

K–8 Teachers’ Concerns about Teaching Latino/a Students¹

Cynthia Oropesa Anhalt
The University of Arizona

María Elena Rodríguez Pérez
Universidad de Guadalajara

In this article, the authors examine elementary and middle school mathematics teachers’ concerns about teaching Latino/a student populations across three regions in the United States: southern Arizona, northern New Mexico, and central California. Surveys were administered to 68 teachers who participated in professional development activities on language and culture diversity. Survey questions consisted of items from three domains: (a) concerns about social issues central to teaching Latino/a students, such as discrimination, multiculturalism, and stereotypes; (b) concerns about the task of teaching Latino/a students focusing on methods, strategies, materials, and new ideas for teaching; and (c) concerns about Latino/a students’ learning, which dealt with factors that impact student performance in school, such as home environment, family culture, and expectations. In general, the authors found that the surveyed teachers were highly concerned with issues about teaching Latino/a students and their learning and were less concerned about social issues in teaching Latino/a students.

KEYWORDS: English learning students, Latinos/as, mathematics education, urban education

The ethnic and linguistic diversity of U.S. schools has grown significantly in the past 30 years (U.S. Census Bureau, 2010). The increase in diversity exists due to many factors including students’ place of birth; length of residence in the

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CYNTHIA OROPESA ANHALT is an assistant specialist in mathematics education and is director of the Secondary Mathematics Teacher Preparation Program in the Department of Mathematics in the College of Science at The University of Arizona, 617 N. Santa Rita Avenue, Tucson, AZ 85721; email: canhalt@math.arizona.edu. Her research interests include teacher professional development in pedagogical strategies for problem solving and mathematical modeling, in particular, with a focused interest in English learning students.

MARÍA ELENA RODRÍGUEZ PÉREZ is a teacher-researcher in the Behavioral Research Center at the University of Guadalajara, 180 Francisco de Quevedo St., Guadalajara, Mexico 44130; email: rpm08428@cucba.udg.mx. Her research interests include learning, in particular, the role of verbal mediation in learning, teacher formation for scientific education and the acquisition of scientific abilities.

United States; linguistic backgrounds (varying levels of proficiencies in English and non-English languages); prior school experience; socioeconomic status; child nurturing practices; family configurations; and communication patterns, including code switching and varying levels of bilingualism (García & González, 1995). In 2004-05, the Latino/a student enrollment in the U.S. K–12 education system was approximately 19% and approximately 21% in 2009 (National Center for Education Statistics, NCES, 2013a). In some states, the Latino/a² student enrollment was above the national average; for example, in Arizona, California, and New Mexico, it was 38%, 47%, and 53%, respectively.

Current reports indicate that White students score higher than their Latino/a peers on standardized tests at a national level; the “achievement gap” between Hispanic and White students in 2009 at grades 4 and 8 in mathematics was between 21 and 26 points on the NAEP scale (NCES, 2013b). This so-called achievement gap—the difference in performance between “racial” groups of students—has long been linked to a difference in family socioeconomic status (Ortiz-Franco, 1999). Recent findings (see NCES, 2013b) show that the difference in academic achievement between ethnic groups is more than an issue of poverty versus wealth. Gándara (2005) reported that high achieving Latino/a students are not likely to come from economically and educationally advantaged backgrounds. These recent findings call for a reexamination of the nature of the educational vulnerability of linguistically and culturally diverse students.

Effective Teaching for Linguistically and Culturally Diverse Students

Supporting Latino/a Students

In the past decade or so there has been a growing body of research that has explicitly explored how to best support Latino/a students’ mathematical experiences in a variety of in-school and out-of-school contexts (see, e.g., the edited volume *Latinos/as and Mathematics Education: Research on Learning and Teaching in Classrooms and Communities*, edited by Téllez, Moschkovich, and Civil, 2011). Much of this research documents how linguistic and cultural diversity can be a valuable resource for mathematics teaching and learning—for students and teachers alike. For instance, Zahner and Moschkovich (2011) found that multilingual students who use two (or more) languages while doing mathematics possess a set of linguistic resources for managing the social and cognitive demand of group mathematics discussions. They concluded that these students’ participation

² We use the term *Latinos/as* to refer to the student population in the United States whose origins are of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish cultures regardless of “race.”

in mathematics discourse in classrooms is critical to their understanding of mathematical ideas, and that mathematics learning is mediated by participation in a community where discussions of mathematics take place. This growing body of research in general supports the fact that when schools view linguistic and cultural diversity as a resource rather than a deficiency and hold high expectations for Latino/a students, they more times than not experience consistent academic growth in achievement (see, e.g., Jesse, Davis & Pokorny, 2004).

Turner, Varley Gutiérrez, and Díez Palomar (2011) explored out-of-school mathematics learning experiences. Turner and colleagues successfully worked with Latino/a elementary students in problems grounded in community settings that gave the students new perspectives on seeing mathematics in their everyday world outside of school mathematics. They framed their work in *community mathematization*, where students collaboratively use mathematics to make sense of their environment of familiar contexts in an afterschool setting. The contexts for the mathematics problems included single and multi-step computation, geometry, area, and volume measurements in rich modeling problems. Turner and colleagues found that students were able to capitalize on their background knowledge to solve problems and explain solutions through their understanding and ownership of the mathematics.

