Challenges Faced by Multicultural and Multilingual Schools in the United States: The Case of Mathematics

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RESUMO: O trabalho pedagógico atual que é utilizado em escolas nos Estados Unidos é substancialmente influenciado pelo modelo de transmissão do conhecimento. Entretanto, existe um enorme potencial para o desenvolvimento de modelos diferenciados de currícuulos e avaliações alternativas de modo que a matemática seja mais significativa para os alunos aprendizes da língua inglesa. Assim, num contexto educacional homogêneo com uma população escolar estudantil heterogênea, o desenvolvimento de um currículo matemático diferenciado pode ser amplamente implementado, em escolas nos Estados Unidos, com o apoio das comunidades escolares.

PALAVRAS-CHAVE: Aprendizes da Língua Inglesa, alunos latinos, alunos hispânicos.

ABSTRACT: The current pedagogical work in schools in the United States relies heavily on the transmission of knowledge model. However, there is a great potential to develop different curriculum models and alternative assessments so that mathematics will be more meaningful to the English Language Learners students. Thus, in a homogeneous educational context with a heterogeneous student school population in the schools in the United States and with the support of the school communities, the development of a differentiate mathematics curriculum may be broadly implemented.

KEYWORDS: English Language Learners, latino students, hispanic students.

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Introduction

Language minority education policy in the United States has undertaken a number of changes over the last one hundred years. Changes to language minority education policy continue today through the No Child Left Behind Act (NCLB, 2001) federal mandate to annually evaluate student performance on statewide standardized high-stakes tests. The NCLB has mandated that all students be provided a learning environment in which they are taught by licensed teachers utilizing research-based best practices in schools that make Annual Yearly Progress (AYP) toward the success of every student in academic endeavors. This may be all well and good, however, it is well documented that for some segments of the United States student’s population this ideal is not being reached. This is the case for English Language Learners (ELL) students, especially the Hispanic/Latino student’s subgroup.

Standardized high-stakes such as CAHSEE (California High School Exit Exam) and CST (California Standardized Tests) are involved in testing recent immigrant students who are limited proficient in the English language through standardized measures and holding schools responsible for the outcome. Yet for both federal and state accountability procedures, the pressure to include measurements of the performance of ELL students continues to grow.

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1 The No Child Left Behind Act is the federal law with mandates that affect each school in the nation. On January 8, 2002, President Bush signed into law the No Child Left Behind Act of 2001. The law represents his educational reform plan and contains the most sweeping changes to the Elementary and Secondary Education Act since it was enacted in 1965. It changed the federal government’s role in kindergarten through grade 12 by asking schools in the United States to describe their own success in terms of what each student accomplishes (U. S. Department of Education, 2008).

2 Standardized tests are considered high-stakes tests when they are tied to negative consequences for failure, such as the risk of producing low school test scores or denying a diploma.

3 AYP is a measure of year to year student achievement. The goal of No Child Left Behind is for 100% of students to be proficient in reading, language arts, and math by 2014. According to NCLB (2001), standards for AYP are set to ensure that each school reaches that goal.

4 English Language Learners are students whose native language is not English. ELL status is determined by the IDEA Proficiency Test (IPT). A score of less than English Proficient on any subtest qualifies a student as ELL. School districts must document and determine accommodations each year, based on individual need and abilities (U. S. Department of Education, 2008).

5 There is a general confusion and misunderstanding in relation to the use of the word Hispanic and Latinos. Hispanic is used for students who primary language is Spanish. In this case, the use of this word excludes students from other countries in Latin America such as Brazil where the spoken language is Portuguese. However, as a matter of data variable consistency, and in an effort to dispel confusion when citing scholarship, this research project utilizes both terms, Hispanic and Latino, when referring to this particular kind of ELL student population.

6 The CAHSEE is an acronym for California High School Exit Exam, the now mandated test that must be passed by all high school students in California prior to receiving a high school diploma. The 1999 state laws in California first approved the development of the CAHSEE over concern that many students were received high school diplomas but did not have the skills to succeed in higher-education. The first class to actually need the CAHSEE as a graduation requirement was the class of 2006. The CAHSEE is a two-part exam covering language arts and mathematics.

