

Running Head: ACCOUNTABILITY TO CRITICAL MATH

Pedagogy of Latinos:  
From Accountability to Critical Mathematics Pedagogy

Raymond Falcon M.Ed.  
University of Texas at El Paso  
Ph.D. Teaching, Learning, and Culture

TED 6302

Fall 2009

## Abstract

High stakes testing in the state of Texas creates greater achievement gaps between Latina/os and White students. With the state adopting strict guidelines for graduation, Latina/os find it difficult to stay in school and proceed to higher educational institutions. Latina/os choose to dropout of schools with curriculums which do not embrace their potential and academic ability. This paper will construct an argument for schools to provide a critical mathematics education for Latino students. High stakes testing creates curriculums which are irrelevant leaving minority students to fail. With the No Child Left Behind Act, schools are pressured to perform academically causing Latino students to become de-sensitized to schooling, learning, and their future. Schools rather should embrace a curriculum of caring, creativity, culture, language, empowerment, critical consciousness, transformative, and agency. Schools must also change the place of teachers from technicians to engineers who analyze, create, apply, assess, and reform their curriculums to better cater to minority students. Teachers are better able to provide a mathematics education which acknowledges Latino students' culture and create real life connections to their learning. This paper will discuss factors involving high stakes accountability, a literature review, need for a study, purpose, methodology, a discussion, and recommendations.

## Pedagogy of Latinos:

### From Accountability to Critical Mathematics Pedagogy

Latina/os continually are de-sensitized to schools and their curriculums. With the No Child Left Behind Act, schools continue to focus on high stakes testing, leaving behind minority language, culture, creativity, will, curiosity, and potential to become transformative individuals to their society. Curriculums ignore previous student knowledge and skills gained from their culture. From a personal perspective, this research topic hits home. Life as a Latina/o student in a predominantly white school population is a main reason in pursuing this research. A literature review can illuminate previous connections between mathematics education, in particular, with the education of Latina/o students. An analysis of this review will reveal a gap in creating a culturally responsive mathematics education. Arguments for a reformation of math curriculum will explain reasons to change a culturally de-sensitized curriculum to one which values and uplifts Latina/o students. A discussion will reveal a plan of intervention to redesign curriculums which will empower minority students of all cultures. This discussion will introduce an idea of changes the place of the teacher from passivity to engineer (Tchoshanov, as cited by Falcon, 2009) of transformative mathematical curriculums. Further research will continue the understanding in providing minority students a curriculum which acknowledges their unique culture.

#### *Statement of Problem*

A Latina/o education fact sheet from the National Council of La Raza (NCLR) reveals some startling statistics. The NCLR (1999) states,

Latinos are fast becoming a significant proportion of the U.S. student population. From 1986 to 1995 the percentage of Latina/os in elementary and secondary schools significantly increased, while that of White students decreased...The gaps in academic progress and achievement between Latina/os and other American students remain wide(pg. 3).

According to Kohler & Lazarín (2007), Latina/os students increased to 19 percent of the school population while White students decreased to 58 percent. Su (2009) states 77 percent of Latina/o students now attend majority non-whites schools. Michael Rebell states (as cited in Alonso et al., 2009) “Students living in school districts with high-priced residential or commercial property [have] continued to have substantially greater resources available to support their education” (p.3). Linda Darling Hammond (as cited in Alonso et al. , 2009) states, “The wealthiest U.S. public schools spend at least ten times more than the poorest schools- ranging from over \$30,000 per pupil at the wealthy schools to only \$3,000 at the poorest” (p.3)(see also Kozol, 1992). In 1994, the elementary and secondary school population of Latina/os reached 12.7 percent and made up 6.4 percent of gifted and talented (GT) programs while Whites comprised 65.7 percent of the school population and accounted for 80.2 percent of GT programs (NCLR, 1999). Among 12-14 year olds, 39 percent were below modal grade while 30 percent of whites were retained (NCLR). Latina/os experience more intense school isolation and a decrease in exposure to white students (NCLR). Dropout rates are also very conclusive of problems within cultures. Among 16-24 year olds, the dropout rate for Latina/os was 29.4 percent in 1996 compared to 7.3 percent for Whites (NCLR). Curriculums do not cater to Latina/os. Let us compare this data to more recent statistical findings.

