Beliefs in the crossroads: Teachers' personal epistemology and effective practice for culturally and linguistically diverse students.

by

Cristina Fanning

B.S., Kansas State University, 2000
M.S., Kansas State University, 2002

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2017

Abstract

Today, more than ever, educators throughout the United States need to know more about the challenges, opportunities, and value diversity brings to their schools. In one decade, 2003 to 2013, the population of K-12 public school students who identified as white decreased by 9%, or by 3.2 million. During this same time, the number of Hispanic students in the K-12 public school system increased from 19% to 25%, or by 3.5 million (NCES, 2016). Projections for K-12 student enrollment in public schools indicate a continued decline in the number of White students and increases in students from diverse racial and ethnic backgrounds within another decade (NCES, 2016). We must consider the ways in which we socialize, communicate, and act within these unfamiliar and new spaces – especially those spaces where our beliefs intersect with observable actions in the classroom. The literature is replete with research on teacher epistemologies and culturally responsive teaching, yet research on the dynamic interaction between the two does not exist.

Research in this area is needed to better understand how a teacher's individual epistemology interacts with culturally responsive teaching practices. The purpose of this study was to examine whether individual teacher's epistemologies, as measured by the Epistemic Belief Inventory (EBI) can predict their level of effective practice with culturally and linguistically diverse (CLD) students, as measured by the Biography-Driven Practices (BDP) rubric. Further, five subscales of the EBI – Simple Knowledge, Certain Knowledge, Innate Ability, Omniscient Authority, and Quick Learning – were examined individually to test for potential correlations. Results show that, overall, a teacher's epistemic beliefs do not predict their level of effective practice at a statistically significant level; however two subscales, Simple and Certain Knowledge significantly predicted effective practice with CLD students.

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Acknowledgements

Dr. Tom Vontz – You understood and considered my professional life as it intersected with my personal educational goals, and helped me to navigate the unanticipated storms. I'm not sure if I would have made it to the end without your guidance and support. I come away from this process not only with the experience of doing research, but with a new respect for individuals such as yourself that give above and beyond for anyone. Dr. Doris Wright-Carroll – Out of all my committee members, you were the one that has been with me since the beginning, and I am so thankful that you were able to be with me at the end. Your words of encouragement (or demands for something to read) as I would meet you in passing were more helpful than you will ever know. Dr. Lydia Yang – You were so instrumental in guiding me through the data cleaning to the final analysis, stopping at points when you could see I needed help. More importantly, you modeled a passion and respect for research methodology which, in turn, provided fuel for my own excitement as I began to write up the results. I am grateful for this, as well as the amount of time you spent explaining even the simplest of statistical topics with never-ending patience. Dr. Brad Burenhide – I have always appreciated you as a colleague, and am thankful that you agreed to join my committee as I neared the end of my journey. Keep making life interesting! Dr. Mike Holen – You have held many roles in my life, but having you there to share with me the most important moment in my educational journey…there are no words. Admiration and respect are but faded examples of what I feel towards you. Mike, thank you for being my dean, my mentor, my committee member, my confidant, and my friend.

Dedication

Eleanor & Drew:

Beliefs are a funny thing.

I can't tell you what to believe, you need to decide for yourself, but I do know this -- we are all human, we are all living on the same planet, and at the end of the day there are basic, fundamental necessities a human must have to survive – food, shelter, water, kindness, and love. I hope you spend your life believing in humanity more than anything, and making your time on earth worthwhile. Eleanor Roosevelt once said, "One's philosophy is not best expressed in words; it is expressed in the choices one makes…and the choices we make are ultimately our responsibility". Your choices should lead to action, and action leads to change.

Love you always and forever,

Mom

Chapter 1 Introduction

"The process of knowing, which involves the whole conscious self, feelings, emotions, memory, affects, an epistemologically curious mind, focused on the object, equally involves other thinking subjects, that is, others also capable of knowing and curious. (Freire, 2005, p. 165).

Background

Diversity is powerful force in America's schools. The U.S. Department of Education's National Center for Education Statistics (2009) reported between 1998 and 2008 the United States witnessed an increase of 53.2% in the number of students speaking English as a Second Language, and by the year 2030, the U.S. Census Bureau predicts that 40% of school-age children will speak a language other than English (2000). In 1999 statistics predicted that 40% of the K-12 population would be students of color by 2010; yet that percentage was surpassed in 2007 with 44.1% of the population being identified as students of color, three years earlier and significantly higher than predicted (Howard, 1999; NCES, 2007).

K-12 schools are not only more diverse since the beginning of the 21st Century, but educators have gained a better understanding of the implications of diversity in terms of teacher attitudes (e.g. Compton-Lilly, 2004; Jennings and Smith, 2002), issues of equitable education (e.g., Darling-Hammond, 2010; Collins, 2009), the continuing achievement gap (e.g., Gorski, 2010; Howard, 2010; Zirkel, 2008) and effective instruction for culturally and linguistically diverse [CLD] students (e.g., Herrera and Murry, 2010; Herrera, 2010). Understanding the implications for providing equitable, accessible, as well as grade-level, content-area instruction for culturally and linguistically diverse (CLD) students is at the epicenter of culturally responsive teaching (Gay, 2000).

School systems are historically hegemonic (see Pullam and Van Patten, 2007; Spring 2005; Urban and Wagoner, 2004; Frankenburg, 1997), susceptible to the politics of social

movements (e.g., Alabama's HB56, Arizona's HB2281) and under-serving CLD students

through deficit perspectives that lead to the restriction of access to culturally relevant curriculum

(see Ahlquist, Gorski, and Montaño, 2011; Howard, 2010; Nieto and Bode, 2011; Spring, 2010,

Delgado, 2000; Bergerson, 2003; Fernández, 2002; Duncan, 2006; Lynn and Parker, 2009;

Solórzano and Yosso, 2002, 2009).   Gotando (2000) pointed out that while cultural and

linguistic diversity is an important topic among educators, more research on how it might then be

operationalized within the classroom setting is needed.

Education researchers have recognized the changing demographics in America's schools.

Most recently, teacher preparation programs and schools have emphasized the importance of

multicultural education. The issue of educational inequity was initially staged during the Civil

Rights Movement with the curricular initiative of "multiethnic education," which was later

changed to "multicultural education" in an attempt to include not only racial and ethnic groups

but also gender, socioeconomic status, religion, and other marginalized groups (Sleeter and

McLaren, 2009). In operationalizing multicultural education, there is one common theme that

runs throughout the theory and practice—to eliminate the inequities that exist in society, and

particularly in education (Gorski, 2010).

What the movement failed to do, however, was to bring to the forefront the deeper social

roots of racism, and instead created a celebratory atmosphere for culture and language (Sleeter

and McLaren, 2009). While many schools have embedded within their practice varying

activities designed to be multicultural in nature, cultural and linguistic diversity is *noticed* but

has yet to be fully and meaningfully *integrated* as part of the daily practice of teaching within

our school system (Gotando, 2000). As such, this lack of focus on the role of culture and

language inadvertently leads to the superficiality of multiculturalism within the school system (see Au, 2009; Portes, 2005; Gay, 2000; Sleeter, 2011).

Consequently, if the school and classroom culture does not take into account the individual and collective cultures represented by the student population, then conflicting, and possibly damaging messages are being sent to the students in regards to who they are, where they fit in the education system, and how they can be active, contributing and productive participants in a democratic society (Sleeter, 2011). The collective cultural identities created within the school system, and the personal identity shaped within the self, form a foundation for students as their belief systems mature (Eccles, 2009). Educators adopting and embracing a deficit perspective in relation to CLD are, in fact, sustaining inequitable access to a learning system as well as harming the student psychologically and emotionally (Freire, 2005).

Today, more than ever, educational systems are in dire need of recognizing the value and worth of diversity within the schools. In one decade, from fall 2003 to 2013, the population of K-12 public school students who identified as white decreased by 9%, or by 3.2 million. During this same time period, the number of Hispanic students in the K-12 public school system increased from 19% to 25%, or by 3.5 million (NCES, 2016). Projections for K-12 student enrollment in public schools indicate a continued decline in the number of White students and increases in students from diverse racial and ethnic backgrounds within another decade (NCES, 2016). Regardless of these increases and the changing face of American schools, all students deserve an educational experience that prepares them for a life of rich encounters with diverse peoples.

The implications of overlooking the need for culturally responsive teaching can have potential effect on higher education aspirations of CLD students, as currently witnessed in

students' performance in meeting College Readiness Benchmarks. A recent report by ACT (2013) noted that, out of the four benchmark areas of English, Reading, Mathematics, and Science, the highest scores were from those students identified as Asian American, with 43% meeting all four. Quite telling, however, is not one of the benchmarks areas were met by more than 50% of African American, American Indian, or Hispanic students. When the areas are narrowed to the STEM field, ACT (2013) also reported that the academic achievement gap among those students identified as ethnically diverse becomes even more prominent. This is critical to include within the conversation of the trajectory of educational achievement.

As cited above, much work in education has sought to expand upon this question of situating the culture and language of a student not only within the school and classroom, but specifically within the act of teaching itself. And within this act, agreement now exists among most researchers and educators, especially those that work with culturally and linguistically diverse students, that the core of instruction must incorporate individual student's reality (e.g., Gay, 2000; Tomlinson, 2006, 2010; Short, Vogt, Echevarria, 2011; Herrera, 2010; Herrera, Kavimandan, and Holmes, 2011). What differentiates these common views, however, is how that student's reality is defined, acknowledged, and embedded within the daily teaching and learning practices for the student.

Exacerbating this issue of how students' realities are addressed is the ubiquitous face of the teaching profession, where those that teach in the elementary and secondary public schools are students are 76% female and overwhelmingly, 82% of those teachers are white (NCES, 2013). Yet, the changes in the numbers of culturally and linguistically diverse students are increasing at astounding rates. The U.S. Department of Education's National Center for Education Statistics (2009) reported between 1998 and 2008 that K-12 schools in the United States have seen an

increase of 53.2% in the number of students who speak English as a Second Language, and where they predict by the year 2030 that 40% of school-age children will speak a language other than English (2000). In regards to the general population of the United States, El Nasser (2004) projects that by the year 2050, 50% of the population will be comprised of people of color, creating a nation where there is a distinct majority/minority shift. The juxtaposed position where the number of culturally diverse teachers remains fairly stable while the increase in the number of culturally diverse students with ever expanding learning needs exist continues to create a chasm of equal access to programs, services and the essential understanding and application of how to design and deliver instruction from truly highly qualified teachers (Meyer, 2011; Sleeter, 2011; Savage and Hindle, 2011).

Purpose of the Study

The partition between teacher and student demographics is significant. Drawing from the demographic data alone, there is more likely to be a cultural mismatch that stems from a teacher having students that differ culturally and linguistically (Renzulli, Macpherson Parrot, and Beattie, 2011; Sleeter, 2011). As depicted by Gotanda 2000, this cultural mismatch can lead to well-meaning teachers embedding within their practice varying activities designed to be multicultural in nature, but nevertheless fail to meaningfully and fully consider the individual student biographies that should be part of the daily practice of teaching within our school system. Likewise, the values, norms, and traditions in curriculum are implicitly imparted to the student, unintentionally reinforcing a system of privilege wherein those values, norms, and traditions upheld by the majority are deemed favorable (Gorski, 2012).

Research highlights the importance of individual biography is an essential learning key to engagement, acquisition of new content, and culturally-responsive instruction (e.g., Gay, 2000;

Moll, 1992; Banks and Banks, 2004; Herrera, 2010; Cushner, McClelland, and Safford, 2012), but the role that a teacher's epistemologies plays within this dynamic remains largely uninvestigated. When looking at the implications of teacher beliefs for research purposes, Kagan (1992) alludes to the importance of future research in this field because as educators learn more about these belief systems, "the more strongly one suspects that this piebald form of personal knowledge lies at the very heart of teaching" (p. 85). As noted consistently by Bendixen and Feucht (2010), the teacher is an "epistemic gatekeeper," responsible for the individual student's beliefs as well as "paramount to the epistemic ebb and flow of the classroom climate/culture" (p. 567). The authors also note that teachers must continue to explore their personal beliefs, be exposed to constructivist teaching practices, and have additional training in ontology, or ways in which to operationalize in their own classroom a constructivist approach (Bendixen and Feucht, 2010).

Researchers need to investigate personal epistemology of a teacher in relation to their instructional practice. The purpose of this study was to determine whether, and if so, to what extent, a teacher's epistemological beliefs can predict/explain his or her level of effective practice with culturally and linguistically diverse students. Furthermore, this study investigated demographic variables related to the measure of teacher epistemic beliefs (Epistemic Belief Inventory [EBI]) and the measure of effective teaching practices (Biography-Driven Protocol [BDP]).

Guiding Research Questions

Question 1: In what ways and to what extent can a teacher's epistemological beliefs predict his/her level of effective practice for culturally and linguistically diverse students, after

controlling for the demographic variables of years teaching, level of education, ESL coursework, and CLD professional development hours?

Sub Question 1.A: To what extent does the subscale "Simple Knowledge" on the EBI predict a teacher's level of effective practice?

Sub Question 1.B: To what extent does the subscale "Certain Knowledge" on the EBI predict a teacher's level of effective practice?

Sub Question 1.C: To what extent does the subscale "Innate Ability" on the EBI   predict a teacher's level of effective practice?

Sub Question 1.D: To what extent does the subscale "Omniscient Authority" on the EBI predict a teacher's level of effective practice?

Sub Question 1.E: To what extent does the subscale "Quick Learning" on the EBI predict a teacher's level of effective practice?