7 CSTs are developed by California educators and test developers specifically for California. They measure progress toward California’s state-adopted academic content standards, which describe what students should know and be able to do in each grade and subject tested.
According to DiCerbo (2008), ELL students who enter to the public school system in the United States are challenged by the difficulties of learning a new language in a short time, and master the content of at least the core disciplines, to pass state-wide high stake testing, and to pass the exit exam in order to receive a high school diploma. For the last two decades, schools in San Juan Unified School District in California have faced the same challenge in relation to ELL students.

The corresponding challenge for principal, vice-principals, and teachers is to provide a learning environment that successfully maximizes the learning experiences for ELL students and provides them access to opportunities for educational experiences that will enable them meaningful participation in a democratic society.

**The Greatest Challenge for Schools in the United States**

NCLB focuses attention on the academic achievement of approximately 5.2 million ELL students in the U.S in the 2004-2005 school year. This is about 10.6% of the 49 million students attending schools during that specific school year (National Clearing House for English Language Acquisition and Language Instructional Programs [NCELA], 2008). According to Hopstock and Stephenson (2003), there are more than 350 different languages spoken among ELL students, with about 77% of ELL students speaking Spanish. “The ten most common languages besides Spanish were: Vietnamese, Hmong, Korean, Arabic, Haitian Creole, Cantonese, Tagalog, Russian, Navajo, and Khmer” (Hopstock & Stephenson, 2003, p. 3).

In recent years, many educational leaders have emphasized the academic rights of immigrant students, centering on efforts towards creating equal educational opportunities. It is paramount that policymakers address the issue of immigrant education by taking into account the diverse needs and characteristics of the immigrant population along with such factors as the structure and quality of programs, alignment of content and English language development standards, professional development for all teachers, and community engagement and support.

**The Mathematics Teaching and Learning of Immigrant ELL Students**

The increasing number of ELL and Hispanic/Latino students and their lower academic performance in standardized high-stakes testing, especially mathematics, are often discussed in relation to the failure of education in the United States compared to other developed countries in global society. It is often reported by the national and international press that the United States, the economic and
political leader, is losing its power of intellectual capital as the leading democratic country in the world. Ethnic and linguistic diversity are now drawing more attention of the American public as areas identified to have connections with failing educational systems. The general public as well as educators must come to sense the urgency to educate all youth in the United States including LEP (Limited English Proficient) students as defined by NCLB. However, to achieve this goal, an effective leadership must be the main focus of administrative high school leaders in order to close the achievement gap that exists between ELL students and other school groups or subgroups.

**ELL Students**

It has long been in the United States the law that the government will provide for the education of students who are between certain ages. It is only within the last 40 years that laws were created to provide for the education of students whose native language is not English. According to Worthy, Rodriguez-Galindo, Assaf, Martinez, & Curervo (2003), the 1968 Bilingual Education Act stated that ELL students would be educated to meet rigorous academic standards. They presented further details of this Act, including that ELL students will be educated to meet the same rigorous standards for academic performance expected of all students, including meeting challenging state content standards and challenging state student performance standards in academic areas by:

a) developing systematic improvement and reform of educational programs serving limited English proficient students through the development and implementation of exemplary bilingual education programs and special alternative instruction programs;

b) developing bilingual skills and multicultural understanding;

c) developing the English language skills of ELL students and, to the extent possible, the native language skills of such students;

d) developing data collection and dissemination, research, materials development, and technical assistance which is focused on school improvement for limited English proficient students; and

e) developing programs which strengthen and improve the professional training of educational personnel who work with limited-English-proficient students (Worthy et al., 2003, p. 277).

