The need for preparing mathematics teachers for diverse classrooms in Thailand

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Abstract

In the year 2015, regional economic integration in the Association of South East Asian Nations [ASEAN] Community will take place, and the diversity of students in ASEAN Community classrooms will inevitably increase. In Thailand: one of the countries belonging to the ASEAN group, there is a movement towards educational readiness preparation. However, the movement is not specific regarding classroom practices, and Thai mathematics teachers have not yet been well prepared to deal with such diversity. In this paper, first the need for preparing teachers for diverse classrooms in Thailand is discussed. Then, issues related to diversity in mathematics classrooms and preparing mathematics teachers to teach diverse groups of students are introduced. Finally, conclusions and suggestions are made.

Keywords: Mathematics teachers; Diverse classrooms; Thailand; ASEAN

1. Introduction

As the 21st century unfolds, diversity in the classroom is increasing and it is challenging educators around the world. Our society is rapidly adjusting to a new world of expanding technology, mixed with growing global businesses and corporations. As people are moving internationally in search of jobs, political rights and freedom, globalization continues to expand, resulting in more diverse populations, both in the classrooms and in the work force. In many countries, ethnic, cultural, linguistic, religious, and socioeconomic student populations differ remarkably from those of 50 years ago. In the year 2015, regional economic integration in the ASEAN Community will begin. In this regard, the diversity of students in ASEAN Community classrooms will inevitably increase. For Thailand, there is a movement on educational readiness preparation. However, the movement is not specific regarding classroom practices. Thai mathematics teachers have not yet well prepared to deal with such diversity. Thus, there is a need for preparing Thai mathematics teachers to teach diverse students. In this paper, first the current need for preparing teachers for diverse classrooms in Thailand is discussed. Then, issues related to diversity in mathematics classrooms and preparing mathematics teachers to teach diverse students are introduced. Finally, conclusions and suggestions are made.

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2. The need for preparing teachers for diverse classrooms in Thailand

Thailand, in fact, has experienced increased diversity within its own country and, for decades, ethnic groups within Thailand have migrated from one region to another (Levinson, 1998). Thai society is made up of approximately 50% Thais and approximately 40% Chinese or partly Chinese, 5% the Malays, and 5% other ethnic groups (such as Hill Tribes of the North) of the nations’ approximate population of 67.5 million (2011 est.).

Among the ethnic Thais, there are various regional groups: Central Thai, Northern Thai, Northeastern Thai, and Southern Thai. Among the ethnic Hill Tribes of the North, there are also various regional tribes: Akha, Hmong, Karen or Pga K’nyau, Kui, Lahu, Lisu, T’in (Htin), Yao, and Chong. Along with these various ethnic groups with their unique regional groups, each part of Thailand has its own dialect; however, the Central Thai language is considered the official language of Thailand. Despite Thailand being a country the size of France, or twice the size of Oregon, Thailand is not a country unaffected by diversity in its classrooms. The challenge of diversity in classrooms in Thailand will face mathematics teachers more than ever before, when the ASEAN Economics Community [AEC] starts in 2015. All teachers need to be prepared in order to meet the challenges created by this increasing diversity. But, just as in many other countries, Thai teachers are not aware of how to deal productively with diversity in their classrooms, hindering their ability to effectively educate diverse students. Nevertheless, the issues related to diversity have not yet obviously surfaced in the classrooms, the sooner the teachers are prepared; the better benefits to the students will get.

3. Issues related to diversity in mathematics classrooms

Significant progress has been made over the past decade towards understanding and defining diversity in mathematics classrooms, and how this diversification relates to teaching and learning mathematics. At the same time, mathematics educators have also been addressing mathematics teaching and learning issues such as those that help mathematics teachers to become more aware and be able to recognize diversity in their classrooms. Siegel (2003) noted that diversity is a fundamental metaphor for recognizing and accepting differences among people in societies. Although, the definition of diversity is silently unclear among mathematics educators; scholars have provided their own views (e.g. Cobb & Hodge, 2002; Schoenfeld, 2006). Conventionally, many people have recognized the concept of diversity as a conglomeration of characteristics: ethnicity, socioeconomic background, home language, gender, special needs, disability, and giftedness. In an alternative view; however, Cobb and Hodge (2002) noted that diversity and equity are treated as relational constructs in their proposed perspective. The practices of different social formations can take place in both the mathematics classroom and the out-of-school communities: home and communities that the students are associated with (Cobb & Hodge, 2002). Schoenfeld (2006) commented that there are both pros and cons for this notion of diversity. On the downside, this definition shadows the long-term focus on the discrepancy of different subgroups of the population such as racial achievement gaps. On the upside, this challenging definition of diversity takes a major turn away from the stereotyping and essentializing that are often maintained in categorization. Moreover, this perspective shifts the focus to learning opportunities as various contexts provide individuals opportunities to engage in particular kinds of practices. Integrating traditional and alternative views and characteristics of diversity then primarily focused on the practices of communities (e.g., classroom, home, neighborhood), which consist of students with different race/ethnicity, socioeconomic status/class, and language. It has been reported that these characteristics have long been played significant roles on diverse students’ mathematics achievement, mathematics course-taking, graduation rate, and future career decision making.