Teacher Preparation and Professional Development

Eliciting and making sense of students' cultural, home, and community-based knowledge, and its relevance to mathematics instruction, is a complex practice that takes special attention by teachers. This process should begin in teacher preparation and continue to develop as teachers enter the field (Civil, 2007). Recently, Turner, Drake, McDuffie, Aguirre, Bartell, & Foote (2012) proposed a vision of effective mathematics teaching for diverse learners where pre-service teachers developed lessons that reflected meaningful connections to diverse students' cultural, home, and community-based knowledge that supported mathematics learning. The pre-service teachers created lessons for elementary students inspired by what they learned about the mathematical practices and skills used in a familiar hub for the local Latino/a community. Within the lessons, they created challenging problem-solving tasks situated in a familial context, which had cultural relevance for the students.

In addition to the socio-cultural perspectives for teacher preparation, mathematics education involves helping teachers consider strategies that incorporate multiple modalities and representations of mathematical ideas for the classroom setting. Anhalt and Ondrus (2011) worked with middle school mathematics teachers in a professional development course in addressing algebraic concepts using multiple representations: algebra blocks for the concrete representations, relevant contextual representations, pictorial representations, linguistic representations,

and abstract mathematical symbolism. One goal of the course was for the teachers to see mathematical concepts through concrete representations to expand their understanding of abstract decontextualized mathematics symbolism. They found that the teachers were able to make connections between the concrete, abstract symbolism, linguistic, and contextual representations of mathematical situations. In building this fluency between representations of mathematical ideas, the teachers saw the value of incorporating multiple representations in their teaching for all students, and especially crucial for their Latino/a and English learning (EL) students. These findings echo those of another similar study where the use of multiple representations designed for understanding a target language was found to be an effective instructional practice (Télez & Waxman, 2006). Because the use of language plays a crucial role in understanding mathematics, especially for Latino/a EL students, explicit and deliberate linguistic and intellectual support during cognitively demanding tasks is vital.

Effective teachers and schools recognize that any attempt to address the needs of Latino/a students in a deficit or “subtractive” mode is counter-productive (García & González, 1995; Valenzuela, 1999). Therefore, we argue that the relevance of teachers’ everyday positive personal interactions with Latino/a students is critical in helping students succeed academically. Valenzuela (1999) suggests that teachers’ use of an “additive” approach when teaching linguistically and culturally diverse students influences students’ academic success. An additive approach would include, among others: a school climate free of prejudices, school methods and materials that appeal to all students regardless of their cultural background, and high expectations for students from teachers and parents. These topics should be of high interest to schools with a significant number of Latino/a students enrolled. In the study presented here, teachers’ concerns while teaching Latino/a students were assessed in order to learn the importance given to issues regarding school climate, methods, materials, and expectations for students. The target participants of this study were K–8 teachers enrolled in professional development programs across three U.S. geographical regions.

Researching Teachers’ Concerns

Concerns are defined as an emotional undertone that signals insecurity and resistance to new situations and changes (Van den Berg & Vandenberghe, 1995). Concerns also can be interpreted as feelings, thoughts, or reactions to certain things (Mok, 2005). Research on teachers’ concerns draws heavily on the work of Fuller (1969). Fuller and Bown (1975) suggest that pre-service teachers start their careers with idealized ideas about students and teaching. This idealization changes with the first teaching experience and a central question becomes important: Will I be able to manage the class? Fuller and Bown name this kind of concern as

a “survival concern” or “self-concern.” As teachers become more experienced, they become concerned about methods and materials and start looking for new ideas for their teaching. Still, these are concerns about their own performance as a teacher and not concerns about students and their learning. They name these as “concerns about the task” or “teaching concerns.” Finally, Fuller and Bown referred to “concern about the pupils,” “impact concerns,” or “learning concerns” when teachers have an eye for students’ social and emotional needs and they become more focused on their relationships with individual students. Initially, Fuller argued that concerns would change according to teachers’ development. That is, self-concerns would appear mainly at the beginning stage of teacher development, in which teachers have anxiety about their ability to survive in the classroom. At a second stage of teacher development, the task of teaching is the largest concern. Teachers are concerned about the performance of their teaching tasks, which include resources, strategies, and time management. At the third stage, the impact concerns relate to the teachers’ apprehensions about social and learning needs of pupils.