More recent statistics show how achievement gaps between Latina/os and Whites are continuing to increase. Latina/os have a 53.2 percent graduation rate compared to 74.9 percent of White students (Kohler & Lazarín, 2007). Foreign born Latina/os account for 25.3 percent of all dropouts and 38.4 percent of this group are born outside of the U.S. (Kohler & Lazarín). 75 percent of native born Hispanics complete high school and only 46 percent of foreign born Hispanics were high school graduates (Kohler & Lazarín). Enrollments in advanced courses also display a significant gap. 47 percent of White students complete advanced mathematic courses while 31.1 percent of Hispanics complete the courses (Kohler & Lazarín). 45 percent of schools offer advanced math courses which Hispanics attend (Kohler & Lazarín). 10 percent of White students enroll in GT courses while 3 percent of Hispanics enroll in these courses (Kohler & Lazarín). English Language Learners (ELL) also have a significant statistics showing their increase of enrollment (Kohler & Lazarín). 45 percent of Latina/o children in schools are ELL (Kohler & Lazarín). There was a 56 percent increase of ELL enrollment in schools from 1995 to 2005 (Kohler & Lazarín). Poverty and schools minorities attend vary greatly from their counterparts. Among 4<sup>th</sup> graders, 49 percent of Hispanics enroll in schools with the highest measure of poverty compared to 5 percent of White students (Kohler & Lazarin). College degrees also are increasingly favoring one specific racial group (Kohler & Lazarin). 12.4 percent of Latinos enroll in college compared to 69 percent of white undergraduates (Kohler & Lazarin). 12 percent of Hispanics earn a bachelors degree while 30.5 percent of Whites (Kohler & Lazarín). This data is also confirmed in the National Center of Education Statistics (NCES) from U.S. Department of Education (USDE) Institute of Education Sciences (USDE, 2003).

High stakes testing in the state of Texas creates greater achievement gaps between Latina/os and White students. With the state adopting strict guidelines for graduation, Latina/os

find it difficult to stay in school and proceed to higher educational institutions. Latina/os choose to dropout of schools with curriculums which do not embrace their potential and academic ability.

Latina/os continually to lag behind white students in TAKS testing scores. Latina/o seventh graders pass the math portion of the TAKS test at 74 percent while white score 87 percent (TEA, 2009b). Latino/a students in eleventh grade pass the math portion of the TAKS test with 75 percent compared to 89 percent of white students (TEA, 2009b).

Discipline is also a factor which contributes to the downfall of Hispanics in Texas schools. Hispanics had 2,203,340 students in Texas schools compared to 1,626,638 of White students (TEA, 2009d), a 1.3 to 1 ratio. Yet, 282,799 Latina/os where suspended out of school compared to 92,689 of White students creating a ratio of 3 to 1. 803,097 Hispanics were placed on in-school suspensions compared to 408,529 of White students (TEA, 2009c). Hispanics nearly double the number of white students with in-school suspensions and yet their student population is not doubled. These statistics are startling knowing who will become the majority in years to come. We need to begin investing in the minority majority if we want to continue striving as a country. This brings me to the purpose of a critical math ideology.

### *Purpose*

Illustrating the significance of achievement gaps between Latina/o students and White students is necessary in diagnosing a problem. With the high numbers of Latina/o students coming to our classrooms and schools, (knowing they will eventually become the majority in this nation) educators across the country should be very concerned. This paper will examine the effects of high stakes testing, and de-sensitized curriculums to create a movement of culturally

sensitive schooling in an additive manner instead of a subtractive manner (Valenzuela, 1999; Valenzuela, 2005), in particular mathematics pedagogy.

