

EQUITY PEDAGOGY:
THE EFFECTS ON ACADEMIC ACHIEVEMENT AND STUDENT
ENGAGEMENT IN
LINGUALISTICALLY DIVERSE CLASSROOMS

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ABSTRACT

The population of the United States is becoming increasingly diverse and the historical legacy of educational exclusion and disenfranchisement continues to negatively impact cultural and linguistically diverse communities. Therefore, this paper critically reviews thirty studies regarding the effects of equity pedagogy on the academic achievement and personal engagement of linguistically diverse elementary students. Positive academic and student engagement outcomes related to the application of equity pedagogy in linguistically diverse classrooms are generally supported by the research. Studies across all four subtopics addressed in this paper (teacher beliefs, participation structures, language in content instruction, and the development of student resilience) highlight supportive learning communities, structured interaction between peers, and literacy instruction embedded in meaningful contexts as beneficial instruction for linguistically diverse students. Suggestions for further research are grounded in the need to generate balance between the thick descriptions provided in qualitative frameworks and the hard data produced by quantitative experiments.

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CHAPTER 1: INTRODUCTION

Introduction

Embedded in the cultural ideals of the United States are the concepts of liberty, justice, equality, and independence. The nation professes to promote these ideals through equal educational opportunities available in American public schools. Unfortunately, statistics clearly demonstrate that multicultural and multilingual students are more likely to live in economic poverty and less likely to harness opportunities within U.S educational institutions (Kewal-Ramani, Gilbertson, Fox, and Provasnik, 2007). While demographic data shows that racial minorities constituted 33% of the U.S population in 2005, the minority population of students was significantly higher, at 42% in the previous year, 2004 (Kewal-Ramani et al., 2007). The relatively young median age of minority populations are generating enrollment of a majority minority in many regions throughout the United States. Multicultural and multilingual communities are extremely heterogeneous and are not evenly distributed across the nation; this creates serious difficulties for educational institutions that are rooted in another cultural era, confined by political will and bureaucracy, and are therefore, not equipped to respond adequately to the nations rapid demographic changes.

The population of the United States is radically changing. Demographic information released by the 2010 census revealed that minority populations increased in every state over the last ten years. Four states, California, Hawaii, New Mexico, and Texas, now have majority minority populations. Hispanic and Asian populations are the fastest growing minority communities (Brownstein,

2011). Nearly 50% of people under age 18 are minorities; this is an increase of 39.1% from the 2000 census (Brownstein, 2011). Population estimates depict a growing minority population in American public schools, likely to exceed 50% by 2050 (Day, n.d).

While the student population grows increasingly diverse, American classrooms are still managed by white females. There is an overt contrast between student diversity and diversity in teaching staff. In 1997, 87% of teachers and those attending teacher preparation programs were white and 74% were female (Torres, Santos, Peck, and Cortes, 2004) According to Snyder and Dillow (2011) 83.5% of secondary teachers are white and 58% are female (p.114). In 2010, U.S Education Secretary Arne Duncan proclaimed that African American and Latino males combined comprised a mere 3.5% of U.S teachers (CNN Wire Staff, 2010). The percentage of minority teachers is not growing in conjunction with the percentage of minority students. This is significant; it means that multicultural and multilingual students are largely being educated by teachers whose beliefs and judgments are grounded in white middle class culture.

Statistical data of student achievement and educational outcomes demonstrates the failure of U.S educational institutions to provide adequate academic opportunities to all students. In both reading and mathematics, two of the most frequently tested subjects, white students consistently score higher than their Black and Hispanic peers. While the gap has decreased over the last four decades, there remains a noticeable academic disparity among white students

and students of color. This disparity is also apparent in college enrollment; the last three decades have seen an overall increase in college enrollment in all racial groups, however, Asian/Pacific Islanders and Whites continue to enroll in greater numbers than students in other racial groups and the percentage of Black, Hispanic, and American Indian/Alaska Native students that finish their degree is lower than their White and Asian/Pacific Islander counterparts. In addition, unemployment rates for Blacks, Hispanics, and American Indians are often more than double that of Whites and Asian/Pacific Islanders (Kewal-Ramani, 2007). The responsibility for academic failure is often placed on the student, their family, or perceived cultural deficits in the local community. In some instances responsibility for failure is placed on an ineffectual and inefficient school or a specific teacher. Rarely, in mainstream discourse, is the responsibility for academic inequity viewed as the educative privileging of white middle class students who are advantaged by the institutionalized dominance of Euro-American cultural norms.

A broad range of pedagogical approaches are used in today's classrooms. Some teachers use primarily traditional teacher-centered direct instruction practices and others use progressive student-centered, inquiry-based, and hands-on approaches. Many well-intentioned educators will use a combination of traditional and progressive practices in an attempt to employ methods that appear useful to the majority of their students. Problems begin to unfold when educators fail to comprehend personal cultural biases in connection with the long-term impacts of pedagogical choices on the academic achievement

and personal development of heterogeneous students. Communities of color are concerned about the developmental consequences of pedagogical choices that are made in their children's classrooms (Delpit, 2006). Traditional and progressive educators alike, may or may not, be serving the needs of their multicultural and multilingual students and their families. The review undertaken in this paper focuses on examining pedagogies in relation to the personal and academic success of students that are more likely to struggle in conventional education settings.

The question driving the focus of this review is: what effect does equity pedagogy have on student engagement and the academic achievement of linguistically diverse elementary students? The content of this introduction explores the historical and cultural issues related to equitable classroom practices as well as the academic and societal outcomes. The subsequent review of professional literature investigates the use of progressive classroom pedagogy such as cooperative learning, project/problem-based instruction, constructive teaching, multiple intelligences, status treatments, grouping strategies, and thematic/interdisciplinary instruction that professes to be culturally inclusive and more effective in supporting the academic achievement of heterogeneous students. The conclusion summarizes the findings of this review, suggests classroom implications, and makes recommendations for further research.

Rationale

Worldwide, schooling has emerged as the primary indicator of well-being and status mobility. Access to adequate education is “powerfully associated with such beneficial developments as better health, smaller families, and greater economic security” (Suarez-Orozco and Todorova, 2008, p. 2). According to the United Nations (UNESCO), education is a “fundamental human right” and “promotes individual freedom and empowerment and yields important developmental benefits” (UNESCO, n.d) UNESCO also asserts that access to quality education must be available without discrimination or exclusion. The rapidly growing multicultural and multilingual population in the United States is demanding new knowledge and new approaches to education in order to adapt to and support the academic and developmental needs of our changing communities.

Evidence of educational inequity in U.S schools is readily observable across the nation. The Annual Performance Report (2010) for No Child Left Behind (NCLB) has shown over the last three years that low-income, American Indian/Alaska Native, African American, Hispanic, and Limited English Proficient students are not meeting academic performance targets in either reading or mathematics. According to Hinde, Popp, Jimenez-Silva, and Dorn (2011), 24 states, including states such as California, Arizona, Colorado, and Florida have recently passed legislation “requiring that classroom instruction be overwhelmingly in English” (p. 48). Arizona Proposition 203 and California Proposition 227 both functioned to promote English only (Structured English

Immersion) classrooms and limit native language supports. These laws directly conflict with current educational research that demonstrates a positive correlation between native language (L1) literacy development and acquiring both English language and academic content (Huerta, 2009). The state of Arizona, which advances some of the most anti-immigrant legislation in the nation, recently passed HB 2281 which makes it challenging for public schools to provide ethnic studies classes (Santa Cruz, 2010). Another indicator of educational inequity is the high percentage of teachers in majority Black or Hispanic schools with neither a college major nor standard certification in the primary subject they teach. The National Center for Education Statistics (2008) reveals that as many as 25% of math teachers in majority Black schools and 15% of math teachers in majority Hispanic schools are not formally qualified to teach that subject.

Federal policies, such as No Child Left Behind (NCLB), try to solve perceived educational problems by instituting homogenized national standards of education, but instead have managed to further incapacitate and fragment educational institutions. Institutional change is slow and laborious and the current antagonistic political climate makes wide-scale change ever more challenging. Students currently attending public schools do not have the luxury of waiting for political leaders to negotiate, achieve compromises, and rewrite national education policy. Today's students need and deserve solutions now; millions of futures depend on access to quality and effective education. Even if federal lawmakers instituted progressive reforms, any comprehensive national policies

would fail to address unique, localized issues that are deeply embedded in distinct historical and cultural contexts.

Since national policies are failing today's students the educational community, itself, must act; educators must develop localized responses to current deficiencies in public education institutions. The educational community cannot wait for public policy to reflect current educational research nor the authentic needs of today's students. The most responsive prospect for change is the classroom, itself. Educators are capable of reconstructing their classroom organization, management, and pedagogy. Teachers can undertake this process relatively quickly and take initial steps with a minimal amount of professional development. There is a professional and moral responsibility to attend to the needs of all students regardless of age, race, gender, sexual orientation, ethnicity, religious affiliation, and linguistic heritage. Classroom teachers and school administrators must focus on developing professional strategies that have been proven to meet the needs of all students, particularly culturally and linguistically diverse student populations.

According to the National Education Association (2011) there are three core principles of professional practice: a) knowing the subject matter, b) knowing how to teach the subject matter, and c) understanding how students learn and what it takes to teach them effectively. In addition to these principles of practice, educators in multicultural and multilingual classrooms need to reflect on their personal cultural encapsulation, as well as, listen to the opinions, insights, and knowledge of local families and communities. Teachers' worldviews are

shaped by the culture they are raised in; to become effective educators they must construct awareness of their own cultural bias and open themselves to learning about and from the community in which they teach (Delpit, 2006). Progressive pedagogy, defined by Columbia University's teaching center, is a teaching praxis that involves self-reflection about methods and teacher-student relationships, encourages critical thinking, celebrates and explores differences, is student centered, emphasizes inquiry and investigation, and promotes development of critical awareness of power and inequality. However, progressive pedagogy inadequately applied has the potential to foster inequity. For example, small group-work, which is generally considered effective praxis as a method for generating classroom equity, will cultivate the development of status orders within groupings if not skillfully designed (Cohen, 1995; Delpit, 2006). Educators must listen to community responses, account for variation in cultural expectations, and examine the literature closely to see how their praxis is genuinely affecting the achievement of their students.

Historical Background

Public educational institutions in the United States have systematically excluded and disenfranchised minority students since the establishment of the first thirteen colonies. Systemic discrimination against linguistically diverse students has generated an array of social problems and injustices. The historical underpinnings of inequity must be understood in order to productively analyze and evaluate the effects of equity pedagogy.

During the formation of the United States, education was linked to democracy in the minds of progressive thinkers such as Thomas Jefferson and Horace Mann, two salient proponents of public education. Jefferson supported state-funded and locally controlled schools whose curriculum focused on literacy, history, and mathematics. However, his educational plans excluded both American Indian and African American children and limited attendance for female students to merely three years (Huerta, 2009, p.9). Mann's educational vision expanded on that of Jefferson, yet, was more progressive and inclusive; he believed that schools should serve as "societal equalizers to help reduce class and racial conflicts" (Huerta, 2009, p. 11). Both men perceived access to education as a vital pillar in the cultural, economic, and political development of the country (Huerta, 2009).

The history of public education in the United States is a history riddled with discrimination, inequity, domination, and violence. From the forced relocation of Native American children to boarding schools, to the withholding of literacy of from free and enslaved Africans and African Americans, and from the exclusion of girls and women from both grade schools and higher education, to contemporary anti-immigrant policies which restrict educational opportunities for non-English speaking children, education in the United States has been systematically used to maintain the hegemony of Euro-American culture and deny equal access to quality educative opportunities to all students (Huerta, 2009). This complex history has generated deeply rooted cultural privileges and

deeply rooted cultural disadvantages that have profoundly impacted the unequal distribution of educational opportunities.

American public education is rooted in a Eurocentric cultural framework. Historians have raised many discussions regarding the rise and purpose of the first relatively organized public schools, the common-school. The common-school movement was started in New England by Protestant religious leadership during the 1830s (Ravitch, 1985, p.185). Literacy rates were fairly high in the original colonies, especially in the north, due to migration largely drawn from middling social ranks of people, mainly associated with European-Protestant backgrounds (Kaestle, 1983, p.3). Until recently, the dominant perspective of American public schools was that they embodied the “highest realization of the democratic ideal, that they provided equal opportunity to all and rapid mobility to the deserving” (Ravitch, 1985, p. 182). However, historically, education was only available in varying degrees based on location and social class; women, enslaved and free Blacks, Native Americans, and the economically poor were systematically excluded from the culture of literacy (Kaestle, 1983, p.4). Early twentieth century historians such as Ellwood Cubberley and Paul Monroe, viewed the development of the common-schools as a movement associated with democracy, progress, and humanitarian reform (Kaestle, 1983 p. ix). In contrast, Kaestle (1983) argued that the development of the common-school was encouraged by a commitment to a republican style government, the dominance of Protestant culture, and the growth of capitalism. He further claimed that the translation of Protestant and capitalist values into public educational policy produced state-regulated common-

schools whose ideology was framed around “integrat[ing] and assimilat[ing] a diverse population into the nation’s political, economic, and cultural institutions (Kaestle, 1983 p.x)

The earliest examples of inconspicuous hypocrisy between the American ideals of liberty and justice and educative realities are demonstrated in the experiences of American Indian and African American communities. Prior to the arrival of European settlers on the shores of North America, Native peoples had their own informal system of education based on observation and interaction (Pewewardy, 2002). In the mid to late 1800s, as the U.S colonies spread west, the federal government began the systematic assimilation of American Indian children through the boarding school movement. The general Euro-American attitude regarding America’s First Peoples was that they were innately inferior human beings that lived in primitive, uncivilized cultures (Huerta, 2009, p. 20; Pewewardy, 2002; Tatum, B.D., 1997, p.146). The government’s assimilation strategy involved removing American Indian and Alaskan Native children from their communities and placing them in structured educational programs that would help them construct a colonial disposition. The line “kill the Indian...save the man” from Col. Richard Pratt’s speech in 1892 captures the spirit of the boarding school movement. Entire generations were culturally lost as children were isolated from traditional parenting models, cultural values, and language (Pewewardy, 2002; Tatum B.D., 1997, p.146). Many first hand reports depict life in the boarding schools as not focused on education, but rather, a *civilizing*

endeavor that used discipline, punishment, and hard labor to officially dismantle Indian identity (Bear, 2008; Huerta, 2009).

African American slaves were also systematically denied a relationship with their cultural identity. Demonstrated in the memoir of Frederick Douglass (1995), enslaved African Americans were often separated from their families, given Euro-American names, refused access to information about their ancestry, and denied access to basic literacy. While access to education was extremely varied, by and large, formal schooling was systematically withheld from African American children. For example, many southern states enacted laws that strictly prohibited the education of Blacks, however, in some cases slave owners would attempt to provide basic education for their slaves. In the 1800s free African Americans together with missionaries sought to create African schools; there was often organized and violent resistance to such schools, especially in the south (Huerta, 2009, p. 19). Throughout American history, deculturation—the deliberate domination and destruction of one culture by another—in conjunction with completely inadequate education, served to maintain the dominance of Euro-American culture while oppressing multicultural and multilingual communities.

U.S. racial relations continued to suffer from ideological and reality based contradictions. U.S society has consistently demonstrated unjust treatment and attitudes toward racial, ethnic, religious, political, linguistic, and gender and sexually oriented minorities. Following the Civil War, the U.S. ratified the 13th and 14th amendments to the constitution. These two amendments, which officially abolished slavery and established the basic human and citizenship rights for

African Americans, became early legal footholds for reconstructing social and political relations between African American and White communities. The freedom and equality ideals of democracy were in contrast to the Jim Crow laws prevalent in the U.S southern states, which officially disenfranchised Black Americans and excluded or segregated them from nearly every aspect of society, including: public transportation, restaurants, schools, hospitals, jobs, stores, hotels, and entertainment. Other examples of ideological contradictions are evident in such historical events as the forced attendance of American Indians in boarding schools, the internment of Japanese citizens during WWII, violent expulsion of African Americans in a full range of educational institutions, the systematic labor exploitation of Mexican workers under the Bracero Program, and current movements to limit and exclude multicultural and multilingual students and communities from equitable influence on and access to American society.

Numerous political attempts have been made to resolve the deeply embedded historical and cultural problems that continue to impede the establishment of equitable access to high-quality education. Legislation such as *Brown vs. The Board of Education* (1954), the Civil Rights Act (1964), the Bilingual Education Act (1968) and *Lau vs. Nichols* (1974) have made efforts to equalize the educational landscape. While these laws did not alter the cultural milieu of the U.S. educational system and failed to prescribe specific solutions, they did provide legal means for communities to begin addressing systemic inequities. According to Gay (2004), *Brown vs. The Board of Education* laid the

foundation for grassroots movements and motivated citizens to struggle for socially and culturally oppressed groups; “[B]rown sparked a number of legal and social changes that laid foundation for a broader civil rights consciousness movement in which other ethnic minorities, women, the elderly, the poor, the disabled, and gays demanded that prohibition against discrimination and separation extend to them as well” (p.197) Five decades later, it is clear that legislating diverse classrooms was not sufficient to overcoming deeply rooted cultural divisions.

In the contemporary American educational landscape we continue to see the persistence of institutionalized educational inequities for multicultural and multilingual students. Delpit (2006) illuminates research, which demonstrates that cultural and racial bias can actually result in lower academic achievement and performance for those that are targets of said bias (p.116). Expectation states theory posits a similar phenomenon, which maintains that socially and academically perceived status characteristics will effectively transfer to higher expectations and participation, and therefore, increased learning for students designated high-status and decreased learning for students perceived as low-status (Cohen, 1995). Diffuse characteristics such as race, ethnicity, and gender are used to consciously or unconsciously make assumptions about general expectations for competence; multicultural and multilingual students are often assumed to possess lower levels of talent, ability, and accomplishment (Cohen, 1995; Delpit, 2006; Gay, 2004; Huerta, 2009; Pewewardy, 2002)

Delpit (2006) asserts that good teaching is subjective and doesn't look homogenous across contexts (pp. 132-139). In order to successfully educate multicultural and multilingual children and youth, educators need to examine current research on equitable pedagogical strategies, investigate how various pedagogical strategies might unintentionally maintain dominant status for Euro-American culture while devaluing and dismantling other cultures, and most importantly learn to listen to the communities that they work within. Across history, multicultural and multilingual communities have identified progressive pedagogy, intended to support the needs and success of diverse students, as a means to maintain a Eurocentric power structure. Delpit (2006) describes the differences between what children who are raised outside the culture of power need as compared to those raised within the dominant cultural paradigm. Children raised in communities outside the culture of power need to have their home cultural values developed and respected while simultaneously learning explicit discourse and academic strategies that support their ability to actively participate within the dominant society. Parents and educators of color have identified problems with certain progressive pedagogies that they believe inhibit the cultural and intellectual development of their children. Ravitch (1985) describes similar issues in the early 20th century. In 1917 progressive educational reformers, such as John Dewey, supported the institution of the "Gary plan," which called for students to alternate between academic and prevocational activities. This was intended to support immigrant families' needs for skills that were practical and directly applicable to the job market; it was perceived by

progressive educators that a purely academic curriculum would not provide for the special needs of children of immigrants. The judgment for these changes was not made based on the requests of parents or immigrant communities, but rather educators' own concepts of society's needs. Immigrant parents and students noisily resisted the plan, as they believed it would limit the future opportunities for their children. The situation was resolved when a new mayor was elected, having pledged to prevent the manifestation of the plan (pp. 149-150).