Studies have found that concerns do not necessarily develop in a sequential manner in the stages of teacher development (see, e.g., Adams, 1982; Ghaith & Shaaba, 1999). Any kind of concern may increase or decrease suddenly (Swennen, Jörg & Korthagen, 2004), overlap (Pigge & Marso, 1987) or play a central role from the very beginning of the professional development without changes (Smith & Sanche, 1993). Mok (2002) explained that the differences in findings across studies suggest that the concerns in Fuller’s (1969) model are framed in very broad terms and hence it is not surprising that task concerns and impact concerns occur in similar stages. These findings may imply that task and impact concerns, which are highly associated with the job of teaching, naturally are concerns in most stages of teachers’ careers. Therefore, Charalambous, Philippou and Kyriakides (2004) argued that Fuller’s types of concerns could be considered in terms of levels, not stages. Hence, those concerns related to self-survival (i.e., awareness, information-seeking, and personal relationships) are categorized as first-level concerns, those concerns related to teaching (e.g., management, methods, curriculum, and resources) are categorized as second-level concerns, and finally, those concerns related to student impact (e.g., consequences of effective teaching, collaboration with other teachers, making suggestions for improving student learning) are categorized as third-level concerns.

An interesting finding from studies on teacher concerns is that self-concerns are normally found to decrease with increase in years of experience (Adams, 1982; Pigge & Marso, 1997; Veenman, 1984). Additionally, Ghaith and Shaaban (1999) found that teaching concerns, which include performance, curriculum, resources, and strategies, are very low in teachers with more than fifteen years of experience. This evidence reveals the complex patterns of personal development,

professional identity, and the emotional dimensions of the teaching profession (Poulou, 2007). Overall, the issue of what concerns teachers is an important one. Although studies have been done on *general* teaching concerns, few studies have attempted to document teachers' concerns while teaching linguistically and culturally diverse students. The study reported here addresses this gap.

Methodology

Participants and Contexts

Sixty-eight K–8 mathematics teachers of Latino/a students from three geographical contexts participated in this study. Approximately two-thirds of the participants taught at the elementary level and one-third taught at the middle school level. The regions represented an urban area in Arizona, a rural and urban area of California, and rural and urban areas of New Mexico near large local universities. The teachers from the three regions participated in a variety of professional development activities during their partnership with their local universities (The University of Arizona, The University of New Mexico, and University of California, Santa Cruz). The teachers from New Mexico participated in summer institutes with a focus on teaching strategies for teaching mathematics to EL students. Teachers from California participated in professional development activities that incorporated mathematics content and pedagogy specific to the context of Latino/a students. And teachers from Arizona engaged in additional coursework and also participated in a variety of professional development activities including a teacher study group (9 teachers), professional development courses on various mathematics topics with an emphasis on teaching EL students (22 teachers), and lesson study (4 teachers). While the professional development activities at each site differed, the premise under which the CEMELA professional development activities functioned was the same across the three sites: all activities centered on ways to turn language and cultural diversity into educational assets for the mathematics education of Latino/a students.

The three regions in which this survey was administered have different political contexts and differing policies and state laws that govern the language of instruction in their schools. California and Arizona both have legislation requiring the use of English during instruction, while New Mexico allows bilingual education programs for students identified as English language learners (ELLs). The various school districts from which the teachers come all have a high percentage of Latino/a student populations. Specifically, each of the schools in which the participating teachers work has approximately an 85% Latino/a student population and approximately one-third of the students are identified as ELLs. The teachers volunteered to participate in the CEMELA-associated professional development activities at their local university because they were seeking to learn about ways

to have a positive impact on their students, who were predominantly Latino/a, and were not paid either to participate in the professional development activities or to take the survey.

Instruments

The instrument used for the study was a 20-item survey designed by MJ Young & Associates. Items, in a Likert scale format, addressed teacher concerns regarding teaching Latino/a students. Table 1 describes the 20 items (Table 1: Appendix A). Survey items were categorized in three broad types of concerns: (a) concerns about one's own promotion of a school climate free of discrimination and prejudices, or "self-concerns"; (b) concerns about the use of methods, materials, and strategies in class of specifically designed to cover the needs of linguistically and culturally diverse students, or "task concerns"; and (c) "appropriate" adult role models at students' homes and parents' high expectations for their children, or "impact concerns." In general, the categorization of items borrows from the work of Fuller (1969) and Swennen, Jörg and Korthagen (2004). In order to evaluate the reliability of the survey, a Chronbach alpha coefficient was calculated. It yielded 0.9102, which indicates that the instrument is reliable.

Each survey item was placed in one of the three categories using a factor analysis after survey administration. As an exploratory tool, factor analysis can be used to extract "factors," that is, statistical entities that serve as classification axes. This technique is useful when reducing a dataset to a more manageable size while retaining as much of the original information as possible (Field, 2005). The major assumption in factor analysis is that factors represent real-world dimensions. Thus, researchers have to interpret statistical analyses and define the clusters of variables aided by theoretical assumptions. In the study reported here, a factor analysis was carried out using SPSS software. Five factors were extracted from our data. Questions 6, 7, 10, 11, and 16 comprised one cluster, which we identified as "self-concerns" because these questionnaire items refer to discrimination and prejudices. Questions 12, 17, and 18 defined another cluster, which were associated with "impact concerns." The other three factors were clustered in what we labeled "task concerns," taking into consideration that these items refer, globally, to class methodology.