This paper will concentrate on some preliminary questions that arise from schooling situations and the responsibility of teachers to embrace and value students' ideals and prior knowledge from differing cultures. The main research question is how can teachers reform their mathematical curriculums from accountability centered to a culturally sensitive schooling to empower Latino students and bridge achievement gaps? Other secondary questions are how do teachers implement culture in mathematic classrooms? What resources are available to assist teachers in implementing culture in math classes? How do teachers provide support to Latino students? How can teachers use Freirean theories in math classes? This study hopes to illuminate processes and successful strategies in implementing a successful culturally sensitive schooling program in a mathematics classroom environment to assist teachers and Latino students achieve success, transformation, agency, and empowerment. With a further examination of literature about Latina/os in education (and mathematics education specifically), my research can further be developed in providing a culturally sensitive math schooling.

### *Literature Review*

Mathematics research in the study of Latina/os can help assess the problems and begin conversation on reforming educational methodologies to serve minority groups. Joseph (1993) argues for a multicultural mathematics “where mathematical pursuits are firmly rooted in a multicultural context” (p.7). A recent study (which yours truly was a research participant) on the mathematical strategies of effective schools who serve the poor analyzes schools from all over the country (Kitchen, DePree, Celedon-Pattichis, & Brinkerhoff, 2007). Kitchen et al., (2007) begin by their own literature review and find the absence of connections between mathematics

education and teacher's views of race, culture, and language development in their instruction. They also acknowledge how high expectations for teaching and learning are contrasts to the education of minority students when teachers hold little expectations of them. They found characteristics of schools who are high achieving and have high poverty levels and population predominately minority students. The characteristics schools share are how they place high expectations, support academic achievement of students, incorporate challenging math content, high-level mathematics instruction, and place importance of relationship building among students and teachers (Kitchen, et al.). In the high expectations theme, Kitchen et al. explains how teaching and learning are priorities when schools support students, basic skills are reviewed, teachers have plenty of resources, and plentiful professional development. The second theme of high level math content contains methods of problem solving, input of Algebra I in eighth grade, students communication about mathematics, inquiry, the curriculum is a work in progress, and teachers prepare students for state assessments and beyond (Kitchen et al.). Thirdly, teachers and students build strong relationships. The relationship bases itself on a sense of purpose, faculty members support each other, students build a disposition to math, and teachers understand and care for their students (Kitchen et al.; Noddings, 2007). The National Council of Mathematics (NCTM) also creates literature for assisting teachers in mathematics and diversity (NCTM, 2009).

The NCTM literature consists of responding to diversity in the mathematics classroom. Spitzer, White, and Flores (2009) believe in helping one student in affect will help all students in their understanding of mathematical concepts. Creating a learning environment to foster math concepts consists of encouragement, respect, value of students' ideas and thinking, taking risks, technology (also see Tapscott, 2007), context, independent and collaborative work, and

justifying math arguments. Spitzer et al., (2009) recommend teachers to know students at many levels by using multiple representations in connecting concrete math concepts to representational levels then to abstract levels. Teachers should also create mathematical connections of content to life experiences creating a space for relevancy (Joseph, 1993; Spitzer et al.). Students should be able to study how mathematics is used in the workplace (Spitzer et al.). A classroom environment which fosters active communication invites students to participate (Spitzer et al.). Language barriers can be difficult for ELL students. Therefore, using their own words in their native language or modes of expression are acceptable (Spitzer et al.). Winsor (as cited in Spitzer et al.) assists his ELL students to use a graphic organizer to write math terms in their own language, then in English, creating a definition they understand, and generate a representation of the math concept.

Kersaint, Thompson, & Petkova (2009) also have innovative ideas in teaching mathematics to ELL students. A culturally responsive pedagogy mentioned by Gay (as cited in Kersaint et al., 2009) helps Kersaint et al. in helping them with a curriculum which allows teachers to tread outside of their comfort zones. Teachers should acknowledge student differences, validate their identity, educate diversity, promote equity, have positive relationships, motivate, challenge, encourage, and assist students according to Richards, Brown, & Ford (as cited in Kersaint et al.). Kersaint et al. explain the cultural influences on mathematics learning and engagement. Students' cultures provide a lens to examine experiences through mathematics (Kersaint et al.). Hispanic women tend to think of mathematics with negative images of mathematicians as obsessive (Cocking & Chapman as cited by Kersaint et al.). Gay (as cited by Kersaint et al.) promotes a curriculum which honors students' cultures, builds links between home and school, and uses multicultural materials. Teachers should use students' culture and