As the U.S population becomes increasingly diverse, solutions to the nation's educational crises must be explored and tested. It is no easy matter to expose and dismantle the consequences of a profoundly deep history of discrimination and dominance. All educators enter the field with deep cultural conditioning, a conditioning that is difficult to identify and overcome. Educators, administrators, and researchers do not agree on what constitutes best practices in providing high-quality culturally relevant pedagogy. A tendency to follow dominant ideologies, even progressive ideologies, can inhibit critical analysis of one's practice and limit one's openness to listening to local parents and communities who are not perceived as experts.

Definitions

Equity pedagogy has many potential definitions. For the purposes of this review, equity pedagogy is considered not only a set of teaching strategies but also a set of attitudes and values that inform the larger purpose of an educator's praxis. The following definition illustrates the interpretation of equity pedagogy that the author will employ.

Equity pedagogy [is defined as] teaching strategies and classroom environments that help students from diverse racial, ethnic, and cultural groups attain the knowledge, skills, and attitudes needed to function effectively within, and help create and perpetuate a just, humane, and democratic society. This definition suggests that it is not sufficient to help students learn to read, write, and compute within the dominant canon without learning also to question its assumptions, paradigms, and hegemonic characteristics. Helping students become reflective and active citizens of a democratic society is at the essence of our conception of equity pedagogy (Banks & Banks, 1995, p.152).

The author supports the above definition and agrees with the broader conceptualization of academic achievement.

Academic achievement as referred to in the course of this review indicates improvement in reading, writing, and content areas, as well as, the construction of critical thinking minds that are developing into reflective and productive citizens.

The term multicultural students is intended to cover a diverse range of students including: racial and ethnic minorities, native peoples, language minorities, and other subcultures whose personal engagement in school and academic achievement is inhibited by socially perceived positions of low or inferior status.

Within the context of this review linguistically diverse students are defined as any student that either speaks a first language other than English or does not

speak Standard English as defined by dominant middle class Euro-American culture.

The concept of student engagement refers to students' personal interest in and motivation to participate emotionally, socially, and academically in school learning activities.

Limitations

The review conducted within the confines of this investigation on the affect of equity pedagogy on academic achievement is focused on results related to multilingual students, as defined above. The review is not focused on students with other learning challenges such as those related to behavior, emotion, attachment, stress, attention, economic poverty, physiology, or psychology.

This review is further confined by scope and age restrictions. The review of literature will not include an analysis of district or school wide programs that are intended to support cultural or linguistic minorities. The investigation, herein, will center on classroom practices and will not furnish an examination of public policy and attitudes that may also affect the academic achievement and engagement of the focus group. The review will concentrate on children in the elementary grades, generally ages 5 - 12.

Limitations in the research exist in several diverse ways. There is an imbalance between qualitative and quantitative studies available for review. Much of the research involves results obtained from small sample populations and individual case studies that are both culturally and geographically confined.

The studies often involve design unique to the context and are difficult, if not impossible, to reproduce. Also, the results are often difficult to transfer across geography, age, culture, and context. The author has yet to uncover any longitudinal studies that provide information regarding the long-term impacts, if any, of equity pedagogy on increased academic and social opportunities.

This review is not intended to be an exhaustive examination of the literature. Decades of research and study have contributed to the growing wealth of knowledge regarding multicultural and multilingual students. This review is focused on investigating the outcomes of 30 such studies, primarily undertaken between the years 1998 - 2011.

Statement of Purpose

The purpose of this review was to determine what genuinely constitutes best classroom practices for linguistically diverse student groups. The goal was to draw conclusions that illuminate the attitudes, philosophies, and pedagogy that are the most likely to serve the genuine needs of multicultural and multilingual students, their families, communities, and American cultural at large.

Summary

Education in the United States is failing to meet the needs of students, families, communities, and society, at large. As the population of racial, ethnic, religious, and linguistic minorities steadily expands the societal consequences of failing to provide a high-quality and culturally relevant education will become increasingly obvious. Youth, young adults, and adults that lack formal education have less access to employment opportunities, quality healthcare, quality

childcare, income that supports healthy family development, and social mobility in general (DeNavas-Wall, Proctor, and Smith 2010). As cultural and racial minorities steadily become majorities in many cities and regions across the nation, the lack of socioeconomic and personal development opportunities are generating dire social consequences. Educators must react quickly and adeptly to prepare all students to function productively and compassionately within a multicultural society.

Chapter 1 of this review furnished a background and context to investigate classroom issues related to equity pedagogy. Chapter 2 provides a critical review of 30 articles, which examine four themes associated with equity pedagogy: teacher beliefs, participation structures, language in content instruction, and the development of student resilience. Chapter 3 finalizes the review and summarizes and evaluates the findings, discusses classroom implications, and makes suggestions for further research.

CHAPTER 2: CRITICAL REVIEW OF THE LITERATURE

Introduction

Chapter 1 discussed the role of traditional education in generating social inequities and the need for educators, as professionals on the front lines, to provide all students with quality access to academic content. It reviewed the history of the United States and its creation of monocultural public educational institutions that are inclusive and favorable to students raised in the dominant cultural milieu and exclusive and disadvantageous to students raised in non dominant cultural settings. Chapter 1 also illuminated the growing population of minorities in the United States and the social, economical, political, and moral implications of failing to provide an equitable education to all students. It highlighted two of the greatest challenges facing the educational system today, the first, achieving educational equity in classrooms lacking teacher to student cultural congruency, and the second, the increasing prevalence of culturally and linguistically diverse classrooms. Chapter 2 reviews the research linked to equity pedagogy used in linguistically diverse classrooms. The research examined in this chapter is organized into four sections: teacher beliefs, participation structures, language in content instruction, and student perspectives and developing resilience. Each of the studies are summarized, analyzed, and evaluated based on quantitative and qualitative research protocols. The research is reviewed to investigate the application of equity pedagogy in linguistically diverse classrooms and its effects on student engagement and academic achievement.

Teacher Beliefs

The seven studies included in this section investigated the attitudes and cultural beliefs of teachers that work with linguistically diverse students and the effects of attitudes and beliefs on classroom pedagogy. The analysis begins with Garcia, Stafford, and Arias (2005) because their examination of elementary teacher attitudes toward English language learners (ELLs) was conducted in the southwestern United States, an area with a dense population of language learners. The Garcia et al. study is followed by Orosco and Klingner's (2010) study of attitudes, beliefs, and judgments toward Latino/a ELLs in the implementation of an RTI model in the Midwestern United States. Hayes and Deyhle (2001) add to the discussion with their examination of teacher attitudes and pedagogical approaches in two schools with very different demographics. Lee, Butler, and Tippins (2007) investigated one teacher's perspective on the pedagogical attitudes and approaches that support English language learners. Razfar's (2010) ethnographic study examined teacher beliefs and approaches to corrective feedback during language learning. Gilliard and Moore (2007) studied how family and community shape curriculum in one Native American community and how the dominant European American teaching force can prepare to better serve children with diverse cultural and linguistic backgrounds. This section concludes with Yazzie-Mintz's (2011) examination of the effect of standardized education and testing on the beliefs and practices of Native American early education teachers.

An empirical study by Garcia, Stafford, and Arias (2005) surveyed 152 Arizona based elementary teachers to determine what teacher characteristics effect attitude toward English language learners' native languages and use of these languages for instruction. Participant teachers were required to have three or more years of experience, a bilingual, ESL, and/or elementary certification, and be employed as a first to fourth grade teacher. Participant teachers' demographics were largely White (67%) and Latino/a (29.5%) with very small percentages ($n < 3$) of other races or ethnicities. Teachers' native language was broken down as follows: English (85%), Spanish (15%). Of the native English speakers 71.1% were monolingual and 28.3% were bilingual. In this study a range of educational settings was represented from English only to bilingual education. Five school districts from Maricopa County, Arizona were included in the study. A direct relationship exists between the percent of Latino/a families in a school district and the percent of ELL students and low socioeconomic status.

The findings suggested that differences in teacher attitude exist based on type of certification held, ethnicity, and years spent teaching. Attitudinal differences based on type of certification held were statistically significant: bilingual teachers were more supportive ($M = 5.19$, $SD .56$) of native language use than ESL ($M = 4.52$, $SD .77$) or traditional teachers ($M = 4.46$, $SD .61$). Evidence from the surveys found statistically significant comparisons between ethnicity and attitude toward native language (L1) support; teachers of Latino/a background were far more likely to support the use native language for instruction ($9F[1,143] = 20.42$ $p = .001$). Years spent teaching was also a

significant factor in shaping teacher attitudes; the more years a teacher taught the more likely they were to have developed negative attitudes toward students native language ($F[2,143] = 5.09, p = .007$).

The study included focus group interviews, which revealed four themes: the role of using L1 in instruction depends on the age and grade of the child, Spanish should not be eliminated from instruction, Spanish elevates students' self esteem, and the ultimate goal of instruction is to learn English. Bilingual teachers, more than ESL or traditional teachers, believed that prior knowledge transferred from the native language to English and that using native language in the classroom supports self-esteem. ESL teachers believed that the sole purpose of the native language was to facilitate instruction in English and believed that school should be exclusively taught in the target language.

The study, overall, produced useful information but suffered challenges with external validity. The level of reliability was strong; the authors openly disclosed the interview questions, details of data collection and analysis, limitations were clearly stated, and Cronbach's alpha coefficient was run on the survey with a final coefficient of .91. Internal validity was confirmed with univariate ANOVA analysis tests runs on both research questions. The sample population was large ($n = 152$) but was taken from one geographic region. Variations in the independent variable, the teachers, did not produce variations in the dependent variables: attitudes, ethnicity, and years of teaching. Reliability was challenged by the use of self-selected participants for the focus group interviews; a limited number of teachers participated in the interviews ($n = 15$)

and teachers from an English only background (n = 2) were notably absent from these discussions. External validity suffered due to social and historical circumstances unfolding in the region. Post 9/11 border control issues in connection with social and economic problems have generated a general anti-immigrant backlash in the state of Arizona. The political and media climate in the region may negatively influence teacher attitudes and findings of the study may lack external validity given intense localized immigration policies, such as state Proposition 203, Arizona's English only mandate. Still, the results are dependable and warrant further examination across contexts.

The second study analyzed in this section is a qualitative case study by Orosco and Klingner (2010). This study, undertaken in a large Midwestern elementary school revealed that teacher beliefs, attitudes, and judgments can negatively effect the implementation of Response to Intervention (RTI) education model, originally intended to support English language learners. Four themes arose in the findings: 1) generic application of RTI procedures caused misalignment between instruction and assessment, 2) dominant white middle class cultural norms were used to judge student success and thus generated deficit thinking and a negative school culture, 3) while all participants held graduate degrees, they lacked adequate teacher preparation to modify practices in response to student needs, and 4) lack of complete, contemporary, and culturally relevant materials provided inadequate resources for high quality classroom instruction.

The school involved in the study had 290 students 85% of which, were Latino/a. Eighty percent of the Latino/a population were considered English language learners. Only 11% of students were reading at the basic proficiency level. Nearly the entire population of the school (98.9%) qualified for free or reduced lunch. The school had an ESL immersion program that provided both pull-out and in-class ESL services; as well as, one bilingual first/second grade classroom. Of the school's 43 staff members, eight individuals participated in the study: six teachers, one principal, and one psychologist. All of the participants were white women age 30 – 60 and each had a graduate degree in their field.

The district chose a problem solving model of RTI to implement, which was collaborative, interdisciplinary, 3-tiered, data driven, supported parent-school partnerships, and provided for flexible delivery. The authors examined the implementation of the RTI model based on a social constructivist framework and three guiding assumptions: 1) teachers should use instructional practices that have been shown effective with similar populations, 2) teachers working in linguistically diverse settings should be familiar with teaching English language pedagogy, and 3) sociocultural perspectives are important for helping educators understand the impact culture and language have on learning.

The authors successfully used a case study approach to investigate the role of teachers' beliefs and understandings in the application of an RTI model. The confirmability of the study was strengthened by the detailed explanation of data collection and analysis. The authors took descriptive and analytic field notes, collected artifacts and documents such as curricula, assessments, teacher

observation forms, staff development documents, and classroom materials. Field notes were analyzed line by line and as a whole, chunked and coded in a process that led to eight final codes, which were grouped into conceptual categories. Dependability was created by the second author's use of Strauss Corbin's inductive analysis process to review and check all data coded by the first author. Dependability was further strengthened by triangulated data collected, compared, and crosschecked with information derived at different times by different means. The above features of the study, in conjunction with the authors' disclosure of limitations and personal worldview, reinforce the credibility of the findings. The findings are transferable to the extent that all RTI programs serving linguistically diverse students should actively investigate the role and presence of the four themes identified in the study.

Hayes and Deyhle (2001) conducted ethnographic development research exploring the curriculum differentiation in fifth and sixth grade science classes at two schools in the same district with very different demographics and found that approaches to teaching were highly varied. The study examined the practices of two teachers (one female, one male) at "Lake Elementary," a school located in an affluent professional class neighborhood in which 4.3% of the students qualified for free or reduced lunch, 4.9% were ethnic minorities, 86% lived with both parents, and the mobility rate was 8%. Students at this school had high academic achievement in science and scored in the 68th percentile on the SAT. The study compared the practices of the above two teachers with the practices of two teachers (one male, one female) at "Jefferson Elementary."

Jefferson was located in a working class, economically poor neighborhood in which 78.1 % of the students qualified for free or reduced lunch, 64% were ethnic minorities, 51 % lived with both parents, and the mobility rate is 62%. The students at Jefferson had low achievement in science and scored in the 38th percentile on the SAT.

Data were collected throughout a regular nine-month school year and focus was placed on micro-level actions occurring in the classroom. The primary data sources were transcribed audiotapes of lessons; the audiotape of each lesson was checked against field notes. Secondary data sources included three formal interviews conducted with each teacher, informal spontaneous conversation that occurred inside and outside the classroom, and interviews that were conducted with two boys and two girls from each classroom. The data were reviewed on a weekly basis and emerging patterns were described in theoretical terms, consolidated, and refined into a coding scheme based on Lemke's (1990) analysis. Data were analyzed using Folio Views electronic color-coding and numbered lines of texts to count, calculate, and compare the percentages of particular interactions.

Data analysis found that differences between the two schools were generated in three interrelated areas of the curriculum: student/teacher interactions, hands-on experiences, and testing. Lake Elementary teacher/student interactions consisted primarily of teacher centered triadic dialogues between teachers and students; students had little opportunity to question or offer observations. Jefferson Elementary teacher/student interactions

also included triadic dialogues; however, interaction was more democratic in nature. While students did not control interaction in significant ways they did participate in conversations that provided opportunities for questioning and offering observations. Hands-on experiences at Lake were mostly teacher controlled and often took the form of teacher demonstrations. In contrast, the teachers at Jefferson provided experiences that allowed for interaction, conversation, and exploration of materials. Both teachers at Lake emphasized testing as a core piece of the curriculum and used upcoming tests as means to motivate students to focus attention or work harder. At Jefferson, testing played a role in both classes but did not drive the curriculum; the teachers at Jefferson expressed limited value in memorizing facts for a test and believed that test results revealed little regarding the scope of student knowledge.

While the authors conducted a thorough and transparent investigation, the findings of the study are of limited value given the confined scope of the research and lack of meaningful comparative analysis. The confirmability of the study is bolstered by the authors' clear description of data gathering and analysis, as well as, member checking with the participating teachers. However, the transferability of the findings was weak and difficult to ascertain; the study examined the isolated practices of four teachers at two different schools; there was no comparative data or analysis offered as to the consequences or outcomes of the varying approaches of the teachers. The authors failed to provide a meaningful framework for investigating relevant connections between the curriculum, pedagogical differentiation and the divergent demographic populations.

A qualitative case study by Lee, Butler, and Tippins (2007) investigated what practices and discourses one teacher with six years experience in a first grade classroom with one half ELLs enacted regarding ESL education. The findings suggest that practices grounded in social interaction, prior knowledge, and inclusive community relationships went furthest in improving student engagement and success. The study was conducted using data collected during two face-to-face in depth interviews with the participant. The interviews focused on the participant's thinking and experiences regarding cultural and linguistic diversity in the classroom. The interviews were audio taped and transcribed. Data was analyzed through rereading, coding, and sorting into themes and categories. New data generated new themes and categories were added to the list of codes.

Data analysis generated the following findings. Children that come from different cultural backgrounds and speak little English hesitate to participate in classroom activities. Lack of participation is due to many factors including sociocultural differences that may block active participation; however, peer acceptance and social interaction are critical factors in language acquisition. Students learning language along side content must be provided an emotionally and psychologically safe learning environment. The initial use of lower level activities can serve to provide students a sense of early success. Lack of participation or production of low quality work does not signal low levels of content knowledge or intelligence. Hands-on activities and games allow ELLs to participate and learn in a low-pressure environment. Teachers of ELLs need to

use culturally responsive strategies that go beyond the “contribution” approach in designing lessons and choosing materials. Communicating effectively with an ELL student involves communicating with their parents or caregivers. Both students and caregivers need to be explicitly taught the rules of the culture of power.

