is important that CTE teachers utilize best practices that address the cultural and linguistic needs of diverse students in order to maximize the benefits of these programs for Hispanic students. Better understandings of CTE teachers' utilization of CREDE standards may help educators and leaders identify pedagogical areas for training that may improve learning and engagement among Hispanic students in CTE classes, consequently bridging the gap from school to work and/or postsecondary institutions among Hispanic students.

Statement of the Problem

The problem of this study was the achievement gap that Hispanic students face in their educations and careers (Gandara, 2008, 2010; Maldonado & Farmer, 2006; Melendez, 2013). Research indicates that participation in CTE programs may help secondary Hispanic students bridge the achievement gap from school to work or postsecondary institutions (Burtnett, 2014). CTE program participation may benefit Hispanic students by equipping them with career skills or encouraging them to pursue postsecondary educations required to succeed in today's global economy. The five CREDE (2004) standards provide teachers with evidence-based best practices that are beneficial to students from a variety of backgrounds, including culturally and linguistically diverse (CLD) Hispanic students. While these standards may be beneficial across content areas, including CTE, little is known about CTE teachers' use of the CREDE standards (2004) to meet the unique cultural needs of Hispanic students.

Significance of the Study

A dearth of research existed on the utilization of CREDE standards among CTE teachers of Hispanic students. Thus, this study contributed meaningfully to the current

body of research. Results may be used by administrators and other educational leaders to implement professional development to fill in gaps in practice and knowledge among specific teacher populations.

Research Questions

The current research on pedagogical best practices of CTE teachers was guided by the following research questions:

RQ1. How frequently do Career and Technical Education teachers use each of the five CREDE standards?

> **Subquestion 1.** How frequently do teachers use the CREDE standard of joint productive activities?
>
> **Subquestion 2.** How frequently do teachers use the CREDE standard of language and literacy development?
>
> **Subquestion 3.** How frequently do teachers use the CREDE standard of making meaning?
>
> **Subquestion 4.** How frequently do teachers use the CREDE standard of complex thinking?
>
> **Subquestion 5.** How frequently do teachers use the CREDE standard of teaching through conversation?

RQ2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on their demographic backgrounds?

> **Subquestion 1.** Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on the teacher's generation?

Subquestion 2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on years teaching?

Subquestion 3. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on program area?

Subquestion 4. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on school district?

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Theoretical Framework

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The theoretical framework for this study was based on Vygotsky's (1978) sociocultural theory. This framework was chosen because the CREDE standards are based on sociocultural theory, which posits that students create knowledge through interactions with teachers and learning materials in social settings. Vygotsky believed that learning involves two developmental levels: (a) a learner's actual developmental level, and (b) a learner's aptitude for learning, given proper assistance. Between those two developmental levels lies what Vygotsky referred to as the zone of proximal development (ZPD). Learners are in the ZPD when being assisted with developmental or learning tasks they would otherwise be unable to complete on their own.

Essentially, Vygotsky's (1978) ZPD is based on the notion that all higher levels of psychological function are rooted in social interaction – that "children's interactions with others form the basis of higher-level thought" (Yamauchi, 2009, p. 4). It is through social interaction that children construct understandings of ideas and information. When a student works alone to complete tasks and assignments without assistance, the student is working in what Vygotsky referred to as the zone of actual development (ZAD). Minimal learning occurs in this zone; however, when a student is challenged beyond his

or her ZAD and provided with assistance, the student moves into the ZPD (Morcom, 2014).

Through implementation of the CREDE standards, educators may maximize their assistance to children during this process of social learning. Vygotsky's (1978) sociocultural theory is clearly illustrated in the CREDE standards, which are based on social interaction. The theoretical framework and the CREDE standards are discussed in greater detail in Chapter 2 of this dissertation.

Definition of Terms

Assessing Comprehension and Communication in English State-to-State for English
Language Learners *(*ACCESS*)*: A secure, large-scale English language
proficiency assessment given to students in Kindergarten through 12th grade who
have been identified as English language learners (ELLs). It is conducted
annually to monitor students' academic English language acquisition (Fox &
Fairbairn, 2011).

Career and Technical Education (CTE): A term applied to programs at schools and
institutions that specialize in providing participants with trade skills, applied
sciences, modern technologies, and career preparation. It was formerly (and is
still commonly) referred to as *vocational education* (Loera, Nakamoto, Oh, &
Rueda, 2013).

Career Technical Student Organization (CTSO): Vocational organizations that are
primarily based in high schools and career technology centers. Often, on the state
level, CTSO are integrated into Departments of Education or incorporated as non-
profit organizations. Many states define CTSOs as *integral parts* of high school

and college education programs. Many higher education institutions have added

extracurricular activities that are not athletic related, in order to enhance students'

college experiences (Alfeld, Handen, Aragon, & Stone, 2006).

Center for Research on Education, Diversity, and Excellence (CREDE): Organization

whose mission is enact solutions to issues of risk, diversity, and academic

excellence through research on educational issues related to cultural and linguistic

minorities, race, poverty, and geographic region (Dalton, 1998). This

organization developed the five CREDE (2004) standards on which the current

research is based.

Culturally and Linguistically Diverse (CLD) learners: Students whose cultural and

linguistic backgrounds vary from the student majority (Musti-Rao, Cartledge,

Bennett, & Council, 2015).

Culturally responsive teaching: "The cultural knowledge, prior experiences, frames of

reference, and performance styles of ethnically diverse students to make learning

encounters more relevant to and effective for them" (Gay, 2000, p. 29).

English Language Learner (ELL): A person who is learning the English language in

addition to his or her native language. The instruction and assessment of students,

their cultural backgrounds, and the attitudes of classroom teachers towards ELLs

have all been found to be factors in ELL student achievement. Some ways that

educators can assist ELLs include bringing their home cultures into the classroom,

involving them in language-appropriate content-area instruction from the

beginning, and integrating literature into the learning program. Some educational

advocates, especially in the United States, prefer the term, *emergent bilinguals* in

lieu of ELLs (Cheatham, Jimenez-Silva, Wodrich, & Kasai, 2014).

Hispanic: A member of an ethnic group that can be traced to one of 20 Spanish-speaking

nations in Latin America and Spain (but not Portugal or Portuguese-speaking

Brazil) (Pew Hispanic Center, 2009).

Limitations

There were a few limitations inherent to this research. First, the population of

CTE teachers was limited to a small geographic region, including Alabama, Tennessee,

and South Carolina. Thus, results are not generalizable across other regions. Although

teachers from a variety of content areas may have provided information regarding their

use of the CREDE standards, this research was limited to the experiences of CTE

teachers. The focus of this research was CTE programs; therefore, CTE teachers would

likely provide the most valuable, applicable insights. Time was a limitation, both in

terms of teachers' time and limitations to the data collection period of 2 weeks. The self-

report nature of the research survey was also a limitation. It is possible that respondents

may have selected responses they believed framed them more positively, even though the

anonymous nature of the survey sought to prevent that. Finally, although all participants

were from districts with high ratios of Hispanic students, some participants had more

Hispanic learners in their classes than others; thus, teachers' experiences with Hispanic

learners were not uniform.

Delimitations

Delimitations are the boundaries beyond which the study is concerned

(Bloomberg & Volpe, 2008). A delimitation in this study was that the researcher only

investigated the behaviors and practices of secondary teachers. Although a variety of best practices for teaching culturally and linguistically diverse learners are available, the researcher's selection of the CREDE (2004) standards represented another delimitation. Finally, the study's theoretical framework was another delimiting factor. Although the proposed research could have been explored through the lenses of several pedagogical theories, Vygotsky's (1978) sociocultural theory was chosen, due to its strong correlation with the CREDE standards.

Summary

As the U.S. population of Hispanic students continues to grow, it is increasingly important that educational leaders and other stakeholders tend to their educational needs. The failure to close the economic and educational achievement gap between Hispanics and Whites has increasing social and economic implications (Gandara, 2008, 2010; Madrid, 2011; Maldonado & Farmer, 2006). Participation in CTE programs may provide Hispanic students with valuable education and career skills needed to succeed in today's global economy; however, little research existed on the best practices utilized by CTE teachers of Hispanic students. An exhaustive literature review revealed no existing studies on best practices used by these teachers. Research indicates that the five CREDE standards are effective teaching practices for a variety of student populations, including at-risk and CLD populations (Doherty, Hilberg, Pinal, & Tharp, 2003; Estrada, 2004; Hilberg et al,, 2004; Taum, 2011; Wyatt, Yamauchi, & Chapman-DeSousa, 2012). Thus, the goal of this quantitative study was to investigate CTE teachers' use of the CREDE (2004) standards to meet the unique cultural needs of Hispanic students. In addition, the researcher explored factors that influenced teachers' use of the CREDE standards in order

to provide stakeholders with additional guidance for teacher professional development. The following chapter includes an in-depth review of existing relevant literature, which provides a foundation for the current investigation. Chapter 3 provides a detailed explanation of the methodology used for this study. Statistical analyses of findings are presented in Chapter 4, followed by summary, conclusions, and recommendations in Chapter 5.

II. REVIEW OF LITERATURE

Introduction

Hispanics make up the largest and fastest-growing minority group in the United States (Holub et al., 2014), which has resulted in a significant and recent increase to the population of Hispanic students in public schools. Consequently, the achievement gap between Whites and Hispanics has become more alarming. The discrepancies between Whites and Hispanics is not limited to success in primary and secondary schools; the achievement gap also permeates Hispanics' postsecondary educations and career decisions (Cataldi et al., 2009; Pew Hispanic Center, 2009). One way that educational leaders are working to improve the academic and career outcomes of this student population is through the implementation of Career and Technical Education (CTE) programs (Burtnett, 2014). Thus, the current study involved an investigation of CTE teachers' use of the CREDE (2004) standards to meet the unique cultural needs of Hispanic students.

This chapter includes a review of the literature pertaining to Hispanic students, the achievement gap, educational barriers, and a discussion of the Center for Research on Education, Diversity, and Excellence (CREDE, 2004) standards. It begins with a description of the search strategy employed to locate the studies discussed in this chapter, followed by a presentation of the study's theoretical framework. A discussion of the relevant research is followed by the researcher's brief, concluding remarks.

Search Strategy

An extensive search was performed to locate literature for this review. Several online databases were utilized, including Academic OneFile, ArticleFirst, ERIC, Gale,

InfoTrac, JSTOR, and ProQuest. Seminal works, census reports, and reports from federal

and non-profit organizations were located using the Scholar search function of Google.

When possible, selected works were limited to those published in the last 5 years (with

the exception of seminal literature). Several search terms were utilized, including

Hispanic students, English language learners, career and technical education, college

readiness, Latin American students, career preparedness, technical training, U.S.

demographics, culturally and linguistically diverse learners, CREDE, best practices,

culturally responsive teaching, and cultural barriers in education.

Theoretical Framework

The theoretical framework for the current research was based on Vygotsky's

(1978) sociocultural theory, which states that learning is a social process connected to

learners' motivations and emotions. Students learn more when they are working in the

zone of proximal development (ZPD) by way of assistance with learning tasks. When

students work unassisted, in the zone of actual development (ZAD), learning is often

dismal (Morcom, 2014). Sociocultural theory (Vygotsky, 1978) was selected as the

theoretical framework for the current investigation for two reasons: (a) the theoretical

core of the CREDE standards, on which the current study was based, is sociocultural

theory; and (b) research indicates that sociocultural theory is a valuable foundation for

culturally and linguistically diverse learners (Lantolf, Thorne, & Poehner, 2015;

Moschkovich, 2002; Rodriguez, Jones, Pang, & Park, 2004).

Review of the Literature

The following section contains a review of the existing body of relevant research.

The section begins with discussions of characteristics of culturally and linguistically

diverse learners, Hispanic students, and the academic achievement gap. The barriers

most often faced by Hispanic students, including culture, family, language, and teachers,

follows. Pedagogical best practices for Hispanic students, including culturally responsive

teaching, CREDE standards, and CTE programs, are then discussed. The chapter closes

with a brief summary of the existing gaps in knowledge and research.

Culturally and Linguistically Diverse Learners

In the United States, culturally and linguistically diverse (CLD) learners, which

describe students whose cultural and linguistic backgrounds vary from the majority

(Musti-Rao et al., 2015), demonstrate poor academic achievement and high rates

placement in special services (Schroeder, Plata, Fullwood, Price, & Sennette, 2013).

Demographic data indicate that CLD learners will represent almost half of U.S.

elementary and secondary school students by the year 2020 (Schroeder et al., 2013). The

U.S. Census Bureau (2010) projects that by 2050, over 60% of the nation's population of

children will be comprised of groups that are currently considered minority groups.

Growth in U.S. Hispanic population

Of the population of CLD learners, Hispanic students are among the largest

group. According to the 2010 U.S. Census, over 50 million people identify as Hispanic

or Latino. Much of the Hispanic population growth over the past decade has been

concentrated in the school-age population. One in four children under the age of 18 is

Hispanic (The National Conference of State Legislatures, 2012). Although Hispanics

represent the fastest-growing population in U.S. public school systems, they are also

among the most underserved (Garcia & Figueroa, 2002) and least likely to complete high

school (Perna, 2000; Pew Hispanic Center, 2009). Due to the composition of the U.S.

Hispanic population, as mostly poor and working class, postsecondary education and/or career training is essential to reducing the socioeconomic disparities between Hispanics and Whites (Quintana, Vogel, & Ybarra, 1991). Because they comprise the largest minority group in the United States, the educational and career success of Hispanic students has immediate and long-term economic consequences (White House Initiative on Educational Excellence for Hispanics, 2011).

Improving educational and career achievement among Hispanics is vital to the future of the U.S. economy (The Campaign for College Opportunity, 2013). Future goals for the Hispanic community must include expanding educational opportunities, "from cradle through college and career" (White House Initiative on Educational Excellence for Hispanics, 2011, p. 3). In support of these goals, President Obama's administration awarded $350 million to support states in developing a generation of college- and career-ready students, including those who are ELLs (White House Initiative on Educational Excellence for Hispanics, 2011).

Achievement Gap

The rapid growth of the U.S. Hispanic population has magnified the academic achievement gap between Hispanic and White students. The high school dropout rate for Hispanics in 2009 was 17.6%, but only 5% for Whites (Chapman, Laird, Ifill, & Kewel Ramini, 2011). The dropout rate, according to Baker (2012), "is just one indicator that the fastest growing ethnic group in U.S. public schools is not experiencing improvements in educational outcomes" (p. 50). The ripples of the academic achievement gap are evident far beyond the schoolyard gates; dropout rates affect students' earning capacities, employment prospects, likelihood of incarceration, and risks of poverty (Baker, 2012).

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Baker (2012) conducted a study to examine the perspectives of Hispanic and African American students who had dropped out to gain a better understanding of factors that may contribute to the academic achievement gap. The researcher interviewed 12 high school dropouts who served as informants. All participants were 18 or older and of Hispanic or African American race. The three main themes to emerge from the interviews included (a) challenging home situations, (b) personal realities, and (c) school-related factors that reflected poor systems of support. The third theme, most relevant to the current research, included the following seven subthemes: (a) academic difficulties; (b) teachers; (c) grade retention; (d) attendance issues; (e) discipline; (f) school social issues; and (g) the attitudes and actions of school administrators. Baker made the following recommendation for addressing the school-related factors described by participants:

> Data generated from the informants' voices and perceptions in the context of this study revealed students need systems of support to compensate for the challenges at home and in their personal lives and for their personal realities. These systems may include (a) culturally responsive and caring leadership; (b) mentoring programs; (c) well-trained, caring teachers; (d) a meaningful and relevant curriculum aligned with adequate assessment; and (e) best pedagogical practices. (p. 55)

The final recommendation of pedagogical best practices echoed the purpose of the current research, which was to explore use of a specific set of best practices, the CREDE standards (2004), among a specific teacher population.