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8 LEP students are students with limited English proficiency. They cannot speak, read, write or understand the English language at a level that permits them to interact effectively with the members of the school community. However, this term holds a significant negative connotation to it, because these students are seen as having a limitation or deficiency, and as such the researcher preference would be to call them ELL. However, as a matter of data variable consistency, and in an effort to dispel confusion when citing the scholarship, this research project will utilize both terms of ELL and LEP when referring to this kind of student population.
The public is now beginning to be aware of and realize what educators and researchers have known for quite a few years that the influx of ELL and Latino students in the American public school systems is having a tremendous impact in the educational system. Central to this new pedagogy, according to Gutierrez, Asato, Pacheco, Moll, Olson, & Horng (2002), is a renewed focus on testing and the concurrent implementation of reductive or narrowly defined programs. These programs are often taught by teachers with little formal preparation or experience in teaching, especially to English Limited Learners. NCLB has brought this educational gap to the forefront of the national stage during the past few years. As a result, schools across the United States are now facing accountability issues. Bielenberg & Fillmore (2005) predicted “By holding schools accountable for the academic progress of all categories of students, NCLB has the potential to create greater education equity” (p. 45). In this perspective, Jiminez (2004) stated that “Teachers need to assess students within three domains to ensure equality. The three domains are using traditional assessment, assessing students’ knowledge of other literacy, and determining how students’ perceive and respond to the process of learning a new language and culture (p. 576).

In accordance to this context, Howe (1994) stated that “School staff must also focus on the needs of language minority students and refrain from underestimating their capabilities” (p. 42) because school systems are not only faced with overcoming cultural and language barriers but now there is also an emphasis on all students making the AYP as set forth by the NCLB. A part of this legislation states that each subgroup must become 100% proficient by the 2014-2015 school year (U. S. Department of Education, 2008). Students identified as ELL can represent more than one subgroup because they may be identified also as economically disadvantaged, Hispanic/Latino, and also in special education. These goals have not only increased awareness, but they have also increased the pressure and accountability on all states, systems, and schools.

Khisty (2002) made investigations through classroom observations and found that most of the Latino students in her study were not exposed to either a rich or challenging mathematics curriculum. She also found that Hispanic families still communicated entirely in Spanish. It goes without saying that this fact brings social and political implications into the mathematics discourse that happens in classroom because Latinos’ home language, in this case, Spanish, is a necessary component in learning, and its presence and development has positive effects in the learning process that occurs in mathematics classroom. Therefore, what goes on in the mathematics classroom must consider the home language and enable students of varying linguistic characteristics to develop and use their academic language proficiency in their mother tongue.

The issues and challenges faced by immigrant students represent only a small portion of a larger issue of supporting the academic development of Latinos, particularly in mathematics. Latino students need more attention in developing...
their academic language than is commonly acknowledged. According to Khisty (2002), the issue is compounded by the nature of mathematics with its specialized genres and register, not to mention a persistent mythology especially among teachers that one does not really speak mathematically except with numbers.

Latino students need opportunities in which to engage in extended interactions that allow them to use their newly acquired second language, to manipulate it, and to hear from others how and when they discuss, especially the academic language in mathematics. In the context of academic conversations, students are more likely to engage in negotiation of meanings and to use the more complex and lengthy communication structures associated with academic language.

However, the erroneous general assumption is that students who can adequately use English as a second language in a discussion and in a social context function just as well with the academic language. Academic language is that found in textbooks and academic learning activities. However, researchers such as Thomas and Collier (1997) have found that the development of academic language for ELL students takes five to seven years and requires effective deliberate instruction and assessment. It is important that teachers recognize that students who are ELL are still developing their academic proficiency. Instruction to Hispanic/Latino students as well assessment of this particular group must be given in as comprehensible terms as possible.

**Standardized High-Stake Tests**

Until the 1960’s, tests were used in the United States to evaluate the performance of individual students and the adequacy of the school curricula. Dramatic changes in assessments were made to monitor and aggregate student achievement. In 1965, the enactment of the Elementary and Secondary Education Act (ESEA) established the federal Title I compensatory education program (Hamilton, Stecher, & Klein, 2002). Title I is a set of programs set up by the United States Department of Education to distribute funding to schools and school districts with a high percentage of students from low-income families. Additionally, in this decade, the National Assessment of Educational Progress (NAEP) was established and since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other fields.