Analysis of the study revealed multiple strengths and weaknesses. The credibility of the study was increased through member checks and peer examination; however, this was not supported by multivariate data collection. All data collected was self-reported and was not validated by auxiliary evidence. Credibility and transferability were further undermined by failure to provide details regarding the participant and her students’ history and demographics, as well as, details about the school, its attendees, and location. A primary shortcoming of the study was the choice of the participant; the teacher had six years of teaching experience and no additional multicultural background or experience was described. The confirmability of the research is enhanced by the use of evidence that is easily traced to its original source. While the credibility of the study is questionable, the findings are consistent with contemporary knowledge and understanding of beneficial pedagogy used in ELL education, such as those described in Sheltered English Instruction models.

The fifth study exploring the effects of teacher beliefs on equity pedagogy was completed by Razfar (2010), who conducted a naturalistic ethnographic study of corrective language practices in an urban Midwestern school district with a 90% Latino/a population. The study found that corrective practices can be

engaged while building reciprocal relationships given time, and can be sustained through various discourse practices. The study focused on the practices of one teacher. Data were gathered through classroom observations, field notes, audio-video recording, and semi-structured interviews. The classroom was observed 30 times, for over 50 hours of observation. Two formal interviews were conducted with the participant teacher, one at the beginning of the study and the other at the end of the study. The analysis centered on fifteen observations for which video footage was available.

Analysis of the data found that three primary factors were present in the process of engaging corrective language practices while building relationships of reciprocal solidarity, or *confianza*. First, the use of terms of endearment individually and collectively engendered a deep sense of affiliation and solidarity, effectively buffering the delivery of corrective feedback and creating emotional alignment between the teacher and the student. The connection was further deepened when the term of endearment was delivered in the students' native language. Re-voicing should always be set in a context of caring and be followed by affirmation. Second, teachers need to provide students opportunities to explore academic content in their native language; this will enhance comprehension and connection to material thus enabling students to focus on higher order thinking which builds confidence and centers attention on the content as opposed to language learning. The process of learning in the native language provides the confidence to take risks and not be inhibited by making mistakes. The third and final factor found to involve building relationships while

delivering corrective feedback was the teachers direct experience of learning a second language; the experience provided the educator with genuine empathy for students and placed the teacher in emotional and ideological solidarity with his or her students.

Razfar (2010) grounded the study in the sociocultural theories of Vygotsky. The findings are consistent with the research of early second language theorist Stephen Krashen (1983) and other second language acquisition theorists that support informal recasting as corrective feedback (Oliver, 1995; Mackey, Oliver, and Leeman 2003). The confirmability of the findings are limited because the author did not provide clear details of the data gathering and data mining processes. The study garners credibility because of its length (6 months), the extent of the observations (50 hours), and triangulation of findings based on interviews, field notes, and audio-video observations. The transferability of the findings may be limited by the homogeneous nature of the participants; the teacher and the students were all of Latino background and shared a common language. It is difficult to determine if similar results would occur with other cultural groups, with mixed cultural groups, or with groups in which the teacher and students came from different cultural and linguistic backgrounds.

The second to last study in this section of the review is Gilliard and Moore's (2007) qualitative case study of early learning teachers on the Flathead Indian reservation in Montana. The study examined how family and community culture shape curriculum in tribal early learning childhood programs and how to train the dominant Euro-American teaching force to strengthen connections

between home and school of children of diverse backgrounds. Findings suggest that respect for children, a sense of belongingness, and the centrality of family values and beliefs were guiding curricular principles that teachers needed to acknowledge and develop. The Flathead Indian Reservation is home to the Confederated Salish and Kootenai tribes. As of 2003 the 1.2 million acre reservation had 4,457 enrolled members living on the reservation and 2,481 members living in other locations. Unemployment on the reservation is high, 41%, and the per capita income is well below the state average at \$14,738/year. Participants in the study were eight early learning educators with varying levels of certification and higher education. Seven of the eight were registered tribal members or descendants of another American Indian tribe; however, a majority of teachers on the reservation were not tribal members.

Data were collected by four pre-service early childhood teachers as part of a field experience; two professors served as the primary investigators. Data sources included reflective journals written by the pre-service teacher/researchers, interviews with the early childhood educators, and field notes taken by the principal investigator. Interviews were recorded and transcribed. Prior to the study the pre-service teachers responded to an essay question regarding how their cultural perceptions might influence their teaching beliefs. The pre-service teachers were instructed to write reflective journals in which they wrote responses to what they were learning about home and school in the tribal setting and to keep detailed field notes of observations. Two researchers sorted and color-coded data by pertinent responses. Themes were

determined by noting eight or more responses from the three sources alluding to the main concept of the theme.

The data analysis produced three primary themes regarding how culture of the family and community shape curriculum. First, respect for children, families, and community was an integral part of the curriculum; educators frequently checked in with families and confirmed educational desires and beliefs in connection with upcoming curriculum. Interactions between educators and children were soft, quiet, and gentle. Second, the curriculum sought to build a sense of belongingness and community through ritual; daily, monthly, and annual rituals were integrated into the curriculum. Examples of rituals embedded in the curriculum included: the powwow, drumming and music, community workdays, tribal celebrations of life and death, swaddling infants, and community feasts. Third, family values and beliefs were inseparable from education. Each participant in the study valued parent participation and provided examples of caregivers (including extended family members) in program events and activities. Events at the school were planned that allowed families to get to know one another, parents were invited to participate in center meals, daily classroom activities, and field trips. Parental knowledge and skills were sought and used to transform the curriculum and in some classes parents voted on and helped plan learning activities.

The study provided a rich picture of how home to school relationships can support cultural influence of school curriculum. The dependability of the study is strengthened because the findings are consistent with the literature on the

educational benefits of creating home to school connections (Gonzalez, Moll, Amanti, 2005; Freeman and Freeman, 2009; Campos, Delgado, & Soto-Huerta, 2011). Credibility was established by triangulating data collected from various sources and independent coding generated by two people. The authors provided a copy of the interview questions. A major weakness of the study consisted of the fact that observations and interviews were only conducted for two days; the limited time period is not sufficient for constructing trust between researchers and participants or for gathering a significant range of observational data. The specificity and homogeneity of the culture may inhibit transferability of the results to other educational settings.

The final study reviewed under the teacher beliefs section was a qualitative study conducted by Yazzie-Mintz (2011) of nine Native American early education teachers. The study investigated teacher beliefs and practices and the impact of standardized education and testing on autonomous tribal schools and found that teachers felt social pressure to alter curriculum and practice to meet standardized expectations. Participants in the study were early childhood language immersion teachers working in K – 2 classes. The language immersion program was entirely funded by the tribe. Two of the teachers held elementary certification; the others were working to receive a bachelor in education through a partner language immersion teacher preparation program with a regional university. The study took place in the Midwestern United States.

The three-year study examined various data sets and analyzed the data in an ongoing process. Various forms of data were collected: field notes from

classroom observations, informal interviews, samples of student work, samples of curriculum and teacher made materials, sample of formative assessments, review of professional development activities, and six focus group interviews. Visits were made three to five times per year over three school years. Each visit lasted three to five consecutive days. Informal interviews were conducted with program and school administrators. Field notes were mined for observations and interpretations. The data were first scored for each individual classroom and then analyzed across classrooms.

The study found that the teachers felt directly and indirectly pressured by parents, the tribe, and the national accountability discourse in education to show academic progress of students on national standardized tests. Findings suggest that these teachers of native language immersion believe that naïve language is an essential aspect of culture and imperative to the revitalization and maintenance of cultural identity. The study also found that national movements such as NCLB to standardize education significantly undermine diverse local educational needs and teachers ability to work with instructional autonomy in ways that best serve local cultural and educational goals. Teachers that participated in this study believed that students' ability to operate in their native language was tied to more profound cultural aspects than academic content taught valued by mainstream public education. The study also found that these native teachers believed that interaction between students was key to the language learning process, that ongoing professional development in teaching methodologies and child development was vital to a successful program, and that

native language fluency should be a foundational priority for early learning education

The study provided a foundation for analyzing the power of national educational trends and discourses to influence teacher thinking, confidence, and practice. The credibility of the study was strengthened by the span (3 years) and scope of its data collection. Unfortunately, the strength of data collection is not supported through confirmable analysis; the researcher failed to provide any information or documentation detailing how the findings were derived. The author did furnish select quotations from the participants, which supported the inferred findings and facilitated a deeper understanding of the belief systems that inform these native educators. The findings are transferable to other educational settings in which the role of developing ones native language in connection with cultural identity is under discussion.

The seven articles reviewed in the section that investigated teacher beliefs revealed a range of information connecting teacher background, beliefs and experience to the implementation of equitable teaching practices. The various finding of all the studies demonstrate the integral role of teacher background, beliefs, and attitudes in creating an equitable classroom for linguistically diverse students. The strong studies by Garcia et al. (2005) and Orosco and Klingner (2010) found that teacher attitudes toward students' native language and use of native language in classroom instruction could negatively impact teachers' ability to meet the needs of linguistically diverse learners. Razfar (2010) and Yazzie-Mintz (2011) also reported connections between teacher attitude toward use of

native language instruction to improved school engagement through construction of strong cultural identities and improved access to academic content. Lee et al. (2007), Gillard and Moore (2007), and Yazzie-Mintz (2011) all found that student engagement increased when instruction was student-centered, involved social interaction, curriculum was embedded in students' prior knowledge, a sense of belonging was actively generated, and teachers created inclusive classrooms that engaged local family values. The relatively weak study by Hayes and Deyhle (2001) found that four teachers teaching in the same district at demographically distinct schools demonstrated divergent approaches to curriculum; the teachers of linguistically diverse students were more student-centered, provided more hands-on tasks, and were not as focused on preparation for testing.

Participation Structures

Equity pedagogy is based on actions taken in the classroom, as well as, the cultural beliefs that inform teacher attitudes. The previous section of this review examined the role of teacher attitudes toward language learners in shaping instructional praxis. The 12 studies examined in this section analyze the effects of various educational participation structures on student engagement and academic achievement. Equity based participation structures generally involve cooperative learning but vary greatly in composition, purpose, and sophistication. Therefore, the research examined in this section is subdivided into three categories: group structures, community/problem based learning, and arts based learning.

Group Structures

Five studies analyze the effect of grouping structures on classroom engagement and academic achievement. The analysis begins with a study by Box and Little (2003) that examined the impact of jigsaw cooperative learning groups in a grade 5 heterogeneous suburban setting. This is followed by Vaughan's (2002) investigation of cooperative learning's effects on achievement and attitude among fifth grade students of color. Cornelius and Rupert (2004) examined classroom environment and approach to science teaching effects on students' relationships of power. Barwell (2003) investigated peer-to-peer interaction and its use in mathematical meaning making with English language learners. The section of grouping structures concludes with Cohen and Lotan's (1995) study of the effect of status treatments in elementary classrooms with large portions of language and cultural minorities.

A quasi-experimental study conducted by Box and Little (2003) examined the effects of jigsaw cooperative learning coupled with social studies materials on the self concept and academic achievement of third grade suburban elementary school students in the southeast United States and found that while cooperative groups did generally improve student self-concept, results of tests varied and significant gains were also evident in the control group. Five third grade social studies classes formed the participants; each class contained approximately 25 students and classes were heterogeneously grouped.

The study methods involved a quasi-experimental design, which included four experimental classes and one control class. The four experimental classes received social studies instruction in small groups designed according to Aronson's jigsaw cooperative learning approach. One of four types of advanced organizers was randomly assigned to each experimental group. The fifth class, the control group, was taught using traditional, large group instruction; small group work and advanced organizers were not included in the instruction of the control group. The three assessments used to evaluate the outcomes were: the Piers-Harris Self Concept Scale, the Teachers Inferred Self Concept Scale, and a social studies test based on information contained in the textbook that was designed by the researchers and administered before and after the treatment. Raw data from the self-analysis and the social studies tests were analyzed using a two way ANOVA. In order to determine if significant differences existed between the pre and posttest mean scores on the three assessment instruments, Tukey's KSD tests were conducted. An alpha level of $p < .05$ represented the criterion for statistical significance.

The authors provided no statistics to support their claims and results of this study were varied and inconclusive. The differences between pre and post evaluation mean scores for the Piers-Harris Children's Self Concept Scale showed gains in three of the experimental classes and a decline in the fourth group; significant gains also occurred in the control group. The differences between pre and post evaluations mean scores for the Inferred Self-Concept Scale also revealed significant gains in three of the experimental groups, while

the fourth group showed a slight decline in the mean scores. This instrument showed a significant decline in teacher perceptions of student self-concept. Differences between the pre and post evaluation mean scores for the social studies test showed significant gains in all four experimental classes, as well as, a significant gain for the control class. The study showed the use of cooperative groups improved student self-concept and did not negatively effect student academic achievement in social studies.

The findings of this study lack internal validity and reliability and are, therefore, questionable. The authors do not disclose details of the subjects, including the selection process and any differences that may exist between the experiment and control groups, although, pre and post testing overrides this issue to some extent. The study loses internal validity because the authors do not disclose any statistical information in the published paper. It is unfeasible to generalize the findings without pertinent details provided to make cross comparisons based on similar attributes. The use of a comparison group and two distinct sources to gather self-concept data enhanced the studies findings; however, both experimental and control groups showed improvement and there is no evidence provided to correlate the group-work with the improved self-concept and academic achievement.

The second study examined in this review regarding the role of participation structures was Vaughan's (2002) quantitative study of the effects of cooperative learning on the achievement in and attitude toward mathematics of fifth grade students of color from a culture different from the US. The study

yielded statistically significant evidence of gains made on both measures. The study was conducted outside the United States on the island of Bermuda. The author was seeking comparative research on cooperative learning administered in a cultural context that included students of color not living in the United States. The participants were 21 students of color (11 girls and 10 boys) from one self-contained fifth grade classroom. The ethnic make up of the participants was: 18 Black students, one Indian student, and two students from Azores (in Bermuda people from Azores are not classified as White, so these students were included in the study).

The quantitative study used a pre and posttest design. The pretest was administered at the beginning of the semester and identical posttests were administered at the end of weeks five, nine, and thirteen. Participants were prepared for cooperative work; the format of Slavin's STAD model was explained and they received one hour of instruction per day for one week regarding cooperative skills and expectations. Time was devoted to structuring the groups, establishing a learning environment, and determining base scores. After one week of receiving information on the STAD method, students were given the pretest; they were then grouped heterogeneously into four groups of four and one group of five (groups were changed every two weeks). Base scores were assigned on the basis of test results and past performance. A doctoral candidate experienced with instructional use of cooperative learning taught the class. The treatment, cooperative learning, was administered over a twelve-week period.

Data were gathered and analyzed using various instruments. The CAT Form Level 14 was used to measure achievement; CAT is a norm referenced standardized test designed for K-12. Two sections were used to measure achievement: mathematical computation (50 items) and concepts and application (55 items). Peterson's Attitude Toward Math Scale was used to measure attitudes; this consisted of 15-item Likert-type scale designed to measure students' interest in math. Every Friday students were given individual quizzes to determine how well they had mastered concepts taught that week. Scores were tabulated using student's acquired scores along with their base scores, which generated points for each group. Teams with the highest scores were rewarded in class and recognized by the school. Because there was no comparison group included in the study the author analyzed raw scores separately for computation, application, and attitudes. Scores were analyzed using a one-factor ANOVA repeated measures design across four levels to discover whether there were statistically significant differences. A probability level ($p < .05$) was set for all tests of statistical significance.

Results indicated that cooperative learning had positive effects on the achievement and attitude levels in mathematics for these students. Pre and posttest means indicated positive gains for both achievement measures. Test-retest reliability yielded alpha coefficients ranging from .87 to .92. Achievement in computation yielded a ratio of $[F(3, 60) = 7.509, p < .0002]$. Application yielded a significance level of $[F(3,60) = 26.06, p < .0001]$, and attitudes yielded $[F(3,60) = 5.325, p < .0026]$. After statistically significant differences were found for all the

variables, Scheffé post hoc pairwise comparisons were applied to the data. The results indicated positive gains in student achievement after cooperative learning was implemented and significant differences were found between Posttests 1 and 2, $[F(3, 60) = .017, p > .05]$; 1 and 3, $[F(3, 60) = .099, p > .05]$, or 2 and 3, $[F(3, 60) = .027, p > .05]$.

The validity of the findings are limited by the lack of a control group to form a foundation for comparison. The author made significant attempts to account for dependent variables by subjecting the data to ANOVA and Scheffé post hoc pairwise comparisons. The external validity of the study is furthered compromised by the small, unique, and localized setting of the study, the short period of time used to apply the treatment (12 weeks), and the limited information gained from relying entirely on quiz and standardized tests results to evaluate the academic outcomes. Another weakness of the study resulted from the contrived nature of the setting; the findings are difficult to generalize to other educational settings because the study did not take place in an authentic classroom.

The third study in this review investigated participation and relationships of power in the classroom. Cornelius and Rupert's (2004) qualitative case study of two sixth grade students in a diverse urban school district examined how classroom participant and discipline structures shaped relationships of power between students and between students and concepts, and found that a student-centered inquiry-based science class allowed students to take ownership of science content and it perpetuated relationships of dominance between students in the classroom. The study centered on two sixth grade students from a diverse

urban school district with a 50% non-majority background and 27% free or reduced lunch. Participant 1, "Alicia", was a Euro-American female attending school in the district for over ten years. Participant 2, "Alex", was a Korean male whose family immigrated to the United States three years prior to the study and whose parents spoke limited English. The classroom teacher had four years of professional experience and maintained a progressive approach to teaching.

This study was conceived as a subset of a larger study on Promoting Argumentation in the Teaching of History and Science (PATHS). Participants were selected based on the clarity of their reflections during interviews and their frequent participation in class discussions, as well as, their relationship to one another and their positions of power in the context of the unit being taught. Data were collected from interviews conducted with the two participants and their classmates, as well as, discourse analysis derived from ten minute video clips.

The interviews and discourse analysis revealed a wide range of findings in relation to the question of how the classroom environment shapes various relationships of power. Interviews with the two participants revealed that students took decisive ownership of their ideas. Ownership of ones ideas went beyond claiming a theory or an idea and expanded to a high degree of flexibility in using the idea, asking questions of the idea, and dismissing the idea when it failed to explain observable phenomenon. Interviews also revealed partisanship as the participant structure minimized the presence of the teacher as an authority in the class and afforded students the opportunity to become champions for different ideas. This served to influence the relationships of power to each other and to

the rest of the class. The authors' findings suggest that the discipline structures of science tend to favor high status students; the expectations of persuasive discourse among classmates limited the power of students who advocated certain theories or ideas by requiring adequate evidence of the use of science like discourse in the classroom. High expectations of persuasive discourse positively affected the relation of power between the participant students and the concept being learned. In contrast, interviews and observations suggest that other students were disadvantaged by the participant and discipline structures. Some students spoke little to not at all and another expressed feelings of confusion during some of the discussions between Alicia and Alex and the banter between the two students effectively excluded her from the discourse.