To explore teachers' and parents' perceptions of the achievement gap, Melendez (2013) conducted a qualitative case study of 13 parents and eight teachers. Data analysis revealed that, although there were some similarities between parents' and teachers' perceptions, there were also many differences. For example, while parents most frequently expressed frustration regarding the achievement gap, teachers discussed students' lack of language skills and content knowledge. Several important themes emerged from Melendez's study. First, participants felt that the school did not acknowledge student diversity, which created faulty assumptions about the achievement gap and what was needed to close it. Although parent involvement was a factor that teachers believed was fundamental to closing the achievement gap, parents relayed that they often remained uninvolved in their children's educations because of the language barrier. Similarly, parents and teachers both expressed concerns regarding the language barriers among students who were non-native English speakers. Both groups of participants felt that students did not comply with assignments because they did not understand instructions, due to English language limitations. Perhaps the most salient finding from Melendez's investigation was that teachers lacked awareness of the different Hispanic cultures. Specifically, participants reported failure to understand the differences between different populations of Hispanics (such as Puerto Ricans, Cubans, Mexicans, etc.). Finally, both groups of participants reported a limitation of educational materials to help culturally and linguistically diverse Hispanic students.

Barriers Faced by Hispanic Students

In addition to the challenges described above, Hispanic students are vulnerable to a host of other educational barriers. Friedenberg & Howell (1999) reported that Hispanic

students were less likely to have professional or technical careers, and that almost a third of those between the ages of 18 and 21 dropped out of school. The consequences of this statistic are far-reaching, as high school graduates are "more likely to raise healthier, better-educated children, and are less likely to be teen parents" or commit crimes than those who drop out (Association for Career and Technical Education, 2007, p. 2). Although Hispanics make up the largest and fastest-growing minority group in the United States, their academic performance falls significantly behind that of White students (García, Woodley, Flores, & Chu, 2013).

The educational and career preparation needs of Hispanic students has become more pressing with the population's recent, fast growth. Kober (2010) reported that Hispanic students represent 22% of the student population in the U.S. public school system. In some states, the population of Hispanics is already approaching 50% of the total student body (Gandara, 2010). Importantly, Gandara (2010) also explained that Hispanics are the "least educated of all major ethnic groups" (p. 1).

In order to understand the barriers that Hispanic students face, it is essential to recognize the challenges they contend with before they even enter the classroom. According to Gandara (2010), Hispanic students are more likely than other ethnic group to be poor, go to school hungry, and have limited educational resources. Nearly 29% of Hispanic students live below the poverty line. Specific barriers experienced by this student population are related to culture, family, language, and teachers.

Hispanic students in grades nine through 12 face a variety of barriers during their transitions into college or work. While these barriers can create academic hurdles for Hispanic students, it is also important to acknowledge that these very barriers often serve

as classroom assets. For example, the different cultural and linguistic backgrounds of students can provide ample learning opportunities for students from other backgrounds, richening students' educational experiences, and teaching students to tolerate other cultures.

Culture

Culture can pose a significant barrier for Hispanic students, especially those who are newly immigrated. As Hispanic students navigate the immigration and/or assimilation processes, they may face different educational barriers than students who were born in the United States (Gonzalez, 2012). One possible barrier is the dearth of culturally similar role models for these students (Bohen, Macpherson, & Atiles, 2005). In addition, the families of Hispanic students, especially those who are recently immigrated, may receive discouraging messages about education (Perreira, Fuglini, & Potochnick, 2010).

The role of acculturation becomes increasingly noticeable for minority students experiencing assimilation during their adolescent years (French, Seidman, Allen, & Aber, 2006). Several cultural factors can affect students' acculturation and adjustment to school settings, including language use, parental expectations and involvement, immigration status, access to bilingual education (Crosnoe, 2005), and racism (Worthy, 2006). Heavy segregation throughout schools and housing can also create barriers for Hispanic students (Gandara, 2010). When Hispanic students experience barriers in the form of racial or cultural prejudices, they often react in one of two ways: (a) by developing a sense of determination and identifying with other minority students; or (b) by feeling devalued and becoming oppositional. Many researchers have examined the

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impact that culture, race, and ethnicity can have on the academic success of Hispanic students (i.e., Lopez, 2006; Rolon-Dow, 2005; Valenzuela, 1999).

Similarly, researchers have also explored the ways that acculturation can affect the career development of Hispanic youth; however, clear correlations between acculturation and education-related career outcomes have not been made (Perry & Calhoun-Butts, 2012). As Perry and Calhoun-Butts (2012) explained, relationships between acculturation and Hispanic students' education and career outcomes are mixed, hard to compare, and not generalizable beyond Mexican Americans. For example, Flores and O'Brien (2002) reported that Mexican American women who were more acculturated to the dominant, White culture, were more likely to choose traditional careers over more prestigious ones. Contrarily, Mexican American women who had higher levels of familial support and fewer perceived career barriers were more likely to enter into more prestigious fields. Gushue, Clarke, Pantzer, & Scanlan (2006) reported that ethnic identity was related to career decision-making and self-efficacy among Hispanic youth. However, Flores, Ojeda, Huang, Gee, and Lee (2006) reported that acculturation into Anglo culture did not significantly affect the educational goals of Mexican American youth.

Gonzalez (2012) conducted a study to examine the role of acculturation, ethnic identity, and perceived barriers related to the higher education self-efficacy beliefs and educational aspirations of Hispanic students. The study sample consisted of 190 7th through 10th grade Hispanic students participating in a career readiness curriculum. The ethnicities of participants included Mexicans, Nicaraguans, Dominicans, Salvadorians, Guatemalans, Columbians, Costa Ricans, Cubans, and mixed Latinos. Assessment

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measures included the College-going self-efficacy scale (Gibbons & Borders, 2010); Perceptions of Barriers (McWhirter et al., 2007); Multidimensional Inventory of Black Identity (Sellers, Smith, Shelton, Rowley, & Chavous, 1998); and the Acculturation Rating Scale for Mexican Americans-II (Cuellar, Arnold, & Maldonado, 1995).

Data analysis of Gonzalez's (2012) study revealed "the variables associated with students' hopes and aspirations for their futures are different from those associated with confidence in being able to successfully complete tasks in order to make those dreams come to fruition" (p. 113). The researchers acknowledged that self-efficacy beliefs may be a greater challenge for students in immigrant communities. When families are unfamiliar with the school system, Hispanic students may have access to little educational guidance or encouragement.

Family

Other cultural factors that may hamper the success of Hispanic students are traditional expectations that individuals' primary responsibilities lie with their families. As McWhirter et al. (2007) explained, "When education plans conflict with familial responsibilities, Latino students may be more likely to alter their educational plans" (p. 132). Just as culture and family can have negative effects on the career and educational aspirations of Hispanic students, family also has the potential to be a significant source of encouragement. Often, Hispanic students and their families need help navigating school systems – a problem that is compounded by their reliance on their family, friends, or community, which may not have access to the information they need (Smith-Adock et al., 2006).

According to Gandara (2010), one way to remove familial barriers among Hispanic students is to familiarize students' parents and other family members with the demands of school and explain how actions inside the home can help students meet their educational goals. Home environments can create barriers for Hispanic students (Pardon et al., 2002), as Hispanic families often believe that the home should be more focused on children's well-being (Nevarez & Rico, 2007).

Language

Language is also a barrier for many Hispanic students. Although nearly 78% of ELLs were born in the United States, they have varying levels of English language proficiency. Among Hispanic English language learners (ELLs), 82% report that Spanish is the language most often spoken at home (White House Initiative on Educational Excellence for Hispanics, 2011) . In fact, Hispanic students are more likely than are students of any other ethnic group to have non-English speaking parents with low levels of education (Gandara, 2010). Nearly half of Latina mothers have not graduated from high school (Gandara, 2010). As a result, "many low-income Latino parents believe that they cannot help their children learn because they do not have much formal education themselves or because they do not speak English" (Gandara, 2010, p. 2). Contrarily, some Hispanic parents who are Spanish/English bilingual choose not to teach their children Spanish (in addition to English) because they fear it will hinder their acquisition of English speaking skills (Gandara, 2010).

Teachers

A problem specific to ELLs and Hispanic students relates to poor school environments and unqualified teachers (Pardon, Waxma, & Rivera, 2002). According to

Rotherham (2011), "Our public schools are woefully unprepared to deal with the fastest-growing ethnic group in the U.S." (p. 1). Unless schools and teachers become better prepared to meet the needs of this growing student population, detrimental political, economic, and social impacts will persist (Rotherham, 2011). Other researchers have contended that culturally responsive school counseling services and learning environments are critical to removing barriers that isolate Hispanic students at school (Smith-Adock, Daniels, Lee, Villalba, & Arce, 2006). One reason for the under-preparedness of teachers may be because fewer than 7% are Hispanic, and less than 2% are Hispanic men (White House Initiative on Educational Excellence for Hispanics, 2011). According to Nevarez and Rico (2007), teachers should work to engage families and parents of Hispanic students to improve academic achievement and reduce dropout rates.

In addition to the actions and attitudes of educational personnel, the entire school environment can improve the success of Hispanic students when they are given the room to "identify with their cultural community" (Nevarez & Rico, 2007, p. 8) in order to create climates that nurture and affirm their cultural identities. In addition, educational policies that attract and develop qualified teachers are necessary for promoting academic success among Hispanic students (Gandara, 2008). Specifically, Gandara (2008) stated that teachers must be given the necessary tools to successfully teach Hispanic students and enlist students' families as allies. According to Smith-Adock et al. (2006), Spanish-speaking school counselors may be vital to assisting teachers and building relationships with the families of these students.

Language is the primary barrier for Hispanic students (Gandara, 2008). Thus, another barrier for Hispanic students, with regard to teachers, may be the lack of ELL and ESL teachers available at school to assist emerging English speakers (White House Initiative on Educational Excellence for Hispanics, 2011). More than one-third of Latino students qualify for ELL services (Kober, 2012).

Pedagogical Best Practices

To ensure the cultural and linguistic needs of Hispanic students are met, teachers across all content areas must employ evidence-based best practices. This section includes a brief description of culturally responsive teaching. In addition, it provides a detailed discussion of the five CREDE standards upon which the current study was based.

Culturally Responsive Teaching

Today's U.S. educators are tasked with the job of meeting the needs of all students in increasingly diverse classroom settings (Hogan & Hathcote, 2014). According to Diaz-Rico (2012), teachers are expected to teach a growing number of culturally diverse students. Because many teachers lack the skills and training to adapt to the needs of diverse learners, a disconnect may exist between the ways students learn and the methods teachers use to teach them (Hogan & Hathcote, 2014; Hoover, 2011). Thus, as Hogan and Hathcote (2014) suggested, "intervention for teachers may be more necessary than intervention for CLD students" (p .95).

Gay (2000) defined culturally responsive teaching as "cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them" (p. 29). Hogan and Hathcote (2014) explained that culturally responsive teaching involves the facilitation of

cultural competence, valuing diversity, providing students with ample learning opportunities, and understanding that cultural responsiveness evolves over time. According to Gomez and Diarrassouba (2014), teachers who are culturally responsive embrace and use students' backgrounds as teaching and learning resources, which affirms culturally diverse students' identities. They are aware of their own belief systems and cultures, and understand the impact it may have on their attitudes toward other cultures (Hogan & Hathcote, 2014). Culturally responsive teachers respect students' cultural differences, believe all students are capable of learning, and view themselves as responsible for mediating changes to make schools more responsive to all learners (Gomez & Diarrassouba, 2014).

In order to be culturally responsive, teachers must be accepting of all students' cultural and linguistic identities, and adapt pedagogy to support the needs of all learners (Gomez & Diarrassouba, 2014). Research indicates that many teachers lack preparation to teach students who are culturally and linguistically diverse (Hutchinson & Hadjioannou, 2011). Teachers who demonstrate multicultural competence are usually better at meeting the needs of diverse learners (Gomez & Diarrassouba, 2014). Thus, one reason for the academic achievement gap among CLD students may be related to teachers' inadequate preparation to meet the needs of those learners (Santoro, 2007). As the U.S. population of CLD students continues to grow, teachers' failure to incorporate culturally responsive teaching will become increasingly problematic (National Clearinghouse for English Language Acquisition, 2011).

A major obstacle to meeting the unique needs of CLD learners is teachers' lack of knowledge and preparation to do so (Gomez & Diarrassouba, 2014), which can lead to

feelings of anxiety and uncertainty (Guo, Arthur, & Lund, 2009). Gomez and

Diarrassouba (2014) conducted a study among K-8 teachers to investigate their

knowledge and understanding of CLD students' learning needs, as well as their

preparation to deliver instruction to meet those needs. Researchers collected data from

89 teachers in Michigan using a three-part, researcher-created questionnaire to gather

demographic information and responses to closed- and open-form questions. The survey

was designed to explore teachers' training and experience related to multiculturalism,

teaching diverse learners, pedagogical strategies employed with diverse learners, and

desires to obtain additional training to meet the needs of diverse learners.

     Results from Gomez and Diarrassouba's (2014) study indicated inadequacies in

teachers' preparation to teach culturally and linguistically diverse learners. Teachers

specifically reported difficulties incorporating their knowledge into every lesson and

using students' diversity as classroom assets. Many respondents felt overwhelmed by the

task of meeting the cultural and linguistic needs of diverse classrooms. As such, the

researchers posited, "all teachers need to incorporate strategies that support not only the

learning of linguistically and culturally diverse learners, but also the learning of native

English speakers" (p. 99). Thus, the practices that teachers institute to help them meet

the needs of CLD learners must also be beneficial for native English speakers who are

not cultural or linguistic minorities. The CREDE (2004) standards, as described by

Dalton (1998), may be helpful to teachers of diverse learners because they have proven

effective for a variety of student populations, including cultural and linguist minorities, as

well as non-minority students.

CREDE

The standards, referred to in this paper as the "CREDE standards," (CREDE, 2004) were developed from over 30 years educational research on culturally and linguistically diverse K-12 students (Yamauchi, 2009). These standards include (a) Joint Productive Activity, (b) Language and Literacy Development; (c) Making Meaning; (d) Complex Thinking; and (e) Instructional Conversation. The CREDE standards were chosen for the current investigation because they are applicable across student grade levels, populations, and content areas. According to Dalton (1998), the standards emerged "from principles of practice that have proven successful with majority and minority at-risk students in a variety of teaching and learning settings over several decades" (p. 5). The aim of the CREDE standards is to maximize educational achievement among students at risk of academic failure, including the poor, the marginalized, and the culturally and linguistically diverse (Tharp, Estrada, Dalton, & Yamauchi, 2000).

The CREDE standards are a popular example of culturally responsive education (Wyatt, 2012). The CREDE pedagogy requires teachers to create lessons that are deeply contextualized, promote active engagement, and involve students' multiple perspectives (Wyatt, 2012). According to Cerecer, Gutierrez, and Rios (2010), CREDE teachers embrace students' histories and experiences when making curricular decisions. In this way, CREDE teachers engage students in deep academic discussions that nurture students' cognition and awareness of their perspectives and beliefs on a variety of issues. Students' cultural and linguistic backgrounds are used to design classroom activities that respect each students' sociocultural attributes. As explained by Wyatt (2012), "CREDE

classrooms promote antihegemonic education because students have multiple opportunities to locate their voice, compare it to their peers' and the dominant view, and receive instruction tailored to their particular group" (p. 66).