Theoretical Framework

Education is becoming increasingly complex. New theoretical frameworks are replaced and/or combined with with the existing frameworks; teachers are asked to cast a wider net to meet the needs of a more diverse student population and diverse life; and the practice of teaching and learning is shifting meet the political demands of the standards and assessments movement (Christensen and Karp, 2003, Fullan, 2007; Pagliaro, 2013; Rodriguez and Fitzpatrick, 2014).

The nature of this study, determining if a relationship exists between the philosophical dimensions of epistemology and ontology and the pragmatic dimensions of education and cognition, was framed within the theory of critical constructivism.   While multiple theoretical constructs exist within the variables being studied (e.g., theories of knowledge, theories of cognition), this particular lens not only accounted for many those factors, but also accounted for

the overarching inequities currently present in U.S. school systems. Given that our nation is facing an increase in diversity among school-age children, a cultural disconnect could be possible between those students and their teacher—especially as demonstrated through the persistent achievement gap among various subgroups of CLD students in relation to their counterparts. Therefore, the use of critical constructivism provided the power-added lens in which to consider the role various inequities play within the school structure. This framework, as described by Kincheloe (2005), "involves theoretical work in education, epistemology, cognition, and ontology… a unified theory where all of these dimensions fit together and are synergistic in their interrelationship" (p.7).

This study sought to initiate a dialogue by examining the potential relationships between teacher beliefs and their teaching practice, given that many educators tend to adopt a deficit perspective—they maintain lower academic expectations when working with students from cultural and linguistic backgrounds that differ from their own (Ahlquist, Gorski, and Montaño, 2011; Kubota and Lin, 2009; Gay, 2000).

In conceptualizing this study and interpreting its data, integration of a variety of theoretical frameworks was necessary. There are various learning theories and corresponding instructional constructs that provided background for the use of critical constructivism within this study; Behaviorist/Positivist, Cognitive, and Constructivist. Learning theories, as defined by Bigge (1992), are a "systematic and integrated outlook in regard to the nature of the process whereby people relate to their environments in such a way…to use both themselves ad their environments more effectively" (p.3). The instructional construct, or the role that the act of teaching plays within the learning environment, is aligned to these learning theories and can range from teacher-directed to student centered.

The psychological grounding of behaviorism, aligned with the philosophical-based positivist movement, maintains that everything that is to be known is outwardly observable. Therefore, any internal reaction or influence is discarded (Skinner, 1938; Amsel, 1989; Freiberg, 1999). In the instructional environment, teaching is conducted to merely transmit information from teacher to student, a concept that Freire (1970, 1993) termed the "banking concept of education" (p. 72). Researchers have aligned behaviorism with the worldview of objectivism, which "assumes that there is a single reality external to individuals" (Bichelmeyer and Hsu, 1999, p.3). There is an expected state of passivity from students, with their role being capable memorizers and repeaters of objectively imparted knowledge, with the teacher being the depositor of such knowledge (Freire, 1970, 1993; Alexander, Fives, Buehl, and Mulhern, 2002).

New cognitive theories paralleled the rise of behaviorism. Cognitive psychologists maintained that the internal mind, not outside stimuli, was critical to any type of learning. Bruner (1973) insisted that learners were not mechanical in their responses, but relied upon their own minds to "infer principles or rules underlying the patterns which allow them to transfer their learning to different problems" (p. xv). The additional intrinsic elements of an individual's culture and language was also necessary in understanding and describing their very actions (Coulter, 1983). However, while recognizing that there was an internal, cognitive element, it also assumes that the classroom content and curriculum is the best knowledge, even if it conflicts with students existing knowledge and beliefs (Sinatra and Kardash, 2004). The instructional construct of teaching as persuasion involves the teacher acknowledging a student's potential conflict with what is being taught, considering their viewpoint, and rewording the lesson in order for the student to change his or her initial knowledge or belief system (Murphy, 2001).

Constructivism, or social constructivism, seemed to combine the esoteric elements of behaviorism and cognition by acknowledging the interplay between the external stimuli in the learning environment and the internal knowledge and belief systems held by the learner. A constructivist view of learning recognized students as needing a teacher to take what they know and believe about the content being learned, and add to that existing knowledge base with new content – or teaching as scaffolding (Fosnot, 1996; Martinez, Sauleda, and Huber, 2001).

The use of critical constructivism as a theoretical framework for this study builds upon the foundation of social constructivism, wherein a teacher "must value the CLD learner's experience and knowledge, gained both in and out of the classroom" (Herrera, 2010, p. 86). Henry Giroux, in his 1981 publication of *Ideology, Culture and the Process of Schooling*, echoed the prior work of Dewey and Friere in arguing that schools and schooling in inextricably intertwined with all cultural aspects of a society.

In order to be fully emancipated from the inequities found throughout society, teachers and students must become "critical agents" in questioning how knowledge is produced, for whom it is being produced, and restructuring the narrative to expose and cross the "borders" of power, epistemology, cultural and social representation within the curriculum, oppression, and the "silencing" of voice by dominant social structures (Morrison, 2006). This instructional approach, teaching as emancipation, is aligned with the practices seen in a classroom wherein the teacher is being culturally responsive and biography driven. Likewise, in a classroom where this *integration* is occurring, the epistemic beliefs of the teacher are more subjective in nature; that is, they recognize knowledge as being a product of the entire class and the subject or content matter, students recognize their own lived realities and experiences as being critical to the process, and

together, students and teachers produce knowledge that reflects applicability to real world

contexts (Fullan, 2007; Herrera, 2010).

Research throughout the 20th Century advanced activity and learning theories from both

the psychological and the philosophical domains. Behaviorism focused on the stimuli required

for learning, cognition recognized humans as having the capacity to think independently and

creatively, and constructivism sought to blend the action and the mind with purpose. However,

none of these accounted for the cultural mismatch that is occurring in our schools between

teachers and the increasing diversity of our students, and the need to inject into the education

environment an authentic and purposeful way in which to address this cultural and linguistic

divide.

In considering the measures that were utilized within this study, there is a clear

contribution and alignment of each theory and instructional construct to education within each

tool. The Biography-Driven Protocol (BDP) consists of five standards and 22 indicators, with

observed instructional practice measured along a continuum from "0 = not observed" to "4 =

integrating." The higher the score on the BDP, the more effective a teacher is with culturally and

linguistically diverse students. Likewise, the Epistemic Belief Inventory (EBI) consists of five

dimensions or subscales, with scores ranging from 32-160. Within the EBI, a lower score

indicates more subjectivity, and a higher score is considered to be objective in nature. As

illustrated in Table 1, this alignment between theory, instructional construct, culturally

responsive teaching (as measured by the BDP), and teachers' epistemic beliefs indicates that the

use of critical constructivism as the theoretical lens is justified.

Table 1 Justification of Critical Constructivism

Theory	Instructional Construct	BDP Alignment	EBI Alignment
Behaviorist/Positivist	Teaching as Transmission	0-1: Emerging	118-160: Objective
Cognitive	Teaching as Persuasion	2: Developing	75-117: Validating
Constructivism	Teaching as Scaffolding	3: Enacting	
Critical Constructivism	Teaching as Emancipation	4: Integrating	62-74: Subjective

Chapter 2 Literature Review

The following review focuses on the related literature that helped to conceptualize this study and interpret its results. It focuses on the history of epistemology and personal epistemology (teacher) as well as effective/best practices for culturally and linguistically diverse learners. Statistically, the number of culturally and linguistically diverse students continues to increase, while at the same time the demographic makeup of a majority of teachers responsible for their educational success may find it difficult to navigate the cultural nuances presented by CLD students (see Cushner, McClelland, and Safford, 2012; Ahlquist, Gorski, and Montaño, 2011; Kubota and Lin, 2009). This study adds to the research about personal epistemology, or "ways of knowing," and how these epistemologies are fundamental to understanding the ontological, or "ways of being" in the act of teaching (Olafson and Schraw, 2011; Greene *et al.*, 2011).

This literature review provided a foundation for the research questions proposed in this study that explored the relationship between teachers' personal epistemologies and their effectiveness in the instructional setting with diverse students. Based upon the literature presented, the theory of critical constructivism is introduced as the framework for the research questions posed in the previous chapter. Illuminated at the end of this chapter is the gap that exists presently between the current research of teacher's epistemological beliefs and effective practice for diverse student populations.

The process used to conduct a thorough review of the research literature began with a search for keywords such as "epistemology," "personal epistemology," "belief systems," "teacher beliefs systems," and "teacher epistemology." Upon identifying seminal work within the research literature, search terms became more refined and targeted towards specific items and authors such as "Epistemological Questionnaire" and "Schommer"/"Schommer-Aikins";

Teaching and Learning Conceptions Questionnaire" and "Chan" and "Elliott"; and "Epistemic Belief Inventory" and "Schraw," "Bendixen," and "Dunkle." Databases used to obtain relevant literature, including research articles, peer-reviewed publications, and relevant textbooks included Academic Search Premier, Pro-Quest Research Library, PsycINFO, and the National Center for Education Statistics, all accessed through Kansas State University's online Hale Library. The same library online system was used in order to search the general catalog, using similar search terms as listed previously, for textbooks and other publications. Those found to be relevant to this study were physically checked out by the researcher for purposes of conducting a thorough literature review.

Epistemology

Epistemology, or the theory of knowledge, has roots in the fields of philosophical thought, and it's main premise is to identify the way that a person "knows" what they know and the ways in which disciplines or fields make knowledge claims (Audi, 1998; Smith (ed) 2008; Williams, 2001; Hetherington, 2001; Lemos, 2007; Koch, 2005; Pollock and Cruz, 1999; Bendixen and Feucht, eds., 2010). Issues and arguments about epistemology occupy a space in nearly every recognized discipline (e.g., DeRose, 2005; Schommer, 2004; Jehng er atl., 1993). Educational researchers such as Perry (1970), Schommer (1990, 2004), Audi (1998), Hetherington (2001), and Sosa (2011) have advanced epistemological arguments in education.

Epistemology as a theory seeks to place a name to those various ways a person comes to "know," whereas personal epistemology is an area of study that investigates the individual belief systems and the ways in which those interact with the overall theory of how a person knows what they know (epistemology). A study reported by Schommer in 1990 posited that personal epistemology was a system of beliefs that warranted clarification in the field. Her study built

upon previous literature by researchers such as Perry (1970) and Kitchener and King (1981) by conceptualizing personal epistemology as created through an independent system of beliefs (Hofer and Pintrich, 2002). Schommer's (1994) work continued the investigation of the theory of epistemology by identifying five distinct knowledge belief systems, which are: *stability of knowledge, structure of knowledge, source of knowledge, control of knowledge acquisition* and the *speed of knowledge acquisition*. Within these five belief systems, an individual would range from having simplistic, naïve beliefs to having more robust and sophisticated beliefs (Schommer-Aikins, 2002). This movement of epistemology from the philosophical realm into the pragmatic world was critical in investigating individual belief systems as they related to teaching and learning.

Epistemology does not stand separate from the concepts of attitudes and dispositions that may also influence meaning perspectives (Mezirow, 1990). Indeed, as epistemology, or how we know what we know, is rooted in human knowledge, as noted by Pajares (1992) belief systems become the screen through which new information (knowledge) is filtered. Therefore, in examining potential relationships between epistemology and culturally responsive classroom practice, additional attention should also be placed on the concepts and supporting literature in relation to teacher attitudes, efficacy, and resistance to diversity (Gaete, 2013).

The self-beliefs held by a person influence their understanding when they are in situations where interaction with culturally diverse people (Keles, 2012). Exposure to cultural diversity through both formal (education, professional development) and informal (travel abroad, interactions with people from diverse backgrounds) will typically exhibit more positive attitudes towards teaching culturally, and especially linguistically, diverse students.(Youngs & Youngs, 2001). Likewise, a teacher's self-efficacy, in relation to success in teaching CLD students, has a

positive impact on their attitudes as seen in research by Karabenick and Clemens Noda (2004) who found a moderately strong positive correlation ($r = .57$) between teacher-efficacy and positive attitudes toward teaching ELL students.

Literature related to resistance to diversity has also brought to the conversation those factors that inhibit actionable change within an educational setting. Mezirow (1990) concluded that the meaning perspectives that we hold, those assumptions that exist based on our socialization, "direct the way we collect additional data; compare incidents, key concepts, or words; and relate emergent patterns metaphorically…" (p. 9). As such, when teacher encounters a situation wherein the cultural and linguistic patterns of the student do not correspond with the expected, known, or normed behavior, the teacher will revert to prior socialization and experiences in order to assimilate the new information into existing schematics (e.g. Dewey, 1933; Mezirow, 1990; Merriam, 2004).

Resistance, therefore, has the potential to take the one of two forms of discrimination; one which is "irrational, motivated by bigotry," and the other that is "made rational from the point of view of the discriminator" (D'Souza, 2009). In education, while outright bigotry does exist, what is more dangerous is the resistance to transformative learning that takes on an innocent guise in the classroom; curriculum that continues the narrative of "white innocence" (Leonardo, 2009, p.76); school environments that are reductionist in an attempt at "liberal multiculturalism" (Vavrus, 2015, p.39); and the utilization of language to uphold the status quo – or as described by Eduardo Bonilla-Silva (2006), "rhetorical incoherence…must be regarded as part of the overall language of color-blindness: (p.54). Howard (1999) summarizes the concept as such:

Diversity is not a choice, but our responses to it certainly are. And to date, all indications

point to the fact that our responses have not been adequate to deal with the full range of

issues presented by the complexities of teaching in a multicultural nation (p.2).