The strength of the study lies in the examination of an important issue in multicultural classrooms; power. The study examined two specific aspects of power in depth: relationships of power between students and power over content and ideas. The findings provide relevant grounding to explore further issues of power in multicultural inquiry-based learning environments. The credibility and confirmability of the findings were weakened by the authors' failure to disclose detailed discussion of data collection or the methods employed to derive meaning from the data.

In this review the Cornelius and Rupert (2002) study is followed by Barwell's (2003) qualitative case study of a fourth grade English language learner from Hong Kong, which examined peer-to-peer mathematical interactions and revealed three important patterns of attention used to make sense of English in

mathematics interactions. The study was conducted in the United Kingdom and the participant was a fourth grade female student learning English as an additional language (EAL). The participant moved to the United Kingdom 18 months prior to the study and her home language was Cantonese. Upon arrival to the UK she spoke limited English. She had developed conversational English during her 18 months in the UK; however, she continued to struggle with academic English.

Data were secured through two recorded transcripts of the participant, Cynthia, working with a monolingual peer, Helena. The author desired to conduct the research in an authentic setting but the recordings were made outside the classroom in a setup that attempted to mirror the manner the students worked together in the classroom. The task was selected based on classroom observations – it was an activity of writing and word problem solving on a topic that was currently being taught. The students were provided with a sheet of plain paper, pencils, and a calculator for the sessions.

The research focused on conversational analysis and discursive psychology. Discursive psychology views language as a medium of social action – approaches using this analysis focus on examining how participants construct and deploy discursive resources such as stories, memories, and knowledge. The concept of attention referred to in the study is the notion of attention rooted in the part of interactions that participants attend to, attention seen as publically visible socially organized action. The analysis was an interpretive process based on

what participants did that was observable as opposed to what was inside their heads.

Analysis of the sense-making process illuminated three important patterns of attention: 1) attention to narrative experience, 2) attention to the word-problem genre, and 3) attention to mathematical structures. Discourse analysis demonstrated that the two students used attention to genre and narrative experience to negotiate generic details of the problem such as objects, characters, and numerical values. Cynthia used attention to the generic form of a word problem to negotiate a shared sense of what the word problem was about and as a device to assert her version of the problem. The meaning-rich nature of the interaction supports both language use and production of a math solution. The analysis showed how writing word problems allowed students to draw on various aspects of prior knowledge and background within the context of mathematics instruction. Findings also suggest that allowing students to introduce and negotiate their prior experience may support the development of both language and mathematics.

The study investigated how one EAL student used social interaction to gain mathematics knowledge and revealed the positive role peer-to-peer interactions can produce. The author's focus on observable patterns of attention framed by an approach based on discursive psychology generated credibility supported by specific and meaningful results. The author clearly outlined her theoretical and methodological approach to the research and provided excerpts of transcripts to demonstrate how she conducted the discourse analysis. While

the author established trustworthy findings, transferability may be restricted by the limited nature of the study, which involved only two participants. Results of peer-to-peer interactions and attention may vary based on gender, gender combinations, culture, age, maturity, personality, and confidence.

The final study analyzed as part of group structures is a quantitative study by Cohen and Lotan (1995), which examined the relationships between participation rates and status treatments in thirteen elementary classrooms located in the California San Francisco Bay area. Participants were largely students from language minority and low-income backgrounds; the study found that the frequency of teacher use of status treatments had a statistically significant positive effect on the participation rate of low status students. The study was a large-scale examination of the effect of status treatments in grades 2 to 6. Thirteen classrooms were included in the study; classrooms had relatively homogenous populations of students (2 - Southeast Asian, 9 - Hispanic, 2 mixed low income Anglo, Asian, and Hispanic). Despite similar socioeconomic status and ethnic heritage each class contained a diverse range of academic skills; a subset of students were selected for scoring (61 low-status and 67 high-status).

The thirteen teachers involved in the study received two weeks of workshop training in Complex Instruction (CI) strategies prior to the study. The staff development included a classroom management system designed to ensure students were talking and working together; the instruction in each classroom required problem solving tasks and use of manipulatives. In the cooperative

groups each student played a different role, the roles were rotated regularly. All teachers were instructed in two strategies for treatment of status problems.

Trained bilingual observers collected the data. Data were gathered during instruction; ten minutes during each observation period observers tallied the frequency that teachers spoke of multiple abilities and assigned competence. Two hundred eighty-five observations were collected, which was an average of twenty-one, nine-minute observations per teacher. No teacher was observed less than 17 times. The average rate of use of status treatments was calculated by taking the total frequency of the two kinds of speech acts and dividing by the number of observations for each teacher. The frequency of the two status treatments were combined to create a general status treatment variable; this was the statistic use to test the hypothesis.

The frequency of the teacher's use of status treatments had a statistically significant positive effect on the participation rates of low-status students. The rate at which low-status students talked or behaved like a facilitator also had a positive effect on his or her participation rate but the effect was not statistically significant [$F = 1.54$, $p < .065$]. An ANOVA was calculated for the entire set of individual observations. Teachers were a significant source of variation; for talk about multiple abilities [$F = 1.88$, $p < .05$]; for assigning competence [$F = 3.58$, $p < .00$]. Test reliability yielded an average of 91.48% agreement between observers. Analysis of variance of individual observations showed that the child was a significant source of variation for task-related talk: [$F = 7.7$; $p < .001$]. In the treated classrooms, two classes showed a positive coefficient between status

and interaction that was statistically significant, indicating the higher the status of the student, the more actively they engage in small group work.

Study credibility and confirmability were reinforced by the authors' thorough disclosure of methods for selecting subjects and collecting and analyzing data. Tests of reliability between observers produced an average 91.48% agreement. The research gains further strength from detailed descriptions of how status was defined and how changes were measured. Transferability of the findings were supported by representation of multiple cultural groups and academic abilities in the study. As the authors reported teachers and students were a significant source of variance in the findings and this must be considered when considering transferability.

Community and Problem Based Learning

Four studies explored various frameworks of community and problem based learning and examined the effectiveness of said learning on providing more equitable education. The section begins with Grassi, Hanley, and Liston's (2004) large-scale examination of service learning projects in Colorado. The analysis continues with a study by Gutstein (2003) that investigated teaching and learning mathematics for social justice. Drake and Long (2009) add to the review with a study that examined the effectiveness of problem-based learning compared to a direct instruction/experiential model. The studies that explored community-based learning conclude with an study by Ngai (2008) that investigated potential frameworks for language education in mixed population schools on the Flathead Indian reservations.

The section on community and problem based learning begins with a qualitative study conducted by Grassi, Hanley, and Liston (2004), which investigated a large sample population of Colorado based students (N = 672), parents (N = 69), and adult service-learning leaders (N = 51) to determine if participation in service learning programs provided potential to improve GPA scores, as well as, improve youth engagement in school and community. The sample for this study included 318 males (47.5%) and 354 females (52.5%). The racial breakdown was as follows: 6 Native American (.9%), 10 Asian (1.5%), 20 African American (3.0%), 60 racially mixed (8.9%), 102 Hispanic (15.2 %), and 474 White (70.5%). Of the participants 603 (92%) were English only (EO) students and 53 (8%) were English language learners (ELLs).

The study consisted of a yearlong evaluation of service learning programs in Colorado, focusing on Hispanic ELL participants. In 2000 – 2001 service learning programs in the state served 9,754 students, data for this study is based on sample populations chosen by the programs: 53% (n=8) of the school/district based organizations and 57% (n=8) of the community based grantee organizations turned in data. Data were collected in the form of surveys, interviews, and observations of five community-based and three school-based programs in action. The CLEAR evaluation team from the University of Colorado, department of education, developed surveys, interviews, and observation instruments. All instruments were made available in Spanish and English. Surveys were distributed near the end of the yearlong projects to program directors who then administered them to a sample of youth participants, parents,

and adult program leaders. Interviews and observations took place at eight sites across the state between the months of January and May and were conducted in both Spanish and English and the CLEAR team. Sites were selected that represented diverse contexts such as rural and urban, economic status variations, and ethnic diversity and homogeneity.

The findings of the study revealed that service learning programs had an overall positive affect on student participants. The majority (61%, n = 407) of youth reported that participation in service learning helped them do better in school. The above findings are confirmed by data from the Colorado assessments program; GPAs were collected from a sub sample, a sample that approximated the make up of the student population, and achievement levels of program participants were similar or better than levels of similar non-program youth. The CLEAR team collected GPA data to reveal that 187 youths yielded a mean GPA of 3.10; no corresponding data for the Colorado Department of Education was available to make a comparison. Parents and teachers reported student gains; 58% of parents (n = 40) and 50% (n = 25) of teachers reported youths acquired communication skills. Results from the surveys reflected that programs positively impacted youth participants attendance, enjoyment, and participation in school; 50% of youth reported “very true” or “somewhat true” that service learning helped them attend school more often and to enjoy class more; 45% reported more enjoyment of school; results increased when broken down by ethnicity 55% African Americans (n = 11), 48% of Hispanic (n = 49), 50 % of

American Indian (n = 3), and 50% Asian (n = 5). Forty percent of ELLs reported service learning helped them enjoy school more.

The study was broad and comprehensive. Credibility was bolstered by the investigation of service learning programs in diverse settings (rural, urban, and suburban), diverse student populations and cultures, and findings were triangulated with other data such as parent and teacher reports and test scores. However, the authors admit direct causality cannot be concluded; many factors effect student engagement and performance and no tests were run to account for uncontrollable variables that may influence the findings. Another weakness stems from the collection of data based on self-reported surveys, which do not necessarily yield confirmable or credible data. However, results are consistent with similar studies such as those conducted by Billig (2002) and transferability would be broad based on the size and scope of the sample.

The second study reviewed that examined issues of community based learning was a long term qualitative practitioner - researcher study by Gutstein (2003), which investigated what it means to teach and learn mathematics for social justice in an urban Midwestern seventh grade classroom. The participants were comprised of low-income native Spanish speakers; the two-year study demonstrated increased ability to connect math ideas to a growing understanding of sociopolitical contexts. The researcher was the teacher and taught the same group of students through seventh and eighth grade. The researcher disclosed pedagogical approach is Freirian in nature; provide the students information and see what questions arise for them. The study was conducted in a working class

Mexican and Mexican-American Midwestern city. The school served 800 students that were 99% Latino and 98% low income. Approximately 50% of the students were recent immigrants and the rest were primarily first generation. Nearly all students spoke Spanish, all students in the researchers class spoke Spanish as a first language. The school had a regular honors track; the students in the honors track are demographically indistinguishable from regular track students. The classes investigated in the study were honors classes.

Research methods and data collection were varied. Research methods were semi-ethnographic and included participant observation, open-ended surveys, and textual analysis of documents. Data were collected from standardized test scores, admissions tests, a practitioner journal of reflections and observations, and student work, including: journals, 12 unit-tests, four in-depth math projects, and three anonymous surveys. The research spanned nearly two years and included 17 real-world mathematical projects that connected students' lives and experiences with social justice issues. The author developed analytic codes for data using open coding, followed by rereading data to group codes and infer connections. The author then induced analytic and explanatory themes and looked for patterns and relationships.

Results of the study indicate that over the course of two years students gained both mathematical and sociopolitical understandings. In the context of examining social justice issues students became significantly more adept at explaining their math reasoning, problem solving strategies, and representing math in multiple ways; nearly all students gained confidence. Upon completion of

the first project student responses were based on personal ideas and opinions – by the second year students understood the world through mathematics, were questioning their prior beliefs, and learning to raise questions. Discussions with students indicated that students began to examine inequality and discrimination outside of the mathematic curriculum. Observations, student work, and surveys demonstrated that students' perception of mathematics changed; students saw math as a tool to understand the world, to apply to everyday life, and to make decisions. Students were asked to predict mathematical outcomes of real world problems (such as wealth distribution) before completing the work. The outcomes would often caused surprise and shock, which allowed students to see how their perceptions were not always accurate and which often led to emotional responses and questioning. All students in the class passed eighth grade standardized-tests, all passed the Math class as well. Over the two years they gained 1.0/month on their standardized test scores for every month they were in the class. Eighteen students took entry exams in math and language arts for local magnet high schools – 15 were accepted.

The study was well grounded in solid research. Confidence in the findings was generated through rich description produced by a two year in-depth study supported by data triangulated from many sources. Credibility was enhanced by the authors open disclosure of his pedagogical approach, as well as, content examples from the mathematics lessons. The author's results are confirmable through thorough delineation of research methods. While the study is relatively strong, limitations in transferability may result from the academic and cultural

homogeneity of the participant group, the class examined was an honors class populated by Latino/a students.

The Gutstein (2003) study is followed by a quantitative study by Drake and Long (2009) who investigated the effectiveness of problem-based learning (PBL) in comparison to a direct instruction/experiential model on various educational outcomes and the findings showed that PBL has promise in elementary classrooms. The research design was quasi-experimental and included an experiment and control group, as well as, pre and posttests. The school setting for the study was heterogeneous: 31.7% Hispanic, 26.7% African American, and 6% additional minority cultures. Within the student body 18% of the students were non-native English speakers and 80% received free or reduced lunch. The two classes participating in the study were representative of the school population.

The treatment was applied for two weeks. Each class received science instruction for 45 minutes daily. The same professor provided the lessons for both groups and covered the same science content in both classes. Tasks in both classes were similar and included the use of a variety of materials such as print, video, computer resources, hands-on experiments, small group work, discussions, and demonstrations. Both groups kept records of data collection and experiment results in journals. The experiment groups instruction varied on one aspect only, the addition of problem-based learning (PBL). The significance of PBL in this study relates to pedagogy in which students are provided a problem before instruction; students are given the opportunity to apply prior knowledge,

begin search and collection of information, and work together to find solutions. Data collection included using a pre and posttests of content knowledge (16 item test), interviews, and observations. Posttests were administered on the final day of instruction and again to a random sample of students from each class four months later. Interviews were conducted at the end of instruction with five randomly selected students from each class; they were given a hypothetical science problem and asked how they would solve it. Transfer of skills to another situation and the retention of problem solving skills were measured by conducting interviews with random samples of students during the weeks and months following instruction.

The results of the study indicated that problem-based learning had a positive impact on students' academic outcomes. Pre-tests showed a minimal difference in prior knowledge in favor of the comparison group (comparison mean 7.80; PBL mean 6.64). Posttest scores for the PBL group were better (comparison mean 11.93; PBL group 12.50). A t-test comparing growth in content knowledge was statistically significant ($t[27] = 1.85, p = .0375$). Results gathered after a four-month interval had passed showed nearly identical results (comparison mean 11.78; PBL mean 11.75). Both groups were exposed to the same materials and the same curriculum content, the PBL group demonstrated more capacity to identify problem-solving strategies and list the range of resources available. The PBL group's responses were more diverse and thorough than the control group.

The authors strengthened reliability of the study through clearly defined research methods and data gathered from multiple sources. The study suffered from several weaknesses; the treatment was applied for only two weeks, the sample was limited to one geographic location, and the two groups were significantly different (the PBL group had seven more girls than boys, the comparison group was evenly split by gender, the comparison group had three more students with identified disabilities than the PBL group, the PBL group had four more students reading at grade level and the comparison group had three more students reading below grade level). These factors may have influenced the results of the treatment and were not accounted for by the researchers.

The final study examined in the community and problem based learning section of this review is a narrative research study by Ngai (2008) involving a variety of native and non-native residents of the Flathead Indian reservation in Montana. The study investigated what practices can be used to create a framework for language education efforts that are acceptable to most stakeholders in mixed (native and non-native) school districts and what are the facilitating factors and obstacles that affect design and implementation of native language education in mixed public schools. The data revealed varied results based on cultural and racial background and found that cross-cultural cooperation, teacher training, native led language advocacy, and a fundamental change regarding the role and value of native language were key factors to facilitate language education in tribal-based public schools.

A member of the Flathead Indian Reservation, home of the Confederated Salish and Kootenai tribes, conducted the study. Census data from 2000 revealed that only 17% of the reservation population consists of American Indians; approximately 70 people spoke Salish and 40 spoke Kootenai. The two cultures are originally from different lands and have different belief systems and languages. Three school districts operate on the reservation: one has a balanced population of American Indians (AI) and non-Indians (NI), one has more AI than NI, and one has more NI than AI. The ratio of American Indians to non-Indians is a direct indicator of levels of support for language programs. The author collected data from a range of sources on the reservation: 41 participant identified as AI, 48 as non-Indian, 25 participants were not professionally involved with the schools but had experience with native language education, 64 worked for or were associated with one of the school districts, of the 64, 19 were from the balanced district, 28 were from the majority Indian district, and 17 were from the majority non-Indian district.

Data were obtained through 101 individual interviews, which focused on Native perspectives and constructive suggestions by non-Native individuals. The researcher used theoretical sampling. The sampling continued through the interview process and questions were formed based on insights gained from literature review on indigenous language education. The data were analyzed using the constant comparison method and three stages of coding that are similar to open coding, axial coding, and selective coding. The coding of

interview responses provided identification, analysis, and integration of grassroots suggestions for improving language instruction access.

Findings of the study suggest that the longevity of indigenous education programs rests on collaboration, coordination, and contributions from multiple entities. In order to revitalize native language instruction native communities themselves must lead the effort and there must be broad support from communities and policy makers. Parents must demand language education for their children. A successful language program requires teacher support and professional development. Language revitalization demands a change in the perceived value of native languages. Active steps that were suggested in the outcomes of the study include: increase the value of native language locally and nationally, replace traditional instruction with creative and interactive teaching methods, support and provide teacher training, provide non-native teachers with support and materials, recruit and train native speakers, improve relationships between native and non-natives through building trust, communication, and inclusive decision making, and market language programs as enriching to all students not just targeted learners.

The findings of the study warrant consideration and provide important in-depth insights into issues of equity and Native language revitalization. The large sample size, diverse range of interview subjects, and the author's open declaration of his approach to the study from a Native person's perspective enhanced the credibility of the study. The confirmability of the findings was strengthened by the disclosure of the interview protocol and description of coding

methods. The transferability of the finding may be limited to other American Indian communities; language revitalization is a unique issue. However, the meaning of the findings may be transferable to other communities marked by a division between two or more distinct cultures. This study concludes the section of community based learning.