mathematical experiences to design their instructional programs (Chiarelott, 2007). Teaching in ways which are culturally responsive (also see Villegas & Lucas, 2002) is an environment enabling all students to learn (Kersaint et al.). Ladson-Billings, Nelson, Joseph and Williams (as cited in Kersaint et al.) say teachers whose pedagogy is culturally responsive have characteristics of high expectations, use challenging materials, ensure student success, develop a community, and maintain cultural competence which is similar to Kitchen et al. and their findings. Kersaint et al. also state cooperative learning can provide ELL students with interaction, comfort, input, language development, negotiating skills, validation, and resources of student support. In conjunction with Spitzer et al., (2009), Kersaint et al., and Daniel (2007) agree in allowing ELL students to use their first language as a resource to learn new mathematics. Kersaint et al. also enhance the development of ethnomathematics. Joseph (1993) gives an example of how Native Americans' position of mathematics is different in the way of visual demonstrations. Joseph continues by describing how Native Americans and Chinese mathematics derived the Pythagorean Theorem by visual representations which were a method of non-European proofs and theorems. D' Ambrosio (as cited by Kersaint et al.) describes ethnomathematics as taking account of people's historical evolution of mathematic practices "with the recognition of the natural social and cultural factors that shaped their development" (p.137).

Gay (2007) ensures the importance of a multicultural education. She is similar to Kitchen et al., Spitzer et al., and Kersaint et al., in their modality of connecting everyday subject matter to student experiences. Gay (2007) also agrees with the aforementioned authors in explaining the importance of connections to their ethnicity in a multicultural educational setting.. She continues by stating that Red Pedagogy, the education of Native Americans, is the connection of critical theory and critical educational theory to Indian pedagogy (Grande, 2004). We can do the same

for our Latina/o students. Meo (2008) also states how students can use multiple representations and formats much like Spitzer et al., (2009) to assist in learning. Daniel (2007) also continues the argument in assisting ELL students by connecting lives to books to learn English. She also promotes use of their primary language and a self assessment chart to reflect on their readings. Cushner, McClelland and Safford (2003) propose more contact between diverse groups the better. Cushner et al., (2003) argues that mathematics can often be irrelevant in that after twelve years of context, people use very minimal math. They are advocates of an inclusive environment with a sociocultural inclusion and the materials reflect diversity much like Gay (as cited by Kersaint et al., 2009) and Meo (2008). Hodgkinson (2007) also begins to look at how teachers should research the demographics of students. They advise teachers to know countries of students, promote culture fairs, celebrate ethnic successes, and provide assistance to parents. We must look at several authors and their research to refocus on culturally sensitive schooling in place of high stake testing,

Accountability with the passing of the No Child Left Behind Act (NCLB) is creating extraordinary tension on administrators, teachers, and students. Valencia (1997) states how deficit thinking schools possess, stiffens Latina/o students schooling. His deficit thinking ideology is based on how schools blame the victim, use oppression, educability, and heterodoxy to provide a negative education for Latina/o students. Valenzuela (as cited in Falcon, 2009) states "...the Texas system of educational accountability has failed- and will continue to fail- Latina/o and other minority youth and their communities" (p. 1).

In "*Standardized or Sterilized? Differing Perspectives on the Effects of High-Stakes Testing in West Texas*," Hampton (as cited in Falcon, 2009) states how administrators and teachers create a test and drill program focusing on a sterile and narrow curriculum driven by

state assessments. Hampton also argues how policy makers far removed from the classroom are making policies which punish teachers, students, and schools. Cultural diversity is replaced by a narrow test driven curriculum (Hampton, as cited by Falcon, 2009). Hampton (as cited by Falcon 2009) argues, schools become prevalent with monotony and ultimately become standardized and sterilized. We can also become familiar with how other minority group research can benefit Latina/o students.