Personal/Teacher Epistemology

Hofer and Pintrich (1997) reviewed the literature pertaining to epistemology, and defined

personal epistemology as follows:

Epistemology is an area of philosophy concerned with the nature and justification of

human knowledge. A growing area of interest for psychologists and educators is that of

personal epistemological development and epistemological beliefs: how individuals come

to know, the theories and beliefs they hold about knowing, and the manner in which such

epistemological premises are a part of and an influence on the cognitive processes of

thinking and reasoning (p. 88).

Recent research completed by Olafson and Schraw (2011) and Greene *et al.* (2011) indicates that

investigations into the theory of personal epistemology, or "ways of knowing," are fundamental

to understanding the ontological, or "ways of being" as a teacher is involved in the act of

teaching. Epistemic developmental frameworks that preceded Olafson and Schraw's research

suggested that "teachers' personal epistemology, in particular their epistemic development,

influences not only their choices of teaching strategies and use of educational materials, but also

openness to educational reform and further professional development" (Feucht and Bendixen,

2011, p. 7). The importance of teacher epistemology is not just contained in his or her ways of

knowing, but also in the act of instruction.

A teacher's personal epistemology has been shown to have an effect on the success of

students, in particular students who are culturally and linguistically diverse (Brownlee, 2001;

Chan and Elliott, 2001; Schommer, 2004; Schraw and Olafson, 2002; Bendixen and Feucht, Eds., 2010). Recently, in his 2011 study, Barnett concluded that,

> …those identified as exemplary teachers have fairly high epistemological belief systems…The participants held very sophisticated beliefs that with effort and persistence, learning can take place for a student. Additionally, the participants suggested that the continuous effort and hard work of students can result in increased learning and ability for a student (p. 111).

Barnett's study is critical in understanding a link between teacher epistemology and the different levels of student's language development and achievement success. However, the study was limited to eighteen participants that were identified as "effective" by their administrators. No evidence exists of observing the classroom instructional practice that was implemented by these teachers beyond the interview.

Epistemology and Teaching Pedagogy

Research in the field of educational epistemology over the past 30 years has been extensive, but primarily focused on the epistemology of the field or student epistemologies as opposed to teacher epistemologies (Bendixen and Feucht, 2010). The limited amount of literature from the late 20th Century on teacher epistemology as related to belief systems ranges from studies at the Pre K-3 level (Peterson, Fennema, Carpenter, and Loef, 1989; Smith and Neale, 1989; Smith and Shepard, 1988), the elementary level (Calderhead, 1990; Freeman and Porter, 1989; Gibson and Dembo, 1984; Janesick, 1982; Johnson, Brookover, and Farrell, 1989; Poole, Okeafor, and Sloan, 1989; Prawat and Anderson, 1989; Roehler and Reinken, 1989), middle and high school levels (Ashton and Webb, 1986; Grossman, 1989; Gudmundsdottir, 1991; Hollon, Anderson, and Roth, 1991; Litt and Turk, 1985; Morine-Dershimer, 1983;

Peterson and Comeaux, 1989; Rennie, 1989; Smylie, 1988; Stein, Baxter, and Leinhardt, 1988, Wilson and Wineburg, 1988), to the final level of investigating the beliefs of pre-service educators (Brousseau, Book, and Byers, 1988; Morine-Dershimer, 1988).

Pajares (1992) attempted to clarify the need to distinguish general beliefs systems and how they are formed from those specific beliefs about education that teachers hold. Aligned with Schommer's (1990, 1994) work in identifying the individual belief systems, Pajares (1992) moved personal belief systems into education, specifically into the act of teaching and the role a teacher's beliefs had on daily instructional practice. His "fundamental assumptions" when exploring teacher's educational beliefs included the following:

- Beliefs are formed early and tend to self-perpetuate, persevering even against contradictions caused by reason, time, schooling, or experience.

- Individuals develop a belief system that houses all the beliefs acquired through the process of cultural transmission.

- The belief system has an adaptive function in helping individuals define and understand the world and themselves.

- Knowledge and beliefs are inextricably intertwined…and the episodic nature of beliefs makes them a filter through which new phenomenon are interpreted.

- … the filtering effect of belief structures ultimately screens, redefines, distorts, or reshapes subsequent thinking and information processing.

- Epistemological beliefs play a key role in knowledge interpretation and cognitive monitoring.

- Beliefs are prioritized according to their connections or relationship to other beliefs or other cognitive and affective structures.

- Belief substructures, such as educational beliefs, must be understood in terms of their connections not only to each other but also to other, perhaps more central, beliefs in the system.

- Some beliefs are more incontrovertible than others by their very nature and origin.

- The earlier a belief is incorporated into the belief structure, the more difficult it is to alter. Newly acquired beliefs are more vulnerable to change.

- Belief change during adulthood is a relatively rare phenomenon…Individuals tend to hold on to beliefs based on incorrect or incomplete knowledge, even after scientifically correct explanations are presented to them.

- Beliefs are instrumental in defining tasks and selecting the cognitive tools with which to interpret, plan, and make decisions regarding such tasks; hence, they play a critical role in defining behavior and organizing knowledge and information.

- Beliefs strongly influence perception, but they can be an unreliable guide to the nature of reality.

- Individual's beliefs strongly affect their behavior.

- Beliefs must be inferred, and this inference must take into account the congruence among individual's belief statements, the intentionality to behave in a predisposed manner, and the behavior related to the belief in question.

- Beliefs about teaching are well established by the time a student gets to college (pp. 324-326).

These fundamental assumptions were derived from an extensive review of psychology literature from researchers whose work ranged from describing a difference between belief and attitude (Abelson, 1979), the connection between belief and social realities (Bandura, 1986), basic

thought processes (Dewey, 1933), cognitive change effect of beliefs (Hollingsworth, 1989), and work from Nespor (1987) which detailed the ontological relationship between beliefs and teaching action.

Further studies explored the relationship between educator's personal beliefs and how they designed and delivered instruction. Brownlee and Berthelsen (2006) conducted a qualitative study with six early childhood educators to ascertain their beliefs in relation to how they carried out their teaching practice. They concluded that those teachers that were more subjective in their views of knowledge were more likely to conduct classroom activities and instruction that were constructivist in nature. On the other hand, those teachers that were more objective, "assuming that children learn only from direction and instruction" (p. 19), were less likely to conduct constructivist practices within their classroom.

In short, when using personal beliefs to investigate teaching pedagogy, one must realize that, while a teacher's belief system plays a large role in the teaching process, the ways in which to change teaching practice may not be attained easily by changing belief systems. Nevertheless, understanding and applying constructivist practices and developing culturally-responsive learning environments with sound, research-based pedagogy is warranted.

Measuring Personal Epistemology

Quantitative measurement of personal belief systems, especially in relation to learning, is continually evolving. The first measures were based on self-reporting from participants and became widely used as tools for investigating personal epistemology. For example, Schommer introduced the Epistemological Questionairre (EQ) in 1990, defining personal epistemology as having dimensions of knowledge and knowing. Three of the five dimensions focused on beliefs about knowledge: 1) Structure (simple vs. complex), 2) Certainty (certain vs. tentative), and 3)

Source (omniscient vs. personal construction). The other two dimensions measured the nature of the acquisition of knowledge, namely Ability (fixed vs. malleable) and Learning (quickly vs. not at all). The EQ consisted of 63 items where participants used a Likert-scale to indicate degrees of agreement on each statement. Schommer, with her development of a quantitative measure of beliefs, brought research in educational psychology into a new era (Mason, 2011), thus kick-starting adaptations and modifications to the original tool.

Schraw, Bendixen, and Dunkle developed a second substantive measure in 2002, referred to in of the review of literature as the Epistemic Beliefs Inventory (EBI). According to Schraw et al. (2002), their goal in adapting the EQ was to "construct an instrument in which all of the items fit unambiguously into one of five categories" of Schommer's measure (p. 263). The EBI was similar to the EQ in that it was implemented using a Likert-scale with degrees of agreement, but the number of items was decreased significantly to 32 items. To decrease the ambiguity of the EQ, the EBI contained five subscales, with specific items assigned within each: 1) Simple Knowledge (seven items), 2) Certain Knowledge (eight items), 3) Omniscient Authority (five items), 4) Quick Learning (five items), and 5) Fixed Ability (seven items) (Schraw et al., 2002 as cited in Hofer and Pintrich, Eds., 2002).

The EBI was constructed to address shortcomings (scoring procedures and psychometric properties) within the EQ (Teo, 2011). As noted by Teo (2011), not only did the EBI seek to address the certain shortcomings of the EQ, but it also reduced the items being measured by half (from 63 to 32) and with greater reliability while still functioning in the same manner as the EQ (p. 2). Although the recent research identifies significant validity issues within the EBI, Teo (2011) notes that limitations of his sample, in particular the cultural environment (Singapore), may be related to his findings (pp. 9-10). Validity and reliability of the EBI was established in

the United States (Bendixen, Shraw, and Dunkle, 1998; Ravindran, Greene, and DeBacker, 2005; Schraw, Bendixen, and Dunkle, 2002).

Wood and Kardash (2002) developed a third measure. The Epistemological Beliefs Survey (EBS) was created using a combination of items from Schommer's tool as well as an instrument developed by Jehng et al. (1993). The EBS began as an 80-item survey and after testing of internal consistency and factor analyses, was reduced to a survey consisting of 38 items. The EBS also contained five subscales, two of which, Speed of Knowledge Acquisition and Structure of Knowledge, were similar to the EBI and the EQ. The remaining three subscales were Knowledge Construction and Modification, Characteristics of Successful Students, and Attainability of Objective Truth, all unique to the EBS.

These three measurements were, as mentioned previously, administered as self-report instruments, used a Likert-type scale to indicate degrees of agreement, and separated epistemic beliefs into categories. They also shared an aspect of personal epistemology identified as domain-generality. While this particular study does not explore in-depth the duality or similarities between the aspects of domain-generality and domain-specificity, it is worth noting that epistemology has multiple layers of complexity that cannot ever be fully encapsulated within a single tool of measurement.

It is noted that while these, as well as most measures of epistemic beliefs, report varying levels of psychometric as well as internal consistency reliability factors meeting standard social science results of .70 (Wheeler, 2007). However, previous research by Elby and Hammer (2001), Duell and Schommer-Aikins (2001), and Louca (2004) indicate that consideration must be made for not only the level of epistemic sophistication of the individual but also the context in which the measure is administered. These underlying assumptions, as well as empirical studies that

have validated multiple measures currently utilized in the field, are to be taken into account when attempting to measure something as complex as personal epistemologies (Wheeler, 2007).

One of the issues arising from the measurement of personal epistemology is finding avenues in which to investigate teacher's beliefs, as many of the studies completed with the EQ, EBI, and EBS used *students* as the participants. This brings to light the second issue facing researchers; that is, the apparent lack of research being completed that measures *practicing teachers' beliefs* in relation to their teaching practice.

Culturally-Responsive Pedagogy

Researchers continue to identify and describe the complex relationships among and between culture, language, and the classroom. As cited earlier, a plethora of researchers and educators agree, especially those that work specifically with CLD students, that the core of instruction must be the individual student's reality (e.g., Gay, 2000; Tomlinson, 2006, 2010; Short, Vogt, Echevarria, 2011; Herrera, 2010; .Herrera, Kavimandan, and Holmes, 2011). Nevertheless, what differentiates these common views is how each and every student's reality is defined, acknowledged, and embedded within the daily instructional practices.

Geneva Gay (2000) investigated the concept of culturally responsive pedagogy and how "deliberate transformation" must be embedded within the classroom. Her eighteen "Pillars for Progress," general principles of how to do culturally responsive teaching, called for the immediate acknowledgement of not only the students' realities, but also the sociopolitical environment of education. This defined students' realities based upon their cultural background first and foremost, with acknowledgement being derived from high expectations, preferred learning styles, and the creation of a "cultural bridge" between school and home (p. 214). However, there was little to no reliable information on how a teacher was to become culturally

responsive beyond "staff development of teachers that includes cultural knowledge and instructional skills, in concert with personal self-reflection and self-monitoring techniques for teaching to and about ethnic diversity" (Gay, 2000, p. 214).

In addressing this gap in relation to culture and language, Howard (2010) identified and examined five key themes of culturally responsive pedagogy; they are:

- The eradication of deficits-based ideologies of culturally diverse students.

- The disruption of the idea that Eurocentric or middle-class forms of discourse, knowledge, language, culture, and historical interpretations are normative.

- A critical consciousness and sociopolitical awareness that reflects an ongoing commitment to challenge injustice and disrupt inequities and oppression of any group of people.

- An authentic and culturally informed notion of *care* for students, wherein their academic, social, emotional psychological, and cultural well-being is adhered to.

- A recognition of the complexity of culture, in which educators allow students to use their personal culture to enhance their quest for educational excellence (p. 70).

Culturally-Responsive Teaching

Other researchers in the field sought to expand on Gay's work, specifically using guidelines to operationalize daily classroom routine. Carol Ann Tomlinson introduced the concept of *differentiated instruction*, which emerged first as a special education initiative, and is identified presently as a philosophy with principles to: 1) guide the teacher's ways of not only teaching, and, 2) how to approach learning (Tomlinson and Imbeau, 2010). As found also in culturally responsive teaching, these principles also called for recognition of individual student needs and modification, adaptation and accommodation to instructional practices. What sets

these principles apart from other instructional frameworks is the specificity and focus on four curriculum elements (content, process, product, and affect) that align with the students' individual needs – identified within three categories, readiness, interest, and learning profile (Tomlinson and Imbeau, 2010). Where culturally responsive teaching gave little insight into how it was to be operationalized differentiated instruction sought to provide a clearer structure for recognizing individual student assets within the daily classroom routine and curriculum. However, differentiated instruction only took into account four elements of the student – learning style, intelligence preference, gender, and culture. While the term "culture" can be encompassing of the multiple dimensions of a student's biography, the failure of the multicultural movement to truly infuse the concept of "culturally responsive" had affectively watered down the definition to the heroes and holidays mindset.