A test-based accountability system became the core of educational reform in the United States. According to this context, Hamilton et al. (2002) affirmed that there are four interrelated components: goals, measures, targets, and incentives, which are paramount for the development and elaboration of a test-based accountability system. Tests used in the accountability system are high-stakes tests, which are intended to measure the knowledge, skills, and abilities specified as important as seen in high school graduation test and professional certification and licensing (Haladyna, 2002). In this perspective, high-stakes tests are used to:
a) provide evidence of educational quality for public review;
b) provide information for teachers to help them improve instructional practices;
c) provide data for administrative schools leaders, teachers, parents, and students to monitor student progress;
d) determine which schools enter and exit from mandatory school improvement programs;
e) allow parents to transfer students from their home school to another school;
f) evaluate the effectiveness of reform efforts or curriculum programs;
g) judge whether students should be promoted from one grade to the next;
h) place students into specialized educational programs (e.g., remedial, gifted, or bilingual classes); and
i) determine whether students will receive a high school diploma (Hamilton et al., 2002, p.5).

The investigation of the effects of high-stakes tests began in 1980's. Surveys and case studies were conducted to research perceptions of teachers and principals in order to “pressure to improve test scores, the effects on instruction, test preparation activities, controversial testing practices, use of test results, and the effects of standardized testing” (Hamilton et al., 2002, p.83). If large-scale standardized tests such as high-stakes tests, only “measure an extremely limited sample of behaviors, only a few questions are asked and they are limited to those that can fit into a few formats” (Hamilton et al., 2002, p.80). There are some issues that need to be examined such as the effects of the tests on curriculum and the consequences for students whose first language is not English. However, positive effects on equity may be also expected of high-stakes tests, but many investigations revealed results questioning such as effects on equity (Evers & Walberg, 2002; Hamilton et al., 2002). High-stakes such as CAHSEE and CST are testing recent immigrant students, who are limited proficient in the English language, through standardized measures that are holding schools responsible for the students’ outcome. Yet for both federal and state accountability procedures, the pressure to include measurements of the performance of ELL and Hispanic/Latino students continues to grow.

The Performance of ELL and Hispanic/Latino Students on Standardized High-stake Tests

ELL and Hispanic/Latino students were historically not included in high-stakes tests (Coltrane, 2002). Such context allowed August & Hakuta (1997) to argue that the exclusion resulted in ELL and Hispanic/Latino students not benefiting as much from educational reforms that mostly followed the
implementation of high-stakes assessments. However, as the American Educational Research Association (AERA) pointed out, “for a non-native English speaker and for a speaker of some dialects of English, every test given in English becomes, in part, a language or literacy test” (Standards for educational and psychological testing, 1985, p.73). Coltrane (2002) also questioned that “as beneficial as it may be to include ELL students in high-stakes tests, some complications arise concerning the validity and reliability of such tests for this group of learners” (p.2), because it may be unclear whether ELL students are being tested in English language proficiency or in their content area knowledge. Discourse on fairness in standardized performance assessment and appropriate ELL instructional strategies varies widely and is often highly politicized and controversial (Menken, 2000; Muñoz, 2002).

The academic achievement level of ELL and Hispanic/Latino students is both startling and revealing to those in the educational world because they realize that ELL students often fall behind their peers in their classroom achievement levels. According to Howe (1994), when compared to African-Americans and Caucasians students, Hispanic and Latino students entered school later, left school earlier, and were less likely to complete high school and enter or complete college. Howe (1994) further stated that the ever-growing presence of Hispanic and Latino students was a phenomenon that had already dramatically affected many school systems. In accordance to Howe (1994) 1 out of 12 people who live in the United States trace their origins to Latin America and he also affirmed that “since 1980, the Hispanic/Latino population has increased at a rate five times that of non-Latino whites, African-Americans, and Asians combined” (p. 42). As stated by Genaro (2004), “In June 2003, the census bureau reported that Hispanic and Latinos are now the nation’s largest minority group at 38.3 million people” (p. 96). In this perspective, as a consequence of the rapid increase of this group of students in the school population, administrative school leaders and teachers nationwide are concerned about their academic achievement.