Research on African-American students and mathematics can also teach us about how to diversify for Latina/o students. In *“Still Not Saved: The Power of Mathematics to Liberate the Oppressed,”* Leonard (2009) argues how standardized tests disadvantage students of color (see also Rothstein, 2007). He found that literature and studies of underachievement in Black students were plentiful. Leonard also uses his experiences as a student and a math teacher to engage in research to improve African American students’ way of learning and understanding mathematics and successes. Leonard (2009) also found that socio-economic status alone does not predict academic performance. Anyon (2005) and Rothstein (2007) argue differently by stating how socio-economic status does affect achievement in school and how social class influences a student’s education. Leonard, a 4<sup>th</sup> grade teacher, uses a project, The City, where students learn to read and write their own world using mathematics (Gutstein, as cited by Leonard, 2009). He also creates a learning environment with the project which students collaborate with parents and community members in building smaller replica houses, businesses, organizations and facilities. Learning mathematics is meaningful and authentic by building and creating mathematics identity and mathematics socialization (Leonard, 2009). Leonard also argues that “everyone, regardless of race, ethnicity, or gender does mathematics on a regular basis” (p. 324). “Mathematical power can serve critical literacy and emancipation” (Gutstein, as cited by Leonard, 2009, p. 326).

Mathematical power calls into question actions which disenfranchises while privileging others (Leonard, 2009). “Critical mathematics literacy can be used to critique existing hierarchies and social structures that create barriers and limit Black children’s opportunity to learn” (Leonard, 2009, p. 326). Leonard becomes very transformative in his thinking and ability to understand the power and emancipatory potential knowledge can instill in students from all minorities. Martin (2000) studied African American students and their narratives as they begin to utilize their mathematical identities and its importance. Students state how mathematics can invoke individual agency and is necessary to a promising future to assist them in achieving their goals (Martin, 2000). With the literature review, there are certainly gaps which can be addressed through research.

Certainly, a literature review provides a basis for understanding current research, methodologies, and frameworks of intervention. Research is intended to establish problematic situations and/or verify current pedagogy. Research of education needs to gain a respect in transforming educational practices (Slavin, 2007). However, the basis of research is to analyze current trends and illuminate strategies which never would surface without a purpose or reason. From the previous literature reviews, one category of Latina/o student mathematical progress seems to be missing. Much of the literature review agrees on the importance of mathematics for minorities as an empowerment tool. Schools structure their mathematics according to the No Child Left Behind Act and the accountability of high stakes testing. My argument with Spitzer et al.,(2009) and their statement of how mathematics prepares students for the workplace is problematic. This is certainly detrimental to the upward mobility of minorities, in this case, Latina/os. Preparing students for the workplace is preparing students to enter the same exact social class. Their suggestion indicates a paradigm of white curriculum to oppress minorities in

providing them with educations to provide society a working force for a capitalistic society. No longer must we accept the status quo and the dehumanizing banking approach to education (Freire, 2000). Mathematics can illuminate problems in society, unveil injustices, seek out inequalities, and provide data and statistical information to support such ideals. Mathematics can implement culture, identity, agency, and transformation consciousness so we can question patterns, reasoning, data, structures, ideals, economics, policies, government programs, and issues of social class, race, and gender. Creating a critical mathematics pedagogy, a pedagogy of Latina/os, is one I have not yet encountered. Reasons for research and changing the current mathematical paradigm are important if we are to bridge achievement gaps and restructure the education of Latina/os. Next, we will identify the methodology of the study beginning with the research participants.

### *Participants*

The participants come from two towns from different areas of Texas. The first groups of research participants reside in the northern part of the state in a rural town of Fierro (pseudonym) with a population of around five thousand. The town consists of 42 percent Whites and 54 percent Latina/os and 4 percent African American and other ethnic groups (U.S. Census Bureau, 2008). The town consists of mainly blue collar workers with a few high income families. The main economic income of the town belongs to farmers and ranchers. The researcher will select 50 participants from the middle school by studying one group of high achieving mathematic students and one group of low achieving mathematics students.

The second group of research participants is from a large rural west Texas town of Lumbre (pseudonym) near the border of Mexico. This town has an estimated population of

nearly eight hundred thousand where 75 percent of the town is Latino, 15 percent is White, and 10 percent is African American and other ethnic groups. The main income of the town is industrial with the economic business thriving from the neighboring border town. The researcher will select fifty participants from a middle school by studying one group of high achievers in an advanced mathematics course and one group in a regular mathematics course. The methodologies will assist in identifying and illuminating culturally sensitive mathematics.