The factor analysis suggested that our variable "task concerns" might be susceptible to a finer categorization; however, we decided to keep the three concern classifications as identified in the research literature (see Table 1: Appendix A for final classification of survey items). Chronbach coefficients for the three subsets of survey items were calculated and they suggest good reliability: 0.894, 0.891, and 0.920, respectively. In order to learn about the sample size effect, a Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was included in the factor analysis. The KMO statistic varies between 0 and 1 indicating the degree of

common variation (1 being a perfect communality among variables) and serves as an indicator of generalizability of the research data collected. In the present analysis, KMO measure yielded a factor of 0.768 and suggested a good sample size for generalization of research findings.

Procedure

Surveys were administered at the three regions during the last session of the professional development activities in either December 2006 or January 2007. The directions for the survey were:

Below are questions some teachers have posed about working with culturally diverse students (e.g., Latinos). These questions may or may not be of concern to you at this point in your professional career. Read each question and then circle the number that represents the degree of concern the question holds for you (1 being extremely unimportant and 5 being extremely important).

Teachers rated items individually using numbers from 1 to 5. At the end of the survey, some background information questions were included regarding years of teaching experience and personal ethnicity. This background information about the teachers was collected for the purpose of determining the correlation between years of experience, ethnicity, and concerns.

Data Analyses

Two different analyses were carried out. The purpose of the first analysis was to characterize the teacher concerns as a group of 68 teachers of Latino/a students. To do so, we calculated sums of teacher responses from 1 to 5 for each survey item. These sums were divided by total responses to compute percentages of teacher responses to each option. We used a procedure similar to Mau and Kings' (1996) to calculate a weighted average to indicate a level of concern for each survey item. Therefore, the level of concern can vary from an average rating of 1 to 5 and would indicate how teacher responses distributed along the unimportant–important scale of the instrument used (Table 1: Appendix A).

The purpose of the second analysis was to explain the differences within the data according to three variables that may have an impact on teacher concerns. In this study, the variables examined were years of teaching, teacher ethnicity, and geographical region of the teachers. To do so, we conducted several analyses of variance (ANOVA) tests to determine how well these three variables accounted for data variance. Because ANOVA requires a normally distributed interval dependent variable, we carried out a Shapiro-Wilk W test, and the test resulted in a

value of 0.97 with a p -value greater than 0.1; therefore, normality was fairly assumed.

Limitations

It is important to discuss some limitations of the research reported here. First, we recognize that there was only one item related to mathematics specifically. However, research literature has pointed out that content teachers are well-aware of the issues related to learning the content itself (Fletcher, Mountjoy & Bailey, 2011). Therefore, we assume that the inclusion of more content items specific to mathematics would probably have responses with a high degree of concern. A second limitation is the lack of follow-up surveys to the participating teachers after they completed the professional activities. However, research has found that teachers' concerns are stable along large periods of times (Melnick & Meister, 2008), and most often do not change even within a reform context (Charalambous & Philippou, 2010).

Findings

Teacher Concerns Characterization

Table 1 (Appendix A) represents how the 68 teacher responses distributed along the unimportant–important scale. For each survey item, a percentage of responses of 1, 2, 3, 4, and 5 ratings of the unimportant–important scale were calculated. The highest percentage for each survey item appears shadowed in Table 1. The majority of teachers rated self-concern items as “extremely unimportant.” On the contrary, almost all of the task and impact concerns were rated as “extremely important.”

The last column of Table 1 (Appendix A) has the weighted average level of concern for each survey item. The level of self-concern ranged from 2.1 to 2.7, the average ratings of the task concerns ranged from 3.9 to 4.6, and the average ratings of the impact concerns ranged from 3.5 to 3.6. The most important concern referred to the methods and techniques that appeal to all students regardless of their cultural background (item 15 of task concerns). The least important concern referred to being accused of discrimination by Latino/a students (item 10 of self-concerns). In general, these teachers were highly concerned with issues about the appropriate methods and materials for linguistically and culturally diverse students and appropriate parent models, but they seemed to be less concerned about their promotion of a prejudice-free school climate.

Teacher Ethnicities and Concerns

In reporting ethnicity, 24 teachers reported being “White,” 35 reported “Hispanic/Latino,” 3 reported “Asian or Pacific Islander,” 1 reported “African American,” 3 reported “other,” and 2 did not answer this question. Because teacher concerns referred to teaching Latino/a students, data were broken down into two broad categories: Hispanic and non-Hispanic. ANOVA analysis for self-concerns suggests that non-Hispanic teachers are more concerned about their promotion of a prejudice-free school climate than Hispanic teachers and this difference is statistically significant ($F = 4.23, p = 0.04$). There were no significant differences between Hispanic and non-Hispanic teachers for task and impact concerns (see Table 2: Appendix B for ANOVA summaries).

To estimate the importance of the effect in the sample and, therefore, the likely importance of the effect in the population given that sample, a measure of effect size was calculated for the differences found for *self-concerns* between Hispanic and non-Hispanic teachers. An effect size is an objective and standardized measure of the magnitude of the observed effect. A common measure of effect size is Pearson’s correlation coefficient (r). It is widely accepted that a correlation coefficient greater than 0.30 represents a medium effect and greater than 0.50 constitutes a large effect (Field, 2005). In this case, r was calculated using the between-group effect (SS_M) and the total amount of variance in the data (SS_T) from the SPSS output for ANOVA (Field, 2005). Thus, $r^2 = SS_M / SS_T = 5.557 / 89.650, r = 0.25$ represents a small effect size.