Arts Based Learning

The last three studies analyzed in this section investigated the value of education grounded in the arts as an equitable pedagogy in multicultural and multilingual classrooms. The first study, by Spina (2006), investigated and analyzed the linguistic development of elementary language learners through the use of arts as a medium of communication. This is followed by Grant, Hutchinson, Hornsby, and Brooke's (2008) study, which examined what children take from arts-based activities into the learning and practice of reading and writing. The section on arts-based learning concludes with Medina and Campano's (2006) investigation of drama to enhance literacy learning in multilingual classrooms.

The section on arts based learning begins with a quasi-experimental study by Spina (2006) of ELL students in two fifth grade classrooms at an urban Chapter 1 school. The study investigated the effectiveness of an arts-based curriculum to facilitate the acquisition of English as a second language without sacrificing proficiency in the native language and the nature of the linguistic development of language learners when using arts as a medium of

communication. The results demonstrate a strong relationship between arts based instruction and ability in both English and Spanish. The participants in this study were 63 Latino children, mostly from Puerto Rico, the Dominican Republic, and Mexico. All participants were English language learners and came from low socioeconomic status backgrounds. The classes were chosen based on program materials and a willingness to participate. Five teachers participated in the study. The two groups were equal in terms of gender, home language, place of birth, and age.

The study had a control group with a pre and posttest design. Annual standardized test scores were used as pre and posttests; the tests included both English and Spanish series. Additional data was gathered including 12 hours of site observations (audio recorded and transcribed), questionnaires were administered to teachers, and interviews were conducted to obtain descriptive data and for verification of findings. Two fifth grade ELL classrooms were studied: one traditional classroom (comparison group) and one arts-based classroom (experimental group).

Statistically significant differences were observed between the pre and posttest scores of the two groups. After adjusting for covariates, posttests varied significantly with participation in the arts program, performance on English, $[F(1, 47) = 11.00, p = .0018]$; and reading, $[F(1, 47) = 20.29, p = .0001]$. Students in the arts-based program also performed better on Spanish posttests, $[F(1, 44) = 4.56, p = .0383]$; gaining an average 2.9 points ($M = 46.14$). Students not in the arts program lost an average of 9 points ($M = 33.42$). The results demonstrated a

strong relation between arts-based instruction and ability in English and Spanish. English skills of students in the arts program ($M= 36.32$) improved an average of 7.7 percentile points above those in the comparison group ($M=28.61$), after adjusting for pretest differences. Reading skills of the arts program students ($M=36.90$) improved an average of 12.47 percentile points over the comparison group ($M= 24.42$). The Spanish pretest scores of the art group ($M=43.22$) were almost identical with those of the comparison group ($M=42.86$). The comparison group lost an average of 9 percentile points in Spanish scores ($p=.0001$), allowing for rejection of the null hypothesis of the equality of means ($Pr>| T| =0.0002$). Students in the arts-based program gained only an average of 3 percentile points in the Spanish series. While this is not a statistically significant difference from no change ($Pr>| T| =0.1653$), the fact that the students maintained, rather than lost, ability in their Spanish is statistically significant when compared to the loss evidenced by the comparison group ($p= .0002$).

The study produced a foundation for further studies to examine the role of arts education in language acquisition, as well as, first language maintenance. The authors openly disclosed the theoretical grounding of their research in the ideas of Gardner and Vygotsky. Credibility was achieved through clear definition of data collection and analysis. The research team accounted for issues of maturation by employing a comparison group. Transferability could be of limited scope as participants were from a largely homogeneous cultural and linguistic group. The limited number of classrooms, teachers, and arts programs investigated in the study inhibits transferability; readers of the study should

question the possibility of the teacher as the primary factor of change as opposed to the arts program.

The second study in this section on arts-based learning is a case study including five teachers in a culturally and linguistically diverse primary school in Melbourne Australia by Grant, Hutchinson, Hornsby, and Brooke's (2008). The research team examined what children take from engagement in arts-based activities into reading and writing and found that students obtain various social and academic benefits from exposure to arts activities. The study was conducted in an urban primary school of 400 students from diverse cultural backgrounds. Arabic and Turkish were the two main languages spoken by students. The principal of the school invited the project team from the University to work with school staff for one year; five teachers participated in the study.

The study involved an intervention and professional development. An initial survey was conducted with the teaching staff to assess current use of arts in the curriculum and to identify challenges to using arts in the classroom. The survey was followed by four arts based professional development workshops informed by the pedagogy of Orff Schulwerk and facilitated by experienced arts educators. Each workshop focused on a different genre (dance, drama, visual, music) in use with a particular storybook. Each of the five participating teachers identified three literacy students (one high level, one middle, and one lower achieving) in school year 5 and 6 to track. Researchers and teachers then developed a sequence of activities on the theme of lifecycles, which encompassed visual art, drama, and sculpture, shared reading, and various

written responses. Data were collected with video, photography, and a group interview.

The findings showed that arts-based activities appeared in students' literacy work. As children were learning to see, do, be, and say through creative play they generated language that carried into their reading and writing. One student developed his writing through composing sustained texts orally as he drew. One struggling student created and performed a play. Teachers found that preceding text with art helped enable students to engage in seeing, thinking, and using language to open academic connections.

The study's credibility is enhanced by the authors open disclosure of personal and professional principles that informed the research. The study used a significant amount of time, one year, to track changes as they developed; however, no clear description of how data was mined for information was provided. Credibility was further supported by the authors' honesty in describing the results as "tentative."

A review of participation structures concludes with a case study conducted by Medina and Campano (2006) in two fifth grade multicultural multilingual classrooms. The study investigated the use of drama in literacy instruction to open critical spaces within which students negotiate diverse perspectives and generate knowledge that may serve their own educational and social empowerment and found that drama provides several elements of experience such as interaction and role playing that are proven effective for literacy

instruction and critical thinking. For the purposes of the study drama was defined as “a complex system that draws on a number of semiotic resources.” (Medina et al. p.333) The participants in this study consisted of two fifth grade multicultural and multilingual classrooms mostly from Mexico and El Salvador. The location was a Midwestern city in the United States.

A participant observer conducted the case study. Data were gathered through classroom observations and mined through the analysis of write in role scripts. Drama was found to provide various benefits that served as social and educational empowerment for multilingual students. Drama taught students to learn through drawing on their prior knowledge and provided opportunity for interaction. During drama activities students experimented with becoming experts. The process of the class writing the script collaboratively pushed against the prevailing school ideology of individual authorship. Drama has the ability, from a critical literacy perspective, to provide a space to expose power relationships and adjudicate between competing beliefs and values, which become active and tangible through role-play. Writing in role allows children to go beyond occupying the space of a character and to bring their own resources and forms of cultural expression to bear on their roles, rendering visible contesting perspectives. Drama has the potential to mobilize children’s cultural/social identities and engage issues and audiences relevant to their immediate lives.

The study provided a rich examination of the role of drama in multicultural classrooms. Unfortunately, the findings cannot be confirmed, and therefore

should be regarded with caution. The authors failed to explain the data collection or analysis processes; it is impossible to validate their conclusions.

Participation structures covers an incredibly broad range of pedagogical approaches. The studies examined in this review focused on group structures, community and problem based learning, and arts based learning. A majority of the studies successfully linked student interaction through various group participation structures to improved academic achievement. Two relatively weak studies by Box and Little (2003) and Vaughn (2002) connected classroom cooperative learning structures to positive gains in student self concept and attitude. Providing nuance to the above findings is the study by Cornelius and Rupert (2004), which found that student interaction in a science classroom produced advantages and learning opportunities for high status students while generating exclusion and disadvantages for lower status students. The findings of Box and Little (2003) and Vaughn (2002) are supported by the strong study by Cohen and Lotan (1995), which found that small group work positively impacted low status students' participation rates if status treatments were employed frequently by the teacher. The study by Barwell (2003) found that peer-to-peer work in mathematics could support the acquisition of language and mathematical concepts.

Participation structures, which included community/problem and arts-based learning largely reported positive overall outcomes for both academic gains and improved student engagement in school. Strong studies by Grassi et al. (2004), Gutstein (2003), Spina (2006), and Grant et al (2008) linked

curriculum based in community problem solving and the arts to improvements in communication skills, content knowledge, literacy, and personal interest.

Curriculum based in broader concepts of community, problem solving, and the arts generally supported student engagement through cultural identity formation and improved capacity to acquire content through engaging student background and prior knowledge. The studies by Gutstein (2003) and Medino and Campero (2006) examined pedagogical issues related to self-efficacy and found that academic and personal understanding and skills are improved when students examine academic content in the context of social justice. The study by Ngai (2008) found that effective community based education required teacher professional development, recruitment of teachers from inside communities, construction of relationships based on alliances and trust in mixed communities, and fundamental changes in cultural values placed on student native language and identity development.

Language and Content Instruction

The seven studies reviewed in this section analyze the effectiveness of equity principles applied as part of learning language in conjunction with content instruction. The studies cover three areas of content: social studies, science, and mathematics. The survey of literature in this section begins with a study by Hinde, Popp, Silva, and Dorn (2011), which investigated the impact of integrating social studies and ELL methodologies on reading comprehension. The Hinde et al. (2011) study is followed by an examination of Carlo, August, Mclaughlin, Snow, Dressler, Lippman, Lively, and White's (2004) study of a vocabulary

intervention on fifth grade students' word knowledge and reading comprehension. A shift from social studies content to science content begins with a study by Hart and Lee (2003), which explored changes in teacher beliefs and practices related to teaching language and literacy as part of science after participating in an instructional intervention. Cuevas, Lee, Hart, and Deaktor (2005) provide an additional science study, which examined the role of inquiry-based instruction on narrowing achievement gaps in various demographic subgroups. Ciechanowski (2009) investigated how English language learners use popular culture to make meaning of a science text. This section concludes with two studies that examine equity pedagogy rooted in mathematics content. The first is a study by Thomas (2006) that investigated the effect of the THINK problem-solving framework on students ability to problem solve. The analysis of this section closes with the Musanti, Pattichis, and Marshall (2009) study that explored the use of Cognitively Guided Instruction (CGI) and construction of academic language in mathematics instruction.

A review of language and content instruction begins with a large scale empirical study by Hinde, Popp, Silva, and Dorn (2011), which investigated the affect of Geoliteracy curriculum, a program integrating social studies with ELL teaching methods, on the reading comprehension of elementary and middle school students in Arizona, Oklahoma, and Indiana. The study found that integration of geography with reading and writing was associated with either significant improvement or did not contribute to a decline. A total of 23 schools participated in the study – 22 qualified for Title 1 funding. Every school was

located in an urban or suburban setting. The teachers that participated were volunteers, 81% were female, years of experience ranged from 1 to 34 years, and 46% had masters degrees. The average years worked by intervention teachers was 10.4 and comparison teachers 11.8. The number of students in each grade ranged from 223 to 387, for a total sample of $n = 1431$. Twenty-eight to 39% of the students were classified as English language learners (ELLs).

The study employed an intervention to determine the effect teaching literacy through geography content would have on the reading comprehension of ELLs. Intervention teachers ($n = 35$) taught three to five lessons over a three to five month period. The lessons were pre-designed and a fixed number were available for each grade level. All lessons emphasized the reading skills of cause and effect, summarization, identification of main idea, sequencing, drawing conclusions, following directions, and reading/interpreting graphic displays. The assessments for the research focused on reading skills, not geography content. Comparison group teachers ($n = 40$) taught their regular curriculum. Both sets of teachers either taught at the same school or at schools with similar socioeconomic and ethnic demographics.

Both sets of teachers administered the same pre and posttests at the same time. The authors, with assistance from a reading expert, created the assessments. The assessments were piloted in 2006 and were then revised for the study. The study used parallel test forms; 57% of students took Form A as a pretest and Form B as a posttest, 43% took Form B followed by Form A. Each test consisted of ten selected-response items that measured reading

comprehension. Data were gathered using comparisons of student performance on the Geoliteracy test with some students' performance on the Arizona mandated standardized reading test.

The Geoliteracy lessons were associated with higher measures of reading performance in grade 5 (pretest mean 5.20 (*SD* 2.37) – posttest mean 5.90 (*SD* 2.69) and 8 (pretest mean 5.11 (*SD* 2.25) – posttest mean 5.30 (*SD* 2.09)). No significant differences were found on pretest performance between Geoliteracy groups or between states. Significant differences were found depending on ELL status, with ELLs performing lower at all grade levels. The study indicated that the reading achievement of ELL students in grades 3, 4, 5, and 8 who were taught using Geoliteracy either improved significantly or simply did not decline (Mean increase by grade respectively 0.43, 0.44, 0.98, and 0.98). The findings for grade 7 indicated a small decline of 0.27 between pre and posttest mean measures. The above findings resonate with reading research that has advocated the need for teaching literacy in content in order to improve reading comprehension overall (Freeman and Freeman, 2009; McKenna & Robinson, 2005).

Sample characteristics and descriptive statistics of pretest and posttest achievement were examined for each group of students in grades 3 to 5 and 7 to 8. A three-way mixed factorial analysis of variance (ANOVA) was conducted at each grade level to investigate the effects of Geoliteracy instruction and ELL status with respect to pretest and posttest achievement. The $2 \times 2 \times 2$ design consisted of two levels of the three-way interaction effect among Pre–Post,

Geoliteracy group and ELL status was not significant at any grade level. However, for grade 8, the between-subjects interaction effect for Geoliteracy group and ELL status was significant, [(F (1, 357) = 9.17, p < .01)]. Coefficient alpha estimates of internal consistency reliability, computed on posttest responses for all grades, ranged from .56 to .72 for Form A and from .54 to .78 for Form B. Reliability estimates computed for ELL student responses were comparable, ranging from .52 to .74 on both forms for all grades.

The study was grounded in strong empirical research practices. The large sample size, diverse geographic range, and thorough disclosure of research methods and data analysis contribute to the study's reliability, objectivity, and generalizability to other settings. The authors used a pre and posttest design, as well as, two levels of three-way mixed analysis of variance (ANOVA) at each grade level to examine the effects of the curriculum on pre and post Geoliteracy group and ELL status. The study indicated that reading achievement in connection with Geoliteracy either improved or did not decline; these findings are consistent with other literacy research, which advocates teaching literacy in academic content to improve reading comprehension (Freeman and Freeman, 2009; McKenna & Robinson, 2002). The testing instrument may have compromised results; familiarity with the test and test design may have been a factor in improving outcomes on the posttest.

The second review of equity pedagogy in language and content instruction was a multi-state quantitative study by Carlo, August, Mclaughlin, Snow, Dressler, Lippman, Lively, and White (2004), which confirmed that 254 bilingual

and monolingual fifth grade students' word knowledge and reading comprehension abilities were generally improved by an English vocabulary intervention. The participants in the study included 142 English language learners (ELLs) and 112 monolingual English only speakers (EO) in nine fifth grade classes in four schools in California, Virginia, and Massachusetts. Ninety-four of the ELLs and 75 of the EOs were in the intervention group; 48 of the ELLs and 37 of the EOs were in comparison classrooms. The California schools (2 schools) served working class Mexican-American communities, the VA school (magnet school) served families from the Caribbean and Central America, and the Massachusetts school served mainly Puerto Rican and Dominican working class families.

The study was designed around a vocabulary intervention. The creation of the intervention took into consideration multiple aspects of vocabulary learning: which words to teach, how to introduce the words, how often must students encounter them, what aspects of word knowledge should be focused on, and what instructional techniques should be used. Classrooms at each site were randomly assigned to treatment or comparison groups – ten treatment classes and six comparison classes. Students were tested in the fall and the spring on a series of tests designed to reflect skills from the curriculum and reading comprehension.

The intervention lasted 15 weeks and focused on teaching useful words and word learning strategies. The intervention focused on introducing 10 – 12 words per week with instruction lasting 30 to 45 minutes per day. Every fifth week

was dedicated to review. The theme used for the intervention was immigration. The curriculum drew on reading from authentic materials such as news articles, diaries, original documents, and historical and fictional accounts. Instruction involved presenting words, providing words embedded in meaningful text, and finally working in small heterogeneous language groups that completed cloze activities. Depth of knowledge was then expanded through analysis of root words and alternate forms. Teachers were provided detailed lesson plans and materials. Three lessons from each intervention classroom were filmed to acquire data on the fidelity of implementation. The tapes were coded and rated and found to achieve acceptable levels of reliability.

The research confirmed that a challenging curriculum based on teaching vocabulary, polysemy awareness, strategies for inferring meaning, and tools for analyzing morphological and cross linguistic aspects of meaning did improve the performance of both ELLs and EOs. A multivariate of variance (MANOVA) was performed on six dependent measures, which were tested against a variety of dependent variables. When analyzed against time and condition the results demonstrated statistically significant findings in four of the five measures: word mastery [$F = 113.28, p < .001$], word association [$F = 11.24, p < .01$], polysemy [$F = 11.23, p < .01$], cloze [$F = 17.84, p < .001$], and morphology (ns). It was also found that for EOs and ELLs the intervention was effective in improving reading comprehension (effect size = .08, eta squared), although, the effect was not as notable as the effect on word knowledge (effect size = .34). The results varied greatly across the three sites.

The empirical foundations of the study provided significant findings. The external validity of the results was supported by a large sample size, which covered a broad geographic range of the United States. The intervention took a holistic approach to vocabulary enrichment and produced findings that link specific teaching strategies to improved reading comprehension. The research is further strengthened by the authors' investigation of both native English speakers and second language learners. Objectivity is enhanced by the open disclosure of research methods, analysis, and statistical outcomes.

Hart and Lee (2003) completed an empirical examination in six southeast United States schools on the impact of an instructional intervention on 53 grade 4 teachers' beliefs and practices related to teaching literacy as part of science content. Statistical evidence showed the intervention effectively changed both teachers' beliefs and practices. The study included approximately 1500 students at six elementary schools. The district comprised 57% Hispanics, 30% Black, 11% White, and 2% Asian American. Seventy percent of the district qualified for free lunch and 25% was designated as limited English proficient. Of the 53 teachers that participated in the study 22 spoke English as a first language, 18 spoke Spanish as a first language, six were bilingual, one spoke Creole, and seven did not respond to the question.