The CREDE model began as the Kamehameha Early Education Project (Tharp & Dalton, 2007), which used alternative pedagogical methods to improve literacy among Native Hawaiian students (Tharp & Dalton, 2007). It was based on 15 years of research and encouraged teachers to utilize meaningful social and linguistic activities that were based on Hawaiian culture. The project was developed to address concerns about the poor academic achievement among Native Hawaiian learners (Tharp et al., 2000). Through multiple studies on a broad range of diverse learners, the project was revised and refined into the CREDE (2004) standards (Wyatt, 2012).

The CREDE (2004) philosophy is based upon the following beliefs:

- All children can learn;
- children learn best when they are challenged;
- English language proficiency is an obtainable goal for all learners;
- diversity is an asset to teaching and learning;
- teaching and learning must be individualized;
- teaching students social and learning schools can mitigate risk factors for academic failure; and
- solutions to risk factors must be based on schooling, teaching, and developmental processes (CREDE, 2004).

The five CREDE standards include the following:

1. Joint Productive Activity, which uses group activities that involve teachers and students working together to create ideas or projects;

2. Language and Literacy Development, which involves the application of literacy and language development skills across all curriculum;

3. Making Meaning, which involves contextualizing curriculum and connecting it to students' life experiences;

4. Complex Thinking, which involves challenging students by holding them to high performance standards and designing activities to improve understandings of complex topics; and

5. Instructional Conversation, which involves teaching through student-teacher dialogue that is academic, goal oriented, and involves small group conversations over traditional lectures.

Joint Productive Activity. Several indicators can be used to assess whether teachers are employing each of the CREDE standards. Table 1 describes eight indicators for the first standard, joint productive activity. According to Dalton (1998), learning is a likely outcome when teachers and students work together toward common goals, engage in meaningful conversations, or create products together. Tangible products may include items such as essays and reports, and intangible products may include conceptual understandings, thoughts, and behaviors (Kim, 2013). August and Hakuta (1997) found that minority students who cross-racially collaborated with teachers and students experienced improvements in motivation, self-esteem, and academic achievement. Teachers improve students' abilities to apply academic knowledge and skills when they integrate collaborative activities that relate to students' homes and communities.

Table 1

Joint Productive Activity Indicators

CREDE Standard	Indicator
Joint Productive Activity	Designs instructional activities requiring student collaboration to accomplish a joint project
	Matches the demands of the joint productive activity
	Arranges classroom seating to accommodate students' individual and group needs to communicate and work jointly
	Participates with students in joint productive activity
	Organizes students in a variety of groupings, such as by friendship, mixed academic ability, language, project, or interests, to promote interaction
	Plans with students how to work in groups and move from one activity to another, such as from large group introduction to small group activity, for clean-up, dismissal, and the like
	Manages student and teacher access to materials and technology to facilitate joint productive activity
	Monitors and supports student collaboration in meaningful ways

Language and Literacy Development. Because language literacy is fundamental to academic achievement, it is critical that teachers interact with students to assess their language skills. The greatest academic challenge that ELLs face is language acquisition, which is a complex process that involves assembling sets of sounds into meaningful word groupings (Dixon et al., 2012). While language is easily and naturally acquired among young children, the process becomes more difficult as they get older

(Dixon et al., 2012). According to Cummins (1981), a leading researcher in student language acquisition, non-native English speakers usually require 5 to 7 years of exposure to English in order to obtain language skills required to catch up academically with peers who are native English speakers. This level of academic language proficiency is referred to as cognitive academic language proficiency (CALP) (Cummins, 2008). Cummins (2008) described CALP as students' abilities "to understand and express, in both oral and written modes, concepts and ideas that are relevant to success in school" (p. 71). CALP differs from basic interpersonal communicative skills (BICS), which simply refers to conversational fluency (Cummins, 2008). Because the current research focused on academic success, language acquisition is discussed in terms of CALP, rather than BICS.

When implementing the second CREDE standard of language and literacy development, teachers create opportunities to learn about their students while encouraging students' participation in classroom communities (Dalton, 1998). As Dalton (1998) explained, "When teachers implement Language Development together with the Joint Productive Activity standard, they provide an organizing structure for students to learn language from peers and teachers, and they reorganize conceptualizations through compelling activity" (p. 18). In this way, teachers may nurture language development across academic content areas. Table 2 describes eight teacher indicators of language and literacy development.

Table 2

Language and Literacy Development Indicators

CREDE Standard	Indicator
Language and Literacy Development	Listens to students talk about familiar topics such as home and community
	Responds to students' talk and questions, making "in-flight" changes that directly relate to students' comments
	Assists language development through modeling, eliciting, probing, restating, clarifying, questioning, and praising, as appropriate in purposeful conversation
	Interacts with students in ways that respect students' preferences for speaking style, which may be different from the teacher's such as wait-time, eye contact, turn-taking, and spotlighting
	Connects student language with literacy and content area knowledge through speaking, listening, reading, and writing activities
	Encourages students to use content vocabulary to express their understanding
	Provides frequent opportunities for students to interact with each other and with the teacher during instructional activities
	Encourages students' use of first and second languages in instructional activities

Making Meaning. The third CREDE standard focuses on helping students make meaning from the knowledge they acquire in the classroom. This standard encourages teachers to contextualize classroom learning to help students make connections to their lives and understand the real-world application of classroom learning (Dalton, 1998).

Such contextualization may take place intentionally or incidentally (Kim, 2013). For

example, incidental contextualization could include unplanned comments and questions

by teachers that link classroom learning to students' experiences. Intentional

contextualization may involve designing learning activities that provide students with

opportunities to connect learning with their previous experiences at home or in their

communities (Kim, 2013). As Dalton (1998) explained, students are more willing to

engage with difficult ideas and unfamiliar language if they are motivated to learn because

they understand the value and application of knowledge. Seven teacher indicators of the

third CREDE standard are described in Table 3.

Table 3

Making Meaning Indicators

CREDE Standard	Indicator
Making Meaning	Begins with what students already know from home, community, and school
	Designs instructional activities that are meaningful to students in terms of community norms and knowledge
	Learns local norms and knowledge by talking to students, parents, and community members, and reading pertinent documents
	Assists students to connect and apply their learning to home and community
	Plans jointly with students to design community-based activities
	Provides opportunities for parents to participate in classroom instructional activities
	Varies activities to include students' preferences, from collective and cooperative to individual and competitive

Varies styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others

Complex Thinking. The fourth CREDE standard describes teaching complex thinking. This standard involves challenging students cognitively and encouraging them to review and question their personal beliefs, as well as the beliefs of others (Dalton, 1998). Teachers may nurture complex thinking by providing students with feedback regarding their academic performance and helping them understand how their performance compares to the teacher's standards and expectations. In addition, teachers can challenge students to higher levels of thinking by asking them complex who, what, when, where, and why questions (Kim, 2013). The complex thinking standard, as Dalton (1998) explained, draws from three other CREDE standards: (a) Joint Productive Activity; (b) Language Development; and (c) Making Meaning. Table 4 describes the teacher indicators of complex thinking, provided by Dalton (1998).

Table 4

Complex Thinking Indicators

CREDE Standard	Indicator
Complex Thinking	Assures that students, for each instructional topic, see the whole picture as the basis for understanding the parts
	Presents challenging standards for student performance
	Designs instructional tasks that advance student understanding to more complex levels
	Assists students to accomplish more complex understanding by relating to their real-life experiences

Gives clear, direct feedback about how student performance
compares with the challenging

Teaching through Conversation. The last of the five CREDE standards is

Teaching through Conversation. This standard involves engaging students in dialogue in

order to help them learn. Although the most effective instructional practices are those

that integrate purposeful conversations, teachers talk at twice the rate of students, and

most of students' interactions are comprised of nonverbal cues and gestures (Ramirez,

1991). In order for students to harness the benefits of teaching through conversation,

teachers must utilize instructional conversations in class to guide students'

understandings (Dalton, 1998). Dalton (1998) explained that teachers must implement

clear goals, student assessments, and student assistance in order to create instructional

conversations that are responsive, inclusive, and balanced. As Kim (2013) explained, this

standard, when enacted at the highest level, "is characterized by students speaking at a

higher rate than the teacher, and the teacher assessing the students' levels of

understanding" (p. 25) while helping students develop conceptual understandings. Table

5 outlines teacher indicators for teaching through conversation.

Table 5

Teaching through Conversation Indicators

CREDE Standard	Indicator
Teaching through Conversation	Arranges the classroom to accommodate conversation between the teacher and a small group of students on a regular and frequent schedule
	Has a clear academic goal that guides conversations with students
	Ensures that student talk occurs at higher rates than teacher talk
	Guides conversation to include students' views, judgements, and rationales, using text evidence and other substantive support
	Ensures that all students are included in the conversation according to their preferences
	Listens carefully to assess levels of students' understanding
	Assists students' learning throughout the conversation by questioning, restating, praising, encouraging, and so forth
	Guides the students to prepare a product that indicates the instructional conversation's goal was achieved

Several investigations have been conducted on the effectiveness of the CREDE standards, utilizing a variety of student populations and methodologies (Doherty, Hilberg, Pinal, & Tharp, 2003; Estrada, 2004; Hilberg, Doherty, Epaloose, & Tharp, 2004; Taum, 2011; Saunders & Goldenberg, 2007; Wyatt, Yamauchi, & Chapman-DeSousa, 2012;

Yamauchi, Seongah, & Schloleber, 2012). All of these studies demonstrated the positive

effects of the CREDE standards on students' academic achievement. For example, in a

study on the use of the CREDE standards among 5th and 6th grade students in Greenland,

Wyatt (2012) concluded that the standards "may be useful for other educators looking for

a way to translate multicultural education into classroom practice and provide instruction

tailored to a specific cultural group" (p. 70).

In another study, Rao and Skouge (2015) used CREDE standards to provide

recommendations for the incorporation of multimedia software to support CLD students

in Hawaii. To honor local language and culture, the recommendations included teachers'

incorporation of students' native language and the creation of cultural connections within

each project or assignment. Fundamental to the recommendations was also simplicity.

The authors' suggestions integrated familiar software and technologies so teachers could

easily work with students to create personalized projects. Rao and Skouge incorporated

three domains into their recommendations, including: (a) augmentative communication,

(b) social learning, and (c) early literacy. The nature of the multimedia project

recommendations were all based on social interaction, cultural awareness and

consideration, and individualized learning. The flexibility of the authors'

recommendations makes them easy to personalize to individuals or groups of learners.

CREDE and Professional Development

A significant body of research exists to support the effectiveness of the CREDE

standards. Thus, teachers and students may benefit from teacher training on the

standards. The Center for Research on Education, Diversity, & Excellence developed a

professional development course, *Teaching Alive!,* which is based on the five CREDE

standards. According to the organization's website, *Teaching Alive!* was developed to: (a) promote reading achievement, (b) emphasize effective methods for diverse classrooms, and (c) create learning environments that promote high levels of academic performance (CREDE, n.d.). This particular professional development program has been adopted by a variety of educational institutions across the world, from California to Greenland. In addition, it has been integrated into teacher education programs in colleges and universities throughout the United States (CREDE, n.d.).

Results from the current study may guide educational leaders and school administrators with decisions related to teacher training on the CREDE standards. Due to limited educational funding, it is essential that decisions regarding the adoption of professional development programs and pedagogical best practices be informed by the needs of local educators. Because research indicates the CREDE standards are so effective for diverse learners, such as those of Hispanic origin, educational leaders may seriously consider the adoption of the CREDE standards and accompanying professional development; however, they should first assess the existing behaviors and knowledge of teachers to determine where to focus training, and if a need for training even exists. Schools and teachers have limited resources in terms of resources and time; thus, professional development should be carefully considered.

Generational Influence

When exploring the best practices employed by teachers in order to meet the needs of CLD students, it is important to acknowledge the influence that individual teacher demographics may have. The current research involved an examination of the influence that the following four factors had on teachers' use of the CREDE standards:

generation, teaching experience, program area, and school district. Of these factors, generation is an important demographic factor that can affect the way individuals learn and employ pedagogy.

Generation refers to groups that share ranges of birth years, ages, and major life events (Kupperschmidt, 2000). Newbern and Suski (2013) posited that generation can have as much influence on an individual's perceptions and thinking as culture does, and must be considered when understanding differences in how individuals teach. While gender, race, and ethnicity are often researched as demographic factors that strongly influence individuals' behaviors, the effects of those demographics are not the same for everyone, especially for members of different generations (Newbern & Suski, 2013). According to Newbern and Suski, (2013) understanding the influences that culture has on individuals requires a nuanced inquiry that integrates a generational perspective. Pedagogical best practices are applied by individuals from different generations; consequently, transmitting such pedagogical values "requires a thoughtful approach to the causes of generational conflict and reconsideration of teaching methods" (Newbern & Suski, 2013, p. 213). Thus, generation was selected as an important demographic characteristic for investigation in the current study.

Career and Technical Education Programs

Movement toward the common goal of improving the academic success of U.S. Hispanic students may be achieved with Career and Technical Education (CTE) programs. In addition to secondary and postsecondary institutions, CTE programs may provide Hispanic students with work recruitment information and depictions of career achievement among individuals from diverse ethnic backgrounds (Burtnett, 2014).

Further, such programs can improve the career knowledge among racially diverse student populations by coordinating the goals of schools, colleges, and businesses (Burtnett, 2014).

Burtnett (2014) reported that CTE programs should aim to provide students with internships, networking, and mentoring opportunities to help them gain experiences in different fields and understand careers from the perspectives of practitioners. Quality CTE programs can help students complete high school and prepare them for postsecondary education and training (Association for Career and Technical Education, 2007). In addition to this preparation, CTE may be a key to reducing the high rates of dropout among Hispanic students. Research indicates that participation in CTE programs can reduce high school dropout rates among Hispanic students by providing students with a variety of experiences and success pathways (Association for Career and Technical Education, 2007). At-risk Hispanic students are eight to 10 times less likely to drop out of high school if they enroll in a CTE program (Association for Career and Technical Education, 2007). It is important to note that Hispanic learners are not the only students who benefit from CTE programs. Research indicates that high quality programs can reduce high school dropout rates by up to 6% (Association for Career and Technical Education, 2007).

In conjunction with secondary institutions, CTE programs often incorporate a variety of essential student success components, including assistance navigating the college application process, meeting application deadlines, and providing partnerships with business leaders and communities (Nevarez, 2007). This is particularly important because although Hispanic students believe college education is valuable, they often lack

the information, resources, and experiences needed to navigate the application and enrollment processes (The National Conference of State Legislatures, 2012). The strategies employed in CTE programs can help students understand the sequences of steps (educational or training) they must take to reach their academic or career goals (Association for Career and Technical Education, 2012).

Among students who do not plan to pursue college, CTE programs can provide valuable technical skills through on-the-job training and technical certifications. Education has multiple pathways besides college, and many Hispanic students pursue technical degrees and certificates after high school (Nevarez & Rico, 2007). It is also important to understand that CTE programs move beyond technical school programs by providing participants with skills outside the realm of most technical education programs. For example, CTE programs often coalesce with businesses, governmental sectors, and other industrial organizations to create programs tailored to the needs of students. Such programs include nursing health, advanced manufacturing, information technology, and jobs in green industries (White House Initiative on Educational Excellence for Hispanics, 2011). Accordingly, such programs can provide Hispanic students with the confidence to achieve a variety of academic and professional goals, foster a sense of belonging, and motivate learners to reach their goals (Association for Career and Technical Education, 2012).

According to Burnett (2014), the recruitment and retention practices of Hispanic students into CTE programs should be of common interest to all stakeholders in order to prepare diverse students for the workforce. This is essential because most of today's jobs require education or training beyond that which is achieved in secondary school.