As noted previously, the sociopolitical environment of the education system in the United States plays an important, although often unrealized or unrecognized, the role in the overall ecology of the classroom setting. Both culturally responsive teaching and differentiated instruction fall short in that neither model takes into account the *external environment* of the student, nor as Moll, Amanti, Neff, and Gonzalez (1992) identified, the *funds of knowledge* that a student brings with him to the classroom. Additional models of instruction for diverse students, as demonstrated below, followed that scaffolded on culturally responsive pedagogy and differentiated instruction and focused on the student's contributions to classroom instruction.

The Cognitive Academic Language Approach (CALLA) emphasized three types of learner strategies based upon theories of cognition. Learners in this approach became active participants within the classroom setting by utilizing what they know and what they consider to be important, using that information in a contextual manner, and reflecting on their own learning

(Chamot and O'Malley, 1994). Likewise, the SDAIE (Specially Designed Academic Instruction in English) model promoted the sheltering of academic and content area curriculum for culturally and linguistically diverse students (California State Department of Education, 1994). Based upon Vygotsky's (1962) theory of social cognitive development as well as the theory of comprehensible input (Krashen and Terrell, 1983), SDAIE became the precursor to the Sheltered Instruction Observation Protocol (SIOP) Model. Focusing on content and language development, Jana Echevarria, MaryEllen Vogt, and Deborah Short (2013) identified 30 features within eight conceptual components outlined below:

- *Lesson Preparation* initiate the lesson planning process, so teachers include content and language objectives, use supplementary materials, and create meaningful activities.

- *Building Background* focuses on making connections with students' background experiences and prior learning, and developing their academic vocabulary.

- *Comprehensible Input* considers how teachers should adjust their speech, model academic tasks, and use multimodal techniques to enhance comprehension.

- The *Strategies* component emphasizes teaching learning strategies to students, scaffolding instruction, and promoting higher-order thinking skills.

- *Interaction* prompts teachers to encourage students to elaborate their speech and to group students appropriately for language and content development.

- *Practice and Application* provides activities to practice and extend language and content learning.

- *Lesson Delivery* ensures teachers present a lesson that meets the planned objectives and promotes student engagement.

- The *Review and Assessment* component reminds teachers to review the key language and content concepts, assess student learning, and provide specific academic feedback to students on their output (pp. 16-17).

SIOP resulted in another instructional model, one in which teachers focused on academic language development of students in the classroom that were learning English as a second language. The gap with this particular model is that it is limited to one demographic sub-group, English Learners, and does not take into account the range of cultural and linguistic diversity that exists in today's schools. Echevarria, Vogt, and Short (2013) claimed that more than fifteen years of research involving this model found it to be effective for teaching English learners when teachers implemented with high degrees of fidelity. However, a recent report released by the Institute of Education Sciences in the U.S. Department of Education concluded that there is not enough evidence based on research that indicate that SIOP is effective or ineffective for English Learners (IES, 2013).

These models, while not the only in existence, carry with them the foundational ideas to begin to address the increasing diversity of our school system, both linguistically and culturally. Socorro Herrera (2010, 2011), analyzed the strengths of existing models to formulate a far more comprehensive understanding of essential qualities in the teaching of CLD students. Known now as Biography-Driven Instruction, her research embraced the pedagogical and philosophical ideas of culturally responsive teaching and differentiated instruction, and instructional models such as CALLA, SDAIE, and SIOP. Specifically, Biography-Driven Instruction offers the following extensions to previously identified instructional models (See Figure 1).

Figure 1 BDI Contributions

	Biography-Driven Instruction (BDI) Contributions to Existing Instructional Models	
BDI extension on CALLA	• Emphasizes strategies that are cognitively anchored to students' cultures • Provides consistent opportunities for students to record their initial schematic, especially cultural, connections to the topic so that they can modify/elaborate upon these connections throughout the lesson • Utilizes students' native language as a springboard for both linguistic and academic development
BDI extension on SDAIE	• Challenges teachers to create conditions and situations that allow students to share what they bring to the lesson and that support students in taking ownership of the learning process • Supports teachers in strategically and systematically addressing the linguistic and academic needs of students at all stages of second language acquisition • Guides teachers to use comprehensible input to ensure cognitively demanding instructional conversation, while continually monitoring students' states of mind
BDI extension on SIOP	• Utilizes students' home and community-situated discourse patterns as a bridge to academic language development • Allows the students' biography and linguistic assets to inform instructional decisions related to preassessment, grouping configurations, assessment, and so forth • Supports students' connections from the *known* (background knowledge) to the *unknown* (new material) through techniques such as teacher revoicing

Adpated from Herrera, S. (2010). *Biography-Driven Culturally Responsive Teaching.* **Teachers College Press: New York, New York. pp. 10-13.**

What Biography-Driven Instruction uniquely does is essentially take all three instructionally focused perspectives to advanced levels by integrating them into one, succinct, yet comprehensively designed instructional methodology.

Measuring Culturally Responsive Teaching

As cited earlier, researchers continues to struggle to access those instruments that not only provide a measure of effective practice, but also take into account those essential elements of culturally responsive teaching that have been clearly identified over the past several decades.

Likewise, with the various models mentioned in the previous section, only one, Biography-Driven Instruction, has a highly correlated, corresponding observational tool, the Biography-Driven Practices rubric, that measures the level of effective, culturally-responsive practice within the act of teaching.

The literature clearly outlines, and the historical conversations and current politics of our country provide evidence of the inequities that continue to exist in society, wherein culturally responsive teaching for social justice seems to provide a point of departure for the solution. However, given the political, historical, and social inequities found within our system of education, where does a teacher's epistemology, their beliefs about knowledge, intersect with their ability to be culturally responsive, highly-qualified educators?

Chapter 3 Research Design and Methodology

A student's biography and a teacher's personal epistemology are critical to providing effective instruction. A teacher's observable instructional behaviors may provide insights into either and/or both. The purpose of this study was to discover any potential or existing relationships between a teacher's epistemological beliefs and their level of effective practice with culturally and linguistically diverse (CLD) students. Clearly outlined within this chapter are the methodological choices of the study including the research questions, research design, study participants and sampling technique, and quantitative instruments utilized to measure certain constructs.

The study was designed as a correlation using hierarchical linear regression, as the researcher was observing for existing predictors of effective practice, without additional interventions that are typical of quasi-experimental and experimental research. The organic nature of the data provided an opportunity to explore potential predictors of effective, culturally-responsive teaching independent of further manipulations such as coursework or professional development sessions. In doing so, the researcher was better able to determine future directions for educators by exploring and establishing a baseline for research in this area. Likewise, hierarchical linear regression analyses were completed in blocks, or models, allowing for a decrease in ambiguity given that factors are controlled for in each block.

Research Questions

Question 1: In what ways and to what extent can a teacher's epistemological beliefs predict his/her level of effective practice for culturally and linguistically diverse students, after controlling for the demographic variables of years teaching, level of education, ESL coursework, CLD professional development hours?

Sub Question 1.A: To what extent does the subscale "Simple Knowledge" on the EBI predict a teacher's level of effective practice?

Sub Question 1.B: To what extent does the subscale "Certain Knowledge" on the EBI predict a teacher's level of effective practice?

Sub Question 1.C: To what extent does the subscale "Innate Ability" on the EBI predict a teacher's level of effective practice?

Sub Question 1.D: To what extent does the subscale "Omniscient Authority" on the EBI predict a teacher's level of effective practice?

Sub Question 1.E: To what extent does the subscale "Quick Learning" on the EBI predict a teacher's level of effective practice?

Research Design

The researcher examined the existing relationship between teachers' epistemological beliefs, using the EBI, and effective practice for culturally and linguistically diverse students, using the BDP, using a hierarchical linear regression model. Different from quasi-experimental and experimental research, correlational research does not manipulate factors or conditions, but rather is a way in which to observe relationships that naturally occur (Field, 2009). The researcher intended to investigate potential existing relationships and the design did not necessitate any *additional* interventions, professional development, or coursework. Use of hierarchical multiple regression, as opposed to a standard regression, decreased the ambiguity that can arise when differences among groups are not accounted for within a study (Seltzer & Rickles, 2012). The use of hierarchical linear regression is a standard procedure when looking for a linear relationship after controlling for certain variables, as it allows for a more detailed quantitative description of the correlation coefficient (Field, 2009).

In order to investigate the relationship between the EBI and BDP, the model first needed to account for the demographic variables of years teaching, level of education, ESL coursework, CLD professional development hours. Therefore, the first regression model (Block 1) examined the potential effect these four demographic variables may have on the dependent variable. These particular variables were chosen due to the potential impact they may have on the BDP. Teachers who have been teaching for more years may become more negative toward students using their native language in the classroom (Garcia-Nevarez, Stafford, & Arias, 2005), which is encouraged in a culturally responsive classroom. Likewise, the more experience a person may have with the act of teaching, educational attainment, and targeted educational opportunities, the more likely they were to be effective teachers of CLD students. Therefore, controlling for these factors could reflect the relationship between EBI and BDP more accurately. The second regression model (Block 2) was to examine the unique contribution the EBI would make in predicting BDP after controlling for the demographic variables. Additional analyses were completed between the five subscales of the EBI and the BDP.

Study Participants

The study participants were comprised of two groups of practicing K-12 teachers from a Midwestern state. The first group was approximately 257 former participants of a Title III National Professional Development grant funded through the Office of English Language Acquisition (OELA), Washington, D.C. The teachers were asked and gave permission for being observed during an entire teaching lesson using the Biography-Driven Protocol (BDP) rubric by an outside researcher, who was trained and reliable with the tool, between 2009-2011. Inter-rater reliability was achieved through a rigorous two-day training session. First, the observer went through a half-day training on using the tool, including an extensive review of the research

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literature followed by practicing using the tool with the trainer by reviewing and scoring short lessons. The second half of the day included individual review and scoring of five full (50-100 minute) recorded lessons, ranging from Pre-K through high school. In order to complete the second day of training, the researchers had to achieve agreement on 90% of the scores. The second day was spent in a live school setting, with inter-rater reliability being established synchronously by both observers, with agreement again needing the reach 90%. The archived data was collected as part of ongoing research being conducted by the Center for Intercultural and Multilingual Advocacy (CIMA) at Kansas State University. Therefore, these data were historical.

The second group of participants were current participants of a Title III National Professional Development (NPD) grant funded through the Office of English Language Acquisition (OELA), Washington, D.C. The teachers in this second group were observed during their regular classroom practice by the coordinator of the Title III NPD project. The data used with this group was from Fall 2014 through Spring 2015. The sampling technique for both groups was based upon convenience, as that researcher had access to the historical data as well as contact information for all of the study participants.

The G*Power 3.1.5 sample size calculator (Faul, Erdledler, Buchner, & Lang, 2009) was used to estimate a minimum sample size of participants. Using a significance criterion of .05 and a statistical power of .80, a total of 98 responses are needed to achieve a median effect size of .20. Using the same criteria, a total of 185 responses are needed to achieve a smaller effect size of .10. Due to the limitations that are discussed later in this chapter, it was determined that the effect size of .20 was adequate for this study.

Instrumentation

Demographic Survey A brief demographic survey included a request for participants to provide their first and last name, state in which they currently teach, primary role as an educator, classroom grade level, and content area, most of which they chose from a provided list, with areas for specification of any other roles, grades, and content areas. This portion of the survey also included the specific demographic data that will be controlled for within the study, that being years of experience as an educator, graduate credit hours completed towards ESL endorsement, professional development hours related to CLD students, highest education degree completed, and gender. Immediately following completion of the demographic questions the participants were provided instructions for completing the Epistemic Belief Inventory.

Epistemic Belief Inventory (EBI) (Schraw, Bendixen, and Dunkle, 2002). The EBI was used to measure the independent variable of teacher's epistemological beliefs, which is an individual's "ways of knowing" (Olafson & Schraw, 2011). This measure consisted of 32 questions using Likert scale techniques to determine both a total score as well as separate scores within each of the five subscales labeled as: a) simple knowledge, score range of 1-40; b) certain knowledge, score range of 1-35; c) innate (fixed) ability, score range of 1-35; d) omniscient authority, score range of 1-25; and e) quick learning, with a score range of 1-25. All items are measured on a 5-point scale, 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The EBI score is computed by summing all items and ranges from 32 to 160, with a lower score indicating a more subjectivist orientation, while higher scores indicate more objectivist responses. As indicated by Schraw, Bendixen, and Dunkle (2002),

> Subjectivism is based on the logic of interpretation. Subjectivists discard the notion that reality is 'out there' and instead endorse the belief that knowledge cannot be value-free

since all incoming information is filtered through the lens of each individual's background, prior experiences, and value system. Objectivists believe that knowledge of the world is relatively fixed, exists outside the knower, and that learners can come to know the world as it really is. A key point in the objectivist perspective is that knowledge can, and should be, separated from one's feelings about it; that is, that knowledge is value-free (p. 269).