Years of Teaching and Concerns

As previously discussed, research on teacher concerns has linked types of concerns with teacher developmental approaches (Mok, 2005). Previous research findings have not been conclusive regarding how teacher concerns vary along teaching experience, so it seemed important in this study to relate level of concern with years of teaching experience. Using a factor analysis (component analysis defining 3 components), three groups of teachers were identified: new teachers with 0–7 years of teaching, more experienced teachers with 8–20 years of teaching, and most experienced teachers with more than 20 years of teaching. Our ANOVA analysis shows no significant differences among teachers in the types of concerns about social issues and teaching issues. There is, however, a difference among teachers when comparing concerns about student learning at a level of confidence below 0.10 (see Table 2: Appendix B). Post hoc test of Bonferroni was used in order to determine how groups compare among each other. While this test shows no differences between teachers with 0–7 years of experience and those with 8–20 years of experience, the most experienced teacher group (20+ years of experience) differed from the other groups of teachers. Thus, data sug-

gests that more experienced teachers are less concerned about student learning issues. This finding may reflect a more confident attitude that is developed through years of teaching experience. However, an effect size measure indicates a small effect ($r = 0.29$).

The Different Regions and Concerns

Table 3 (Appendix C) summarizes percentage of teachers and level of concern when taking into consideration the regions where the survey was administered. Teacher responses were categorized as being unconcerned (1 or 2 on the Likert scale), being neutral (3 on the Likert scale), and being concerned (4 or 5 on the Likert scale). Table 3 indicates percentages of teachers by region (Arizona, New Mexico, and California) as unconcerned (Un-C), neutral (N), or concerned (C) for each of the survey items. The highest percentage for each item is shaded in Table 3 in order to more easily view similarities and differences at the three regions. All the items regarding task and impact concerns were rated similarly at all regions; all items were items of concern (see Table 2: Appendix B for ANOVA summaries). However, teachers at the various regions rated self-concerns differently. Arizona and New Mexico teachers indicated no concern on all items in the category of self-concerns. In contrast to California teachers, 92% of New Mexico teachers indicated no concern for being accused of discrimination, while 45% of California teachers indicated no concern for being accused of discrimination (item 10).

The majority (61%) of California teachers were concerned with Latino/a students perceiving them as biased because the teachers' backgrounds may be different than the students' (item 6). Additionally, 56% of California teachers were concerned with parents of Latino/a students being prejudiced against them (item 7). Forty-eight percent of California teachers were neutral with the issue of engaging in reverse discrimination (item 11) and 41% were concerned about stereotyping students on the basis of race (item 16). ANOVA analysis for self-concerns suggests that these differences in rating among teachers of the three regions are statistically significant ($F = 10.77$, $p = 0.000091$). This effect is large ($r = 0.5$).

The last section of Table 3 (Appendix C) has the level of concern (average rating) of each survey item at Arizona, New Mexico, and California. The most important concern in Arizona and California referred to the most effective methods for teaching mathematics to Latino/a students (item 1). The most important concern in New Mexico referred to the methods and techniques that appeal to all students regardless of their cultural background (item 15). The least important concern at the three regions referred to being accused of discrimination by Latino/a students (item 10).

Discussion

In the research reported here, a teacher-concern survey was administered to 68 K–8 teachers of high Latino/a population schools in Arizona, New Mexico, and California to characterize items as concerns about social issues in teaching Latino/a students, concerns about teaching Latino/a students, and concerns about Latino/a student learning. All teachers were participating in a variety of professional development experiences associated with CEMELA at the three regions. We analyzed teacher concerns taking into consideration years of teaching and teachers' ethnicities. Similarities and differences among regions were of special interest because CEMELA is a multi-university consortium, for which working with teachers of Latino/a students is a focus.

Overall, teachers seemed to be highly concerned with teaching and learning issues independent of region, ethnicity, or years of teaching. Issues of teaching and learning as illustrated in the survey are about effective strategies and techniques that can be used for teaching, strategies to motivate culturally diverse students, relevant content, and meeting academic needs in addition to questions about expectations for students. These findings are consistent with past research reports on teacher concerns. For example, Melnick and Meister (2008) have reported that there are eight global issues that have worried teachers at all levels and in all disciplines in the last 30 years. In order of importance, these issues are: classroom discipline, motivating pupils, dealing with individual differences, assessing pupil's work, relations with parents, organization of class work, insufficient materials and supplies, and dealing with problems of individual pupils. All eight of these major issues can be classified under teaching and learning concerns (or task and impact concerns, as labeled in this study and in research literature on teacher concerns).