### *Methodology*

This particular study will consist of a study of one year using a mixed-method case study in two parts of Texas. The first part of the study will be conducted for six months in Fierro and the other remaining six months in Lumbre. The researcher will conduct interviews, formal and informal, with ten to fifteen research participants from each area and group in culture, learning, identity, experiences, and relativity of the mathematical lessons, sequence, and context. Each participant will complete two questionnaires and two surveys. The researcher will also videotape three lessons from each set of high achieving and low achieving classrooms. Part of the methodology will include classroom observations of each group. Statistics from the middle schools and districts will provide data of student population, attendance, state assessments results, courses, etc. The researcher will share important data with school during the study.

### *Analysis*

Analysis of the data will take place in many forms with charts, graphs, and tables to determine how each classroom diversifies for students. Data will include the number of times an activity or method addresses diversity in the classroom. Surveys and questionnaires results will be seen in charts and graphs to extract patterns of responses and beliefs of the research

participants. The following recommendations can begin a dialogue and analyze frameworks to improve Latina/o success in mathematics and schooling.

### *Recommendations*

The foundation of creating critical mathematics pedagogy begins with the educator. Governments, districts, schools, administrators, and communities assign the place of educators needs examining. Place is the requirements and the responsibilities of the teacher as being in charge of teaching and learning of students in mathematics. Place is the “job title” many give to educators in the classroom. Currently, this place is one of passivity as a technician/assembler. The Texas Knowledge and Skills (TEKS) tell the educator exactly what is to be taught per grade level in mathematics courses. The teacher takes the TEKS and teaches them in the order districts scope and sequence deem necessary. A change of place from assembler to a creator of curriculum based on student needs can produce empowerment and transformative pedagogy.

Further research in mathematics can enable also educators in searching for realistic applications in creating culturally responsive mathematics. Globally, the U.S. can learn a great deal of teacher place in the classroom from countries in Europe, specifically in Russia (Tchoshanov, as cited by Falcon, 2009). Countries outside of the U.S. can also give valuable information on the applications and successes of ethnomathematics such as in Africa, Asia, Jamaica, West Indies, Mexico, Ireland, Finland, India, etc. U.S. border towns especially have unique opportunities to study street mathematics compared to school mathematics (Schliemann & Carraher, as cited by Falcon, 2009) along with the high mathematical achievement of immigrants. Comparing mathematic curriculums and pedagogy from differing countries will allow the U.S. to grow in providing holistic and relevant cultural educations. Research in the

areas of action research can also assist teachers who establish a culturally sensitive math environment. Their tools and techniques promote and acknowledge their student's cultures. Schools which promote culture and achieve high mathematical success can provide much needed applications and strategies. Characteristics of math pedagogy are essential in establishing which schools to research together with those who primarily serve minorities. States that adopt contemporary curriculums where minority student achievement is high in mathematics can also reveal applications of transformative pedagogy (Kitchen, DePree, Celedon-Pattichis, & Brinkerhoff, 2007). Schools districts which promote teachers to act as engineers show the effectiveness of such strategies.

### *Conclusion*

In the case of mathematics education, curriculums create individuals capable of promoting hegemony and obedience to the dominant group (McLaren, 1994). Schools and districts need to move away from accountability test driven math curriculums and replace them with critical mathematics where students can discover and analyze injustices of the world. Mathematics is society's toolkit to understand systems and structures which continue to reproduce society and maintain the status quo. Mathematics can establish a foundation for students to develop a critical consciousness of realities around them. Therefore, students can begin to construct their own ideals and values of the world instead of adhering to a pre-described biased version of white culture ideologies. Ethnomathematics can begin to value and uplift minority students' mathematical knowledge and experiences they bring to the classroom (D'Ambrosio, 1997). Furthermore, students can begin to examine mathematics of other cultures rather than a Eurocentric mathematics schools teach. A culturally responsive pedagogy together

with a critical mathematics can produce future community members capable of reasoning, evaluating, and transforming their own agency and the agency of others.