The intervention was instituted through curricula materials and teacher workshops. All teachers were provided with materials: books, guides, and supplies. Each teacher taught two units at each grade level with an average of two hours of instruction per week. A majority of teachers completed instruction by

the end of the school year. The intervention included four full day workshops throughout the year. Each workshop focused on different practices: 1) how to promote inquiry-based science, 2) how to incorporate language and literacy into science lessons, 3) the role of home language and culture in science instruction, and 4) focus on shared feedback on content and design of the instructional units.

Data collection and analysis took numerous forms. Data collection occurred in focus groups interviews, self-reporting, pre and post questionnaires, and classroom observations. Interviews were conducted pre and post intervention and lasted approximately 45-60 minutes; interviews were audio-taped and transcribed. The questionnaires collected information regarding demographic data, professional backgrounds, literacy, integrating subjects, and measured teachers' perceptions of their knowledge. Classroom observations were designed to assess teaching praxis, not beliefs or perceptions. A single observer visited each teacher twice, one visit for each unit taught. The observations were not standardized; each observation produced narrative field notes and numeric ratings with justifications. Each observation lasted approximately 45 – 60 minutes. Researchers used a mixed method approach to analyze the data; quantitative instruments were applied to the questionnaire and the observation data and qualitative measures were applied to the interview data. Focus group interviews were conducted with 47 teachers at the beginning and 52 teachers at the end of the school year. Descriptive codes were assigned to responses and related codes were framed into categories.

The findings demonstrated a positive change in both attitude and practice after participating in the intervention, although, the magnitude of change was small. A slight increase was observed in the importance that teachers assigned to including reading and writing in science instruction (fall $M = 4.58$, $SD = .50$; spring $M = 4.74$, $SD = .48$). The teachers' knowledge levels and the importance they assigned to including grammar in science instruction did not yield statistically significant results. Findings related to instructional practices produced largely insignificant results. Instructional observations found that practices of linguistic scaffolding increased slightly (fall $M = 3.23$, $SD = 1.01$; spring $M = 3.52$, $SD = .86$). The effect size was small. Qualitative measures including interview analysis showed pre-intervention responses to questions such as, "how do you promote literacy in science instruction?" rendered a series of responses: using stories, using trade books with science themes, writing in response to science activities, and science journaling. Post-intervention strategies increased and included: write to explain scientific phenomenon, higher order questions and discussions, broader scope of instruction (vocabulary activities, graphing, writing up science projects, write biographies of scientists), and integrating literacy and science with other areas such as poetry and literature. Teachers' awareness of integrating literacy and science during focus group interviews was consistent with questionnaire responses.

The research conducted was clearly delineated. The authors provided information about the intervention design and implementation, as well as detailed information regarding the data collection and analysis. All seven team members

received training in order to establish inter-rater reliability, the estimates for single raters were $r = .74$, $r = .84$, and $r = .60$ for the three video taped lessons. The low ratings expose a study weakness; inter-rater reliability was tenuous. The mixed method of data analysis provided richer findings than traditional quantitative research. A majority of the data was collected using self-reported means. The classroom observations were a sample of non self-reported data but were limited in scope to two 60-minute observations per teacher. The authors clearly defined challenges related to missing data. Most of the missing data were from the classroom observations. The missing data contributed to weakening the findings – the one form of observable data the authors collected was severely limited.

A more recent empirical study conducted by Cuevas, Lee, Hart, and Deaktor (2005) examined the impact of science inquiry- based instructional intervention on third and fourth grade students in a large economically depressed southeastern school district with a multicultural and multilingual population. The study found that the intervention had a positive impact on student inquiry ability regardless of socioeconomic status, home language, or level of English proficiency. In the school district where the study was conducted 70% of the students qualified for free and reduced lunch. The ethnic make up of the district was as follows: 57% Hispanic, 30% Black (including 7.4% Haitian), 11% White, and 2% Asian and Native American. Six schools and seven teachers participated in the study. Teachers were purposefully selected for confirmed effectiveness and commitment to their students. All participating teachers were female, years of experience ranged from 7 – 34 years, and four teachers were bilingual

Spanish/English speakers. Four students from each of the seven classrooms (n = 28) were selected by their teachers to represent diverse levels of achievement and balanced gender groups.

The intervention included three domains: inquiry-based instruction, integration of English language and literacy as part of science instruction, and incorporation of student home language and culture in science instruction. The intervention focused on two units for each grade and each unit was designed for two – three month implementation, using approximately two hours per week. Science educators, scientists, teachers, and consultants that represented students' home language and culture designed the units. The participant teachers attended four workshops throughout the year, which focused on the three domains of the intervention. All participant teachers were given a complete set of materials, including guides, books, and science supplies.

Data were collected through the use of elicitation sessions, conducted individually in a pre and posttest fashion. Each session took 20 – 40 minutes and was video and audio taped, and then transcribed. Student responses were coded with scoring rubrics, which assessed the conceptual accuracy and completeness of a response. A total score was obtained by summing all the points given for a maximum of 16 points. In order to determine the affect of the intervention paired samples of t-tests were conducted. Paired sample t-tests were used as an analysis tool for repeated measures. Given the various t-test measures, family-wise error value to evaluate the results of statistical analysis was considered. The statistical significance level was set at $p < .01$ using a Bonferroni correction to

approximate a $p < .05$ level. As a measure of effect size, Cohen's d was computed.

Significance tests of mean scores between the pre- and post-elicitations indicate statistically significant increases in students' ability to conduct inquiry in general and to employ each of the specific skills of the inquiry framework. Statistical analysis rendered the following results: problem statement ($t = 2.55$, $p = .018$), hypothesis (no results), procedures ($t = 8.39$, $p = .000$), materials ($t = 2.75$, $p = .011$), recording ($t = 3.41$, $p = .002$), concluding ($t = 6.70$, $p = .000$), and applying ($t = .37$, $p = .714$) All t -values greater than 2.80 were deemed significant. The intervention had a positive impact on students' inquiry ability regardless of their grade, achievement, gender, SES, ethnicity, home language, or English proficiency. Comparisons among demographic subgroups indicated that the low achievers (gain 5.21) and low SES (gain 4.82) students made impressive gains compared to their high achieving (gain 2.73) and middle SES (gain 2.63) counterparts.

Cuevas et al. (2005) produced a reasonably strong study with significant findings. The study gained strength from its reliability; the authors clearly defined the intervention, as well as, data gathering and analysis methods. A balanced and purposeful sample was generated based on achievement levels and gender groups. The intervention was applied over the course of a school year and the research team worked with a diverse group of people (scientists, literacy experts teachers etc) to create an authentic form of assessment. The researchers own statement of limitations includes the small sample size ($n = 25$) and the lack of a

control or comparison group. Two other factors weakened the findings of this research: the teachers were not investigated as variables in the effects of the treatment and only one form of data, the elicitation sessions, were collected and analyzed.

Another study that investigated science and literacy was a case study by Ciechanowski (2009) of two grade 3 bilingual classes in a Spanish/English immersion school, which explored how ELLs learn the language of schools and how ways of thinking and talking vary between different contexts. The study found that children use lived experiences to structure knowledge of scientific literacy and content and that using cultural resources helped children make meaning of dense science concepts. The study investigated 35 students from an array of families: recent immigrants, families in the United States for several years, and families living in the U.S. for several generations. The teacher was a European American bilingual female, her class alternated between science and social studies each unit lasting two to four weeks. The researcher was a bilingual Latin American female.

Data for the case study were gathered from a variety of sources. The researcher spent six months doing classroom observations recorded as field notes. Additional data were obtained through the examination of artifacts (class texts and work samples), interviews, and collaborating on pre and post unit assessments. The interviews and observations were achieved through purposeful sampling; 12 focal students were chosen to generate a representative sample. The selection was based on participation, literacy, and social

characteristics. The data were analyzed using textual and discourse analysis; the analysis centered on linguistic and context features of text. Another set of data were acquired through completing textual analysis of the science textbook the students were using and the “Ice Age” storybook. The science text analysis revealed four text structures in use: casual relationships, relationships of taxonomy, precision and objectivity, and nominalization. In contrast, the storybook revealed the use of action, humor, and characters.

The finding demonstrated that the students actively and often connected the movie and the storybook to their learning about science. The process of using a familiar cultural experience, the movie and storybook “Ice Age,” helped make the completely foreign process of glacier formation accessible to the students. The texts shared some vocabulary and the movie used vague language about ice formations, which students used to ask questions in their science learning. One student, during a small group discussion, used knowledge gained in science to question the fictional aspects of the movie. Given the proper scaffolding students could use popular culture and sociocultural resources to make generative connections that enhanced their learning; however, without specific attention to using these resources, student could not adeptly navigate the multiple sources of knowledge.

The study examined the critical role of prior knowledge and sociocultural artifacts, such as popular movies and fictional stories in the process of understanding science. The author used textual and discourse analysis to establish the findings, the methods of analysis were not communicated and the

findings cannot be confirmed. However, the results cannot be completely discounted, the author did provide several brief discourse excerpts to directly illustrate how students connected popular culture with scientific study in the classroom. No descriptions of the content of pre and posttests or the process used to determine the results were provided and for this reason the credibility of the findings are questionable. While the study investigated a critical topic the findings are not readily confirmable by an outside party.

The next study in this review is a multi-grade quantitative study by Thomas (2006), which investigated the effect of the THINK problem-solving framework on students' mathematical problem solving ability; pre and post-tests showed a statistically significant overall growth across grade levels. The THINK framework was designed for use in a Title 1 elementary school to improve mathematics instruction. The THINK framework involves five steps: 1) talk about the problem with one another, 2) think about how the problem can be solved, 3) identify a strategy for solving the problem, 4) notice how your strategy helped you solve the problem, and 5) keep thinking about the problem. The research team included the school principal, teachers, pre-service teachers, the author, and a mathematics educator. Participants included 112 students and five pre-service teacher interns. The study examined students in three grade levels: two classes of first graders, two classes of second graders, and one class of sixth graders.

The duration of the study was five weeks. Researchers used a pre and posttest design as well as treatment and control groups. All students in the study solved the same problems; control classes did problem solving without using the

THINK framework and treatment classes did problem solving using the THINK framework. The control classrooms provided two days of whole class instruction to work on problems, two days of small group work, followed by a day of individual work. The THINK classrooms had the same format but teachers elicited students thinking through questions connected to the THINK framework. Data were collected using four pre and posttest word problems and pre and posttest student interviews, which entailed explanations of problem solving. Problem solutions and interview transcripts were scored using a rubric based on Polya's problem solving process. The students earned a holistic score for each problem and the four scores were added together to determine a final score.

The study found that students' problem solving skills were greatly enhanced. The results of the pre and posttest scores and interviews demonstrated greater overall growth across grade levels for the THINK classrooms. Twenty-one percent growth was measured for the THINK students while 12% growth was measured for the control group. Analysis of the covariate showed the effect of the THINK framework was significant at $[F(1,111) = 7.495, p < .01]$. A qualitative examination of the interview responses provided additional evidence of growth in problem solving skills; students in the THINK classrooms responded in greater depth, used more appropriate mathematical language, and displayed greater mathematical reasoning and communication skills. Furthermore, students in the THINK classrooms were more likely to discover errors in their reasoning and correct their solutions.

The credibility of the study is supported by its large sample size and the inclusion of interview questions and responses. Transferability across contexts is improved by the examination of the THINK framework across grade levels; however determination of transferability was limited by the author's failure to disclose teacher and student demographics. The author did not describe any method of accounting for variations resulting from teacher or pedagogical differences. Data collection and analysis were limited to four math problems and a five-question interview, however, the author furnished several transcripts that successfully validated the findings

The final study reviewed in the language and content instruction section is a qualitative study conducted by Musanti, Pattichis, and Marshall (2009). The case study examined an urban southwestern elementary which contained 85% students of Mexican decent, 95% of which spoke Spanish as a first language. The study examined the implementation of Cognitively Guided Instruction (CGI) and which aspects of building academic language the teacher grappled with while teaching math in Spanish and found that CGI provided students the opportunity to use academic language, as well as, participate in classroom discourse which is a critical vehicle through which learners internalize meaning. The teacher highlighted in this case study was born and raised in Peru and her native language was Spanish. She received a BA and teacher certification in the United States. At the time of the study she had taught for twelve years; she was a certified bilingual education teacher. The teacher taught 90% of class content in Spanish and 100% of mathematics content in Spanish.

The study took place over three school semesters and was part of a larger longitudinal ethnographic research project. Data collection included: detailed field notes taken during 29 observations, videotapes from problem solving lessons, audio recording of debriefing sessions, three semi-structured interviews. The interviews, debriefing sessions, field notes, and observations were coded using Strauss and Corbin (1998) principles grounded in theory. The coding involved chunking data into meaningful units, coding selected statement or interaction that used words or phrases related to the research questions. Coding was further based on integrating problem solving into the curriculum, supporting students to communicate math thinking while problem solving in Spanish and adapting the curriculum to meet student needs. The TAMS Analyzer tool, a computer based qualitative research tool, supported a search across transcripts to find patterns and themes.

Findings from the study suggest that CGI is a useful framework for building academic language while learning mathematics. Contextualizing problems helped scaffold student access to mathematical ideas. Framing problems in a rich story enabled students to negotiate meaning based on their own prior knowledge. The authors found that to scaffold verbal expressions of thinking and explaining strategies, teachers must make sociomathematical discourse part of classroom communication norms. Coding also revealed that teachers must develop effective question asking strategies, as talk is the vehicle by which learners connect ideas with prior knowledge and internalize meaning.

The credibility of the study was generally strong. The authors collected data from a wide variety sources and used an established coding practice. Patterns and themes were triangulated across various approaches to data collection. Credibility is further enhanced by the length of the study and the relationship between the participants and author allowed for thick description and a contextualized interpretation. The clearly defined parameters of the data collection and analysis enhanced the study's confirmability; an outside party could audit the process based on the information provided. The authors also openly disclosed the participant's background and worldview. The study was limited in scope to one school, one classroom, and one teacher, this aroused questions regarding its transferability. Also, the discussion of the findings in relation to the research questions was not shared in a clear and direct manner; the findings were vague and challenging to decipher in the body of the paper.

All seven studies in this section showed academic gains for students exposed to literacy instruction and activities within content instruction. Strong findings by Hinde et al. (2011), Carlo et al. (2004), and Musanti et al. (2009) demonstrated improved performance in literacy or content knowledge by students exposed to literacy instruction embedded in academic content or meaningful contexts. Studies by Cuevas et al. (2005) and Ciechanowski (2009) found that using students' lived experiences and prior knowledge supported the ability to conduct scientific inquiry and internalize content knowledge. The Hart and Lee (2003) study found that professional development workshops improved teachers' knowledge and attitude about the role and importance of teaching

literacy as part of science instruction. Thomas (2006) found that students' mathematical problem solving skills were greatly enhanced through implementation of the THINK problem-solving framework.

Student Perspectives and Developing Resilience

The final four studies in chapter two investigate student perspectives and the development of student resilience, or self-efficacy. These studies explored students' perceptions, reflections, and evaluations of their personal educational experiences, as well as, the characteristics that indicate personal resilience. The analysis begins with Rivera's (2011) investigation of resilient and non-resilient characteristics in mathematics among urban elementary Hispanic students. The exploration continues with Rubenstein's (2004) case study of one struggling English language learner's experience in heterogeneous American public schools. Zyromski, Bryant, and Gerler (2011) follow with an investigation of fifth grade Lumbee Native Americans' experiences, attitudes, and goals. The section concludes with Howard's (2001) case study, which examined the perceptions and interpretations that urban African American students had of culturally responsive pedagogy.

The first study, Rivera's (2011) quantitative examination of fourth and fifth grade Hispanic English language learners' attitudes toward their mathematics classroom learning environment found that specific characteristics indicated levels of resilience and resilience had an affect on both academic achievement and self efficacy. The study investigated 118 fourth and fifth grade students at

three elementary schools in a large urban city in the south central United States. The school district served mostly Hispanic students (90%) and students that received free or reduced lunch (95%). Languages spoken by the participants were Spanish (18.6%), English (27.1%), and bilingual (53.4%). The gender distribution of the study was female (59.3%) and male (40.7%). Participants were selected based on teacher identification of resilient (high achieving, motivated, excellent attendance) and non-resilient (low achieving, not motivated, poor attendance) students. The sample yielded 66 resilient and 52 non-resilient participants.

Data were collected through semi-structured interviews conducted near the end of the school year. The interviews contained 34 items focused on student background information, attitudes toward mathematics, school experiences, cognitive and affective outcomes, parental involvement, and perceptions of the benefits of learning mathematics. The interviews were conducted in English or Spanish and were audio-taped, transcribed, and open-ended questions were coded for statistical analysis. Participants were permitted time to answer freely and each interview lasted an average of 25 minutes. The intraclass correlation coefficient between the principal researcher and a blind coder was .83.

The findings showed a range of characteristics influenced students' level of resilience and self-efficacy related to mathematics. In chi squared analysis resilient students were reported to have significantly higher grades the year before the study [(4,n = 118) = 29.13, $p < .001$] and the year of the study [(4, n = 118) = 34.43, $p < .001$]. Resilient students had a better attendance record [(4, n =

118) = 10.24, $p < .05$]. No significant differences were found for time spent on homework each week; 41% of resilient students spent one to two hours per week on math homework while 54% of non-resilient students spent the same amount of time. Rivera equated this difference with the quality of the time spent, difficulties with the subject, and the presence of parental/caregiver support. Ninety-seven percent of the resilient students reported they enjoyed mathematics while 86.5% non-resilient students reported enjoyment, this generated a statistically significant difference [(1, $n = 118$) = 4.49, $p < .05$]. Non-resilient students also indicated beliefs that they were not good at mathematics compared to resilient students beliefs that they were good at mathematics [(1, $n = 118$) = 18.94, $p < .001$]. Ninety-eight and one-half percent of the resilient students considered themselves good students in general while 20% of the non-resilient students considered themselves not good students. A multivariate analysis (MANOVA) was completed to investigate the frequency of strategies and tools (use of manipulatives, doing math from textbooks, doing math problems on worksheets, participating in group problem solving, use of calculators, and use of computers) used during mathematics tasks by both groups and no statistically significant differences were found.

The findings also indicate differences in home environment. Non-resilient students were more likely to speak English in the home (36.5%) than resilient students (19.7%), although, this difference was not statistically significant. Resilient students were far more likely to talk about school at home [(1, $N = 118$) = 5.67, $p < .05$] and were more likely to get help with mathematics work than non

resilient students [(1, n = 118) = 14.65, $p < .001$]. However, non-resilient students were twice as likely to get help from siblings. While not statistically significant resilient students were more likely to talk to parents about what they did in class and receive encouragement to learn and work hard.