According to this context, it is necessary that schools promote English based instruction and the support of language development and literacy in the primary language which is mainly Spanish in the United States. Strategies such as sheltered English immersion, SDAIE9 (Specially Designed Instruction in English), and English as a Second Language (ESL) programs emphasize instruction predominately, if not entirely, in English. English language acquisition is the chief

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9 SDAIE (often referred to as “sheltered instruction”) instructions are those classes containing LEP students, taught by teachers using special techniques and strategies designed to assist ELL students in both language-acquisition and subject-matter content. SDAIE strategies emphasize the concept of comprehensible input by making mathematical concepts understood by the learners. This is accomplished through the use of realia (real objects and materials), manipulatives (drawings, posters, brainstorming-clusters, graphs, tables, maps, props, multimedia presentations, storyboards, storymaps), visuals (study-prints, text book-illustrations, overhead-projected prints, reproductions of paintings, and documents), graphic organizers (matrices, Venn diagrams, and webs), and planned opportunities for interaction between all individuals in the classroom (creating a skit and acting it out, co-operative learning, collaborative learning, and student-generated stories based on their personal experiences).
instructional goal for ELL and Hispanic/Latino students. Proponents of these techniques claim that urgent development of English language skills enables ELL students to fully participate in the classroom instructional approaches such as thematic study (Peregoy & Boyle, 2001). This illustrates how ELL and Hispanic/Latino students may use oral and written language for learning academic content. Second language acquisition methodology focuses on students’ background knowledge by constructing and elaborating meaningful and content based activities, which scaffolds instruction in order to build their academic English proficiency (Freeman & Freeman, 2002). Conversely, bilingual education provides instruction in both their native language (L1) and in English (L2), either simultaneously or in a transition sequence. Students may be transferred into English-only instruction at some point or may continue to be taught in a dual-language environment after exhibiting evidence of development and mastery of English skills. In this perspective, Olsen (2000) stated that bilingual education research states that native language instruction is critical to development of English literacy and also values students’ native cultures and identities with hybrid language practices having a strong implication for curriculum, materials and assessment.

Cultural Conflicts Concerning ELL and Hispanic/Latino Student’s Achievement

Of the many barriers that exist in trying to educate ELL and Hispanic/Latino students in the United States’ public education system, cross-cultural communication is the most common barrier by which students, parents, school personnel, and administrative school leaders must overcome. Cultural differences represent a barrier that inhibits the effectiveness of the educational process. It is necessary to acknowledge differences in cultural background that sometimes separate ELL and Hispanic/Latino students from their native-born classmates. It is vital that educators and teachers recognize the challenges and opportunities posed by increasing cultural diversity in their classrooms.

One important role of teachers is to become expert in intercultural relations. In the United States, the demand for teachers who understand how to communicate and work with multicultural groups of students is destined to continue to increase. This allows school leaders administrators and teachers to incorporate cross-cultural communication and a cultural proficiency approaches in their leadership behaviors and practices, which will allow them to learn how to

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10 Cross-Cultural Communication is not limited to learning other languages, but also includes understanding how cultural patterns and core values impact the communication process, even when everyone is speaking English.

11 Cultural Proficiency is an approach that helps schools to respond in healthy ways to diversity. Culturally proficient policies and practices enable schools to become inclusive in the way administrative schools leaders, teachers, students, and the school community is served. Cultural Proficiency addresses issues of justice, inclusion, and diversity in schools.
transform classrooms into effective spaces that help ELL and Hispanic/Latino students to increase their academic performance.

It goes without saying that everyone wants to be valued, liked, and respected. If ELL and Hispanic/Latino students feel diminished in any way they may develop patterns of underachievement that stay with them for the rest of their lives. Teaching self-esteem in relation to the benefits of cultural diversity is the key to the alleviation of cultural conflicts that result in poor academic performance for all students groups. Cultural conflicts are natural in schools with high level of diversity. It is nearly impossible to avoid these conflicts, but with students having different interests, beliefs, and diverse cultural backgrounds, it can also be seen as an opportunity.