### References

- Anyon, J. (2005). *Radical possibilities. Public policy, urban education, and new socialist movement*. New York: Routledge.
- Chiarelott, L. (2006). *Curriculum in context*. Belmont, CA: Thomson Wadsworth.
- Cushner, K. McClelland, A., & Safford, P. (2003). *Human diversity in education : A integrative approach* (4<sup>th</sup> ed.). New York: McGraw-Hill.
- Daniel, M.C. (2007). Authentic literacy practices for English language learners: A balanced curriculum design. *Journal of Reading Education*, 32(2), 18-25.
- D'Ambrosio, U. (1997). Ethnomathematics and its place in the history and pedagogy of mathematics. In Arthur B. Powell & Marilyn Frankenstein (Eds.), *Ethnomathematics: Challenging eurocentrism in mathematics education*. Albany, NY: State University of New York Press.
- Falcon, R. (2009) *Transformative pedagogy: From high stake testing to culturally responsive mathematic applications*. Unpublished manuscript, University of Texas at El Paso.
- Freire, P. (2000). *Pedagogy of the Oppressed* (30<sup>th</sup> Anniversary ed.)(M. Bergman-Ramos, Trans.). New York: Continuum
- Gay, G. (2007). Importance of Multicultural Education. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 273-278). Boston, MA: Allyn & Bacon
- Grande, S. (2004). *Red pedagogy*. Lanham, MD: Rowman & Littlefield.
- Hodgkinson, H. (2007). Educational demographics: What teachers should know. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 262-272). Boston: Allyn & Bacon.
- Joseph, G.G. (1993). A rationale for a multicultural approach to mathematics. In D. Nelson, G.G. Joseph, & J. Williams (Eds.), *Multicultural Mathematics: Teaching Mathematic from a Global Perspective* (pp. 1-24). New York: Oxford University Press.
- Kersaint, G., Thompson, D.R., & Petkova, M. (2009). *Teaching mathematics to English language learners*. New York: Routledge.
- Kitchen, R.S., Depree, J., Celedon-Pattichis, S., & Brinkerhoff, J. (2007). *Mathematics education at highly effective schools that serve the poor: Strategies for change*. Mahwah, NJ: Lawrence Erlbaum.
- Kohler, A.D. & Lazarín, M. (2007). *Hispanic education in the united states*. National Council of La Raza Statistical Brief, (8) 1-16. Retrieved November 22, 2009 from [www.nclr.org/files/43582\\_file\\_SB8\\_HispEd\\_fnl.pdf](http://www.nclr.org/files/43582_file_SB8_HispEd_fnl.pdf).
- Kozol, J. (1991). *Savage inequalities: Children in america's schools*. New York: HarperCollins.