Teacher concerns on social issues centered on students' perceptions of teachers from a different cultural background, issues of prejudices, and discrimination in general were examined. Concerns on social issues seemed to be impacted by teachers' ethnicity and region. Because a concern has been defined in the field as a kind of emotional undertone that signals insecurity (Van den Berg & Vandenberghe, 1995), it seems reasonable to suppose that concerns on social issues involve a higher degree of emotional charge and, therefore, can vary more easily with contextual variables and social perceptions than teaching and learning concerns might.

According to our results, teachers from Arizona and New Mexico were similar in that they were unconcerned with social issues. However, teachers from California were highly concerned on item 6 ("Will Latino/a students perceive me as biased simply because my background is different than theirs?"), item 7 ("Will parents of Latino/a students be prejudiced against me?"), and item 16 ("Will I ste-

reotype students on the basis of their race?”). These differences could possibly be explained when we take into consideration ethnic proportions of teachers at each region. In Arizona, 67% of the teachers were Hispanic/Latino and 27% were White. In New Mexico, 70% of the teachers were Hispanic/Latino and 15% were White. In California, 26% of the teachers were Hispanic/Latino and 61% were White. We speculate that teachers’ ethnicity is an important variable in considering teacher concerns on social issues in teaching mathematics to Latino/a students. These differences in teachers’ ethnicities may be responsible for the differences that we found from teacher responses from the regions. It is necessary to replicate the survey with sample populations using a random layered sampling in order to test this hypothesis.

As previously noted, in the results, all new teachers (0–7 years of teaching) reported low concerns on social issues such as cultural background, discrimination, multiculturalism, and stereotype issues. We speculate that this may be the case due to new teachers’ general low awareness of the implications of these social issues. New teachers may not consider these issues to play a role in their everyday lives of teaching or they may consider social issues far removed from their mathematics classroom environments, as if the classroom exists insulated from society at large. These findings concur with evidence found in studies of teacher candidates that show that those who become teachers tend to be young people who are typically not politically active in social issues or are distant from social issues, and, therefore, have a limited firsthand awareness of or engagement in many of the nation’s major social issues (Howey & Zimpher, 1996). Gutiérrez and Dixon-Román (2011) note that students of color continue to be framed in comparison to their White counterparts, and this comparison then becomes normalized, as if it is a “natural” way of thinking about achievement, rather than focusing on the excellence of students of color or the many other ways subordinated students may make sense of their experiences with mathematics. Because this is a highly political and unfortunate “common picture,” we wonder if it lends itself to unintentional, unexamined, or unwitting prejudice by educators. This topic merits a discussion at a more in-depth level than can be provided within this context.

Concluding Thoughts

Worries and concerns have been reported to play a role in teachers’ work (Boz, 2008; Boz & Boz, 2010) and is, therefore, an important area for research. Theoretical foundations on teacher concerns has been grounded on Fuller’s (1969) work which distinguishes three types, levels or phases of concerns: self-concerns, task-concerns, and impact-concerns. Empirical evidence, especially with teachers in urban schools, suggests that teachers tend to concern themselves with issues of task and impact (Fletcher, Mountjoy & Bailey, 2011; Melnick & Meister, 2008).

The research reported here represents an effort to learn about urban teachers' concerns in contexts of Latino/a student populations. Moreover, mathematics teachers of Latino/a students are an important population to investigate given that research has found that meeting the needs of culturally diverse students requires high expectations and an "additive approach" to their education (Valenzuela, 1999).

In summary, urban mathematics teachers of Latino/a students considered *self-concerns* about social issues as globally unimportant. As a reminder, self-concerns about social issues pertain to teachers' anxiety about their ability to successfully undertake demands stemming from social issues on cultural diversity such as racism, discrimination, or prejudices. This finding could mean that prejudiced labels do not bias teachers' perceptions, and that these teachers therefore do not consider Latino/a students as lacking skills to perform successfully in school. Additionally, teachers may feel that because they have personal relationships with their students that social issues, such as prejudice or discrimination, could not possibly enter in their everyday teaching lives. Although teachers' concerns about social issues were of low importance overall, there was a significant difference between the Hispanic/Latino and non-Hispanic/Latino teachers. It could be that non-Latino teachers were more concerned about social issues in teaching Latino/a students than Latino/a teachers because they feel like cultural strangers to their Latino/a students; these teachers, therefore, may have more concern about social issues, such as being accused of discrimination or being accused of having biases against Latino/a students.

Further research needs to be done with emphasis on mathematics teacher concerns and their interaction with other kinds of variables such as teacher performance, impact on student learning, and beliefs about teaching. Teacher ethnicity seems to be an important variable to take into account in future analyses of teacher concerns with respect to self-concerns on social issues. We can speculate that non-Hispanic/Latino teachers may fear being rejected by Hispanic/Latino students. Non-Hispanic/Latino teachers may also feel unprepared to cope with a high proportion of Hispanic/Latino students. It would be worthwhile to examine the reverse—non-White teachers' concerns in schools of a high percentage of White students—to further investigate mathematics teachers' perceptions when teaching students of a different cultural background.