CTE's benefits to diverse students include:

> …enhancement of student's motivation and academic achievement; increased personal and social competence related to work in general; a broad understanding of an occupation or industry; career exploration and planning; and acquisition of knowledge or skills related to employment in particular occupations or more generic work competencies. (Association for Career and Technical Education, 2007)

For Hispanic students, participation in CTE programs can increase student engagement, foster positive relationships, and provide students with a variety of innovative learning methods (Association for Career and Technical Education, 2007).

Earlier works by Friedenberg & Howell (1999) found that relationships between school retention and career/technical education could enhance the recruitment of bilingual speakers into the job market. Maldonado and Farmer (2006) posited that educators must find ways to get Hispanic students enrolled into postsecondary programs that can lead to certification, diplomas, or degrees in technical fields. Some of the programs most likely to engage Hispanic students include those focused on agriculture, natural resources, business, and management (Burtnett, 2014).

In response to the dearth of literature available on the educational, career, and cultural development of Hispanic students, Perry and Calhoun-Butts (2012) conducted a qualitative investigation of Hispanic youth who were participating in a community-based after school program. Researchers wanted to gain an understanding of how participants experienced the program and how satisfied they were with it. The goals of the program were to "enhance the career development, leadership (e.g., life skills, community service,

character education), and socioemotional development of youth in middle school and high school" (p. 482).

The researchers employed a qualitative design that included participatory or social action and consensual qualitative research (Perry & Calhoun-Butts, 2012). Participants include 11 Hispanic youth between the ages of 14 and 18. Field notes and semi-structured interviews were used to investigate the following domains of development: culture, career, and education. Analysis of data resulted in the development of five themes: education, visions of the future, cultural influences, current priorities, and program satisfaction. According to the researchers, "the results offer a rich, multifaceted complexion of development and well-being, in which career issues are but one component of a much broader portrayal of the youths' life experiences" (p. 508). Most of the participants described post-secondary goals, family encouragement, and a belief in the long-term benefits of education.

<p style="text-align:center">Summary</p>

As the U.S. Hispanic population continues to grow, stakeholders must acknowledge the educational and career needs of Hispanic students to address the Hispanic-White achievement gap. Participation in CTE programs may provide Hispanic students with valuable skills needed to succeed in their educations and careers, but these learners have unique cultural and linguistic needs that CTE teachers must address. It is essential that CTE teachers of Hispanic students integrate research-based best practices to meet students' learning needs. The CREDE standards (2004) are a set of pedagogical best practices that have been proven effective among a wide variety of student populations, including the culturally and linguistically diverse. Thus, the CREDE

standards may be an effective tool for CTE teachers to utilize, to benefit not just Hispanic students, but all learners.

Despite the proven benefits of the CREDE standards (Doherty et al., 2003; Estrada, 2004; Hilberg et al., 2004; Taum, 2011; Saunders & Goldenberg, 2007; Wyatt et al., 2012; Yamauchi et al., 2012), and the pressing need to address the needs of Hispanic learners, an extensive search of the literature revealed no existing research on the best practices utilized by CTE teachers in schools with large populations of Hispanic students. Thus, the purpose of the current quantitative study was to investigate best practices used by CTE teachers to meet the learning needs of Hispanic students. Specifically, the researcher investigated teachers' use of the CREDE (2004) standards to meet the unique cultural needs of Hispanic students. The study sample was drawn from the population of CTE teachers in the top three U.S. states with the fastest-growing Hispanic populations (Alabama, Tennessee, and South Carolina). Because a dearth of research existed on the utilization of CREDE standards among CTE teachers of Hispanic students, this study contributes meaningfully to the body of research on CTE teachers' best practices. The following chapter contains a detailed description of the study's methodology. Chapter 4 includes study results, and an in-depth discussion of study recommendations and implications is presented in Chapter 5.

III. METHODS AND PROCEDURES

Introduction

The purpose of the current quantitative study was to investigate best practices used by CTE teachers to meet the learning needs of Hispanic students. Specifically, the researcher investigated teachers' use of the CREDE (2004) standards to meet the unique cultural needs of Hispanic students. The study sample was derived from the population of CTE teachers in the top three U.S. states with the fastest-growing Hispanic populations, including Alabama, Tennessee, and South Carolina. An online, researcher-created survey was employed to assess CTE teachers' use of the CREDE standards. The survey was emailed to CTE teachers at participating secondary schools to investigate how teachers utilized the standards described in CREDE (2004). This chapter includes a presentation of the research design and the researcher's rationale for the methodological selection. The population of interest and sampling procedures are also explained, and an outline of the data collection and data analysis procedures is presented. The chapter concludes with a discussion of threats to validity and ethical concerns.

Research Design and Rationale

A quantitative survey approach was selected to investigate the research questions. Quantitative methods utilize statistical analysis to explain, predict, or test theories and phenomena (Cooper & Schindler, 2003). A quantitative design is also appropriate when the goal of the research is to examine relationships between numerical constructs (Howell, 2010). Creswell (2005) specified that quantitative research methods are most applicable for understanding how specific variables of factors affect outcomes. Quantitative investigations utilize larger sample sizes than qualitative research and allow

researchers to make generalizations about research populations (Cooper & Schindler, 2003). An online survey design was utilized to quickly and efficiently gather data on CTE teachers' use of the CREDE standards. The survey design was selected due to its effectiveness, efficiency, and low cost (Boyer, Adams, & Luvero, 2010; Israel, 2011).

Research Questions

The current research on pedagogical best practices was guided by the following research questions:

RQ1. How frequently do Career and Technical Education teachers use each of the five CREDE standards?

Subquestion 1. How frequently do teachers use the CREDE standard of joint productive activities?

Subquestion 2. How frequently do teachers use the CREDE standard of language and literacy development?

Subquestion 3. How frequently do teachers use the CREDE standard of making meaning?

Subquestion 4. How frequently do teachers use the CREDE standard of complex thinking?

Subquestion 5. How frequently do teachers use the CREDE standard of teaching through conversation?

RQ2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on their demographic backgrounds?

Subquestion 1. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on the teacher's generation?

Subquestion 2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on years teaching?

Subquestion 3. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on program area?

Subquestion 4. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on school district?

Participants

A purposive sample was selected from a population of CTE teachers from secondary schools in the three U.S. states with the fastest-growing Hispanic populations (Alabama, Tennessee, and South Carolina). The researcher selected high schools from the three counties in each state with the largest Hispanic populations, according to the most recent 2010 U.S. Census data. Table 6 describes the percentage of Hispanics in each county.

Table 6

Hispanic Population (%) in Selected Counties

State	County	Percentage of Hispanics
Alabama	Franklin	14.9
	Marshall	12.1
	Dekalb	13.1
Tennessee	Bedford	11.3
	Hamblen	10.7
	Crocket	8.7
South Carolina	Saluda	14.4
	Jasper	15.1
	Beaufort	12.1

To be eligible for the survey component of the study, individuals were required to be current CTE teachers at one of the study sites and have taught in the program for a

minimum of 1 year. Table 7 lists the secondary schools that the researcher contacted in each state. In total, the population size included all 172 CTE teachers who worked at the 40 selected schools at the time of data collection.

Response rate is an important consideration affected by a variety of factors, such as sampling methods, survey design, and discipline (Carley-Baxter et al., 2009). According to results from a metaanalysis of 1607 studies published between 2000 and 2005, traditional mailed surveys produced an average response rate of 52.7% (Baruch & Holtom, 2008). The researchers posited that electronic surveys have the potential to produce response rates as strong as or better than traditional mailed surveys. Based on this consideration, a minimum response rate of 33% for the electronic surveys administered in the current investigation was expected. The actual response rate achieved was 31.4%, which resulted in a sample of 55 respondents. Eighteen respondents chose not to fully complete the survey; thus, their responses were excluded from the data. Tables 7 through 9 list the secondary schools within selected counties in Alabama, Tennessee, and South Carolina.

Table 7

Secondary Schools in Selected Counties within Alabama

Franklin	Marshall	Dekalb
Franklin County Career Technical Center	Brindlee Mountain School	Crossville High School
Phil Campbell High School	Douglas High School	Dekalb County Career Tech School
Tharptown High School	KDS DAR High School	Fyffe High School
Belgreen High School	Marshall Technical School	Valley Head High School
Red Bay High School	Asbury High School	Collinsville High School
Vina High School	Guntersville High School	Geraldine High School
East Franklin Career Tech Center	Albertville High School	Plainview High School
Russellville City School	Arab High School	Ider High School
		Sylvania School
		Fort Payne High School

Table 8

Secondary Schools in Selected Counties within Tennessee

Bedford	Hamblen	Crocket
Cascade High School	Morristown-Hamblen High School West	Crocket County High School
Community High School	Morristown-Hamblen High School East	
Shelbyville Central High School		

Table 9

Secondary Schools in Selected Counties within South Carolina

Saluda	Jasper	Beaufort
Saluda High School	Ridgeland Hardeeville High School	Battery Creek High School
		Beaufort High School
		Beaufort-Jasper Academy for Career Excellence
		Bluffton High School
		Hilton Head Island High School
		Whale Branch Early College High School

Procedure

Contact was made with school administrators at high schools in the selected states and counties (see Table 6). To be eligible, study sites had to have a current CTE program. The researcher contacted administrators at each school via email correspondence, which included the study's purpose and requested permission to survey CTE teachers at each school. After research permission was granted, the researcher obtained written site permission and requested a list of the email addresses of all CTE teachers. She then sent an email invitation to each potential participant to explain the research and invite him or her to participate in the online survey. Two weeks after the initial invitation was sent, the researcher sent a follow-up email to remind prospects about the study and their invitation to participate.

Individuals who wished to participate were prompted to click on a link in the email, which directed them to the informed consent form. In order to access the survey, participants were first required to provide informed consent. They did this by reading the

consent form and checking a box that indicated their consent. Once they provided

consent, they were taken to a new page that contained the anonymous online survey,

which was hosted by Qualtrics. Participants were prompted to provide demographic data,

including details about their teaching experience. Once they completed the survey,

participants were sent to a screen that thanked them for their participation and provided

them with the researcher's contact information, in the event they had any questions or

concerns related to the study. No respondents contacted the researcher after survey

completion.

<div align="center">

Instrumentation and Measures

</div>

Demographic Data

Prior to accessing the study survey, participants were required to answer a few

short, multiple-choice demographic questions to acquire information on the following:

- Their year of birth, in order to calculate which generation (Gordon, 2014) they

  belonged to (baby boom echo, generation z, baby boomers, or the silent

  generation);

- the number of years they had been teaching;

- which school district they taught in; and

- which program they taught (agricultural education; business marketing/education;

  family and consumer sciences; trade, engineering, and technical education; or

  health sciences education).

CREDE Standards Survey

The researcher-developed survey was used to assess CTE teachers' frequency of

implementation of each of the five CREDE standards (see Appendix A). The survey was

developed based on indicators described by the Center for Research on Education and Excellence (Dalton, 1998). These indicators are described in Tables 1 through 5 in Chapter 2 of this dissertation. After careful analysis, the researcher selected five indicators for each of the five standards to create the 38-item survey instrument. Thirty-seven of the items utilize Likert-like responses to gauge participants' implementation of each standard. The final question of the survey was an open-ended question that asked: "How have you been trained to teach Culturally and Linguistically Diverse Learners?" The aim of this question was to provide insight into the types of training CTE teachers may have received to equip them with the knowledge and skills required to meet the needs of this student population.

Indicators for the 37 Likert questions were selected based on their emphasis on teacher/student collaboration and their appropriateness as self-report items. For example, item 1, "I design instructional activities that require student collaboration" was a measure of the CREDE standard of Joint Productive Activity. Item 5, "I help students connect and apply learning to their homes and communities" was used to assess the standard of Making Meaning. Similarly, item 19, "I help students learn throughout conversations by questioning, restating, praising, and encouraging" was an assessment of the standard, Teaching through Conversation.

Each of the 37 items was a declarative statement. Responses to each item were scored along a 5-point Likert-like scale, including never, rarely, sometimes, very often, always. Each CREDE standard score was obtained by averaging each respondent's answers to the items that related to that standard. Higher scores (closer to 5) indicated frequent implementation of standards, while lower scores (closer to 1) indicated low

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implementation of standards. The anonymous survey was hosted online through Qualtrics. Two weeks after the initial invitation was sent out, each teacher received a follow-up email asking for their help in satisfying research requirements by completing the CREDE survey if they have not already done so.

Pilot

To ensure validity and reliability, the research survey was piloted prior to the study. The purpose of the pilot test was to ensure that participants understood each of the survey items in the same way. Pilot studies generally improve the quality and efficiency of the full study. During this process, the pilot was used to reveal any potential deficiencies in the survey (Creswell, 2005). The procedures and content of the pilot study were based on the following questions:

1. Are the instructions clear and easy to understand?

2. If not, what should be changed?

3. Are the questions clear and easy to understand?

4. If not, what should be changed?

5. Do the questions cover the topic?

6. If not, what questions should be asked?

The pilot test group included six individuals from the target population who meet the study's inclusion criteria. According to Connelly (2008), extant literature indicated that the sample size for a pilot should be equal to about 10% of the parent study's sample size. Similarly, Treece and Treece recommended 10% for the pilot. Other researchers have generally recommended a pilot sample of 10 to 30 participants, depending on the sample size of the parent study (Hill, 1998; Isaac & Michael, 1995; van

Belle, 2002). Based on these recommendations, a pilot sample of 6 participants was

selected for the current investigation, as the sample size of the parent study was 55

participants.

All pilot participants were CTE teachers at an Alabama high school that was not

included in the parent study. To conduct the pilot, the researcher first explained the

purpose of the study to participants and obtained their consent to participate in the pilot.

Each pilot participant then completed the online survey, one at a time, in the researcher's

presence. Participants were asked to read each question aloud and then parrot it back to

the researcher, using different words, to ensure their understanding of each item. After

survey completion, the researcher sought feedback from respondents through the

following questions:

1. Was the item understandable? Did they have difficulty making meaning of the

    item?

2. Was the scale adequate? Did they feel the response choices were appropriate to

    each item?

3. Was the item written such that it could have been answered in multiple ways?

4. Was the item written in such a way that there was only one obvious answer?

Pilot participants did not indicate issues with any of the survey items. Through

the pilot, face validity was obtained. The feedback from the pilot indicated that the

survey was clearly worded, the items were applicable to their experiences as CTE

teachers, and the response scale was adequate. Through the parroting of each survey item

back to the researcher, it became clear that the items were clearly written and understood

by all participants in the same manner. None of the participants had trouble selecting an

answer for any of the items. Based on information from the pilot, no changes to the survey were necessary.

Data Analysis

After participant surveys were collected, raw data were uploaded into SPSS 22.0 for analysis. Research question 1 (and subquestions) were analyzed using descriptive statistics to calculate frequencies and percentages, as well as a repeated measures Analysis of Variance (ANOVA). Research question 2 (and subquestions) were analyzed using one way Analysis of Variance (ANOVA) tests to determine variances in teachers' use of CREDE standards based on: (a) teacher's generation, (b) years teaching, (c) program area, and (d) school district.

Threats to External Validity

Threats to external validity correspond to areas of the sample that generate bias towards the way in which the survey data were collected and interpreted. These types of threats compromise a researcher's confidence in the applicability of findings to other groups (Howell, 2010). In addition, confounding variables may affect or account for the relationships among variables of interest (Howell, 2010). It was not possible to control for the variability caused by all covariates; thus, this was acknowledged and accepted in the interpretation of results. The researcher cautiously interpreted findings and did not assume that results could be extrapolated towards the entire population (Creswell, 2005).