The EBI was selected for use in this study as Schraw, Bendixen and Dunkle (2002) have suggested it provides more psychometrically sound measurement of these five dimensions than other surveys, including Schommer's (1990) Epistemological Questionnaire (EQ). In this study, five subscales of the EBI have been used. These subscales are (a) simple knowledge, (b) certain knowledge, (c) innate (fixed) ability, (d) omniscient authority, and (e) quick learning. As indicated by Schraw, Bendixen, and Dunkle (2002), in the development and validation of the EBI, validity was established by a factor analysis of the EBI that established five clear factors and explained 64% of the sample variation compared with only 39% from its closest rival (Schommer's EQ) (Schraw, Bendixen & Dunkle, 2002). Initial and replication analyses yielded results wherein the EBI was seen to be more stable over time, with replication indicating similarities between the number of factors, item-to-factor loading, and sample variation. Also contributing to the overall stability was the correlation among the five factors in the test-retest analysis, ranging from .66 to .81 (Schraw, Bendixen & Dunkle, 2002). Additionally, both the EBI and the EQ were correlated with a test of reading comprehension which indicated the former had better predictive validity, with four of the five factors being statistically significant (Schraw, Bendixen & Dunkle, 2002).

Biography-Driven Protocol (BDP) Rubric (Herrera et al., 2012). The BDP rubric is a systematic classroom observation instrument that measures observable teacher behaviors. It was designed and developed based upon the Center for Research on Education, Diversity and Excellence (CREDE) *Standards for Effective Pedagogy and Learning* (CREDE, 2002; Tharp, Estrada, Dalton, and Yamauchi, 2000). These CREDE Standards delineate five pillars of effective practice: 1) Joint Productive Activity; 2) Language and Literacy Development; 3) Contextualization; 4) Challenging Activities; and 5) Instructional Conversation. Based upon these standards, CREDE developed the Standards Performance Continuum (SPC) rubric (Doherty, Hillberg, Epaloose, and Tharp, 2002), which became the foundational measure for the development of the BDP.

The BDP rubric was used to measures a teacher's use of effective practices using a five standard, 22-indicator rubric. Teacher's instructional practice was measured along a continuum from 0 ("not observed") to 4 ("integrating"), with higher scores indicating more responsive, culturally- and biography-bound teaching practices. These types of teaching practices are supported in previous research and literature (see Gay, 2000; Howard, 2010; Tomlinson and Imbeau, 2010; Short, Vogt, Echevarria, 2011; Herrera, 2010, 2016) as being effective for culturally and linguistically diverse student populations. Total composite score on the rubric was calculated by averaging the responses on all 22 indicators, ranging from 0 to 4, with a low score indicating low or not observable actions, and the highest scores indicating that a teacher is more fully implementing culturally responsive teaching practices.

Further research and development by researchers at the Midwestern university elaborated on the five CREDE standards to include indicators of best practice that are aligned with the research and literature for effective practice with culturally and linguistically diverse students

(Herrera, Perez, Kavimandan, Holmes, & Miller, 2011; Murry, Herrera, Miller, Fanning, & Kavimandan, 2014). The addition of 22 indicators allowed the researchers to take into account observed actions in relation to students' biographies, in particular what research indicated best practice to be for their cognitive, social, academic, and linguistic development (Herrera, Perez, Kavimandan, Holmes, & Miller, 2011). Once the indicators were identified, validity was tested using hundreds of classroom observations to establish internal reliability. the frequently used known groups method was used to establish the validity (Mowbray, Holter, Teague & Bybee, 2003). It was established that the BDP is a reliable measure ($\alpha = .90$). The BDP was chosen for this study for two specific reasons: 1) it is a reliable measure that expressly measures research- and theory-based effective practices for culturally and linguistically diverse students, and 2) the historical data used within the study is from prior observations of teachers that used the BDP.

Data Collection

The demographic survey and EBI measure were sent to two separate groups of educators, a total of 312 participants, using email addresses that were either on file from 2009-2011 (Group 1) or provided by the current project coordinator (Group 2). To collect additional data, both groups of educators were sent an online link with a request to provide additional data for the current study. The first section was a request for demographic variables that were to be controlled for within the study (years teaching, highest level of education, ESL coursework, professional development hours) along with basic demographic information (name, gender, ethnicity/race, etc.), and the second part consisted of the Epistemic Belief Inventory (EBI). A full disclosure statement was provided to all potential participants in accordance with the requirements entailed by the Institutional Research Board at Kansas State University. Individuals who received the survey were asked prior to beginning to sign a consent form (electronic

signature) indicating that they understood the limitations regarding confidentiality, and that they

agreed to provide their name and additional demographic information completely. Approval

from the University Research Compliance Office (URCO) was received (IRB #7332), as well as

approval from all committee members, to move forward with the study.

Prior to releasing the survey, modifications were made to the survey at the request of a

committee member. In this, the researcher changed the demographic variables of hours of

coursework completed, hours of professional development completed, and years teaching to

open-ended responses. The fourth measurable variable, highest degree obtained, was changed to

three options for response; Bachelor's, Master's, and Ph.D. In doing these changes, the

researcher decreased the number of variables and, in turn, decreased the number of surveys that

need to be collected. The study now consisted of five independent variables (EBI), six controls

(demographics), and the BDP score as the dependent variable.

The researcher utilized the secure, online survey instrument available through Qualtrics

for two reasons. First, it allowed for access to the data and results by only the researcher. In this

study, this was important as the participants identified themselves by name. Secondly, this

system is available through the university system, thereby making it compliant with the URCO

standards for survey research. Group One received the link for the online survey beginning on

November 25, 2014. This initial contact resulted in 254 emails being sent, 40 emails bouncing,

with 54 surveys completed. A reminder was sent on December 11, 2014 to those who had yet to

complete, resulting in 8 additional responses. The survey remained open for six weeks, with

reminders sent each week, and in the final week two reminders were sent. The last survey was

completed on December 19, 2014, and the online survey was closed by the researcher on

December 30, 2014. A total of 65 respondents were recorded in Qualtrics making the initial

n=65, which was short of the needed 98 to achieve adequate power.

The limitations of Group One respondents were identified by the researcher, and are discussed later in this chapter. However, it is important to note, if the assumption was made that Group One respondents were currently practicing teachers, then the timing of the survey was less than desirable. It is typical in U.S. schools to have the time period between the Thanksgiving/Fall holiday and the extended break that begins a few days prior to December 25 and lasts through the beginning of the New Year. The researcher recognized this and included a voluntary incentive of one person having a chance to receive a Kindle Fire HD tablet to anyone that received the survey link. This incentive was fully disclosed and approved by URCO. A second limitation, again discussed later in the chapter, was the lack of certainty in regards to the email addresses on file due to the time lapse of 3-5 years since email addresses were put on file. This may have accounted for the high number of emails that bounced (40, or 16%) as well as the low number of completed surveys (65, or 30%).

Given the low response rate from Group One, an additional group of respondents (Group 2) were added to the study, with an amendment being made and accepted by URCO under IRB #7332 in May 2015. This second group of respondents had some similarities as well as slightly different characteristics from the initial group. Similarities included all respondents were participants of a Title III National Professional Development project, the content of their professional development and/or coursework was the same, and they were all in similar demographic regions. However, there were differences that may have impacted the results of this study, such as; 1) Group One completed 15 hours of ESL coursework through the Title III project, and Group Two received professional development hours; 2) Group One received

instruction directly from a university faculty member, and Group Two received professional development from a coach that was trained by university faculty; and, 3) BDP scores had been collected 3-5 years prior to the survey for Group One, and within one year or less for Group Two (Fall 2014-Spring 2015).

A total of 58 active email addresses for Group Two were obtained by the researcher, and the initial request, identical to Group One, was sent via Qualtrics on June 1, 2015, with 5 respondents completing the survey. A reminder was sent on June 4, which garnered an additional 25 respondents, and a final reminder was sent on June 23, which garnered a final 5 respondents. The last survey was completed on June 30, 2015, and the online survey was closed by the researcher on July 1, 2015. A total of 35 respondents were recorded in Qualtrics, added to the initial 65 from Group One, which provided an overall n for the study at 100. This response rate of 60% was lower than expected for this current group, but again limitations such as initial non-anonymity and timing were factors considered for both Group One and Group Two.

Chapter 4 Results

This study examined whether a teacher's epistemological beliefs (measured by EBI) can predict level of effective practice with culturally and linguistically diverse students (measurd by BDP) after accounting for the demographic variables of years teaching, level of education, ESL coursework, CLD professional development hours. To address this question, a hierarchical linear regression was used (Field, 2009). The first regression model (Block 1) examined the potential effect these four demographic variables may have on the dependent variable. The second regression model (Block 2) examined the unique contribution the EBI would make in predicting BDP after controlling for the demographic variables.

The results of the study indicate that there is not an overall, statistically significant relationship between a teacher's epistemological beliefs and their level of effective practice with culturally and linguistically diverse students after controlling for several demographic variables. The null hypothesis for Question 1: *A teacher's epistemological beliefs and his/her level of effective practice for culturally and linguistically diverse students are not related?* could not be rejected in this study. Additionally, initial analysis indicated that the null hypotheses could not be rejected for four of the five Sub Questions. The null hypothesis could be rejected for sub question 1.B.: *The subscale "Certain Knowledge" on the EBI does not predict a teacher's level of effective practice?* ($p<.05$). However, an additional analysis revealed that when the subscales are combined in the model, Simple Knowledge [$t(88) = -.23, p < .05$], and Certain Knowledge [$t(88) = .27, p < .05$] are both significant predictors of effective practice. An overview of the data analysis and statistical results are detailed in this chapter.

Data Coding

Prior to beginning any analysis of the data, it was necessary to clean, code, and combine data sets. The survey data that was collected through Qualtrics, including the demographic data and EBI results, was exported as Microsoft Excel files and then imported into SPSS 23.1. Once converted to an SPSS file, the researcher coded the two different groups (Group 1 = 0, Group 2 = 1), merged the two files, and removed 2 cases as they did not have complete data, $n = 98$.

Demographic information including years of experience as an educator, graduate credit hours completed towards ESL endorsement, and professional development hours related to CLD students were all open-ended, asking for numerical answers (i.e., continuous). The highest education degree completed was a categorical variable, coded as 1= Bachelor's, 2=Master's, and 3=Doctoral.

Once the demographic variables had been cleaned and recoded as necessary, the researcher focused on the EBI scores, creating new variables for the reverse coding of questions 2, 6, 14, 20, 24, 30, 31. The items were then summed and developed the final EBI score for each participant in both groups. The outcome variable discussed within the study is the individual teacher's BDP score (range of 0-4) that assesses their levels of effective practice with CLD students. This information was uploaded to IBM SPSS Statistics 23.1 containing the individual teacher names. The predictor variable, the individual teacher's EBI score (range of 32-160) was used to determine if the participant is subjective or objective in their overall epistemic beliefs. This information was uploaded with the individual teacher names, and immediately matched to the existing BDP score. Once a match was established, the teacher was immediately assigned a code, known only to the researcher, and all identifying attributes were removed and placed in an offline, external hard drive.

The coded data was organized in IBM SPSS Statistics 23.1 for hierarchical linear regression analysis procedures. A total of 4 additional cases were eliminated from the study due to missing variables, bringing the final number of cases utilized within the study to $n = 94$. This study consisted of a dependent variable (BDP rubric scores) that were measured on a continuous scale, and independent variables (years of teaching experience, ESL endorsement graduate credit hours, professional development hours related to CLD students, and the scores from the EBI) that are nominal and ordinal, respectively. Tests of normality of distribution, linear relationships, reliability, and the assumption of homoscedasicity were conducted (Osborne and Waters, 2002). The assumption of normality was tested, and review of the skewness ($.58/.249 = 2.33$), and Kolmogorov-Smirnov ($.046$) statistics suggested that normality was a reasonable assumption. The stem and leaf boxplot completed in the initial regression showed outliers in the subscale Certain Knowledge, the EBI, and the BDP. Table 2 below illustrates the placement and directionality of the outliers.

Table 2 Outliers

Certain Knowledge	EBI	BDP	
#40 – Group 0 (>=25)	#13 – Group 0 (>=107)	#31 – Group 0 (=<.8)	#59 – Group 0 (=<.8)
#87 – Group 0 (=<7)	#37 – Group 1 (=<56)	#52 – Group 0 (=<.8)	#80 – Group 1 (>=3.5)
#89 – Group 0 (>=25)	#60 – Group 0 (=<56)	#55 – Group 1 (=<.8)	#83 – Group 1 (=<.8)

Descriptive Statistics

Data from 94 former and current participants of Title III projects were gathered. The group consisted of 84 females and 10 males, with 62 participants in Group 1 and 32 in Group 2. The participants had a range of teaching experience from 4-36 years, with the highest percentage (9.6%) reporting 10 years of experience. Nearly 75% of the participants had completed 10-15 credit hours, and a majority, 69%, reported having completed a Master's degree. Hours of professional development completed were relatively evenly divided. Table 3 shows the descriptive statistics relevant to the study.

Table 3 Means and Standard Deviations

	n	Range	Mean	SD
Years of Teaching Experience	94	4-36	15	7.95
Credit Hours Completed	94	0-45	15	6.78
Hours PD Completed	94	0-200	19	32.41
Simple Knowledge	94	13-28	21	2.87
Certain Knowledge	94	7-25	16	3.59
Innate Ability	94	10-24	17	3.08
Omniscient Authority	94	9-22	16	2.48
Quick Learning	94	5-13	9	1.86
BDP	94	.41-3.5	2.13	.63

To investigate if there was a statistically significant association between a teacher's epistemic beliefs and their effective practice with CLD students, a correlation was computed to determine the covariance of the demographic variables. Additionally, a Spearman's rho analysis was conducted, which indicated that none of the above demographic variables were correlated to the BDP. Likewise, the assumptions of normality (homoscedasticity, multicollinearity, skewness) were not violated, therefore a Pearson's *r* bivariate correlation was appropriate. Effect sizes were small, ranging from r = -.112 to the largest effect size *r* = .219, which corresponds with the one variable that shows significance. Table 4 illustrates the intercorrelations of the variables, showing that only the subscale of Certain Knowledge has a statistically significant correlation with the BDP, *r* = .28, *p* < .01.