- Leonard, J. (2009). "Still not saved": The power of mathematics to liberate the oppressed. In D.B. Martin (Ed.), *Mathematics teaching, learning, and liberation in the lives of black children* (pp. 304-330). New York: Routledge.
- Martin, D.B., (2000). *Mathematics success and failure among african-american youth: The roles of sociohistorical context, community forces, school influence, and individual agency*. Mahwah, NJ: Lawrence Erlbaum.
- McLaren, P. (1994). *Life in schools: An introduction to critical pedagogy in the foundations of education*. New York: Longman.
- Meo, G. (2008). Curriculum planning for all learners: Applying universal design for learning (UDL) to high school reading comprehension program. *Preventing School Failure*, 52(2), 21-30.
- National Council of La Raza (1999, February). *Hispanic fact sheet*. Census Information Center. Retrieved November 10, 2009, from ERIC. (ERIC Document Reproduction Service No. ED427128)
- National Council of Teachers of Mathematics (2009). *Mathematics for every student: Responding to diversity: Grades 9-12*. Carol E. Malloy (Ed.). Reston, VA: The National Council of Teachers of Mathematics.
- Nodding, N. (2007). Teaching themes of care. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 64-70). Boston, MA: Allyn & Bacon
- Rothstein, R. (2007). A wider lens on the black-white achievement gap. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 421-427). Boston, MA: Allyn & Bacon
- Slavin, R.E. (2007). Evidence-based education policies: Transforming educational practice and research. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 169-178). Boston, MA: Allyn & Bacon
- Spitzer, J.S., White, D.Y., & Flores, A. (2009). Help one, help all. In A. Flores (Ed.), *Responding to diversity: Grades 9-12* (pp. 39-48). Reston, VA: The National Council of Teachers of Mathematics.
- Su, C. (2009). Introduction. In Gaston Alonso, Noel S. Anderson, Celina Su & Jeanne Theoharis (Eds.), *Our school suck: Students talk back to as segregated nation on the failures of urban education* (pp. 1-30). New York: New York University Press.
- Tapscott, D. (2007). Educating the net generation. In Allan C. Ornstein, Edward F. Pajak & Stacey B. Ornstein (Eds.), *Contemporary issues in curriculum* (pp. 285-289). Boston, MA: Allyn & Bacon
- Texas Education Agency (2009a). *Texas assessment of knowledge and skills: Percent of students meeting panel-recommended standard: Spring 2003 - spring 2009: Hispanic Students*. Retrieved from [http://ritter.tea.state.tx.us/student.assessment/reporting/results/swresults/taks/met\\_standard\\_charts\\_Hispanic.pdf](http://ritter.tea.state.tx.us/student.assessment/reporting/results/swresults/taks/met_standard_charts_Hispanic.pdf)
- Texas Education Agency (2009b). *Texas assessment of knowledge and skills: Percent of students meeting panel-recommended standard: Spring 2003 - spring 2009: White Students*. Retrieved November 22, 2009 from [http://ritter.tea.state.tx.us/student.assessment/reporting/results/swresults/taks/met\\_standard\\_charts\\_White.pdf](http://ritter.tea.state.tx.us/student.assessment/reporting/results/swresults/taks/met_standard_charts_White.pdf)

- Texas Education Agency (2009c). *State Level Annual Discipline Summary: PEIMS Discipline Data for 2008-2009*. Retrieved November 22, 2009 from [http://ritter.tea.state.tx.us/cgi/sas/broker?\\_service=marykay&\\_program=adhoc.download\\_static\\_summary.sas&district=&agg\\_level=STATE&referrer=Download\\_State\\_Summaries.html&test\\_flag=&\\_debug=0&school\\_yr=09&report\\_type=html&Download\\_State\\_Summary=Generate+Report](http://ritter.tea.state.tx.us/cgi/sas/broker?_service=marykay&_program=adhoc.download_static_summary.sas&district=&agg_level=STATE&referrer=Download_State_Summaries.html&test_flag=&_debug=0&school_yr=09&report_type=html&Download_State_Summary=Generate+Report).
- Texas Education Agency (2009d). 2007-08 student enrollment statewide totals. Retrieved November 22, 2009 from [http://ritter.tea.state.tx.us/cgi/sas/broker?\\_service=marykay&\\_program=adhoc.addispatch.sas&major=st&minor=e&endyear=08&linespg=60&charsln=120&format=W&selsumm=ss&key=TYPE+HERE&grouping=e](http://ritter.tea.state.tx.us/cgi/sas/broker?_service=marykay&_program=adhoc.addispatch.sas&major=st&minor=e&endyear=08&linespg=60&charsln=120&format=W&selsumm=ss&key=TYPE+HERE&grouping=e).
- U.S. Census Bureau. (2008). State and county quick facts. Retrieved December 2, 2009, from <http://quickfacts.census.gov/qfd/states/48/48069.html>.
- U.S. Department of Education, NCES. (2003). *Status and trends in the education of hispanics, 2003* (NCES 2003-008). Washington, DC: U.S. Government Printing Office. Retrieved November 22, 2009 from [nces.ed.gov/pubs2003/2003008.pdf](http://nces.ed.gov/pubs2003/2003008.pdf).
- Valencia, R.R. (1997). *The evolution of deficit thinking: Educational thought and practice*. London: Falmer Press.
- Valenzuela, A. (1999). *Subtractive schooling: U.S.-mexican american youth and the politics of caring*. Albany, NY: State University of New York Press.
- Villegas, A. M. & Lucas, T. (2002). *Educating culturally responsive teachers: A coherent approach*. Albany, NY: State University of New York Press.