Threats to Internal Validity

Internal validity indicates how likely the variations in the independent variables were responsible for the variations observed among the dependent variables (Roberts & Preist, 2006). When a high degree of internal validity is evident, researchers can draw

conclusions about the relationships between independent and dependent variables with increased confidence (Roberts & Preist, 2006). Threats to internal validity are those that reduce a researcher's confidence in the presence of relationships between variables. For this reason, it is important to acknowledge potential extraneous and confounding variables, such as participants' professional background, teaching certification type, and educational background.

Ethical Considerations

Prior to any data collection, the researcher obtained IRB approval from Auburn University. To ensure all participants were treated fairly and ethically, the researcher followed the Basic Ethical Principles outlined in the Belmont Report (U.S. Department of Health and Human Services, 1979). These principles include respect for participants, justice, and beneficence. Participants were made aware of the study goals. All participation was completely voluntary and participants had the opportunity to withdraw at any point by exiting the survey prior to completion. Eighteen respondents chose not to fully complete the survey; thus, their responses were excluded from the data. All participating teachers were required to provide informed consent before accessing the online survey. The consent form and survey responses remained completely anonymous. All data were secured in a file on the researcher's computer, to which only she had access. After a period of no less than 5 years, all data will be destroyed.

Summary

There were several methodological steps in the current study on the best practices used by CTE teachers to meet the learning needs of Hispanic students. Participants included 55 high school CTE teachers from Alabama, Tennessee, and South Carolina.

Data were collected through an anonymous online survey. Relationships between study variables were assessed using ANOVAs, and descriptive statistics were used to explore characteristics of the sample. The results of the answers provided the researcher with an understanding CTE teachers' behaviors and practices with the CREDE (2004) standards. In addition, the researcher assessed if secondary Career and Technical Education teachers' behaviors and practices of CREDE standards varied based on teaching experience, generation, county, and program.

This chapter included a detailed presentation of the methodology for the current study. It included a discussion of the study's design, sample, procedures, and instrumentation. In addition, the data analysis plan, validity, and ethical considerations were reviewed. The following chapter provides a presentation of study results. A discussion of the study's implications and directions for future appear in Chapter 5.

IV. STATISTICAL ANALYSIS AND RESULTS

Introduction and Restatement of the Problem

The purpose of this study was to investigate best practices used by CTE teachers to meet the learning needs of Hispanic students. Specifically, the researcher investigated teachers' use of the CREDE (2004) standards to meet the unique cultural needs of Hispanic students. In addition, the researcher explored the influence of four factors on teachers' use of the CREDE standards. These factors included: (a) teacher's generation, (b) years of teaching experience, (c) teacher's CTE program area (agricultural education; business marketing/education; family and consumer sciences; trade, engineering, and technical education; health sciences education), and (d) school district. Finally, the survey contained one open-ended question that asked participants to share how they had been trained to meet the educational needs of CLD learners.

The current research on pedagogical best practices was guided by the following research questions:

RQ1. How frequently do Career and Technical Education teachers use each of the five CREDE standards?

> **Subquestion 1.** How frequently do teachers use the CREDE standard of joint productive activities?
>
> **Subquestion 2.** How frequently do teachers use the CREDE standard of language and literacy development?
>
> **Subquestion 3.** How frequently do teachers use the CREDE standard of making meaning?

Subquestion 4. How frequently do teachers use the CREDE standard of complex thinking?

Subquestion 5. How frequently do teachers use the CREDE standard of teaching through conversation?

RQ2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on their demographic backgrounds?

Subquestion 1. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on the teacher's generation?

Subquestion 2. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on years teaching?

Subquestion 3. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on program area?

Subquestion 4. Do secondary Career and Technical Education teachers' use of the CREDE standards vary based on school district?

The aim of this chapter is to provide a comprehensive presentation of study results. The chapter begins with a review of survey reliability and a description of data collection. A description of the sample is followed by results of survey analysis. Results are organized by research questions and subquestions.

Data Analysis

Reliability

The reliability of each of the five subscales of the survey was assessed using Cronbach's alphas. According to Kline (2000), $\alpha \geq .9$ indicates *excellent* internal consistency, $.9 > \alpha \geq .8$ indicates *good* internal consistency and $.8 > \alpha \geq .7$ indicates

acceptable internal consistency. The Cronbach's alphas for all subscales ranged from *acceptable* to *good*, as illustrated in Table 10.

Table 10

Cronbach's Alphas for each CREDE Subscale

CREDE Subscale	n	Cronbach's Alpha
Joint Productive Activity	8	.767
Developing Language and Literacy	8	.793
Making Meaning	8	.787
Complex Thinking	5	.712
Teaching through Conversation	8	.803

Sample Description

Prior to entering data into SPSS 22.0 for analysis, the researcher screened data for missing information. A total of 73 respondents took the study survey; however, 18 individuals did not complete all items. Those 18 surveys were omitted from the final dataset, resulting in a sample of 55 participants. The researcher anticipated a 33% response rate, which would have resulted in a sample of 56 participants. The actual usable response rate was 31.4%. This response rate for an external online survey was consistent with response rates reported by other researchers. For example, Watt, Simpson, McKillop, and Nunn (2002) reported a response rate of 32.6% for an online survey. Similarly, Ogier (2005) and Nair, Wayland, and Soediro (2005) reported online survey response rates of 30% and 31%, respectively.

Tables 11 through 15 describe the sample demographics. In Table 11, the frequency distribution of participants' generations is presented. All participants fell into

one of three generations: Baby Boomers, Generation X, and Echo Boomers. Respondents were nearly evenly distributed across the three generations, with Baby Boomers (27.3%) slightly less prevalent than Generation X (36.4%) and Echo Boomers (36.4%).

Table 11

Frequency Distribution of Respondent Generation

Generation	Frequency	Percent (%)
Baby Boomers	15	27.3
Generation X	20	36.4
Echo Boomers	20	36.4
Total	55	100

In terms of participants' professional experience, the majority of respondents (30.9%) reported 1 to 5 years of experience as CTE teachers. Only 10.9% (n = 6) of respondents had over 20 years of experience. As illustrated in Table 12, participants with higher levels of CTE teaching experience were less common in this sample.

Table 12

Frequency Distribution of Respondent Years as CTE Teacher

Years as CTE Teacher	Frequency	Percent (%)
1 to 5	17	30.9
6 to 10	11	20.0
11 to 15	12	21.8
16 to 20	9	16.4
21+	6	10.9
Total	55	100

In terms of respondents' distribution of program area taught, the majority of participants taught Business and Marketing (38.2%). Least represented among respondents were Agricultural Education teachers, who comprised just 12.7% of the sample. The distribution based on program area is presented in Table 13.

Table 13

Frequency Distribution of Respondent Program Area Taught

Program Area Taught	Frequency	Percent (%)
Business/Marketing Education	21	38.2
Family and Consumer Sciences Education	10	18.2
Health Science Education	9	16.4
Trade, Engineering, and Technical Education	8	14.5
Agricultural Education	7	12.7
Total	55	100

The frequency distribution of participants based on school district is provided in Table 14. The majority of respondents were located in the Dekalb school district (36.4%). Significantly fewer respondents came from Bedford (7.3%), Crockett (7.3%), Hamblen (5.5%), and Saluda (1.8%) school districts. No respondents from Jasper or Beaufort counties responded, resulting in only one respondent from South Carolina. The poor response among teachers in South Carolina may have been because the county with the largest number of CTE teachers (Beaufort), was the one in which the survey was distributed late. The other two counties, Saluda and Jasper, only contained four CTE teachers each.

Table 14

Frequency Distribution of Respondent School District

School District	Frequency	Percent (%)
Dekalb	20	36.4
Marshall	12	21.8
Franklin	11	20.0
Crockett	4	7.3
Bedford	4	7.3
Hamblen	3	5.5
Saluda	1	1.8
Total	55	100

Finally, regarding the frequency distribution of Hispanic student enrollment,
respondents most commonly reported to have 0 to 10 Hispanic students in their current
CTE classes (38.2%). The second most common enrollment group was 21 and above
(36.4%). It was less common for respondents to report 11 to 20 Hispanic students in their
current enrollment (25.5%). The frequency distribution of Hispanic student enrollment is
presented in Table 15.

Table 15

Frequency Distribution of Hispanic Student Enrollment

Hispanic Student Enrollment	Frequency	Percent %
0 to 10	21	38.2
11 to 20	14	25.5
21+	20	36.4
Total	55	100

Results

The survey instrument included 37 Likert-type items regarding the frequency with
which different practices related to the CREDE standards were implemented.

Participants responded to each item with a score of 1 (never) to 5 (always). The score for each CREDE standard was obtained by averaging each respondents' answers to the items related to that standard. Because no respondents failed to answer any of the survey items, it was not necessary to average for missing data.

Overall CREDE Standard Use

Summary data for each of the CREDE standard scores is presented in Table 16. The mean score for each standard represents the average score for all 55 respondents, which is indicative of a typical respondent's score along the 1 to 5 scale. For example, the average score for Joint Productive Activities for all respondents was 3.91, which is very close to 4. This implies that activities associated with this standard were implemented very often by participants. The standard with the lowest average score was Making Meaning, with a mean score of 3.56. Of all the standards, respondents indicated implementation of Language and Literacy Development most frequently, which had an average score of 4.04.

The standard deviation describes the measure of how much individuals' scores for each standard varied around the average. For example, for Joint Productive Activities, the typical respondent had a score that was + / - .47 points of the mean score of 3.91. The median describes the 50th percentile for each of the scores. For example, the median score for Joint Productive Activities was 3.88. This means that half of the respondents scored 3.88 or lower, while half scored 3.88 or higher. Finally, the minimum and maximum scores represent the highest and lowest score than any one respondent received. For example, the minimum score for all individuals on each scale was near 2 or 3. With the exception of Language and Literacy Development, there was at least one

respondent who scored 5, indicating the respondent selected *always* for every item for

that standard.

Table 16

Summary Statistics of Five CREDE Standard Scores

CREDE Standard	Mean	Median	Standard Deviation	Minimum	Maximum
Joint Productive Activities	3.91	3.88	0.47	3.00	5.00
Language and Literacy Development	4.04	4.13	0.44	3.13	4.88
Making Meaning	3.56	3.50	0.56	2.38	5.00
Complex Thinking	4.02	4.00	0.45	3.20	5.00
Teaching through Conversation	3.84	3.75	0.53	2.63	5.00

In order to compare the average CREDE standard scores to one another and to

determine which standards were implemented most and least frequently, a repeated

measures analysis of variance (ANOVA) was conducted. The researcher employed

repeated measures ANOVA because each subject had scores for five different CREDE

standards. This allowed for correlation among the responses within the subjects. There

was one independent variable of CREDE standard. The dependent variables were the

scores on the five CREDE standards: Joint Productive Activities, Language and Literacy

Development, Making Meaning, Complex Thinking, and Teaching through Conversation.

Mauchly's Test of Sphericity indicated that the assumption of sphericity had been

violated (Mauchly's $W = 0.633$, $\chi^2(9) = 26.722$, and p-value $= 0.002$). The Greenhouse-

Geisser correction was implemented. There is a statistically significant difference in the

average scores for the five CREDE standards, $F(3.178, 190.689) = 42.414$, $p < .001$. The

partial $\eta^2 = .414$, which is a large effect size.

Because the repeated measures ANOVA indicated differences in the standard scores, the researcher used Bonferroni method to determine which scores had significantly different averages from other scores at the .05 level of significance. Table 17 provides the results of the pairwise comparisons. According to the results of these comparisons, Language and Literacy Development and Complex Thinking received the highest average scores, while Making Meaning received the lowest average score.

Table 17

Pairwise Comparisons of CREDE Standard Score Averages

Crede Standard 1	Crede Standard 2	Mean Difference (1 - 2)	*SE*	*p*
Joint Productive Activities	Language and Literacy Development	-0.124	0.034	.007
Joint Productive Activities	Making Meaning	0.373	0.051	<.001
Joint Productive Activities	Complex Thinking	-0.111	0.038	.053
Joint Productive Activities	Teaching through Conversation	0.069	0.036	.567
Language and Literacy Development	Making Meaning	0.496	0.053	<.001
Language and Literacy Development	Complex Thinking	0.012	0.036	1.000
Language and Literacy Development	Teaching through Conversation	0.193	0.038	<.001
Making Meaning	Complex Thinking	-0.484	0.055	<.001
Making Meaning	Teaching through Conversation	-0.304	0.048	<.001
Complex Thinking	Teaching through Conversation	0.180	0.044	<.001

CREDE Standard Use by Demographic Variables

To answer the second research question, variations in the use of CREDE standards were assessed by each of four demographic variables (years as a CTE teacher, generation, school district, and program area taught). To determine these variations, each of the five CREDE standard scores were tested as a dependent variable in a one-way analysis of variance (ANOVA) with each of the demographic variables of interest. The reason for choosing one-way analysis of variance (ANOVA) was because the four independent variables are categorical, and the question of interest was whether the average values of a continuous variable (each CREDE standard) were different depending on the levels of the categorical variables. Results from each of these one-way ANOVAs are presented, as follows.

Joint Productive Activities

Years as CTE teacher. A one-way analysis of variance (ANOVA) was conducted to examine the relationship between Years as CTE Teacher and the Joint Productive Activities score. The independent variable Years as CTE Teacher included five levels: 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21+. The dependent variable was the Joint Productive Activities score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p = .460$). The one-way ANOVA result revealed that there was no statistically significant effect for Years as a CTE Teacher, $F(4, 55) = 1.005$, $p = .413$.

Generation. A one-way ANOVA was conducted to examine the relationship between Generation and the Joint Productive Activities score. The independent variable of Generation included four levels: Silent Generation (1922-1945), Baby Boomers

(1946-1964), Baby Boom Echo (1965-1976), and Generation X (1977-2000). The dependent variable was the Joint Productive Activities score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.869). The one-way ANOVA result revealed that there was no statically effect for Generation, $F(2, 57) = 2.040$, $p = .139$.

School district. A one-way ANOVA was conducted to examine the relationship between School District and the Joint Productive Activities score. The independent variable School District included seven levels: Franklin, Marshall, Dekalb, Bedford, Hamblen, Crocket, and Saluda. The dependent variable was the Joint Productive Activities score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.511). The one-way ANOVA result revealed that there was no statically effect for School District, $F(6, 50) = 1.021$, $p = .422$.

Program area taught. A one-way ANOVA was conducted to examine the relationship between Program Area Taught and the Joint Productive Activities score. The independent variable Program Area Taught included 5 levels: Agricultural Education, Business/Marketing Education, Family and Consumer Sciences Education, Health Science Education, and Trade, Engineering, and Technical Education. The dependent variable was the Joint Productive Activities score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p = .163). The one-way ANOVA result revealed that there a statistically significant effect for

Program Area Taught with a large effect size, $F(4, 55) = 3.059$, $p = .024$, $\eta^2 = .182$.

Post hoc analysis utilizing the Bonferroni procedure indicated that the Joint Productive Activities score for those who teach Agricultural Education ($M = 3.546$, $SD = .406$) differed from those who teach Family and Consumer Science Education ($M = 4.150$, $SD = .577$) with $p = .050$. There were no other significant differences.

Summary of Joint Productive Activities. Years as CTE Teacher, Generation, and School District were not significantly related to the Joint Productive Activities scores of the teachers. There was a relationship of Program Area Taught to Joint Productive Activities scores: Family and Consumer Science Education teachers had a significantly higher average Joint Productive Activities score than Agricultural Education teachers.