Table 4 Pearson Correlations (*n*=94)

		Simple Knowledge	Certain Knowledge	Innate Ability	Omniscient Authority	Quick Learning	BDP
Simple Knowledge	Pearson Correlation	1	.276**	.294**	.216*	.288**	-.112
	Sig. (2-tailed)	-	.007	.004	.036	.005	.281
Certain Knowledge	Pearson Correlation	.276**	1	.056	.431**	.204*	.219*
	Sig. (2-tailed)	.007	-	.589	.000	.048	.034
Innate Ability	Pearson Correlation	.294**	.056	1	.128	.486**	.110
	Sig. (2-tailed)	.004	.589	-	.219	.000	.291
Omniscient	Pearson Correlation	.216*	.431**	.128	1	.033	.120

Authority	Sig. (2-tailed)	.036	.000	.219	-	.750	.248
Quick Learning	Pearson Correlation	.288**	.204*	.486**	.033	1	.028
	Sig. (2-tailed)	.005	.048	.000	.750	-	.786
BDP	Pearson Correlation	-.112	.219*	.110	.120	.028	1
	Sig. (2-tailed)	.281	.034	.291	.248	.786	-

*p<.05 **p<.01

Regression analysis

A hierarchical regression analysis was conducted in two steps to account for variance in the overall model, with the first step accounting for the demographic variables of years of teaching experience, credit hours completed, professional development hours completed, and highest degree attained. The first three variables, teaching experience, credit hours, and professional development hours, were continuous. The fourth variable, highest degree attained, included three categories, so two dummy variables were created, with Bachelor's degree acting as the baseline for the remaining two, Master's and Doctoral.

The first step used to predict the level of effective practice on the BDP showed very little predictive power (R^2 = .030), meaning that the four demographic predictor variables combined account for 3% of the variance. The second step investigated the statistical significance of the five subscales of the EBI in relation to the BDP. The change in R^2 for step 2 was .134, indicating that the overall variance for the model was acceptable. Additionally, the ANOVA indicated that the model was not statistically significant at (p = .748), and therefore not a good fit for the overall data. However, the assumption that the errors in regression are independent can be made,

based on a Durbin-Watson statistic of 2.144. Tables 5 and 6 below summarizes the model statistics.

Table 5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2
					Change Statistics			
1	.172[a]	.030	-.026	.641428	.030	.537	5	88
2	.367a	.134	.030	.623745	.105	2.012	5	83

a. Predictors: (Constant), EBI_total, Quick_Learning, Innate_Ability, Simple_Knowldge, Omniscient_Auth, Certain_Knowldge

b. Dependent Variable: BDP

Table 6 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.251	6	.709	1.865	.096[b]
	Residual	33.058	87	.380		
	Total	37.310	93			

a. Dependent Variable: BDP

b. Predictors: (Constant), EBI_total, Quick_Learning, Innate_Ability, Simple_Knowldge, Omniscient_Auth, Certain_Knowledge

A hierarchical multiple regression was conducted to investigate the best prediction of effective practice with CLD students. The combination of variables to predict effective teaching practice from certain knowledge, simple knowledge, innate ability, omniscient authority, and quick learning, was not statistically significant, $F(5, 88) = 2.13$, $p = .069$. However, significance in this model was greatly improved, indicating that the subscales are closer to predicting effective practice when considered together. The R^2 value was .108. This indicates that 11% of

the variance in effective practice was explained by the model. For this model, Simple Knowledge [$t(88) = -.23$, $p < .05$], and Certain Knowledge [$t(88) = .27$, $p < .05$] are both significant predictors of effective practice. Three of the variables are positive and two variables negative based on *b*-values as seen in Table 7. Certain Knowledge is a positive predictor of BDP; as Certain Knowledge scores increase (becomes more objective) the score on the BDP also increase (becomes more effective). Simple Knowledge was a negative predictor of BDP; that is, as Simple Knowledge scores decrease, The score on the BDP would increase. This will be discussed further in Chapter Five.

Table 7 Multiple Linear Regression

	Unstandardized Coefficients		Standardized Coefficients		
Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.837	.610		3.013	.003
Simple Knowledge	-.051	.024	-.234	-2.106	.038*
Certain Knowledge	.048	.021	.269	2.303	.024*
Innate Ability	.038	.024	.183	1.540	.127
Omniscient Authority	.008	.029	.033	.289	.773
Quick Learning	-.017	.041	-.049	-.413	.681

Dependent Variable: BDP, *significant at $p < .05$

Limitations

As with any research, this study had limitations that may have contributed to the findings. First, the historical data that existed (BDP scores) for the participants from Group One came from FY 2009-2011 data that was collected, and the predictor variable (EBI) and well as

demographic variables were collected 3-5 years later. As noted in the large number of emails (40 out of 254) that were not viable for Group One, it can be assumed that this proportion of the participants have since changed teaching assignments, completed additional professional learning or ESL coursework, or have left the teaching position altogether. A possibility also may have also occurred that the email address currently on file is no longer activated due to individuals that may have changed their names. However, in terms of the study this time lapse between for Group Two data sets makes it stronger as it will statistically remove variance, which in term removes elements of method bias.

Likewise, there was a possibility of a shift in Group One participants' epistemologies since they were last observed in the classroom. However, this shift is highly unlikely, as beliefs are highly resistant to change, do not change even when presented with clear evidence to the contrary, and often will only change if that is the only remaining alternative and the "new" beliefs can be "assimilated…into existing conceptions" (Pajares, 1992, p. 321; Sinatra, Southerland, McConaughy and Demastes, 2003).

Other limitations revolve around the study participants from both groups. The participants were limited to those teachers that participated in the CLASSIC ESL Program coursework during FY 2009-FY2011 or Project KORE professional development during FY 2013-2015, and only include those teachers that were observed using the BDP. The participants are limited to one Midwestern state, which limits greatly generalizing the research to educators in other areas (Creswell, 2009).   Additional research beyond this study would be necessary in order to generalize findings to the general teaching population.

The observations that were conducted were completed by other researchers, which could be viewed as a limitation to the study. The teachers that were observed using the BDP often had

existing social and professional relationships with the observer as participants of Title III projects. The researchers that completed the observations were often the manager of these projects. Therefore, a relationship could have existed between the researcher and the participant that could potentially influence the BDP observation score, although validity and reliability among the observers was established. Likewise, the respondents, especially those from Group One, may have interacted with the researcher at varying levels and occurrences given her connections with their projects. It is fully disclosed that the researcher acted as a facilitator/instructor in Spring 2010 for approximately 20 of the sampled participants, which may have inhibited their desire to respond due to the non-anonymity of the survey.

One of the greatest limitations, however, was during the data collection process as the participants needed to identify themselves by name when completing the demographic survey and EBI measure. This was necessary in order to match their response with the existing BDP scores in the database. While all participants were coded once they are matched to the BDP score, there was a point in time when the researcher knew their identity. This could have potentially influenced the ways in which they formed their responses, particularly on the EBI. Beliefs are very personal in nature, and complete honestly, especially with those participants that know the researcher through previous interactions, may not have been possible.

Every precaution was taken by the researcher to assure participants that their names will only exist with their survey and EBI responses until they were matched with existing BDP scores. Any other researcher that may have had access to or assisted with the coding process have been required to sign a confidentiality statement (Fowler, 2009). However, this was not necessary as the researcher kept the two data sets (the survey with EBI and the BDP scores) separated until they could be coded. Once coded and matched to BDP scores, all identification

was erased from any online system, and is currently stored on an external, offline hard drive. Once the study has been completed and results disseminated properly, the hard drive will be completely erased.

As previously mentioned, Group One completed 15 hours of ESL coursework through the Title III project and received instruction directly from a university faculty member, while Group Two received a range of professional development hours from a curriculum or ESL coach that was trained by university faculty. Additionally, BDP scores had been collected 3-5 years prior to the survey for Group One, and within one year or less for Group Two (Fall 2014-Spring 2015). There can be a range as long as 6 years to as little as 3 years where the scores were collected, and during that time research and refinement on the BDP tool was not stagnant. It is critical to disclose that reliability and validity had not been published for the BDP measure during the 2009-2011 period. Thus, it can be interpreted that the data collected from Group One did not meet research standards for this particular study since the BDP measure was established as reliable and valid for *program evaluation*, but not yet established as reliable and valid as an instrument for measuring effective instruction (Herrera, Perez, Kavimandan, Holmes, and Miller, 2011).

This study has no end goal of identifying any distinct or remote causes; in no manner is this study to be interpreted as epistemologies or beliefs having positive or negative effects on teaching practice. This study sought only to address the overarching question of significant correlations between epistemologies and effective teaching for CLD students. The goal has been and will continue to be having the capacities to add to the conversation of teacher epistemologies as they relate to teaching diverse populations, and possibility add traction to future research in this area.

Chapter 5 Discussion and Recommendations

The purpose of this study was to determine if a relationship existed between teachers' epistemic beliefs and their level of effective practice with culturally and linguistically diverse students. Additionally, the five subscales of the EBI, certain knowledge, simple knowledge, innate knowledge, omniscient authority, and quick learning were investigated to see to what extent, if any, they predicted a teacher's level of effective practice. The primary measures used were the Epistemic Belief Inventory (EBI), including the five subscales mentioned previously, and the Biography-Driven Practices (BDP) rubric as the dependent variable. The demographic variables of years teaching, level of education, credit hours, and PD hours did not correlate to the EBI, therefore these factors would not need to be controlled for during analysis. A sample size of $n = 94$ was used in regression analyses.

Discussion

Only two of the six research questions yielded statistically significant results, which are, "Does the subscale "Simple Knowledge" on the EBI predict a teacher's level of effective practice?" and "Does the subscale "Certain Knowledge" on the EBI predict a teacher's level of effective practice?" It can be concluded, based on the statistical significance of Simple Knowledge ($p = .038$) and Certain Knowledge ($p = .024$) that these subscales can be used to predict a teacher's level of effective practice.

It is also important to note that based on the literature, it is expected EBI and BDP have a negative relationship; in other words, when the EBI score increases, the BDP score is expected to decrease. Recall that a lower EBI score indicates a more subjective belief system, and the higher the EBI score is indicative of the more objective the belief system. Participants used a Likert

scale wherein strongly disagree = 1, disagree = 2, neutral = 3, agree = 4, and strongly agree = 5, to respond to 32 items. The BDP is an observation tool used to measures a teacher's use of effective practices using a five standard, 22-indicator rubric, measured along a continuum from Not observed (0) to Integrating (4), with higher scores indicating more responsive, culturally- and biography-bound teaching practices. The BDP scores fell between 0 and 4, with a lower score indicative of less effective practices for CLD students. Consider the standard of Contextualization, and the indicator within this standard of BK3 = Funds of Knowledge, Prior Knowledge, and Academic Knowledge (see Appendix B). A teacher would be considered a highly effective and receive a score of 4, if she/he,

> "conducts pre-assessment that provides all students the opportunity to share/document their funds of knowledge, prior knowledge, and academic knowledge about the topic and key content vocabulary; teacher documents students' background knowledge for use throughout the lesson (CIMA, 2013)."

A less effective teacher, receiving a 1, will pre-assess only the academic knowledge of the students, and not take into consideration, at least in an observable manner, those other forms of background knowledge that would indicate cultural competency.

Considering these elements, we can look at an example of one item from each of the two measures; First, from the EBI, "smart people are born that way", and second, from the BDP, how a teacher might utilize a student's background knowledge throughout a lesson. We would expect, in considering these examples, that a person who disagrees with the statement "smart people are born that way" would also take into account varying accounts of what might be considered background knowledge, and, therefore, be a more effective teacher. A participant responding to the statement "Smart people are born that way" with a 1, strongly disagree, would indicate their

belief is subjective. This person might argue that there are many variables to consider when a person is labeled as "smart," and it is not a natural occurrence. Likewise, a participant that strongly agrees with this statement would consider being smart as something that is innate, static, and possibly even relative the level of "smartness" of the biological parents.

Now, consider the two items together; 1) responses to the statement "smart people are born that way" and 2) a teacher's level of effective teaching when considering how she/he utilizes a student's full range of background knowledge. If a person holds the belief (strongly agrees) that smart people are just born smart, then it should be expected that this person will not consider utilizing background knowledge of a student, especially with a student with whom there is a distinct cultural or linguistic mismatch. Recall what was found by Barnett (2011), wherein those teachers that held very subjective beliefs recognized that not only can learning can happen, but when sustained and fostered, he suggested that learning could be increased. Therefore, we can also consider the opposite, where a teacher who holds very objective beliefs will not see the learning capacities of students that they may not consider to be "smart." This may resemble a very behaviorist, teacher-centered, and teacher-driven environment, because the kids who will "get it" are already smart. They were born that way.

In looking at the results of the study, it is concerning to see positive b-values on three of the subscales that is indicative of a positive relationship wherein as one score increases, so does the other. The literature from epistemology and culturally responsive teaching does not align with the results. However, the one area that will need to be explored in greater depth is the statistically significant subscale of Certain Knowledge ($p < .05$) that not only has a positive b-value ($b = .269$), but it is the highest out of the five. This indicates as an individual becomes

more subjective their level of effective practice decreases, and as they become more objective their level of effective practice increases.