Public schools in the United States have struggled over time in their relationship with cultural diversity and cultural conflicts. Standardized tests, whose results are easy to access and manipulate, are given more weight over more holistic forms of assessment like portfolios. And just as trends in standardized test scores consistently show that the tests value particular cultural backgrounds over others, many studies have found that most school curricula, disciplinary systems, and extracurricular programs show the same bias. In the current school system, the cultures of ELL students are not worth of studying. Excluding questions of culture from classrooms opens the door for the biases and prejudices embedded in the structure of schools to work on immigrant students from marginal groups. When culture is off the table of discussion, when nothing is explained, and everything is assumed, ELL and Hispanic-Latino students who do not share in the culture of the mainstream are faced by an opaque and hostile enemy that they do not even know exists.

If proper care is not taken, being immersed in school culture, for ELL and Hispanic/Latino students, can be like being lost in a foreign country with no guide to the language or customs of the students around them. Schooling institutions by their very nature obstruct education aiming for equal educational success across cultural boundaries, for culturally responsive teaching that values and engages with the experience of ELL and Hispanic/Latino students. Students experience may tell a lot about how cultural conflict plays out in everyday practice. Their lives outside of schools are rich with social connections, networks of learning and support, and unique forms of communication and meaning. But in schools this wealth of cultural capital is largely ignored, and often suppressed. This does not seem to be different in mathematics classrooms.

It is a common sense that the goal of conventional mathematics teaching of many national reform projects worldwide has been to transmit to students the knowledge, skills, and values of the scientific community. According to Pickering (1992), this content conveys a particular Western worldview due to the fact that sciences and mathematics are subcultures of Western culture. Thus, students with a much different worldview such as ELL and Hispanic/Latino students face
cross-cultural experiences whenever they study sciences or mathematics (Aikenhead, 1997). In this perspective, to transmit a Western scientific worldview to these students and other minority groups means to impose them to a cultural assimilation and tends to marginalize and even oppress these students (MacIvor, 1995).

One way for teachers to avoid assimilative practices is to sensitively integrate students’ cultural background knowledge with the content of academic mathematics (Jegede, 1995) through the implementation of an ethnomathematical perspective into the mathematics classrooms (Rosa, 2000). In so doing, teaching immigrant students successfully, involves giving culturally relevant mathematics instruction. Reyes and Fletcher (2003) suggested using an approach based on a culture’s contribution to mathematics allows students to develop a sense of pride in their heritage, for example, the Mayan contribution to mathematics and astronomy. Mathematic culturally relevant pedagogy is referred to as ethnomathematics by Reyes and Fletcher (2003). In schools, with immigrant students, an organizational culture focused on instructional improvement, respect for students, student centered instruction, and a spiraling curriculum is significant in improving academic results across all subject areas. Cooperative learning and collaborative methods also assist in such schools in improving mathematics scores.

A culturally sensitive mathematics curriculum based on ethnomathematical perspective would provide mathematics for all aimed at developing in students the facility to cross cultural borders between their everyday world into the culture of school mathematics (Orey & Rosa, 2007), without running the risk of assimilation (Aikenhead, 1997). According to Orey and Rosa (2007), the ethnomathematics curriculum possesses important characteristics of being able to help to develop the concept of mathematics. In this context, an ethnomathematics perspective may be seen as a transformational endeavor. It transforms the pedagogical ways of teaching mathematics by emphasizing the communal and tending to connect mathematics with its own context. The use of an ethnomathematics perspective allows mathematics to be conceived as an overarching aspect of the curriculum because mathematics may be humanized and viewed as a philosophical, contextual, affective, and attitudinal approach to the mathematics curriculum. This approach may help immigrant students to cross cultural borders.