Language and Literacy Development

Years as CTE teacher. A one-way ANOVA was conducted to examine the relationship between Years as CTE Teacher and the Language and Literacy Development score. The independent variable Years as CTE Teacher included five levels: 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21+. The dependent variable was the Language and Literacy Development score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p = .865$). The one-way ANOVA result revealed that there was no statistically significant effect for Years as a CTE Teacher, $F(4, 55) = 1.212$, $p = .316$.

Generation. A one-way ANOVA was conducted to examine the relationship between Generation and the Language and Literacy Development score. The independent variable Generation included four levels: Silent Generation (1922-1945), Baby Boomers (1946-1964), Baby Boom Echo (1965-1976), and Generation X (1977-

2000). The dependent variable was the Language and Literacy Development score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.542). The one-way ANOVA result revealed that there was no statically effect for Generation, $F(2, 57) = 1.377, p = .267$.

School district. A one-way ANOVA was conducted to examine the relationship between School District and the Language and Literacy Development score. The independent variable School District included seven levels: Franklin, Marshall, Dekalb, Bedford, Hamblen, Crocket, and Saluda. The dependent variable was the Language and Literacy Development score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.372). The one-way ANOVA result revealed that there was no statically effect for School District, $F(6, 50) = .964, p = .459$.

Program area taught. A one-way ANOVA was conducted to examine the relationship between Program Area Taught and the Language and Literacy Development score. The independent variable Program Area Taught included 5 levels: Agricultural Education, Business/Marketing Education, Family and Consumer Sciences Education, Health Science Education, and Trade, Engineering, and Technical Education. The dependent variable was Language and Literacy Development score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p = .841). The one-way ANOVA result revealed that there a statistically significant effect for Program Area Taught with a large effect size, $F(4, 55) = 2.884, p = .031$, partial $\eta^2 =$

.173.

Post hoc analysis utilizing the Bonferroni procedure indicated that there were no differences that were statistically significant from one another at the 0.05 level after incorporating the Bonferroni adjustment. The Language and Literacy Development score for those who teach Agricultural Education ($M = 3.687$, $SD = .490$) came closest to being statistically significantly different from those who teach Family and Consumer Science Education ($M = 4.250$, $SD = .435$) with $p = .055$.

Summary of Language and Literacy Development. Years as CTE Teacher, Generation, and School District were not significantly related to the Language and Literacy Development scores of the teachers. While there was a significant relationship of Program Area Taught with Language and Literacy Development scores, after incorporating the Bonferroni adjustment there were no specific differences that could be identified as statistically significant.

Making Meaning

Years as CTE teacher. A one-way ANOVA was conducted to examine the relationship between Years as CTE Teacher and the Making Meaning score. The independent variable Years as CTE Teacher included five levels: 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21+. The dependent variable was the Making Meaning score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p = .193$). The one-way ANOVA result revealed that there was no statistically significant effect for Years as a CTE Teacher, $F(4, 55) = .915$, $p = .462$.

Generation. A one-way ANOVA was conducted to examine the relationship between Generation and the Making Meaning score. The independent variable Generation included four levels: Silent Generation (1922-1945), Baby Boomers (1946-1964), Baby Boom Echo (1965-1976), and Generation X (1977-2000). The dependent variable was the Making Meaning score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.256). The one-way ANOVA result revealed that there was no statically effect for Generation, $F(2, 57) = .950$, $p = .393$.

School district. A one-way ANOVA was conducted to examine the relationship between School District and the Making Meaning score. The independent variable School District included seven levels: Franklin, Marshall, Dekalb, Bedford, Hamblen, Crocket, and Saluda. The dependent variable was the Making Meaning score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.463). The one-way ANOVA result revealed that there was no statically effect for School District, $F(6, 50) = 1.795$, $p = .422$.

Program area taught. A one-way ANOVA was conducted to examine the relationship between Program Area Taught and the Making Meaning score. The independent variable Program Area Taught included 5 levels: Agricultural Education, Business/Marketing Education, Family and Consumer Sciences Education, Health Science Education, and Trade, Engineering, and Technical Education. The dependent variable was the Making Meaning score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p =$

.216). The one-way ANOVA result revealed that there a statistically significant effect for Program Area Taught with a large effect size, $F(4, 55) = 2.825$, $p = .033$, partial $\eta^2 = .170$.

Post hoc analysis utilizing the Bonferroni procedure indicated that the Making Meaning score for those who teach Agricultural Education ($M = 3.125$, $SD = .347$) differed from those who teach Family and Consumer Science Education ($M = 3.850$, $SD = .487$) with $p = .050$. There were no other significant differences.

Summary of Making Meaning. Years as CTE Teacher, Generation, and School District were not significantly related to the Making Meaning scores of the teachers. There was a relationship of Program Area Taught to Making Meaning scores: Family and Consumer Science Education teachers had a significantly higher average Making Meaning score than Agricultural Education teachers.

Complex Thinking

Years as CTE teacher. A one-way ANOVA was conducted to examine the relationship between Years as CTE Teacher and the Complex Thinking score. The independent variable Years as CTE Teacher included five levels: 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21+. The dependent variable was the Complex Thinking score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p = .384$). The one-way ANOVA result revealed that there was no statistically significant effect for Years as a CTE Teacher, $F(4, 55) = 1.882$, $p = .127$.

Generation. A one-way ANOVA was conducted to examine the relationship between Generation and the Making Meaning score. The independent variable

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Generation included four levels: Silent Generation (1922-1945), Baby Boomers (1946-1964), Baby Boom Echo (1965-1976), and Generation X (1977-2000). The dependent variable was the Making Meaning score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.647). The one-way ANOVA result revealed that there was no statically effect for Generation, $F(2, 57) = 2.655$, $p = .079$.

School district. A one-way ANOVA was conducted to examine the relationship between School District and the Complex Thinking score. The independent variable School District included seven levels: Franklin, Marshall, Dekalb, Bedford, Hamblen, Crocket, and Saluda. The dependent variable was the Complex Thinking score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.459). The one-way ANOVA result revealed that there was no statically effect for School District, $F(6, 50) = 1.104$, $p = .373$.

Program area taught. A one-way ANOVA was conducted to examine the relationship between Program Area Taught and the Complex Thinking score. The independent variable Program Area Taught included 5 levels: Agricultural Education, Business/Marketing Education, Family and Consumer Sciences Education, Health Science Education, and Trade, Engineering, and Technical Education. The dependent variable was the Complex Thinking score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p = .381). The one-way ANOVA result revealed that there a statistically significant effect for

Program Area Taught with a large effect size, $F(4, 55) = 3.757$, $p = .009$, partial $\eta^2 =$ .215.

Post hoc analysis utilizing the Bonferroni procedure indicated that there were no differences that were statistically significant from one another at the 0.05 level after incorporating the Bonferroni adjustment. The Complex Thinking score for those who teach Agricultural Education ($M = 3.725$, $SD = .413$) came closest to being significantly different from those who teach Family and Consumer Science Education ($M = 4.280$, $SD = .559$) with $p = .073$. There were no other significant differences.

Summary of Complex Thinking. Years as CTE Teacher, Generation, and School District were not significantly related to the Complex Thinking scores of the teachers. While there was a significant relationship of Program Area Taught with Complex Thinking scores, after incorporating the Bonferroni adjustment there were no specific differences that could be identified as statistically significant.

Teaching through Conversation

Years as CTE Teacher. A one-way ANOVA was conducted to examine the relationship between Years as CTE Teacher and the Teaching through Conversation score. The independent variable Years as CTE Teacher included five levels: 1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21+. The dependent variable was the Teaching through Conversation score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p = .871$). The one-way ANOVA result revealed that there was no statistically significant effect for Years as a CTE Teacher, $F(4, 55) = 1.027$, $p = .401$.

Generation. A one-way ANOVA was conducted to examine the relationship between Generation and the Teaching through Conversation score. The independent variable Generation included four levels: Silent Generation (1922-1945), Baby Boomers (1946-1964), Baby Boom Echo (1965-1976), and Generation X (1977-2000). The dependent variable was the Teaching through Conversation score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.697). The one-way ANOVA result revealed that there was no statically effect for Generation, $F(2, 57) = 2.632$, $p = .081$.

School district. A one-way ANOVA was conducted to examine the relationship between School District and the Teaching through Conversation score. The independent variable School District included seven levels: Franklin, Marshall, Dekalb, Bedford, Hamblen, Crocket, and Saluda. The dependent variable was the Teaching through Conversation score from the CREDE standards instrument.

The Levene's test indicated no violation of the equal variance assumption (p=.768). The one-way ANOVA result revealed that there was no statically effect for School District, $F(6, 50) = 1.694$, $p = .142$.

Program area taught. A one-way ANOVA was conducted to examine the relationship between Program Area Taught and the Teaching through Conversation score. The independent variable Program Area Taught included 5 levels: Agricultural Education, Business/Marketing Education, Family and Consumer Sciences Education, Health Science Education, and Trade, Engineering, and Technical Education. The dependent variable was the Teaching through Conversation score from the CREDE

standards instrument.

The Levene's test indicated no violation of the equal variance assumption ($p =$ .326). The one-way ANOVA result revealed that there was no statically effect for Program Area Taught, $F(4, 55) = 1.476$, $p = .222$.

Summary of Teaching through Conversation. Years as CTE Teacher, Generation, School District, and Program Area Taught were not significantly related to the Teaching through Conversation scores of the teachers.

CLD Training

The final question of the survey was an open-ended question that asked: "How have you been trained to teach Culturally and Linguistically Diverse Learners?" The aim of this question was to provide insight into the types of training CTE teachers may have received to equip them with the knowledge and skills required to meet the needs of this student population.

Two participants did not provide a response to the open-ended question. Of the 53 participants who did answer the last question, few gave detailed responses. Twenty-three participants (41.8%) indicated no formal CLD training, while 30 (54.5%) indicated they had received some form of CLD training. Among participants who offered details regarding their CLD training experiences, 14 (25.4%) described different forms of professional development or workshops. One participant (1.8%) cited a specific workshop "EL Learning and Teaching," while others simply cited training through their local states, counties, schools, or WIDA. Six respondents (10.9%) reported learning pedagogical strategies for CLD learners through their formal undergraduate or graduate educations. Two respondents (3.6%) specifically cited working and meeting with

ELL/ESOL teachers at their schools. Other responses indicated the receipt of some form of training to teach CLD students, but were unclear. For example, one participant (1.8%) responded with "Inclusion teachers," and another, "cultural competence training."

Summary

Analysis indicated that implementation of the CREDE (2004) standards varied by program area taught. Years as CTE Teacher, Generation, and School District did not have a significant relationship with any of the dependent variables (Joint Productive Activities, Language and Literacy Development, Making Meaning, Complex Thinking, and Teaching through Conversation). Program Area Taught was significant for all dependent variables except for Teaching through Conversation, though there was not always a specific comparison that was significant. With respect to Joint Productive Activities and Making Meaning, those who taught Family and Consumer Science Education had significantly higher scores than those who taught Agricultural Education. Regarding teachers' CLD training, responses to the open-ended survey question indicated that nearly half of participants (n = 23) had received no formal CLD training.

This chapter provided a presentation of study results. The following chapter includes a discussion of study results. Chapter 5 is an interpretation of findings, a discussion of study limitations, theoretical implications, and recommendations for future research.

V. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Introduction

The purpose of this study was to investigate best practices used by CTE teachers to meet the learning needs of Hispanic students. The nature of the study was quantitative and the researcher employed an online survey design. Results of data analysis indicated that participants implemented all five of the CREDE (2004) standards very often. Among the most frequently implemented standards were Language and Literacy Development and Complex Thinking. The least implemented standard was Making Meaning.

The implementation of CREDE (2004) standards varied by program area taught; however, significant variances in use of CREDE standards by participant generation, school district or CTE teaching experience (in years) were not indicated. In terms of program area taught, data consistently indicated that Family and Consumer Science Teachers implemented the CREDE standards more frequently than did Agricultural Educators. Significant differences between these two groups of CTE teachers existed for Joint Productive Activities, and Making Meaning. Regarding teachers' CLD training, responses to the open-ended survey question indicated that nearly half of participants (n = 23) had received no formal CLD training.

The aim of this chapter is to provide an interpretation of the study findings and to compare findings from the current investigation to those reported by previous researchers. Study limitations are addressed and recommendations for future research and practical application are given. Theoretical implications are also provided. The chapter closes with the researcher's concluding remarks.

Interpretation of the Findings

CREDE Standard Implementation

The CREDE (2004) standards were developed from over 30 years of educational research on culturally and linguistically diverse K-12 students (Yamauchi, 2009). These standards include: (a) Joint Productive Activity, (b) Language and Literacy Development, (c) Making Meaning, (d) Complex Thinking, and (e) Instructional Conversation. The CREDE standards were chosen for the current investigation because they are based upon pedagogical principles proven effective among variety of student populations, including at-risk and minority learners (Dalton, 1998). The goal of the CREDE standards is to maximize educational achievement among students at risk for academic failure, including culturally and linguistically diverse (CLD) learners (Tharp et al., 2000). The CREDE standards are based on active engagement between teachers and students that promotes multiple perspectives and deep contextualization (Wyatt, 2012). The five CREDE standards are briefly reviewed in Table 18 below.

Table 18

Description of CREDE Standards

CREDE Standard	Description
Joint Productive Activity	Uses group activities that involve teachers and students working together to create ideas or projects
Language and Literacy Development	Involves the application of literacy and language development skills across all curriculum
Making Meaning	Involves contextualizing curriculum and connecting it to students' life experiences

Complex Thinking	Involves challenging students by holding them to high performance standards and designing activities to improve understandings of complex topics
Instructional Conversation	Involves teaching through student-teacher dialogue that is academic, goal-oriented, and involves small group conversations over traditional lectures

On average, participants reported implementing the standards very often. The standard with the lowest mean frequency was Making Meaning (3.56), and Language and Literacy Development was reported as the most frequently implemented standard (4.04). Because data revealed that participating teachers most frequently implemented the Language and Literacy Development standard, this was indicative of teachers' awareness of the importance of nurturing language and literacy in all classes, not just reading or English. However, the significantly lower implementation of the Making Meaning standard indicated that teachers may need training to better understand how to contextualize lessons in a way that helps students connect educational content with their life experiences.

Program Area Taught

Another important demographic variation correlated with respondents' knowledge and use of the CREDE standards was program area taught. Significant differences in frequency of implementation were related to program area taught for Joint Productive Activities, Language and Literacy Development, Making Meaning, and Complex Thinking. For example, the frequency with which Agricultural Education Teachers implemented two of the CREDE standards (Joint Productive Activities and Making Meaning) was significantly lower than for teachers of Family and Consumer Science Teachers. One reason for this may be that many Agricultural Education Teachers were

more likely to have taken alternative teaching certification paths. Alternative

certification programs provide opportunities for individuals without degrees in education

to become teachers, which mean they may lack the formal pedagogical training that

individuals from teacher education programs have obtained (Linek et al., 2012). In lieu

of undergraduate degrees in education, alternative licensure allows professionals to take

additional college courses, participate in professional development, or obtain graduate

degrees in education while they work under temporary or "emergency" licenses (Linek et

al., 2012). These types of temporary or emergency license are available to non-teaching

professionals in some states, especially to fill vacancies that are difficult to fill.

According to the Future Farmers of America, (n.d.) in many cases, vacancies for

Agricultural Educators are filled by individuals who have received emergency or

alternative certifications. In many cases, agricultural education vacancies go unfilled or

Agriculture programs are closed because schools are unable to fill positions.

   If a higher percentage of Agricultural Education Teachers surveyed in this study

were operating under temporary or alternative certifications, it is possible that they lacked

basic pedagogical knowledge and skills, which may have limited their familiarity with

the concepts presented in the survey. This is not a direct interpretation, as teachers'

certification types were outside the scope of the current investigation. It does, however,

offer a direction for future research, as well as a plausible explanation for the significant

differences observed among Agricultural Educators.