The study provided important insights into the characteristics that differentiate resilient and non-resilient mathematics students. The researcher investigated a significant sample of students (n = 118) and established results that reflect similar finding in other educational research. However, reliability was compromised by three factors: subjective selection of resilient and non-resilient students by teacher, the use of only one self-reporting instrument to gather data (student interviews), and resilient and non-resilient characteristics were not tested in other aspects of student lives. Reliability was also jeopardized by failure to complete analysis of variance tests that examined participant differences based on family structure, income, employment, and level of parental education. Objectivity was weakened by lack of disclosure of the coding process and a mediocre intra-class correlation coefficient between two coders of .83. The extent to which results can be generalized to other settings is challenging to ascertain; the study was limited to one academic subject, one geographic location, and a sample with a largely homogenous background. The study would have been enhanced if results based on gender differences were examined and discussed.

Rubenstein's (2004) case study, sought to explore the deeper essence of the secondary students that struggle with reading, through examination of one eighth grade Mexican born undocumented ELL student's experience at a

heterogeneous American public school in a sheltered English program. The study revealed a complex portrait of an individual learner. The study participant, “Miguel,” entered the United States, illegally, at age nine with his mother. During the study he attended a medium sized junior high school located in a clean middle class Chinese American neighborhood. The school had a heterogeneous population and an apparent commitment to creating school community. The school provided sheltered English instruction taught by qualified teachers. Miguel was one of four participants from a sample of 237 Latino families from a doctoral dissertation; he was purposefully selected for his reflective nature and willingness to share his experience.

The author, a participant-observer, collected data from multiple sources. The author conducted three phenomenological interviews with Miguel and shadowed him for three days as a participant observer. The author also had conversations with Miguel’s two core teachers and Miguel’s mother. Interviews were transcribed and transcripts were mined recursively for attitudes toward, purposes for, and descriptions of events surrounding literacy. Field notes provided written records of ongoing thoughts and meaning making and were mined to confirm or disconfirm patterns found in the interviews. Data were coded using Glaser and Strauss’s constant comparative method. Reflective memos were also coded. At times, the participant was asked to clarification information.

The findings revealed an array of information regarding who were the secondary students that struggle with reading. In Miguel’s case, secondary students that struggle with reading are students whose parents do not partake in

routine conventional reading and writing in the home. Also, a struggling reader at school does not equate to a struggling reader at home; Miguel routinely helped his mother fill out paperwork and helped with other translation activities. Miguel disclosed that he generally found school boring and too difficult, although, he perceived the expectations and demands of his teachers as caring. Miguel communicated several factors that positively impacted his literacy learning: free reading time, a variety of participation structures, learning literacy strategies increased his confidence, and writers workshops helped him realize that good writing is produced through a process. Findings revealed that Miguel highly valued group work and understood the importance and life applications of knowing how to read and write in English.

The findings of this study are applicable in a limited scope. The study question “Who are the secondary students that struggle with reading?” is not answered by a case study investigating the issues of one individual; the researcher did not collect the necessary data to fully answer the research question. The question would have better served readers if answered through comparing and contrasting the background and experiences of several diverse participants. Still, the findings are dependable because they are consistent with the findings of other educational studies and credibility is strengthened because the researcher triangulated and coded data from a variety of sources. While the researcher failed to answer the study question the findings provided a rich description of multiple literacies and offered transferable insights regarding useful

pedagogical strategies to engage immigrant ELL students in authentic literacy learning experiences that connect home and school life.

The third study in this section is a qualitative study by Zyromski, Bryant, and Gerler (2011) involving mostly fourth and fifth grade Lumbee Native Americans students. The study investigated the experiences Native American students have that are likely to improve relationships, enhance success, increase self-awareness and help with goal setting and goal attainment. The study was conducted in a rural elementary school in southeast North Carolina that enrolled 544 students in K – 6 classes. The study included 77 fourth graders; 69% Native American, 17% Hispanic, 8% African American, and 3% White; 42 were male and 35 were female. The study also included 62 fifth graders: 74% Native American, 17% Hispanic, 6% African American, and 2% White; 24 were male and 38 were female. Students from the Lumbee nation speak English as a first language and generally perform well below the state average on standardized tests.

The authors took a phenomenological approach to research. Data were collected through survey responses and journaling. The focus of the study was the results of an online survey called “Succeeding in School” (SIS). The survey contained ten sections and was administered over a ten-week period. The research team focused on five of the ten sections. The focal sections included: 1) being comfortable in school, 2) being responsible in school, 3) listening in school, 4) asking for help in school, and 5) the bright side of school. Each section used comments or pictures to help students examine and express ideas and feelings

through journaling. The data were coded to uncover themes and analysis was completed using a constructivist epistemology.

Survey results revealed students' experience in school and the situations in which students feel more or less safe or empowered. In response to being *comfortable in school* students reported experiencing fear of tests, punishment, failing grades, corporal punishment, and poor EOG exam scores. Students demonstrated a general insecurity in knowledge of how to overcome fear. Some students reported they would go to family, friends, and sometimes teachers for help. All of their choices were made based on close personal trusting relationships that relied on emotional connections and confidentiality. In response to being *responsible in school* students largely regarded this as following rules, paying attention, and working on academics. Students recognized that adults demanded work from them because they cared and wanted them to succeed; they also recognized the benefit in changing their outlook to a more positive one. Students considered homework time-consuming and preferred to be doing something else more enjoyable. The data did not provide enough evidence to respond to the prompt regarding *listening in school*. In the fourth section, *asking for help*, students expressed there were many times they needed help but did not ask based on fear of embarrassment, fear of punishment, or fear of the teacher. Students reported feeling better when they asked for help and got the answer they needed. Sufficient data were not available to mine questions about the *bright side of school*.

The authors enhanced the dependability of the study by disclosing results of other studies that have used the SIS surveys and the results discovered. Credibility is increased as the authors' cultural encapsulation is acknowledged and bias is mediated through the use of existing data (the survey results). An expert on Native American identity, who served as an auditor, triangulated the data. The expert examined codebooks, samples of the data, and the resulting themes. The authors used kappa coefficients to measure inter-rater agreement and to strengthen inter-rater reliability; the score was above .80 for the research team. The study was weakened by several factors: convenience sampling and limited survey responses weaken the trustworthiness of themes that arose in coding, thus, reducing credibility; transferability may be limited by distinct historical and cultural characteristics of the Lumbee Native American community; student responses may be influenced by administration of the survey in a school computer lab with teachers observers; and the form of data collection may have been culturally irrelevant and thus interfered with obtaining meaningful results.

The final study reviewed in chapter two is a qualitative case study by Howard (2001), which examined the perceptions and interpretations of African American students on the instructional practices identified as culturally responsive in four urban elementary schools. The study took place at a school located in the northwestern United States. A purposeful sample of 17 students was selected from a cross selection of students based on academic achievement determined by teacher assessment. Students were grouped into low, medium, and high categories. The sample included ten girls and seven boys; an equal

sample was sought but consent to participate was not given for three students. All teachers in the study were African American.

Data were collected from classroom observations and interviews with students. The purposes of the interviews were to gain insight into student viewpoints, understand student interpretations of teaching practice, and to compare to what extent the viewpoints were consistent with an objective observer's point of view and the teacher's goals and objectives. Each student was interviewed once individually and with a focus group of peers. Interviews took place on school property. Data were analyzed using standard qualitative measures, including open coding.

Three central themes emerged from the interviews: 1) the importance of caring teachers, 2) the establishment of classroom community, and 3) education as entertainment. Caring teachers were the most frequent attribute mentioned by students as an important factor in creating an optimal learning environment. Care was perceived in actions such as pats on the back (praise for good work), high expectations (students often perceived strict, harsh, demanding behavior as caring), direct statements of concern, and demonstrations of respect. Structuring a classroom community was the second most frequent attribute mentioned by participants. Classroom community was perceived as congruency between home and school, daily rituals, classroom traditions, and teachers that resembled mothers or other family members. The third attribute that affected learning was the teachers' ability to make learning fun and exciting. Fun and exciting learning

was characterized by physical dramatizations, using students' names in stories, making jokes, and being actively connected to what was being taught.

The dependability of the study is confirmed by consistent findings with other studies completed in the 1990s (Hollins and Spencer, 1990; and Lee, 1999). Credibility was enhanced by the use of an outside rater to check the accuracy and reliability of the coding, although, the results of the reliability were not disclosed. The author provided interview samples to validate the findings. The findings of the study are congruent with much of the current research; however, the study had several deep flaws. The researcher did not clearly describe the data gathering or the data mining process; therefore, it is impossible to confirm the findings. The findings were reliant on the self-reported responses of elementary children to interview questions and observations, which were not described. It is not clear from the information presented in the article if the study is auditable by an outside party or not. Transferability is limited by the fact that all teachers included in the study were African American and from a similar racial and cultural background as their students. It is challenging to determine how students' experiences and perceptions would change if their teachers were from dissimilar cultural groups.

The effects of pedagogy are rarely examined from the students' perspective and a framework of developing resilience. The development of student resilience was found to engage both positive and negative aspects of classroom experience. Rivera (2011) found that resilient students demonstrated higher grades, better attendance, stronger belief in themselves as good students,

and increased likeliness to get adult help and encouragement at home. The case study by Rubenstein (2004), in accord with Rivera (2011), showed that lack of conventional academic support at home might negatively affect a student's ability to apply resilience strategies at school. Both Rubenstein (2004) and Zyromski et al. (2011) suggested that student recognition of the long-term benefits of learning and developing more positive attitudes played critical roles in student perceptions of school experiences. The studies by Rubenstein (2004) and Howard (2001) assert interactive, enjoyable, and varied educational opportunities directly served student social and academic engagement in learning tasks. All four studies alluded to the vital role of family and community in constructing resilience in the classroom; students in the Howard (2001) study named the importance of caring teachers and building classroom community as two essential elements of culturally responsive classrooms and Zyromski et al. (2011) participants reported turning to close trusting relationships with family, friends, and sometimes teachers for overcoming school related insecurities and fears.

Summary

Chapter 2 provided a critical review of 30 articles regarding the effect of equity pedagogy on academic achievement and student engagement of linguistically diverse elementary students. The articles investigated four categories related to the implementation of equity-based pedagogy: teacher beliefs, participation structures, language and content instruction, and student perspectives and developing resilience. The first section, which investigated the influence of teacher's personal beliefs on instruction, found that student

attentiveness increased when teachers displayed positive beliefs and attitudes toward the role of native language and prior knowledge in the learning process. The first section also found that negative attitudes toward students' native language and native language use in instruction impeded the use of instructional materials and methodologies that educational research has indicated are practices that reliably serve the academic and social needs of language learners. Section two examined diverse classroom participation structures and found that equitably designed small-group work improved both academic achievement and student engagement. In addition, findings indicated that interdisciplinary curriculum based in community/problem solving or the arts generally improved communication skills, content knowledge, literacy, and student personal interest. The third section investigated language and content instruction and found that students exposed to literacy instruction embedded in academic content and meaningful contexts generally demonstrated improved performance in literacy and/or content knowledge. Section four, the final section of Chapter 2, examined student perspectives and the formation of resilience; findings indicated the development of flexibility, fortitude, and positive attitudes toward school and education were largely the result of supportive relationships at school and home, access to teachers perceived as caring adults, and interactive and enjoyable classroom learning communities.

Chapter 3, the conclusion of this review, provides a summary and evaluation of the information gained through examination of the preceding thirty

articles. Chapter three discusses the implications for teaching, makes suggestions for further research, and furnishes closing thoughts.

CHAPTER 3: CONCLUSION

Introduction

Chapter 1 of this review provided a historical context and pedagogical rationale for the question: what effect does equity pedagogy have on student engagement and the academic achievement of linguistically diverse elementary students? Chapter 1 also grounded the definitions of primary terminology used throughout the paper and clearly disclosed the limitations of this review. The historical context provided in Chapter 1 clearly demonstrated that linguistically diverse communities have been and still are perceived as culturally and academically inferior to politically dominant Euro-American communities. Students from linguistically diverse communities have been and still are systematically excluded and marginalized in public schools. Contemporary marginalization of linguistically diverse students frequently manifests as culturally irrelevant pedagogy and educational materials. The United States is becoming an increasingly diverse nation embedded in a rapidly developing interdependent global society. The continued educational disenfranchisement of diverse communities is generating large-scale social injustice and inequity perpetrated on the country's children. The primary purpose of this paper was to ascertain which pedagogical attitudes and practices significantly increase the potential to provide equitable education to linguistically diverse elementary students.

Chapter 2 investigated and analyzed a range of research on equity pedagogy as it related to academic achievement and student engagement in linguistically diverse classrooms. This chapter was divided into four sections. The

first section examined the impact of teacher beliefs on instruction and found that negative attitudes toward students' native language and native language used in instruction had adverse effects on implementation of teaching methods recognized as beneficial to language learners (Garcia et al., 2005; Orosco and Klingner, 2010). In addition, the first section found student engagement improved when teacher beliefs and attitudes demonstrated empathy for the process of language learning, included student prior knowledge and family values in instruction, and endorsed the use of native language to facilitate both English and academic content acquisition (Gilliard and Moore, 2007; Lee et al., 2007; Razfar, 2010; Yazzie-Mintz, 2011). The second section investigated various participation structures and found that student-centered classrooms that engaged students in peer-to-peer interactions were relatively successful in improving academic achievement and enhancing student engagement (Barwell, 2003; Grant et al, 2008; Grassi et al., 2004; Gutstein, 2003; and Spina, 2006). Section two also found that community/problem and arts-based learning generally served as positive frameworks for instruction, which produced both social and academic benefits (Grant et al., 2008; Grassi et al., 2004; Gutstein, 2003; and Spina, 2006). The third section, language and content instruction, found that connections between literacy and academic content either improved or did not decline student academic achievement (Carlo et al., 2004; Cuevas, 2005; Hinde et al., 2011; Musanti et al., 2009; Thomas, 2006). The fourth and final section in Chapter 2, student perspectives and the development of student resilience, found that students relied on classroom learning communities, caring teachers, trusting

supportive relationships, and additional support from home environments to develop the personal flexibility and fortitude that served them in school (Howard, 2011; Rubenstein, 2004).

Chapter 3 concludes this paper. Included in chapter 3 is a summary of the findings from Chapter 2; the summary will evaluate the findings in relation to their quality and draw a number of decisive conclusions regarding this body of research. Chapter 3 also discusses the implications for teaching and formulates suggestions for further research.

Summary of the Findings

Chapter 2 was divided into four sections, which investigated teacher beliefs, participation structures, language and content instruction, and student perspectives and developing resilience. Many of the studies related to linguistically diverse students were conducted in upper elementary classrooms in urban or semi-urban settings located in the Midwest, the Southeast, Arizona, and California. Following is a synopsis of the relevant findings from each section of Chapter 2.

Teacher Beliefs

The seven studies analyzed in this section indicated that teacher attitudes and beliefs play a significant role in the implementation of equity pedagogy in linguistically diverse classrooms. Two strong studies demonstrated that teacher attitudes toward students' native language and use of native language in classroom instruction could negatively impact a teacher's ability to meet the

needs of linguistically diverse learners (Garcia et al., 2005; Orosco and Klingner, 2010). A strong study by Garcia et al. (2005) contributed to this section by identifying type of certification held, teacher ethnicity, and years engaged in teaching as three factors effecting teacher attitudes toward linguistically diverse students and use of native language instruction. Two relatively strong qualitative studies confirmed connections between teacher's positive attitude toward use of native language instruction to improved school engagement through construction of strong cultural identities and improved access to academic content (Razfar, 2010; Yazzie-Mintz, 2011). Lee et al. (2007), Gillard and Moore (2007), and Yazzie-Mintz (2011) all found that student engagement increased when instruction was student-centered, involved peer-to-peer social interaction, curriculum was embedded in students' prior knowledge, a sense of belonging was actively generated, and teachers created inclusive classrooms that engaged local family values.

The research that investigated teacher beliefs was largely qualitative in design; including six of the seven studies that informed this review. In general, the qualitative studies relied on self-reported data provided by educators. The data provided thick descriptions of teacher to student and school to community relationships but did not produce verifiable connections between teacher attitude and beliefs and student academic outcomes and/or student engagement in school.

Participation Structures

The concept of participation structures within the context of equity pedagogy consists of a diverse collection of pedagogical approaches. The section was divided into three parts, each part examined a different approach to classroom participation frameworks: group structures, community and problem-based learning, and arts-based learning. A majority of the studies successfully linked student interaction through various group participation structures to improved academic achievement. Two fairly substandard studies connected classroom cooperative learning structures to positive gains in student self-concept (Box and Little, 2003; Vaughn, 2002). Providing nuance to the above findings is the study by Cornelius and Rupert (2004), which found that student interaction in a science classroom produced advantages and learning opportunities for high status students while generating exclusion and disadvantages for lower status students. The above findings are supported by the strong study by Cohen and Lotan (1995), which found that small group work positively impacted low status students' participation rates if the teacher employed frequent status treatments.

Participation structures, which included community/problem and arts-based learning largely reported positive overall outcomes for both academic content gains and improved student engagement in school. Strong studies by Grassi et al. (2004), Gutstein (2003), Spina (2006), and Grant et al. (2008) linked curriculum based in community/problem solving and the arts to improvements in communication skills, content knowledge, literacy, and personal interest.

Curriculum based in broader concepts of community, problem solving, and the arts generally supported student engagement through cultural identity formation and improved capacity to acquire content through engaging student background and prior knowledge. The studies by Gutstein (2003) and Medino and Campero (2006) examined pedagogical issues related to self-efficacy and found that academic and personal understandings are enabled when students examine academic content in contexts of social justice. The study by Ngai (2008) found that effective community-based education required teacher professional development, recruitment of teachers from inside communities, construction of relationships based on alliances and trust in culturally mixed communities, and fundamental changes in cultural values placed on student native language and identity development.

The studies in this section reflected a balance in quantitative and qualitative design. The balance in design furnished verifiable data, as well as, thick descriptions. A majority of the studies were conducted in urban or semi-urban settings with upper elementary students, primarily grades 4 and 5. This body of research provided the most access to information related to instruction that influenced student engagement and student self-efficacy.