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APPENDIX A

Table 1
Percentage of Teachers that Rated Survey Items from 1 (Unimportant) to 5 (Important)

| Survey Items | Percentage of responses on Unimportant – Important Scale | | | | | Level of Concern (average rating) |
|--|--|----|----|----|----|-----------------------------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Self-Concerns About Social Issues in Teaching Latino Students | | | | | | |
| 6. Will Latino students perceive me as biased simply because my background is different than theirs? | 31 | 18 | 21 | 18 | 12 | 2.6 |
| 7. Will parents of Latino students be prejudiced against me? | 31 | 18 | 22 | 15 | 14 | 2.6 |
| 10. Will Latino students accuse me of discrimination? | 42 | 28 | 17 | 8 | 5 | 2.1* |
| 11. In attending to multicultural issues, will I be engaging in reverse discrimination? | 29 | 17 | 27 | 13 | 14 | 2.7 |
| 16. Will I stereotype students on the basis of their race? | 39 | 17 | 19 | 8 | 17 | 2.5 |
| Task-Concerns About Teaching Latino Students | | | | | | |
| 1. What are the most effective methods for teaching mathematics to Latino students? | 3 | 1 | 9 | 34 | 53 | 4.3 |
| 2. What strategies should I use when working with Latino students? | 3 | 4 | 6 | 37 | 50 | 4.3 |
| 3. What specific techniques and materials motivate Latino students? | 4 | 1 | 10 | 30 | 55 | 4.3 |
| 4. How does the home environment of Latino students impact their receptivity to school? | 3 | 6 | 13 | 28 | 50 | 4.2 |
| 5. In what specific ways does family culture affect Latino students' performance in school? | 0 | 6 | 12 | 38 | 44 | 4.2 |
| 8. How do I make lessons and content relevant to Latino students? | 4 | 0 | 10 | 32 | 54 | 4.3 |
| 9. What kinds of things can I do to meet both the academic and emotional needs of Latino students in my class? | 3 | 1 | 6 | 34 | 56 | 4.4 |
| 13. How should I vary my teaching methods when dealing with culturally diverse students? | 2 | 2 | 8 | 32 | 56 | 4.4 |
| 14. How do I effectively teach a class of students whose ability and experiential levels are widely diverse? | 0 | 3 | 6 | 23 | 68 | 4.5 |
| 15. What are the methods and techniques that appeal to all students regardless of their cultural background? | 0 | 5 | 0 | 26 | 69 | 4.6** |
| 19. What criteria do I use in selecting materials related to Latino culture? | 5 | 6 | 15 | 41 | 33 | 3.9 |
| 20. How can I help all students relate to those who have different backgrounds in my classroom? | 2 | 2 | 17 | 25 | 54 | 4.3 |

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APPENDIX A

Table 1

Percentage of Teachers that Rated Survey Items from 1 (Unimportant) to 5 (Important)

| Impact-Concerns About Latino Student Learning | | | | | | |
|--|----|----|----|----|----|-----|
| 12. Do Latino students have appropriate adult role models? | 3 | 16 | 31 | 23 | 27 | 3.5 |
| 17. Do parents of Latino students possess high expectations for their children? | 10 | 11 | 23 | 26 | 30 | 3.6 |
| 18. Are Latino students' home environments an adequate model for academic study? | 9 | 13 | 24 | 27 | 27 | 3.5 |

J. M. Young & Associates (2005)

* Least important concern

** Most important concern

APPENDIX B

Table 2

ANOVA Results for Teachers' Concerns Taking into Consideration Teacher Ethnicity, Years of Teaching, and Region

| Self-Concerns About Social Issues in Teaching Latino Students | | | | |
|--|-------------|---------------------------|----------------|-------------|
| Teacher Ethnicity | Mean | Standard Deviation | F-ratio | p |
| Non-Hispanic Teachers | 2.8 | 1.0 | 4.23 | 0.04** |
| Hispanic Teachers | 2.2 | 1.2 | | |
| Years of teaching | Mean | Standard Deviation | F-ratio | p |
| 0 – 7 | 2.5 | 1.2 | 0.247 | 0.78 |
| 8 – 20 | 2.5 | 1.3 | | |
| 20 + | 2.2 | 1.0 | | |
| Region | Mean | Standard Deviation | F-ratio | p |
| Arizona | 2.2 | 1.0 | 10.77 | 0.000091*** |
| New Mexico | 1.8 | 0.8 | | |
| California | 3.3 | 1.1 | | |
| Task-Concerns About Teaching Latino Students | | | | |
| Teacher Ethnicity | Mean | Standard Deviation | F-ratio | p |
| Non-Hispanic Teachers | 4.3 | 0.4 | 0.04 | 0.85 |
| Hispanic Teachers | 4.3 | 0.8 | | |
| Years of teaching | Mean | Standard Deviation | F-ratio | p |
| 0 – 7 | 4.4 | 0.4 | 1.025 | 0.365 |
| 8 – 20 | 4.2 | 0.8 | | |
| 20 + | 4.2 | 0.7 | | |
| Region | Mean | Standard Deviation | F-ratio | p |
| Arizona | 4.3 | 0.7 | 1.9 | 0.15 |
| New Mexico | 4.1 | 0.7 | | |
| California | 4.5 | 0.4 | | |
| Impact-Concerns About Latino Students Learning | | | | |
| Teacher Ethnicity | Mean | Standard Deviation | F-ratio | p |
| Non-Hispanic Teachers | 3.4 | 1.1 | 0.8 | 0.37 |
| Hispanic Teachers | 3.6 | 1.2 | | |
| Years of teaching | Mean | Standard Deviation | F-ratio | p |
| 0 – 7 | 3.5 | 1.3 | 2.636 | 0.08* |
| 8 – 20 | 3.8 | 1.0 | | |
| 20 + | 2.9 | 1.1 | | |
| Region | Mean | Standard Deviation | F-ratio | p |
| Arizona | 3.2 | 1.2 | 2.78 | 0.07* |
| New Mexico | 3.9 | 1.0 | | |
| California | 3.8 | 1.0 | | |