However, many ELL and Hispanic/Latino students may be afraid to cross such borders because of cultural conflicts (Sutherland, 1998). In order to do so, they need teachers who are cultural brokers because educators are among the groups of cultural workers who may find themselves in cultural borderlands of one type or another, either between the dominant western and another subculture, or on a larger scale between their own culture and different cultures such as the culture of ELL and Hispanic/Latino students. Aikenhead (1996) believed that is possible for teachers to arrange for this kind of students to achieve within a curriculum.
framed by the dominant culture in order to help them to overcome situations involving border crossings. Thus, ELL and Hispanic/Latino students must cross cultural borders between their own world and the world of academic mathematics before they can learn mathematics in any meaningful way. When they move from their everyday culture into the culture of school mathematics, the move is called cultural border crossing (Giroux, 1992, Aikenhead, 2001). However, for the vast majority of ELL and Hispanic/Latino students whose home worldview differs from the worldview of school mathematics, cultural border crossing is a difficult process. The ethnomathematical perspective into the mathematics curriculum may help these students cross cultural borders into school mathematics by diminishing hazardous and impossible border crossings that may cause students to avoid mathematics learning.

According to Aikenhead (1997), the act of cultural border crossing has direct implications for using appropriate teaching strategies such as: a) make border crossings explicit for students, b) facilitate those border crossings, c) substantiate the validity of students’ personally and culturally constructed ways of knowing, and d) teach the knowledge, skills, and values of academic mathematics in the context of mathematical and cultural roles (social, political, economical, and environmental).

However, in mathematics classrooms with an ethnomathematical perspective, the role of teachers as cultural brokers is to act as mediators who introduce students to another culture by using a high degree of guidance. This role is associated with the learning process of acculturation (Aikenhead, 1997), which allows for the occurrence of cultural dynamics as proposed by D’Ambrosio (1990). For example, a cultural-broker teacher may help ELL and Hispanic/Latino students move back and forth between their culture and the culture of academic mathematics, and may help them deal with cultural conflicts that might arise because they may exhibit changes in behavior as they move from one social setting to another. In so doing, as they move from one culture to the other, they intuitively and subconsciously alter certain beliefs, expectations, and conventions. In other words, they effortlessly negotiate the cultural border between academic and everyday mathematics.

However, no standard strategies exist to direct cross-cultural professional practice that makes developmental practices responsive to cultural differences. This presents a significant cultural challenge for teachers, requiring them to adopt role definitions, curricula, and teaching practices that challenge rather than reflect the values of the wider society and themselves. In this context, only when teachers do so, ELL and Hispanic/Latino students will be encouraged to extend their learning to include the tasks that schools consider important. Educating culturally and linguistically diverse students will require a multifaceted approach to school change.
Final Considerations

In the United States’ context, it is necessary to use a curriculum that may act as an educational tool that will help ELL and Hispanic/Latino students to understand what mathematics is about, and to help them make it part of their own cultural background knowledge.

In using a different perspective into the mathematics curriculum, it is possible to visualize the dimension of the history of mathematics as an adequate strategy that is necessary to understand the construction and evolution of mathematical concepts. In so doing, the history of mathematics becomes an element of integration between mathematics and cultural plurality. The study and acknowledgement of the obstacles faced by different cultures in the production and systematization of this knowledge allows teachers to better comprehend, understand, and accept the difficulties faced by students when they are learning this discipline. By using this perspective, it is possible for teachers to elaborate adequate strategies and methodologies that facilitate the learning of mathematical procedures and concepts. When given importance to this knowledge, the school assists the community of immigrants to overcome the prejudices of mathematics as knowledge built exclusively by privileged social groups in certain developed societies.

On the other hand, specific teaching strategies appropriate to the role of teachers as cultural brokers must be investigated, developed, and implemented. The concept of cultural broker has potential for reformulating teaching strategies in an ethnomathematical perspective into the mathematics curriculum in order to harmonize with a teacher’s practical knowledge and the classroom micro-culture. Reform must be sensitive to the culture and ideological milieu of instruction. In this context, universals do not work.

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