   As Darling-Hammond (2010) reported, alternative certification programs often

place teachers in classrooms with little or no pedagogical training. Over three decades of

research indicate that teachers who have completed alternative certification programs are

less successful, receive lower evaluations, and have less successful students than do teachers from traditional education programs (Ashton & Crocker, 1986; Darling-Hammond, 2010; Freytag, 2002; Greenberg, 1983; Linek et al., 2012). In addition, "underprepared teachers in alternative certification programs often tend to be employed in districts with greater percentages of minority and economically disadvantage students" (Linek et al., 2012, p. 69). This fact is particularly salient to the current investigation, as the study population consisted of teachers who worked in counties with high concentrations of Hispanic students.

CLD Training

Culturally responsive teaching describes the cultural knowledge, experience, and teaching styles that educators employ to meet the learning needs of culturally diverse students (Gay, 2000). As Hogan and Hathcote (2014) explained, today's teachers are tasked with meeting the needs of diverse student populations. However, many teachers lack the skills and training to meet the academic needs of diverse learners (Hoover, 2011). In order to be culturally responsive, teachers must be accepting of all students' cultural and linguistic identities, and adapt pedagogy to support the needs of all learners (Gomez & Diarrassouba, 2014). Research indicates that many teachers lack preparation to teach students who are culturally and linguistically diverse (Hutchinson & Hadjioannou, 2011). Thus, pedagogical interventions for teachers may be more critical than learning interventions for students (Hogan & Hathcote, 2014).

Of the 30 participants who indicated receipt of some form of CLD training, the majority who shared details indicated that the training had occurred in the form of state-, county-, or school-sponsored professional development or workshops. The mandatory

in-service training and professional development that counties require teachers to participate in may be an excellent opportunity for educational leaders to implement more CLD training, such as workshops on the CREDE standards. Nearly half of the respondents in the current investigation indicated zero past training or development aimed at improving their abilities to teach CLD learners. This is especially troubling, as nearly 70% of respondents had been CTE teachers for at least 6 years. Almost half of respondents had over 10 years of experience – a decade worth of in-service and professional development is a significant span of time to provide educators with pedagogical training for CLD learners, yet many individuals in the current study reported little to no CLD training.

Limitations of the Study

A few limitations to this study must be addressed. First, time was a limitation, both in terms of the time teachers had available to complete the survey, and the time limitation of the data collection period. Teachers are normally very busy with job responsibilities at any time of the year, but their available free time may be particularly short at the beginning of the school year, when they are preparing to teach a new group of students. Because the survey for the current investigation was launched as soon as teachers returned to school, the timing may have made it difficult for teachers to participate. In addition, the survey was only available to teachers for 2 weeks. Had the survey been available for a longer period, it is possible that more teachers would have responded.

Another significant limitation was obtaining study permission from each county and school included in this investigation. Communication with school leaders and

gatekeepers was more difficult for some schools, which made it very hard to obtain the email addresses of all potential participants and get email invitations distributed in a timely manner. In one South Carolina county, an administrator who requested to preview the survey before granting permission contacted the researcher to let her know that she had distributed the survey to participants herself. This was not part of the research protocol and the researcher had no idea if the surveys were actually distributed or not. It was not until after the close of the survey, during data analysis that it became evident that no participants from Beaufort County existed in the dataset.

Another limitation was the paltry response rate of teachers from South Carolina. Approximately 40 CTE teachers were available in the selected three counties, but only one teacher from the selected population of South Carolina CTE teachers completed the survey. This may be because the county with the largest number of CTE teachers (Beaufort), was the one in which the survey may have been distributed late. The other two counties, Saluda and Jasper, only contained four CTE teachers each. Although the researcher achieved her anticipated sample size, the poor representation of South Carolina teachers must be acknowledged as a limitation. Further, the population of CTE teachers was limited to a small geographic region, including teachers from Alabama, Tennessee, and one teacher from South Carolina. Thus, results are not generalizable across other regions of the country. The self-report nature of the research survey was also a limitation. It is possible that respondents may have selected responses they believed framed them more positively, even though the anonymous nature of the survey sought to prevent that.

It is also important to acknowledge that few teachers provided any details regarding their CLD training. The final open-ended question regarding participants' CLD training experience was answered by many with the one-word responses of "yes" or "no." It would have been helpful to have more details from participants who simply responded with "yes." This is a limitation that must be accepted when participants are asked to respond to an open-ended question on an online survey.

A final limitation of this investigation was the variances in the number of Hispanic students that participating teachers worked with. Some teachers may have had many Hispanic students in their classes (indicated by a response of "21+" for question 5), while others may have had zero (indicated by a response of 0 to 5 for question 5). This means that some teachers may have had many Hispanic students, while others may have had 0 or 1; thus their experiences may have varied significantly.

<p align="center">**Recommendations**</p>

Future Research

Several recommendations for future investigation can be made based on findings from the current study. Because this investigation was limited to CTE teachers located in counties with high populations of Hispanic students, future researchers could explore knowledge and implementation of the CREDE standards among teachers in schools with large groups of other underprivileged students, such as African Americans or students of low socioeconomic status. Future researchers could also explore knowledge and implementation of the CREDE standards among non-CTE teachers who work in schools with large Hispanic populations. It would be interesting to see if teachers of core subject areas reported differences in frequency of CREDE implementation from that of CTE

teachers. Along those same lines, future researchers could compare knowledge and implementation of CREDE standards to assess for differences based on certification type. For example, researchers could investigate whether teachers with traditional certifications reported differences in CREDE standard knowledge and implementation from those with alternative or emergency certifications.

Another possible research direction would be to conduct a qualitative investigation to explore why Family and Consumer Science Educators scored so high across all CREDE standards. Whether from their personal backgrounds, educational histories, or professional experiences, stakeholders may use this information to develop ways to impress CLD pedagogy such as the CREDE standards on teachers across subject areas. Finally, since the open-ended question of the current study revealed few details about participants' previous CLD training, future researchers could conduct a qualitative investigation to interview teachers about their CLD-related training and education. Such investigation could shed light on knowledge gaps among teachers that stakeholders could address through professional development and workshops. Researchers could also investigate differences in traditional teacher preparation programs for Baby Boomers and Echo Boomers to explore how can current programs be improved to better provide preservice teachers with the skills and knowledge required to meet the needs of diverse student populations.

Practical Recommendations

The most clear recommendation for practice based on findings from the current investigation is to offer teacher training on CREDE standards, especially among individuals with alternative/emergency certifications. Another recommendation based on

findings from the current investigation is to provide teachers with tools needed to integrate Making Meaning standard, which was the least implemented of all standards. This standard encourages teachers to contextualize classroom learning to help students make connections to their lives and understand the "real-world" application of classroom learning (Dalton, 1998). Such contextualization may take place intentionally or incidentally (Kim, 2013). The seven indicators of the Making Meaning standard are as follows:

1. Begins with what students already know from home, community, and school

2. Designs instructional activities that are meaningful to students in terms of community norms and knowledge

3. Learns about local norms and knowledge by talking to students, parents, and community members, and by reading pertinent documents

4. Assists students to connect and apply their learning to home and community

5. Provides opportunities for parents to participate in classroom instructional activities

6. Varies activities to include students' preferences, from collective and cooperative to individual and competitive

7. Varies styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others

Theoretical Implications

The theoretical framework for the current study was based on Vygotsky's (1978) sociocultural theory. This framework was chosen because the CREDE standards are based on sociocultural theory, which posits that students create knowledge through

interactions with teachers and learning materials in social settings. Vygotsky believed that learning involves two developmental levels: (a) a learner's actual developmental level, and (b) a learner's aptitude for learning, given proper assistance. Between those two developmental levels lies what Vygotsky referred to as the zone of proximal development (ZPD). Learners are in the ZPD when being assisted with developmental or learning tasks they would otherwise be unable to complete on their own. Vygotsky's (1978) sociocultural theory is clearly illustrated in the CREDE standards, which are based on social interaction. Through implementation of the CREDE standards, educators may maximize their assistance to children during this process of social learning.

Differences in CREDE standard implementation based on subject area taught may have important theoretical implications. While it is possible that individuals in Agricultural Education may have indicated lower use of the CREDE standards because they come from educational backgrounds without pedagogical training, it is also possible that sociocultural differences exist in the types of individuals attracted into these particular fields. For example, tradesmen and women may come from backgrounds that require less collaboration and communication. An auto mechanic may teach himself all the skills needed to be able to perform work on any part of a vehicle. Thus, the individual's personality may simply be one that prefers autonomy and individual work settings rather than collaboration. Individuals who are less attracted to group work, collaboration, and high levels of social communication may be drawn to professions that are more suited to independence and autonomy, which is somewhat antithetical to sociocultural theory and its emphasis on social skills, communication, and collaboration. Thus, in addition to generational characteristics, the differences across subject areas

taught that were indicated for CREDE standard implementation may be related to personal preferences. Therefore, a possible implication to sociocultural theory may be that individuals' personality types, especially in terms of introversion and extroversion, may influence their orientation toward this type of teaching and learning.

Conclusion

This chapter provided a discussion of results from the current investigation. Results indicated that participants implemented the Language and Literacy Development standard most frequently, suggesting teachers' awareness of the importance of nurturing language and literacy across all subjects. Significantly lower implementation of the Making Meaning standard indicated that teachers might need training to better understand how to contextualize lessons in a way that helps students connect educational content with their life experiences.

Another important demographic variation correlated with respondents' knowledge and use of the CREDE standards was program area taught. Significant differences related to program area taught were indicated for Joint Productive Activities, Language and Literacy Development, Making Meaning, and Complex Thinking. The researcher posited that differences based on program area taught may be related to teachers' certification types, but additional research is needed to assess this possibility.

Regarding CLD training, most participants indicated receipt of some form of CLD training, the majority who shared details indicated that the training had occurred in the form of state-, county-, or school-sponsored professional development or workshops. Nearly half of the respondents in the current investigation indicated zero past training or development aimed at improving their abilities to teach CLD learners. This was

especially troubling, as nearly 70% of respondents had been CTE teachers for at least 6 years. Thus, needs exist in CTE teachers' CLD training. The mandatory in-service training and professional development that counties require teachers to participate in may be excellent opportunities for educational leaders to implement more CLD training, such as workshops on the CREDE standards.

Study limitations related to time, access to participants, survey distribution, and poor representation of South Carolina CTE teachers were addressed. The researcher made recommendations for future research and practice. Important theoretical implications regarding the application of Vygotsky's (1978) sociocultural theory were also addressed. Overall, while results from this investigation indicated strong implementation of CREDE standards among participating CTE teachers, areas for improvement in practice and knowledge were indicated.

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Appendix A: CREDE Standards Survey

Appendix A: CREDE Standards Survey

Dear Participant:

You are receiving this survey invitation because you have been identified as a secondary Career and Technical Education (CTE) teacher in Alabama, South Carolina, or Tennessee who has been teaching for at least one year and are age 19 or older. This survey is designed to explore your use of the CREDE standards. There are no right or wrong answers. Results from this study will remain anonymous.

If you decide to participate in this research study, you will be asked to complete a brief demographic questionnaire prior to the survey. After completing it, you will be asked to answer the survey questions, which should take about 15 minutes. Risks are minimal and your identity will remain anonymous. Data obtained from this study will be used in my dissertation. If you decide to participate in this study, you may contribute helpful insight on ways to improve education among Hispanic students.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. However, once the responses are submitted, due to the anonymous feature of this study, it will not be possible to identify your response and withdraw it. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University. You will be provided with no compensation for your participation, but study results will be made available to your administrator after analysis is complete.

If you have any questions, please contact Amy Dyar at ▮▮▮▮▮▮▮▮ (▮▮▮▮▮@tigermail.auburn.edu) or Dr. Leane Skinner ▮▮▮▮▮▮▮▮ (▮▮▮▮@auburn.edu).

If you have any questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone at (334) 844-5977 or email at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON "AGREE" BELOW. YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

Amy Dyar, Auburn University

CREDE Standards Survey

Please let me know about yourself. Check the appropriate response.

- How many years have you been a secondary Career and Technical Education teacher?
    - o 1-5
    - o 6-10
    - o 11-15
    - o 16-20
    - o 21+

- What year were you born?
    - o 1922-1945
    - o 1946-1964
    - o 1965-1976
    - o 1977-2000

- What school district do you currently teach ing?
    - o Franklin
    - o Marshall
    - o Dekalb
    - o Bedford
    - o Hamblen
    - o Crocket
    - o Saluda
    - o Jasper
    - o Beaufort

- What program area do you teach?
    - o Agricultural Education
    - o Business/Marketing Education
    - o Family and Consumer Sciences Education
    - o Trade, Engineering and Technical Education
    - o Health Science Education

- How many Hispanic students are currently enrolled in your classes?
    - o 0-10
    - o 11-20
    - o 21+

Please read each of the following statements. Thinking about the frequency with which you perform each of the described activities or behaviors, choose the response that most closely applies to you.

1. I design instructional activities that require student collaboration.

never   **rarely**   **sometimes**   **very often**   **always**

2. I organize my students in a variety of groupings (such as by friendship, mixed academic ability, language, project, or interests) to promote interaction.

never   **rarely**   **sometimes**   **very often**   **always**

3. I encourage students to use content vocabulary to express their understanding of lessons.

never   **rarely**   **sometimes**   **very often**   **always**

4. When designing lessons, I begin with what students already know from their homes, communities, and schools.

never   **rarely**   **sometimes**   **very often**   **always**

5. I help students connect and apply learning to their homes and communities.

never   **rarely**   **sometimes**   **very often**   **always**

6. For each instructional topic, I make sure my students see the whole picture as the basis for understanding the parts.

never   **rarely**   **sometimes**   **very often**   **always**

7. I listen carefully to assess levels of students' understanding.

never   **rarely**   **sometimes**   **very often**   **always**

8. I arrange the classroom to accommodate conversation between myself and small groups of students.

never   **rarely**   **sometimes**   **very often**   **always**

9. I give my students clear and direct feedback about their performance, based on the academic standards I've created for them.

never   **rarely**   **sometimes**   **very often**   **always**

10. I vary activities to include students' preferences, from collective and collaborative, to individual and competitive.

never   **rarely**   **sometimes**   **very often**   **always**

11. I plan collaborative activities based on available class time.

never   **rarely**   **sometimes**   **very often**   **always**

12. I provide opportunities for students to interact with each other, and with me, during instructional activities.

never   **rarely**   **sometimes**   **very often**   **always**

13. I respond to students' conversations and questions, making "in-flight" instructional changes that directly relate to their questions and comments.

never   **rarely**   **sometimes**   **very often**   **always**

14. I arrange my classroom seating to accommodate students' individual and group needs to foster communication and collaboration.

never   **rarely**   **sometimes**   **very often**   **always**

15. I help students with language development (through modeling, eliciting, probing, restating, clarifying, questioning, and praising) as appropriate, in purposeful conversations.

never   **rarely**   **sometimes**   **very often**   **always**

16. I plan jointly with students to design community-based learning activities.

never   **rarely**   **sometimes**   **very often**   **always**

17. I help students accomplish more complex understanding by relating to their real-life experiences.

never   **rarely**   **sometimes**   **very often**   **always**

18. I design instructional tasks that advance student understanding to more complex levels.

never   **rarely**   **sometimes**   **very often**   **always**

19. I help students learn throughout conversations by questioning, restating, praising, and encouraging.

never   **rarely**   **sometimes**   **very often**   **always**

20. I ensure that student talk occurs at higher rates than teacher talk.

never   **rarely**   **sometimes**   **very often**   **always**

21. I provide opportunities for parents to participate in classroom instructional activities.

never   **rarely**   **sometimes**   **very often**   **always**

22. I participate with my students during collaborative activities.

never   **rarely**   **sometimes**   **very often**   **always**

23. I present students with challenging performance standards.

never   **rarely**   **sometimes**   **very often**   **always**

24. I connect student language with literacy and content area knowledge through speaking, listening, reading, and writing activities.