* $p < 0.01$ ** $p < 0.05$ *** $p < 0.1$

APPENDIX C

Table 3

Percentage of Teachers from Arizona (AZ), New Mexico (NM) and California (CA) Either Unconcerned (Un-C), Neutral (N) or Concerned (C) for Each Survey Item

| Item # | Percentage of Teachers & Level of Concern Unconcerned (Un-C), Neutral (N) or Concerned (C) | | | | | | | | | Levels of Concern at Different Regions (Average rating) | | |
|--|---|----|----|------------|----|-----|------------|----|-----|--|-------|-------|
| | ARIZONA | | | NEW MEXICO | | | CALIFORNIA | | | AZ | NM | CA |
| | Un-C | N | C | Un-C | N | C | Un-C | N | C | | | |
| Self-Concerns About Social Issues in Teaching Latino Students | | | | | | | | | | | | |
| 6 | 55 | 29 | 16 | 72 | 14 | 14 | 26 | 13 | 61 | 2.3 | 2.1 | 3.5 |
| 7 | 55 | 29 | 16 | 76 | 15 | 8 | 26 | 17 | 56 | 2.3 | 1.9 | 3.4 |
| 10 | 76 | 17 | 7 | 92 | 0 | 8 | 45 | 32 | 23 | 1.9* | 1.4* | 2.8* |
| 11 | 51 | 17 | 31 | 69 | 23 | 8 | 19 | 48 | 34 | 2.6 | 1.9 | 3.3 |
| 16 | 67 | 17 | 16 | 75 | 8 | 17 | 32 | 27 | 41 | 2.1 | 2.0 | 3.3 |
| Task-Concerns About Teaching Latino Students | | | | | | | | | | | | |
| 1 | 0 | 10 | 90 | 21 | 21 | 57 | 0 | 0 | 100 | 4.5** | 3.4 | 4.7** |
| 2 | 6 | 3 | 90 | 21 | 14 | 65 | 0 | 4 | 96 | 4.3 | 3.6 | 4.6 |
| 3 | 6 | 10 | 84 | 14 | 7 | 79 | 0 | 13 | 87 | 4.3 | 4.0 | 4.5 |
| 4 | 13 | 16 | 71 | 14 | 13 | 74 | 0 | 9 | 91 | 4.0 | 4.0 | 4.4 |
| 5 | 6 | 19 | 74 | 14 | 14 | 72 | 0 | 0 | 100 | 4.1 | 4.0 | 4.4 |
| 8 | 3 | 13 | 84 | 14 | 14 | 72 | 0 | 9 | 91 | 4.4 | 3.7 | 4.6 |
| 9 | 3 | 10 | 87 | 14 | 0 | 85 | 0 | 4 | 96 | 4.3 | 4.2 | 4.6 |
| 13 | 3 | 7 | 89 | 7 | 14 | 79 | 0 | 5 | 96 | 4.4 | 4.1 | 4.6 |
| 14 | 7 | 10 | 83 | 0 | 7 | 93 | 0 | 4 | 96 | 4.4 | 4.7 | 4.7 |
| 15 | 10 | 0 | 90 | 0 | 0 | 100 | 0 | 0 | 100 | 4.5 | 4.9** | 4.6 |
| 19 | 13 | 13 | 73 | 7 | 14 | 79 | 9 | 18 | 72 | 3.8 | 4.1 | 4.0 |
| 20 | 3 | 13 | 83 | 7 | 21 | 71 | 0 | 18 | 82 | 4.3 | 4.1 | 4.4 |
| Impact-Concerns About Latino Students Learning | | | | | | | | | | | | |
| 12 | 27 | 33 | 40 | 8 | 23 | 69 | 14 | 36 | 50 | 3.2 | 3.9 | 3.8 |
| 17 | 34 | 17 | 50 | 10 | 20 | 70 | 9 | 32 | 59 | 3.3 | 3.8 | 3.9 |
| 18 | 31 | 31 | 38 | 16 | 8 | 75 | 14 | 23 | 63 | 3.1 | 3.8 | 3.9 |

* Least important concern

** Most important concern