The results of this study indicate that, even though there isn't a statistically significant relationship between teacher's epistemic beliefs and effective practice for culturally and linguistically diverse students, there is something to be learned from the results. The literature indicates that a teacher's personal epistemology has been shown to have an effect on the success of students, in particular students who are culturally and linguistically diverse (Brownlee, 2001; Chan and Elliott, 2001; Schommer, 2004; Schraw and Olafson, 2002; Bendixen and Feucht, Eds., 2010). In revisiting the role of critical constructivism, and in considering the two different scenarios previously provided, the data shows the number of study participants within each instructional theory and construct. As seen in Table 8, a little over half of the participants had observed behaviors that indicated a theoretical leaning towards cognitive theory, and the instructional construct of teaching as persuasion. However, the teachers' responses in relation to their epistemic beliefs are much higher, with 90% aligning with constructivism and teaching as scaffolding, which would indicate that a large portion believe that our ways of knowing are more subjective in nature. Nearly a third of the observations indicated the instructional practice that was observed was behaviorist, and therefore not culturally responsive.

Table 8 All participant scores by theory and construct

Theory	Instructional Construct	Participants BDP Scores	Participants EBI Scores
Behaviorist/Positivist	Teaching as Transmission	31	0
Cognitive	Teaching as Persuasion	**54**	1
Constructivism	Teaching as Scaffolding	6	**85**
Critical Constructivism	Teaching as Emancipation	0	8

Nearly a third of the participants had BDP scores that would indicate that they were within the instructional construct of teaching as transmission, but when looking at their EBI scores it would indicate that the majority, with the exception being one person, actually believe that knowledge is subjective, and the constructs of constructivism and critical constructivism would correlate to these beliefs. They have knowledge of what is the most culturally responsive construct, but only 6% of the respondents had evidence of teaching in a constructivist manner. Nespor (1987) alluded to these *gestalt shifts*, where the understanding of what should be done in the classroom changes when it is put into action. As educators and as researchers, we need to investigate the multifaceted and complicated ways in which beliefs filter our acquisition of new knowledge.

Recommendations for Future Research

As mentioned in Chapter 3, several potential limitations were identified prior to the study, and there were some unexpected limitations that were presented after the study was completed. These include, but not limited to; 1) exertion of pressure on participants'

performance related to BDP data collection; 2) identity linked with EBI results; 3) sample size

and selection; 4) BDP data disparity; and, 5) sociopolitical influences. While there is no causal

evidence that any one or all of these impacted the results, for any future research of this type it is

highly recommended to take these into consideration.

The first limitation, subjectivity related to BDP data, was anticipated as a possible factor.

The KSU faculty members that collected the data for Group One were in a position of power

over the participants as their Project Manager for a grant that paid for the participants' courses

(15 graduate credit hours) in addition to being their instructor in the courses, hence controlling

their grades. This relationship could influence the teacher's observable actions – doing what the

Project Manager/Instructor wants to see, and not the typical daily instruction – instead of what is

authentic and naturally recurring. A similar situation occurred with Group Two, although to a

potentially lesser extent since there were no course grades nor monetary benefits to the

participating teacher.

Another anticipated limitation was the association of the participant's name with their

EBI results. It is credible to assume participants did not answer questions on the EBI in ways that

reflected their true beliefs; primarily due to the sensitive and often deeply personal nature of

beliefs and because many of the study participants were familiar with the researcher collecting

the data. Rather, they may have responded to the questions in ways that reflected their learning in

ESL coursework or professional development—in essence giving the "right" answer.

The sample size and selection process need also be considered in research of this type. A

better design would have included a larger sample size that shared common characteristics. In

this instance, it is entirely realistic to assume that if more respondents from Group One had

participated, Group Two was not necessary, and other limitations were taken into account, the

study results may have been different. In future, better planning for data collection timelines in accordance with a sample size is recommended.

Considering if the EBI data collected was, in fact, honest answers obtained from the sample population, then it could lead to that fourth limitation, disparity in the BDP data. In this case, it would assume because the EBI data was self-reported, the answers would be a reflection of the teacher's epistemic beliefs. However, the BDP data was collected by a third party (which is a previous limitation mentioned), which could lead to the assumption that the scoring was not an accurate reflection of the teacher's effective practice.

Finally, the relationship between the subscale Certain Knowledge and effective practice warrants further investigation, with attention to the limitations discussed. Certain Knowledge focused primarily on those questions and statements related to "truth" – how it is defined, if it exists, and if truth has effects on our lives. It would be interesting to expand on this particular subscale using a qualitative approach for three reasons; 1) to gain a depth of understanding in order to better understand the existing relationship; 2) to potentially provide insight into new approaches to professional development; and 3) to continue to add to the research for links between effective teaching and student achievement.

Overall, the following factors/steps should be considered for any future research:

- Collection of data needs to be completed by a neutral individual and one that has no decision-making authority in the teacher's personal or professional life.

- Complete anonymity when administering measures that collect sensitive and personal data.

- A larger sample size that shares common characteristics

- Refinement of the BDP or different and multiple measures of effective practice

- Continued research on the relationship between Certain Knowledge and Effective Practice

Future Directions for Education

Imagine for a moment this teacher-driven, teacher-centered classroom. What does this classroom environment look like? Teachers who consistently pose close-ended questions where the "smart" students are the ones who raise their hands and respond. Or they pose open-ended questions where the answer comes directly from the academic text. Whose voice is actually being heard? Whose and what narratives are being conveyed through the content? Who is being valued as a learner? What happens to the students that are on the receiving end of instruction that does not validate their ontologies, their cultures, their situational reality outside of the classroom? These are the questions that the lens of critical constructivism forces us to answer.

The elements of effective professional development have been widely researched and documented, and it is commonly accepted that several factors must be involved; a) it must occur more frequently than an isolated workshop; b) it is challenging yet grounded in the current educational context of the teacher; c) it involves dialogue and collaboration between and among educators; and, d) it allows for practice in the classroom, with guidance and feedback, when applying new instructional methodologies and strategies gained in the professional development session (Haweley and Valli, 1999; Loucks-Horsley and Matsumoto, 1999; Garet, 2001; Henderson and Dancy, 2007; Penuel et al., 2007).

Taking the common factors associated with effective professional development, along with the results from this study, there are definitive actions that can be implemented. 1) Professional development for current, practicing teachers must adopt the principles of emancipatory learning in the ways in which they are conducted; 2) Teacher education programs

need to be reevaluated and include purposeful emancipatory teaching techniques; and 3) Recruitment and retention efforts for students of culturally and linguistically diverse backgrounds needs to become a primary focus in education funding.

Just as with emancipatory education wherein the learning is student-driven, we must also adopt a lens of critical constructivism in terms of our professional development for teachers. Is it driven by their daily realities in the classroom? Are they provided ample time to reflect on their teaching practice? What factors are inhibiting them from fully enacting a student-driven, critically constructive, instructional environment? A professional development program that not only emulates the research-based, effective practices, but also becomes emancipatory and teacher-driven in the process and outcomes should be the end goal.

Likewise, we should also consider teacher preparation programs, and changes that may need to occur in the ways in which we are teaching our future teachers. Are we modeling research-based methodologies and culturally responsive pedagogies in our own instructional practice? Are we being proactive and purposeful in helping them develop the skills to adopt an emancipatory instructional construct? Are we guiding them to be critical thinkers, or are we continuing to prescribe what instruction should look like? Are we accounting for those fundamental assumptions about beliefs from Pajares (1992), in particular those indicating, a) the more recent a belief is acquired, the more susceptible it is to change; b) belief change in adults is rare, even when presented with scientific, factual explanations; and c) the connection between educational beliefs and beliefs in the structure and organization of the educational system?

A third and final step in reforming education is revisiting our current recruitment and retention activities in higher education. Sleeter (2011) noted that in order to provide

emancipatory educational opportunities it is not adequate to simply have effective professional development. She posits that,

> Professional development does not change the fact that schools are staffed primarily by members of the dominant society, rather than being fully bicultural…While the consciousness of this staff can be raised, raising consciousness of a teaching staff composed primarily of members of the dominant society does not substitute for building a bicultural teaching staff (p. 172).

Unfortunately, we have a very steep hill to climb in terms of diversifying our teaching force. In the most recent Condition of Education report from NCES (2016), it shows that while enrollment for non-white students is increasing, from 25% in 2003 to a decade later in 2013 being 32%. However, for their teachers, only 20% of graduates from a 4-year institution are culturally diverse (NCES, 2015). In summation, while the study did not produce the anticipated results, it still provides an additional narrative to the literature in relation to culturally responsive teaching, effective professional development, and ultimately obtaining a teaching environment that is both culturally and linguistically responsive to the students' biographies. It would indicate that not only do we need to continue to provide effective professional development to our teachers, but we also need to be heavily recruiting students from diverse backgrounds into the teaching profession in order to balance the scales of equity.

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Appendix A - Epistemic Belief Inventory

Permission

From: gschraw@unlv.nevada.edu

Subject: Re: Permission to use EBI

Date: July 22, 2013 3:33:37 PM CDT

To: littleenginellc@me.com

Cristina,

You have permission to use the EBI. Attached is scoring information.

Gregg

From: lisa.bendixen@unlv.edu

Subject: Re: Permission to use EBI

Date: July 16, 2013 2:03:37 PM CDT

To: littleenginellc@me.com

Hi Cristina,

Yes, you have permission to use the EBI in any way you like.

The EBI is a domain-general measure of epistemic beliefs. If you are looking for a more specific look at beliefs about knowledge in a particular domain, Ivar Braten has a pretty reliable one.

Best of luck in your research!

Best,

Lisa

To: lisa.bendixen@unlv.edu, gschraw@unlv.nevada.edu

From: Cristina Fanning <littleenginellc@me.com>

Date: 07/15/2013 12:03PM

Subject: Permission to use EBI

Dear Drs. Bendixen and Schraw,

My name is Cristina Fanning, and I am a current Ph.D. candidate at Kansas State University (KSU) in Curriculum & Instruction. I am writing to request your permission to utilize the Epistemic Beliefs Inventory in my proposed dissertation study, **"Beliefs in the Crossroads: The intersection of personal epistemology and effective practice for culturally and linguistically diverse students."** In brief, I am interested in determining to what extent a relationship exists between teachers' epistemological beliefs and their level of effective practice for culturally and linguistically diverse students. I would like to use the EBI in conjunction with a rubric developed by Dr. Socorro Herrera at KSU, the Biography-Driven Protocol (BDP), which measures a teacher's level of effectiveness in implementing culturally responsive teaching practices on a continuum. The BDP has been adapted from CREDE's Five Standards of Effective Pedagogy and Learning (1999), which are: Joint Productive Activity, Language and Literacy Development, Contextualization, Challenging Activities, and Instructional Conversations.

 I have explored additional measures of personal epistemology, and have found yours to be the most applicable to my needs. I am, however, quite a novice in the field of epistemological study, so any additional suggestions from either or both of you is welcome!

I am willing to be transparent in my use of your measure within the limits of my participant's privacy, and will share all applicable findings with your team. Your permission to allow me to use the EBI within my study is greatly appreciated.

Epistemic Belief Inventory with Scoring Guide

EPISTEMOLOGICAL BELIEFS SURVEY

In this part, we want you to indicate how strongly you agree or disagree with each of the statements listed below. Please circle the number that best corresponds to the strength of your belief.

1. It bothers me when instructors don't tell students the answers to complicated problems

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

2. Truth means different things to different people

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

3. Students who learn things quickly are the most successful

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

4. People should always obey the law

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

5. Some people will never be smart no matter how hard they work

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

6. Absolute moral truth does not exist

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

7. Parents should teach their children all there is to know about life

Strongly   1   2   3   4   5   Strongly
Disagree   Agree

8. Really smart students don't have to work as hard to do well   in school

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

9. If a person tries too hard to understand a problem, they   will most likely end up being confused

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

10. Too many theories just complicate things

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

11. The best ideas are often the most simple

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

12. People can't do too much about how smart they are

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

13. Instructors should focus on facts instead of theories

   Strongly 1   2   3   4   5 Strongly
   Disagree   Agree

14. I like teachers who present several competing theories and   let their students decide which is
best

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

15. How well you do in school depends on how smart you are

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

16. If you don't learn something quickly, you won't ever learn   it

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

17. Some people just have a knack for learning and others don't

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

18. Things are simpler than most professors would have you
    believe

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

19. If two people are arguing about something, at least one of   them must be wrong

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

20. Children should be allowed to question their parents'   authority

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

21. If you haven't understood a chapter the first time through, going back over it won't help

Strongly 1   2   3   4   5 Strongly

22. Science is easy to understand because it contains so many facts

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

23. The moral rules I live by apply to everyone

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

24. The more you know about a topic, the more there is to know

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

25. What is true today will be true tomorrow

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

26. Smart people are born that way

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

27. When someone in authority tells me what to do, I usually do it

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

28. People who question authority are troublemakers

   Strongly   1   2   3   4   5   Strongly
   Disagree   Agree

29. Working on a problem with no quick solution is a waste of time

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

30. You can study something for years and still not really understand it

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

31. Sometimes there are no right answers to life's big problems

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

32. Some people are born with special gifts and talents

Strongly 1   2   3   4   5 Strongly
Disagree   Agree

EPISTEMOLOGICAL BELIEFS INVENTORY: KEY

SK = simple knowledge (1,10,11,13,18,22,24,30)
CK = certain knowledge (2,6,14,19,23,25,31)
IA = innate ability (5,8,12,15,17,26,32)
OA = omniscient authority (4,7,20,27,28)
QL = quick learning (3,9,16,21,29)