never   **rarely**   **sometimes**   **very often**   **always**

25. I ensure that all students are included in conversations, according to their preferences.

never   **rarely**   **sometimes**   **very often**   **always**

26. I plan with students to help them work in groups, move from one activity to the next, clean up, prepare for dismissal, and the like.

never   **rarely**   **sometimes**   **very often**   **always**

27. I manage students access to materials and technology in order to facilitate joint productive activities.

never   **rarely**   **sometimes**   **very often**   **always**

28. I monitor and support student collaboration in positive ways.

never   **rarely**   **sometimes**   **very often**   **always**

29. I listen as students talk about familiar topics, such as home and community.

never   **rarely**   **sometimes**   **very often**   **always**

30. I interact with my students in ways that respect their preferences for speaking style, which may be different from mine, such as wait-time, eye contact, turn-taking, and spotlighting.

never   **rarely**   **sometimes**   **very often**   **always**

31. I encourage students' use of first and second languages during instructional activities.

never   **rarely**   **sometimes**   **very often**   **always**

32. I design instructional activities that are meaningful to students in terms of local community norms and knowledge.

never   **rarely**   **sometimes**   **very often**   **always**

33. I learn about local norms and knowledge by talking to students, parents, community members, and by reading pertinent documents.

never   **rarely**   **sometimes**   **very often**   **always**

34. I vary my styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others.

never   **rarely**   **sometimes**   **very often**   **always**

35. I have clear academic goals that I use to guide conversations with students.

never   **rarely**   **sometimes**   **very often**   **always**

36. I guide conversations to include students' views, judgements, and rationales, using text evidence and other substantive support.

never   **rarely**   **sometimes**   **very often**   **always**

37. I guide students to prepare products that indicate the goals of instructional conversation were achieved.

never   **rarely**   **sometimes**   **very often**   **always**

38. How have you been trained to teach Culturally and Linguistically Diverse Learners?

Qualtrics View

Dear Participant:

You are receiving this survey invitation because you have been identified as a secondary Career and Technical Education (CTE) teacher in Alabama, South Carolina, or Tennessee who has been teaching for at least one year and are age 19 or older. This survey is designed to explore your use of the CREDE standards. There are no right or wrong answers. Results from this study will remain anonymous.

If you decide to participate in this research study, you will be asked to complete a brief demographic questionnaire prior to the survey. After completing it, you will be asked to answer the survey questions, which should take about 15 minutes. Risks are minimal and your identity will remain anonymous. Data obtained from this study will be used in my dissertation. If you decide to participate in this study, you may contribute helpful insight on ways to improve education among Hispanic students.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. However, once the responses are submitted, due to the anonymous feature of this study, it will not be possible to identify your response and withdraw it. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University. You will be provided with no compensation for your participation, but study results will be made available to your administrator after analysis is complete.

If you have any questions, please contact Amy Dyar at (256) 558-7248 (ald0036@tigermail.auburn.edu) or Dr. Leane Skinner (334) 844-3823 (skinnal@auburn.edu).

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Amy Dyar, Auburn University

The Auburn University Institutional Review Board has approved this document for use from to June 27, 2016 to June 26, 2017. Protocol # 16-233 EP 1606.

I agree to participate in this study

○ Agree

○ Do not agree

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Survey Powered By Qualtrics

How many years have you been a secondary Career and Technical Education teacher?

1-5
6-10
11-15
16-20
21+

>>

0% [====] 100%

Survey Powered By Qualtrics

What year were you born?

1922-1945
1946-1964
1965-1976
1977-2000

>>

0% [====] 100%

Survey Powered By Qualtrics

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Please read each of the following statements. Thinking about the frequency with which you perform each of the described activities or behaviors, choose the response that most closely applies to you.

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I design instructional activities that require student collaboration.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I organize my students in a variety of groupings, (such as by friendship, mixed academic ability, language, project, or interests), to promote interaction.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I encourage students to use content vocabulary to express their understanding of lessons.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
When designing lessons, I begin with what students already know from their homes, communities, and schools.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I help students connect and apply learning to their homes and communities.	○	○	○	○	○

Click to write the question text

	Never	Rarely	Sometimes	Very Often	Always
For each instructional topic, I make sure my students see the whole picture as the basis for understanding the parts.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I listen carefully to assess levels of students' understanding.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I arrange the classroom to accommodate conversation between myself and small groups of students.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I give my students clear and direct feedback about their performance, based on the academic standards I've created for them.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I vary activities to include students' preferences, from collective and collaborative, to individual and competitive.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I plan collaborative activities based on available class time.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I provide opportunities for students to interact with each other, and with me, during instructional activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I respond to students' conversations and questions, making "in-flight" instructional changes that directly relate to their questions and comments.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I arrange my classroom seating to accommodate students' individual and group needs to foster communication and collaboration.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I help students with language development through (modeling, eliciting, probing, restating, clarifying, questioning, and praising), as appropriate, in purposeful conversations.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I plan jointly with students to design community-based learning activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I help students accomplish more complex understanding by relating to their real-life experiences.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I design instructional tasks that advance student understanding to more complex levels.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I help students learn throughout conversations by questioning, restating, praising, and encouraging.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I ensure that student talk occurs at higher rates than teacher talk.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I provide opportunities for parents to participate in classroom instructional activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I participate with my students during collaborative activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I present students with challenging performance standards.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I connect student language with literacy and content area knowledge through speaking, listening, reading, and writing activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I ensure that all students are included in conversations, according to their preferences.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I plan with students to help them work in groups, move from one activity to the next, clean up, prepare for dismissal, and the like.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I manage students access to materials and technology in order to facilitate joint productive activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I monitor and support student collaboration in positive ways.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I listen as students talk about familiar topics, such as home and community.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I interact with my students in ways that respect their preferences for speaking style, which may be different from mine, such as wait-time, eye contact, turn-taking, and spotlighting.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I encourage students' use of first and second languages during instructional activities.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I design instructional activities that are meaningful to students in terms of local community norms and knowledge.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I learn about local norms and knowledge by talking to students, parents, community members, and by reading pertinent documents.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I vary my styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I have clear academic goals that I use to guide conversations with students.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I guide conversations to include students' views, judgments, and rationales, using text evidence and other substantive support.	○	○	○	○	○

Choose the response that most closely applies to you.

	Never	Rarely	Sometimes	Very Often	Always
I guide students to prepare products that indicate the goals of instructional conversation were achieved.	○	○	○	○	○

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How have you been trained to teach Culturally and Linguistically Diverse Learners?

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Survey Powered By Qualtrics

Appendix B: Survey Rubric

Joint Productive Activity	Developing Language and Literacy	Making Meaning	Teaching Complex Thinking	Teaching through Conversation
I design instructional activities that require student collaboration. (1)	I encourage students to use content vocabulary to express their understanding of lessons. (3)	When designing lessons, I begin with what students already know from their homes, communities, and schools. (4)	For each instructional topic, I make sure my students see the whole picture as the basis for understanding the parts. (6)	I listen carefully to assess levels of students' understanding. (7)
I organize my students in a variety of groupings, such as by friendship, mixed academic ability, language, project, or interests, to promote interaction. (2)	I provide opportunities for students to interact with each other, and with me, during instructional activities. (12)	I help students connect and apply learning to their homes and communities. (5)	I give my students clear and direct feedback about their performance, based on the academic standards I've created for them. (9)	I arrange the classroom to accommodate conversation between myself and small groups of students. (8)
I plan collaborative activities based on available class time. (11)	I respond to students' conversations and questions, making "in-flight" instructional changes that directly relate to their questions and comments. (13)	I vary activities to include students' preferences, from collective and collaborative, to individual and competitive. (10)	I help students accomplish more complex understanding by relating to their real-life experiences. (17)	I help students learn throughout conversations by questioning, restating, praising, and encouraging. (19)
I arrange my classroom seating to accommodate students' individual and group needs to foster communication and collaboration. (14)	I help students with language development through modeling, eliciting, probing, restating, clarifying, questioning, and praising, as appropriate, in purposeful conversations. (15)	I plan jointly with students to design community-based learning activities. (16)	I design instructional tasks that advance student understanding to more complex levels. (18)	I ensure that student talk occurs at higher rates than teacher talk. (20)
I participate with my students during collaborative activities. (22)	I connect student language with literacy and content area	I provide opportunities for parents to participate in	I present students with challenging performance standards. (23)	I ensure that all students are included in conversations,

	knowledge through speaking, listening, reading, and writing activities. (24)	classroom instructional activities. (21)		according to their preferences. (25)
I plan with students to help them work in groups, move from one activity to the next, clean up, prepare for dismissal, and the like (26)	I listen as students talk about familiar topics, such as home and community. (29)	I design instructional activities that are meaningful to students in terms of local community norms and knowledge. (32)		I have clear academic goals that I use to guide conversations with students. (35)
I manage students access to materials and technology in order to facilitate joint productive activities (27)	I interact with my students in ways that respect their preferences for speaking style, which may be different from mine, such as wait-time, eye contact, turn-taking, and spotlighting. (30)	I learn about local norms and knowledge by talking to students, parents, community members, and by reading pertinent documents. (33)		I guide conversations to include students' views, judgements, and rationales, using text evidence and other substantive support. (36)
I monitor and support student collaboration in positive ways (28)	I encourage students' use of first and second languages during instructional activities. (31)	I vary my styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others. (34)		I guide students to prepare products that indicate the goals of instructional conversation were achieved. (37)

Appendix C: Solicitation Email

Dear [principal/administrator],

I'm a doctoral candidate in the Career and Technical Education (CTE) program at Auburn University under the advisement of Dr. Leane Skinner. I'm currently preparing to conduct research for my dissertation on the participation of Hispanic students in CTE programs. I am interested in the use of the CREDE standards among secondary CTE teachers in Georgia, Alabama, and South Carolina. Research indicates that CTE programs can improve academic and career achievement among minority students, which is critical to addressing the achievement and socioeconomic gaps that plague Hispanic students. This is particularly salient for schools in [state], as it is among the top three U.S. states with the fastest-growing Hispanic populations.

The study survey is a brief, online inventory that assesses teachers' behaviors and practices of the CREDE standards. The identities of all participants will remain completely anonymous. Teachers will be free to drop out of the study at any time. The survey should only take about 15 minutes to complete. The survey will be available to participants this fall. Participants will have a two-week period during which they can access and complete the survey. Study results will be made available to the administrator after analysis is complete, which will include implications and practical recommendations for administrators and CTE teachers.

This is a preliminary request for approval to survey CTE teachers in your school. If you agree, I will send you the survey to review and will request final approval from you in July. I feel this research is important and may shed new light on CTE program participation among Hispanic students. Unfortunately, this topic has received virtually no research attention to date.

I am happy to answer any questions you may have. I can be reached at ▮▮▮▮▮▮▮▮ or ▮▮▮▮▮@tigermail.auburn.edu. I look forward to your response.

My sincerest thanks for your time,

Amy Dyar

Appendix D: IRB Approval

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AUBURN
UNIVERSITY

Office of Research Compliance
115 Ramsay Hall, basement
Auburn University, AL 36849

Telephone: 334-844-5966
Fax: 334-844-4391
IRBadmin@auburn.edu
IRBsubmit@auburn.edu

September 29, 2016

MEMORANDUM TO: Amy Dyar
Department of Career and Technical Education

PROTOCOL TITLE: "Use of the CREDE Standards among Career and Technical Education
Teachers with High Percentages of Hispanic Students"

IRB AUTHORIZATION NO: 16-223 EP 1606

APPROVAL DATE: June 27, 2016
EXPIRATION DATE: June 26, 2017

Your protocol was approved as "Expedited" by the IRB under federal regulation 45 CFR 46.110(7):

"(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies."

Note the following:
1. RECORDS: Keep this and all protocol approval documents in your files. Please reference the complete protocol number in any correspondence.
2. MODIFICATIONS: You must request approval of any other changes to your protocol before implementation. Some changes may affect the assigned review category.
3. RENEWAL: Submit a renewal a month before expiration. If your protocol expires and is administratively closed, you will have to submit a new protocol to continue your research.
4. FINAL REPORT: When your study is complete, please submit a final report to the Office of Research Compliance, Human Subjects.

If you have any questions concerning this Board action, please contact the Office of Research Compliance.

Sincerely,

Dr. Bernie Olin, Phar.D.
Chair of the Institutional Review Board #2
for the Use of Human Subjects in Research

cc: Dr. Leane Skinner

Appendix E: CREDE Standards

Appendix E: CREDE Standards

CREDE Standard	Indicator *
Joint Productive Activity	Designs instructional activities requiring student collaboration to accomplish a joint project
	Matches the demands of the joint productive activity
	Arranges classroom seating to accommodate students' individual and group needs to communicate and work jointly
	Participates with students in joint productive activity
	Organizes students in a variety of groupings, such as by friendship, mixed academic ability, language, project, or interests, to promote interaction
	Plans with students how to work in groups and move from one activity to another, such as from large group introduction to small group activity, for clean-up, dismissal, and the like
	Manages student and teacher access to materials and technology to facilitate joint productive activity
	Monitors and supports student collaboration in meaningful ways
Language and Literacy Development	Listens to students talk about familiar topics such as home and community
	Responds to students' talk and questions, making "in-flight" changes that directly relate to students' comments
	Assists language development through modeling, eliciting, probing, restating, clarifying, questioning, and praising, as appropriate in purposeful conversation
	Interacts with students in ways that respect students' preferences for speaking style, which may be different from the teacher's such as wait-time, eye contact, turn-taking, and spotlighting

Connects student language with literacy and content area knowledge through speaking, listening, reading, and writing activities

Encourages students to use content vocabulary to express their understanding

Provides frequent opportunities for students to interact with each other and with the teacher during instructional activities

Encourages students' use of first and second languages in instructional activities

Making Meaning	Begins with what students already know from home, community, and school
	Designs instructional activities that are meaningful to students in terms of community norms and knowledge
	Learns about local norms and knowledge by talking to students, parents, and community members, and by reading pertinent documents
	Assists students to connect and apply their learning to home and community
	Provides opportunities for parents to participate in classroom instructional activities
	Varies activities to include students' preferences, from collective and cooperative to individual and competitive
	Varies styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others
Complex Thinking	Assures that students, for each instructional topic, see the whole picture as the basis for understanding the parts
	Presents challenging standards for student performance
	Designs instructional tasks that advance student understanding to more complex levels

	Assists students to accomplish more complex understanding by relating to their real-life experiences
	Gives clear, direct feedback about how student performance compares with the challenging
Teaching through Conversation	Arranges the classroom to accommodate conversation between the teacher and a small group of students on a regular and frequent schedule
	Has a clear academic goal that guides conversations with students
	Ensures that student talk occurs at higher rates than teacher talk
	Guides conversation to include students' views, judgements, and rationales, using text evidence and other substantive support
	Ensures that all students are included in the conversation according to their preferences
	Listens carefully to assess levels of students' understanding
	Assists students' learning throughout the conversation by questioning, restating, praising, encouraging, and so forth
	Guides the students to prepare a product that indicates the instructional conversation's goal was achieved

*CREDE standards are publicly available through the University of Hawaii at Manoa.