Language and Content Instruction

Seven studies were explored in this section. A majority of the studies produced valuable findings for the topic of this paper, which is investigating the effects of equity pedagogy on the academic achievement and personal

engagement of linguistically diverse elementary students. All seven studies in this section claimed academic gains for students exposed to literacy instruction and activities within content instruction. These gains occurred across disciplines as demonstrated by research set in social studies (Hinde et al., 2011; Carlo et al., 2004), science (Hart and Lee, 2003; Cuevas et al., 2005; Ciechenowski, 2009), and mathematics (Thomas, 2006; Musanti et al., 2009) environments. The strongest findings suggest that English language learners (ELLs) and students with low achievement or low socioeconomic status (often linguistically diverse) benefit from literacy education embedded in content instruction that employs inquiry and problem solving (Hinde et al., 2011; Cuevas et al., 2005; Thomas, 2006; Musanti et al., 2009). Students were shown to gain knowledge and skills in reading comprehension, conducting scientific inquiry, problem solving, and developing academic language. In addition, a weaker study conducted by Ciechanowski (2009) found that using students' lived experiences and prior knowledge supported student ability to conduct scientific inquiry and internalize content knowledge. The findings by Ciechanowski were supported by the findings of Carlo et al. (2004), Cuevas et al. (2005), and Musanti et al. (2009).

Five of the seven studies in this section were empirical in design. All five quantitative studies were designed as instructional interventions. The studies were primarily designed using control groups and pre/post testing methods. A weakness in internal validity is embedded in this design; issues with maturation and parallel testing may produce changes and improvements that were not the direct result of the intervention. One of the strengths of this research is that

outcomes of the interventions were investigated for both English language learners and English only students, this supports the argument that equity based pedagogy is beneficial to all students. Two qualitative case studies confirmed the empirical findings discussed above and provided rich descriptions of instructional scaffolding and patterns of interaction. While the case study findings for Ciechanowski (2009) are relatively weak because the research methods cannot be confirmed, the findings by Musanti et al (2009) are reliable.

Student Perspectives and Developing Resilience

The four studies examined in this section were generally weak yet still provided a number of notable findings. The strongest study by Howard (2001), which examined African American students' perceptions of culturally relevant instruction found that students valued 1) caring teachers, 2) the establishment of community in the classroom, and 3) instruction that was entertaining, as well as, educational. Somewhat weaker studies by Rivera (2011) and Zymboski et al. (2004) reflect similar findings that demonstrate positive academic outcomes related to student access to trusting and supportive personal relationships with teachers and/or caregivers. The case study completed by Rubenstein (2004) furnished a thick but limited perspective of one English language learner; the study found that lack of routine conventional literacy activities undertaken by caregivers at home may have negatively impacted the student's success gaining second language literacy and academic achievement at school. The Rubenstein (2004) study also found that the student greatly valued variety in classroom activities, opportunities to interact with peers, and the learning of reading and

writing strategies. The student disengaged from school when he became “bored” because he was not provided with familiar (culturally relevant) material.

It was challenging to procure quality research that investigated elementary students’ perspectives of classroom instruction and the potential of instruction to support student development of resilient characteristics. Of the four studies reviewed, three were qualitative and two were case studies. Transferability of the findings was inhibited by distinct cultural factors, such as African American students’ perceptions of instruction provided by African American teachers and a case study of one undocumented immigrant of Mexican origin with an undocumented single parent with limited education. The credibility of the findings of this research were also restricted by a heavy reliance on self-reported data from single sources for negligible amounts of time. Data were often collected from participants selected by teachers or by convenience. In one case the researcher triangulated data with teacher and parent interviews, as well as, field observations (Rubenstein, 2004).

This concludes the summary of findings, which has evaluated the overall findings from each section in Chapter 2 and discussed patterns observed in the research. The following section explores the significance of the above findings for classroom practice. It considers which classroom attitudes and practices are the most and least likely to provide linguistically diverse students with access to the “knowledge, skills, and attitudes needed to function effectively within, and help create and perpetuate a just, humane, and democratic society.” (Banks, 1995 p. 152)

Classroom Implications

The suggestions for classroom praxis regarding the application of equity pedagogy in linguistically diverse classrooms are generally supported by the research. Teaching implications are broad and varied and most research findings are confined by culture, geography, age, topic, and context. However, based on the findings of this body of research several fundamental attitudes and principles illuminate core pedagogical choices that are likely to serve linguistically diverse students in public school classrooms. In many cases equity-based pedagogy are found to support the learning of all students in the classroom, benefits are not limited to struggling or linguistically diverse students.

As stated in Chapter 1, the population of the United States is rapidly becoming increasingly diverse. Multilingual students are filling today's classrooms and educators need to facilitate student development of the skills and knowledge that will support their active and positive participation in a global multicultural society. Various studies in this review demonstrate that teacher beliefs and judgments greatly affect the curriculum and pedagogy educators implement (Garcia et al., 2005; Orosco and Klingner, 2010; Razfar, 2010) Every human being is influenced by the cultural environment in which they were raised; however, teachers are professionals and they must learn to recognize and restrain the impact of their cultural bias on their capacity to support and serve an array of students. According to Garcia et al. (2005), teachers that were white, held only standard elementary certification, and had taught for many years were more likely to have negative attitudes toward students native languages and use

of native languages for instructional purposes. These findings illuminate three critical factors related to equity pedagogy: the need for teacher training programs to recruit multicultural students into the teaching profession, the need for teacher training programs to provide cultural awareness training and teach self reflective strategies, and the need for school districts to furnish and mandate ongoing professional training to develop cultural awareness and train teachers to employ culturally responsive instructional methodologies in the classroom.

Studies by Lee et al. (2007), Razfar (2010), Gilliard and Moore (2007), and Yazzie-Mintz (2011) demonstrated various effects generated by teachers with positive attitudes toward their students' linguistic diversity. While these studies did not make empirical connections between teacher beliefs and academic achievement or student engagement, they provided rich descriptions of teacher/student and teacher/community relationships that explicate the potential of culturally responsive classrooms to better meet the needs of linguistically diverse students. As claimed by Razfar (2010) and Gilliard and Moore (2007) positive attitudes toward linguistically diverse communities engendered classrooms in which students were cared for and respected, prior knowledge and community values were integrated into the curriculum, and a learning community or a sense of belonging was cultivated. The results of positive teacher attitudes in these studies were the construction of authentic and trusting relationships between teachers and students, as well as, teachers and families.

The studies reviewed which examined the development of student resilience, while relatively substandard in quality, contribute to the above

discussion on classroom implications resulting from divergent teacher beliefs. Howard (2001) investigated African American students who affirmed the importance of caring teachers, the establishment of classroom communities, and entertaining education as vital to a positive school experience. These students also confirmed the significance of having teachers that resembled members of their family; in other words, teachers that came from similar ethnic and cultural backgrounds. Zymbroski et al. (2011) investigated Lumbee Native Americans and found that severe discomfort in school was generated by fear of tests, punishment, failing grades, and teachers. Students in this study often expressed reticence in asking for help when needed due to fear of teachers and fear of embarrassment; they also expressed a lack of knowledge of how to overcome their fear. These two studies substantiate the importance of cultivating cultural awareness, classroom learning communities, and authentic teacher/student relationships based on reciprocal respect and trust.

Studies across all four subtopics in Chapter 2 highlighted the value of structured interaction between peers for linguistically diverse students. Participation structures vary greatly and the academic and student engagement outcomes of cooperative learning are highly dependent on the details of the structure and implementation. Barwell (2003) demonstrated that a peer-to-peer problem solving-based interaction in mathematics was successful in supporting a language learners' acquisition of mathematics concepts. Ngai's (2008) research on the Flathead Indian reservation found that interaction positively impacted students' language and cultural identity formation. The studies by Cornelius and

Rupert (2004) and Cohen and Lotan (1995) illustrate that simply incorporating cooperative learning structures into a classroom does not produce an equitable pedagogy. Small group structures will naturally reflect status and power structures that are already present in the classroom due to factors such as gender, culture, language, socioeconomic, and perceived academic and social status. Teachers must actively dismantle high and low status power structures in the classroom. Cohen and Lotan (1995) provide two methods for achieving this: talking about and promoting multiple abilities and assigning competence to low status students.

Early language acquisition research by Krashen and Terrell (1983) defined acquisition issues related to students' affective filters. Language is deeply connected to our sense of identity and emotional and social filters often inhibit learning a new language. In order to support linguistically diverse students educators need to employ strategies that effectively lower students' affective filters and open them to learning. The findings in this research indicate that the cultivation of trusting and respectful relationships and the construction of classroom communities are essential attributes to deliver effective equity pedagogy.

One of the most cogent strategies for improving linguistically diverse students academic outcomes is embedding literacy practices in content instruction. The specific instructional strategies vary with each area of content; however, common attributes frequently include: promoting student inquiry, incorporating problem solving frameworks, teaching content specific academic

language, scaffolding instruction to students zone of proximal development (ZPD), and capitalizing on students' background and prior knowledge.

Suggestions for Further Research

The focus of this review was the effect of equity pedagogy on the academic achievement and personal engagement of linguistically diverse elementary students. This author has identified areas of weakness in the body of research and will explore those weaknesses now and propose improvements or alternatives to various studies included in this paper.

The research clearly communicated that teachers' beliefs influence the implementation of instruction designed to serve struggling students and language learners. Studies that examined teacher beliefs in relation to linguistic diversity largely failed to make verifiable connections between teacher beliefs, attitudes, and judgments, and student academic outcomes or student engagement in school. It is clear that studies of this kind would be complex to implement; it would be challenging to isolate a teacher's attitude as the primary factor affecting student performance. Only one study in this section employed a design that utilized comparative analysis, the Hayes (2001) study; however, the study's design was flawed to the extent that no findings were useful. The value of other findings in this section would have been increased if teachers with varying attitudes toward language learners and the use of native language for classroom instruction had been subjected to comparative analysis. Studies would have

been further enhanced if the teacher's attitudes were compared against student academic outcomes and student engagement in school.

Several of the studies in the section on teacher beliefs investigated the instructional techniques cultivated by teachers with positive attitudes toward students as language learners. These studies neglected to collect data that confirmed the effectiveness of the pedagogical practices that were in use. Studies by Razfar (2010), Lee et al. (2007), and Gilliard and Moore (2007) would have benefited from the inclusion of evidence that showed students present in the investigated classrooms demonstrated increased knowledge, skills, and engagement relative to their counterparts in more traditional classroom settings. This would have greatly improved the credibility and dependability of these studies. The addition of empirical data to the body of research on teacher beliefs would establish a foundation of empirical support for the thick descriptions provided by the overwhelmingly qualitative research. Thus, providing a more compelling argument to support the value and development of students' native language, as well as, the use of native language in content instruction.

Studies that explored participation structures varied greatly in content and design. In some cases, such as the study by Cohen and Lotan (1995), the use of pre-treatment assessments yielded valuable results; however, studies documenting the effects of participation structures on student academic achievement and/or student engagement were markedly strengthened when comparison or control groups were employed. It is challenging to determine the effectiveness of a participation structure without comparing the results of

implementation and non-implementation between demographically similar groups of students. Studies, in this body of research, which resulted in substandard findings, often lacked the inclusion of a control group in the design. For example, the study by Vaughn (2002) that examined the effects of jigsaw groups on achievement in and attitudes toward mathematics should have included a control group that was not implementing the jigsaw strategy and compared results.

Research in this category would be enhanced by the addition of cross-cultural comparisons. The studies that contribute to this body of research are largely undertaken in one age group, in one classroom, or within one school, or a single school district. A valuable addition to this research would be investigations of particular participation structures across educational milieus. For example, Cohen & Lotan (1995) successfully included multiple grades in their study (grades 2 – 6); however, the classrooms they investigated were largely segregated and generated data from one geographic region of the United States. While the study produced profound and useful findings, additional research that explored the effectiveness of status treatments in culturally and socioeconomically mixed classrooms, as well as, classrooms in diverse geographic locations could strengthen the argument for active application of status treatments.

Many of the studies that examined participation structures focused on academic and student engagement outcomes, yet failed to examine links to student self efficacy or empowerment. Four of the 13 studies included in participation structures and only six of the 30 total studies examined relationships

between pedagogy and the development of knowledge, skills, and attitudes that students need to become critical, reflective, and active citizens. Lack of qualitative and quantitative information on this research topic generates a profound gap in equity pedagogy research. The task of equitable pedagogy is not merely to facilitate student engagement and acquisition of academic content; the essence of equity pedagogy is the development of resilient, reflective, active, critical thinking citizens.

The studies that investigated the effects of teaching literacy as part of content instruction mainly consisted of quantitative designs. Five of the seven studies were constructed around curriculum development interventions and six of the seven studies involved professional development programs delivered in the form of workshops and materials. The primary focus of the study questions related to improved academic achievement resulting from the intervention. Weaknesses in this body of research include: failure to explore effects on student engagement, failure to examine effects of teaching literacy in content instruction in the absence of testing a curriculum intervention, and insufficient employment of qualitative design to increase access to thick descriptions.

The concept of equity pedagogy is designed to facilitate the acquisition of knowledge, skills, and habits of mind that increased students' lifelong opportunities and capacity to become active members of their communities. This author did not encounter significant long-term studies that investigated the adult outcomes of students that experienced equity pedagogy in the public school system. This field of research would benefit from longer-term ethnographies and

case studies, which examine long term outcomes that indicate improved quality of life, such as college attendance, employment, income, health, family, and community participation etc. The question that needs to be answered is: what is the effect of equity pedagogy on linguistically diverse students' construction of long-term resilience and improved quality of life?

Conclusion

Chapter 1 introduced the focus of this paper: what effect does equity pedagogy have on student engagement and the academic achievement of linguistically diverse elementary students? It reviewed the history of education in the United States and the creation of monocultural public educational institutions that are inclusive and favorable to students raised in the dominant cultural milieu and exclusive and disadvantageous to students raised in non dominant cultural settings. Chapter 1 also highlighted the growing population of minorities in the United States and the social, economical, political, and moral implications of failing to provide an equitable education to all students. It discussed one of the greatest challenges facing the educational system today, achieving educational equity in classrooms that lack teacher to student cultural congruency.

Chapter 2 reviewed 30 research articles linked to equity pedagogy employed in linguistically diverse classrooms. Chapter 2 was organized into four sections: teacher beliefs, participation structures, language in content instruction, and student perspectives and developing resilience. In section one, the research found that teacher's cultural background, beliefs, and life experience influence

the implementation of equitable teaching practices both positively and negatively. Negative attitudes toward native language use in the classroom are likely to impact a teacher's ability to meet the academic and emotional needs of linguistically diverse learners (Garcia et al., 2005; Orosco and Klingner, 2010). In contrast, teachers that value and support native language use in learning and engender student-centered, inclusive, environments are more likely to enhance student engagement in academic content (Gilliard and Moorse, 2007; Lee et al., 2007; Razfar, 2010; Yazzie-Mintz, 2011). Research reviewed in section two found that participation structures that promote structured small group interaction, problem solving/inquiry, and interdisciplinary instruction embedded in community or arts-based learning demonstrated positive overall outcomes for both academics and student engagement (Barwell, 2003; Grant et al, 2008; Grassi et al., 2004; Gutstein, 2003; and Spina, 2006). Participation structures that are varied, congruent with learning objectives, tightly structured, and engage students in meaningful tasks have the potential to engage student background knowledge and create opportunities to develop student self-efficacy (Cohen and Lotan, 1995; Gutstein, 2003; and Medino and Campero, 2006). Section three examined literacy and content instruction and found that literacy instruction rooted in meaningful content instruction was shown to improve literacy and/or content knowledge; this was true across disciplines. Students were shown to gain knowledge and skills in reading comprehension, conducting scientific inquiry, problem solving, and developing academic language when literacy and content were taught jointly (Carlo et al., 2004; Cuevas, 2005; Hinde et al., 2011;

Musanti et al., 2009; Thomas, 2006). The fourth, and final, section of Chapter 2 investigated student perceptions and the development of self-efficacy. The studies reviewed in this paper suggest that student beliefs or recognition of the long-term benefits of learning play a critical role in student perceptions of school experiences (Rivera, 2011; Rubenstein, 2004; Zyromski et al., 2011). The researched showed that students valued caring teachers, family and community support, and student-centered classrooms when it came to overcoming school related challenges and fears (Howard, 2011; Rubenstein, 2004).

In Chapter 2 each study was summarized, analyzed, and evaluated. Each study context was distinct and produced findings specific to that context; however, the varied contexts of each study produced an overall collection of findings that support: the development of classroom learning communities, the use of structured peer-to-peer interaction, the implementation of authentic problem-solving frameworks, the incorporation of literacy in academic content, and the active engagement of students' prior knowledge.

Chapter 3 concluded this paper. Included in Chapter 3 was a summary of the findings from Chapter 2; the summary evaluated the findings in relation to their quality and drew a number of decisive conclusions regarding this body of research. Chapter 3 also provided discussion on the implications for teaching and articulated suggestions for further research.

It is difficult to evaluate the large and complex body of research that explores the effectiveness of equity pedagogy in linguistically diverse elementary

classrooms. Every educational context is distinct; variations exist in local history and culture, the age and maturity of the students, the subject under investigation, the background, beliefs, and training of the teacher, and the goals and expectations of the students and the community. It is clear that no predetermined set of pedagogies can simply be applied to any given educational setting and produce positive and valuable results. However, findings in the research illuminate several essential attitudes and instructional elements that have proven effectiveness across an array of contexts. Educators in all contexts, but especially in linguistically diverse settings, must reflect upon the cultural lens through which they view the world, they must develop cultural awareness, and understand the vital benefits of supporting native language use in the classroom. The core pedagogical structures that have proven effectiveness across culture, geography, age, and discipline are: constructing classroom communities, providing structured interaction, grounding content in problem solving frameworks, teaching literacy across all academic content areas, and grounding instruction in students' prior knowledge. Educators can use the above principal beliefs, understandings, and pedagogical structures to guide their important work of providing equitable instruction to all students.

It is urgent that education improves for students attending public schools. Students, attending public schools today, do not have the time to await large-scale institutional changes; students' lives progress as educational policy debates continue on indefinitely. State and national policy transformations move too slowly and history reveals the results of large-scale policy changes tend to

benefit the dominant culture and disadvantage cultural and linguistic minorities.

The most rapid and reliable way to institute equitable educational transformation must take root in communities and in classrooms; teachers are therefore, positioned to become pivotal leaders of social transformation.

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