Reverse code to 5 = naïve beliefs: 2,6,14,20,24,30,31

1. It bothers me when instructors don't tell students the answers to complicated problems SK
2. Truth means different things to different people CK
3. Students who learn things quickly are the most successful QL
4. People should always obey the law OA
5. Some people will never be smart no matter how hard they work IA
6. Absolute moral truth does not exist CK
7. Parents should teach their children all there is to know about life OA
8. Really smart students don't have to work as hard to do well in school IA
9. If a person tries too hard to understand a problem, they will most likely end up being confused QL
10. Too many theories just complicate things SK
11. The best ideas are often the most simple SK
12. People can't do too much about how smart they are IA
13. Instructors should focus on facts instead of theories SK
14. I like teachers who present several competing theories and let their students decide which is best CK
15. How well you do in school depends on how smart you are IA
16. If you don't learn something quickly, you won't ever learn it QL
17. Some people just have a knack for learning and others don't IA
18. Things are simpler than most professors would have you believe SK
19. If two people are arguing about something, at least one of them must be wrong CK
20. Children should be allowed to question their parents' authority OA
21. If you haven't understood a chapter the first time through, going back over it won't help QL
22. Science is easy to understand because it contains so many facts SK
23. The moral rules I live by apply to everyone CK
24. The more you know about a topic, the more there is to know SK
25. What is true today will be true tomorrow CK
26. Smart people are born that way IA
27. When someone in authority tells me what to do, I usually do it OA
28. People who question authority are trouble makers OA
29. Working on a problem with no quick solution is a waste of time QL
30. You can study something for years and still not really understand it SK
31. Sometimes there are no right answers to life's big problems CK
32.Some people are born with special gifts and talents IA

Appendix B - Biography Driven Protocol

Biography-Driven Protocol

Date	_____	Teacher Name	_____
State	_____	Grade Level(s)	_____
District/School	_____	Content Area(s)	_____
Observer	_____	Number of ELL Students	_____
		Total # of Students in Class	_____

Classroom Environment / Setup
- ☐ Rows w/individual desks
- ☐ Groups w/3 to 5 desks
- ☐ Pairs w/2 desks
- ☐ Other

ELL Languages *# of Students*

- ☐ Spanish _____
- ☐ Chinese _____
- ☐ Vietnamese _____
- ☐ Other:
  - _____ _____
  - _____ _____
  - _____ _____

Total Class Race/Ethnicity *# of Students*

- ☐ American Indian / Alaska Native _____
- ☐ Asian _____
- ☐ Black / African American _____
- ☐ Hispanic _____
- ☐ White _____
- ☐ Bi/Multi-racial _____
- ☐ Other _____

Strategy Implemented

- ☐ Active Bookmarks
- ☐ All in the Box
- ☐ All on my Clipboard
- ☐ Consequence Wheel
- ☐ DOTS Chart
- ☐ Extension Wheel
- ☐ Foldables
- ☐ Heart Activity
- ☐ IDEA
- ☐ Linking Language
- ☐ Listen Sketch Label
- ☐ Magic Book
- ☐ Mind Maps
- ☐ Mini Novela
- ☐ Pic-Tac-Tell
- ☐ Picture This
- ☐ Pictures & Words
- ☐ Relevance Scale
- ☐ Story Bag
- ☐ Three Facts & an Opinion
- ☐ Thumb Challenge
- ☐ Tri-Fold
- ☐ U-C-ME
- ☐ Vocabulary Quilt
- ☐ Word Drop
- ☐ Other _____

ELL Language Proficiency *# of Students*

- ☐ Beginning _____
- ☐ Intermediate _____
- ☐ Advanced _____
- ☐ Fluent _____

District/School-wide Initiatives

- ☐ MTSS/RTI
- ☐ Common Core
- ☐ Rdg/Lit _____
- ☐ Math _____
- ☐ STEM
- ☐ Other _____

Notes: _____
_____

Lesson Overview

Topic of Lesson: _____
Strategy Used: _____
Start Time: _____
End Time: _____
Lesson Summary: _____
_____
_____
_____

Adapted from CREDE (1999) Standards for Effective Pedagogy and Learning

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Biography-Driven Protocol

I. Joint Productive Activity

	Not Observed 0	Emerging 1	Developing 2	Enacting 3	Integrating 4
		The teacher:	*The teacher:*	*The teacher:*	*The teacher:*
LE	A. No evidence of a respectful learning environment	A. Creates an environment that **respects students as individual learners**	A. Creates a **culturally and linguistically** respectful learning environment	A. Creates a **low-risk** learning environment that **values diverse perspectives**	A. Orchestrates **conditions and situations** to ensure that students collaborate as **equal members** in a low-risk **learning community**
TC	B. No collaboration between teacher and students	B. **Collaborates with students** but no evidence of a joint product	B. Collaborates with **whole class** to create a **joint product** or students collaborate on a joint product in **pairs or small groups**	B. **Collaboratively guides small groups** of students, especially those that need **higher levels of support**, to create joint products	B. Collaborates with students to create joint products that **integrate language and content standards**
TPSI	C. Students work independently of one another	C. Provides **minimal** opportunities for **student interaction**	C. Provides **occasional structured opportunities** for student interaction	C. Provides **frequent** structured opportunities for **purposeful** student interaction	C. Provides **consistent** structured opportunities for purposeful student interaction that **promote development of the CLD student biography**
PGD	D. Pair or group students based on random grouping or student self-selection	D. Pair or group students based on **one dimensions of the CLD student biography**	D. Pair or group students based on **two or three dimensions** of the CLD student biography	D. Pair or group students based on two or three dimensions of the CLD student biography **as appropriate for the task/activity**	D. Pair or group students based on **all four dimensions** of the CLD student biography as appropriate for the task/activity
AC	E. No connections between the activity and the lesson	E. Makes **minimal connections** between the strategy/activity and the lesson	E. Makes **occasional relevant** connections between the strategy/activity and the lesson	E. **Frequently uses insights** from the strategy/activity to make connections **affirm learning, or modify instruction as needed**	E. **Consistently** uses insights from the strategy/activity to make connections, affirm learning, **and** modify instruction as needed

Notes:

LE= Learning Environment   **TC**= Teacher Collaboration   **TPSI**= Total Group, Partner, Small Group, Individual   **PGD**= Partner/Grouping Determination; **AC**= Activity Connections

Adapted from CREDE (1999) Standards for Effective Pedagogy and Learning   *CIMA © 2013*

II. Language & Literacy Development

		Not Observed 0	Emerging 1	Developing 2	Enacting 3	Integrating 4
			The teacher provides:	*The teacher provides:*	*The teacher provides:*	*The teacher provides:*
LSRW		A. Instruction is dominated by teacher talk and students are passive listeners	A. Listening, speaking, reading, & writing (LSRW) activities with **minimal** opportunities for **students' academic language development**	A. L, S, R, & W activities with **occasional** opportunities for students' academic language development	A. **Frequent** opportunities for **student expression** and academic language development in activities that **integrate** L, S, R, & W	A. **Consistent** opportunities for student expression and academic language development in **higher-order thinking** activities that integrate L, S, R, & W
QRM		B. No use of questioning (Q), rephrasing (R), or modeling (M) to assist language and literacy development	B. **Minimal** use of Q, R, or M to assist language and literacy development	B. **Occasional** use of Q, R, or M to assist language and literacy development	B. **Frequent** use of **purposeful** Q, R, **and** M to assist language and literacy development	B. **Consistent** use of purposeful Q, R, and M to assist academic language and literacy development and to build students' capacities to **pose questions about their own thinking**
L1		C. No evidence of native language in environment or instruction	C. **Minimal** evidence of native language **in environment and/or instruction**	C. **Occasional** opportunities for **students to use their native language** during the lesson	C. **Frequent, explicit, purposeful** opportunities for students to use their native language during the lesson **in ways that support academic learning**	C. **Consistent, systematic** opportunities for students to use their native language during the lesson in ways that support **academic language and literacy development**
LBK		D. No references to students' prior knowledge and background experiences related to language and literacy development*	D. **Minimal** references to prior knowledge and background experiences related to language and literacy development*	D. **Occasional** references to prior knowledge and background experiences related to language and literacy development*	D. **Frequent** references to prior knowledge and background experiences related to **academic language** and literacy development*	D. **Consistent** use of **students' culture-bound ways of comprehending, communicating, and expressing themselves as a springboard** for academic language and literacy development*

Notes:
*PA = Phonemic Awareness; P = Phonics; V = Vocabulary; F = Fluency; C = Comprehension

LSRW = Listening, Speaking, Reading, Writing   **QRM** = Questioning, Rephrasing, Modeling   **L1 =** Native Language   **LBK =** Background Knowledge of Language/Literacy

Biography-Driven Protocol

III. Contextualization

	Not Observed　　　　　0	Emerging　　　　　1	Developing　　　　　2	Enacting　　　　　3	Integrating　　　　　4
		The teacher:	*The teacher:*	*The teacher:*	*The teacher:*
BK3	A. No pre-assessment of students' academic knowledge about the topic	A. Conducts **pre-assessment of only students' academic knowledge** about the topic	A. Conducts pre-assessment of students' **funds of knowledge, prior knowledge, and academic knowledge about the topic or key content vocabulary**	A. Conducts pre-assessment that provides **all students** the opportunity to **share/document** their funds of knowledge, prior knowledge, and academic knowledge about the topic or key content vocabulary	A. Conducts pre-assessment that provides all students the opportunity to share/document their funds of knowledge, prior knowledge, and academic knowledge about the topic **and** key content vocabulary; **teacher documents students' background knowledge for use throughout the lesson**
A/CL	B. Focus is solely on content delivery	B. Provides **minimal** opportunities for students to share with peers content-related connections to their background knowledge	B. Provides **occasional** opportunities for students to share with peers content-related connections to their background knowledge	B. Provides **frequent** opportunities for students to **share/document** their content-related connections to their background knowledge and **purposefully listens/observes as students share/document**	B. Provides **consistent** opportunities for students to share/document their content-related connections to their background knowledge **and uses insights gleaned to highlight student assets, support academic learning, and maximize the community of learners**
BIO	C. New information is presented in an abstract, disconnected manner	C. Makes **minimal** connections between students' **sociocultural, linguistic, cognitive, and academic dimensions and new academic concepts**	C. Makes **occasional** connections between students' sociocultural, linguistic, cognitive, and academic dimensions and the new academic concepts	C. Makes **frequent and purposeful** connections between students' **individual biographies**, including what was learned about their knowledge and experiences from home, community, and school, and the new academic concepts	C. **Systematically** makes **consistent** and purposeful connections between students' individual biographies, including what was learned about their knowledge and experiences from home, community, and school, and the new academic concepts, **with applications to the real world**

Notes:

BK3 = Funds of Knowledge (family), Prior Knowledge (community), Academic Knowledge (school)　　　**A/CL** = Assets/Community of Learners　　　**BIO** = CLD Biography Connections

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Biography-Driven Protocol

IV. Challenging Activities

	Not Observed 0	Emerging 1	Developing 2	Enacting 3	Integrating 4
		Teacher instruction and strategy use:	*Teacher instruction and strategy use:*	*Teacher instruction and strategy use:*	*Teacher instruction and strategy use:*
ACOM	A. No accommodations for linguistic or academic levels	A. Provides **minimal** accommodations based on students' linguistic and academic levels	A. Provides **occasional, structured** accommodations based on students' linguistic and academic levels	A. Provides **frequent,** structured accommodations based on students' linguistic and academic levels that build upon **culture-bound patterns of knowing, learning, and applying**	A. Provides **consistent, systematic,** structured accommodations based on students' linguistic and academic levels that build upon culture-bound patterns of knowing, learning, and applying
CO/LO	B. Makes no reference to lesson objectives	B. Includes **verbally stated or posted lesson objectives that reflect content standards**	B. Includes verbally stated **and** posted **content and language objectives** that reflect content standards	B. Includes content and language objectives that (1) are verbally stated and posted, **(2) reflect content and language standards, and (3) are revisited during the lesson**	B. Includes content and language objectives that (1) are verbally stated and posted, (2) reflect content and language standards, and **(3) are interwoven throughout the lesson**
S/E	C. Strategies/activities are not aligned to standards and do not reflect expectations	C. Includes strategies/ activities **that are aligned to standards and that reflect vague expectations**	C. Includes strategies/ activities that are aligned to standards and that reflect **clear expectations**	C. Includes **challenging** strategies/ activities that are aligned to standards and that reflect clear expectations	C. Includes challenging strategies/ activities that reflect **skillful integration of multiple standards**, clear expectations, and higher-order thinking skills
AF	D. Does not consider students' states of mind/affective filter	D. **Minimally** attends to students' states of mind/affective filter	D. **Occasionally** monitors students' states of mind/affective filter and **adjusts instruction accordingly**	D. **Frequently** monitors students' states of mind/affective filter and adjusts **instructional conditions** accordingly	D. **Consistently** monitors the states of mind/affective filter **of individual students and of the whole group** and adjusts instructional conditions **and situations** accordingly
FB	E. Provides no feedback on student performance	E. Provides **minimal** feedback on student performance	E. Provides **occasional** feedback on student performance **to confirm/disconfirm learning**	E. Provides **frequent** feedback on student performance to confirm/disconfirm learning and **to advance student learning**	E. Uses **systematic formative assessment** to provide **consistent** feedback on student performance to confirm/disconfirm learning and to advance student learning
Notes:					

ACOM = Accommodations   **CO/LO** = Content Objectives & Language Objectives   **S/E** = Standards/Expectations   **AF** = Affective Filter   **FB** = Feedback (formative assessment)

Adapted from CREDE (1999) Standards for Effective Pedagogy and Learning

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