3.1. The role of race/ethnicity

There is a debate as to whether to consider race as a biological or social construct (Rasool & Curtis, 2000). Traditionally, race was considered as a description of a large group of people with physical characteristics such as eye color, skin color, hair texture, and body type (Campbell, 2010). Recently, scholars have devised another point of view for race, in term of a person who is constructed, challenged, and developed through social activity (Cobb &
Hodge, 2002; Diversity in Mathematics Education (DiME), 2007). In addition, various racial and ethnic groups are perceived as groups sharing a common national origin, cultural character, or unique physical attribute (Ferrante, 1994). There are many racial stereotypes, causing a number of students and teachers to believe that certain races and ethnicities cannot learn, or that they deserve a simpler, drill-type of education. This type of stereotyping, or essentializing, causes problems within the classroom environment. This is supported in the literature: e.g., DiME (2007) observed that whether or not a White student was successful in a classroom setting, the individual student’s actions were to be blamed; but for minority students with poor learning outcomes such as African American and Latino students, race was considered as the cause. Moreover, within the mathematics classroom itself, the majority of the activities were geared towards the ethnic majority’s culture. Therefore, the minority students were less able to contribute and participate in the classroom activities, which affected their power and authority towards learning mathematics. Additionally, majority students are expected to succeed better in academic learning than minority students (Rasool & Curtis, 2000). Similarly, minority students in Thailand obtained lower academic achievement scores than the majority students (Langpoote, 2008). Furthermore, mathematics activities in the classroom were based on the majority group’s culture, which were not connected to the ways of their walk of life and communities. This makes Thai minority students have less motivation and meaningful learning experiences (Ruengdech, 2008). Moreover, Thai minority students tend to attend to schools with lack of funding, inadequate school staff, fewer credentialed teachers, and poor quality of material resources, etc. (Langpoote, 2008).

3.2. The role of socioeconomic status/class

Generally speaking, race and ethnicity correlate with socioeconomic status, and both correlate with the quality of schooling. Students who are from underrepresented groups tend to go to schools with fewer credentialed teachers and poor supplies. When comparing between race and socioeconomic status factors, researchers revealed that socioeconomic status was a more important indicator of school failure than race (Rasool & Curtis, 2000). Racial segregation and concentrated poverty seems to take place at the same time (Lee, 2002). This means, socioeconomic status not only affects the quality of students’ daily lives (Sleeter & Grant, 2007), but also their academic performance (Sleeter & Grant, 2007; Valero et al., 2012). The majority of low socioeconomic status students attend public schools, which typically have several deficiencies in funding, credentialed teachers, counselors, technology, and a challenging curriculum. All of these limitations are factors in the students’ level of achievement (Grant & Sleeter, 2007). Studies found that teachers still favor higher socioeconomic status students, even if the students from the lower socioeconomic status have a similar level of achievement as the high socioeconomic status students (Auwarter & Aruguete, 2008; Rasool & Curtis, 2000). In addition, some teachers who work in low socioeconomic schools encounter difficulties in helping their students perform well academically. These teachers are more inclined to feel ineffective, which, in turn, has consequences on student performance. In addition, these teachers experience the low efficacy and are more likely to perform at a lower teaching level (Auwarter & Aruguete, 2008). In Thailand, the gap between the rich and the poor is rising, and the average income of the rich is about 27 times higher than the average income of the poor (Prasertkul, 2008). As in other countries, the students with low-socioeconomic status in Thailand unavoidably encounter difficulties in earning high quality of living and academic performance.

3.3. The role of language

Language, which is intimately linked to culture, is a way for an individual to communicate and socialize within a cultural group; language is also a means of forming cultural and personal identity (Gollnick & Chinn, 1998). “The language practices that children bring to school invariably affect how and what they learn …” (Nieto, 2008, p. 229).
In today’s classrooms, the average student is required to obtain a higher level of written and oral mathematical communication than ever before. The students need to not only be able to read basic mathematics textbooks or communicate traditional mathematical problems using basic technical vocabulary, but they also need to learn more progressive mathematical skills such as explaining, describing, and presenting (Moschkovich, 1999).

It has been observed that linguistically diverse students tend to simultaneously solve mathematics problems in different languages. For instance, while learning and conceptualizing mathematics in English, students who learned mathematics in their native language are more likely to conceptualize the previous concepts in their native language (Johnson, 2010). Linguistically diverse learners often “switch language” while working on arithmetic task, as they prefer using the language of instruction. If bilingual students are required to “switch languages”, and are not using their native language, they might be less proficient in computation. In this case, although the students are somewhat proficient in regarding mathematics facts, a delay in oral or written presentation of those facts might be misinterpreted by a teacher as a student not knowing the material (Moschkovich, 2007). During conversations with a bilingual student, “coding switching” is another common language practice. Coding switching takes place when bilingual students insert an English word/phrase into their home language conversation or vice versa. Coding switching does not mean that the students have linguistic deficiency; in fact, it is a complex and systematic practice of language (Moschkovich & Nelson-Barber, 2009). However, this should not be confused with language mixing, which might happen at the early phase of new language development (Bialystok, 2001). In Thailand, many mathematics teachers do not realize that it is useful to allow linguistically diverse students to use their preferred language in doing mathematics before using the official language.

4. Preparing mathematics teachers to teach diverse students

Recognizing individuality among students and the relationship between students’ participation in the practices of mathematics classrooms and of their communities are necessary for effective teachers. Thus, in the first place, mathematics teachers need to be prepared to be aware of the issues related to diversity in mathematics classrooms.

As the teacher is the one who orchestrates the classroom, teachers’ attitudes, beliefs, and perceptions of their students can affect teaching practices such as teachers’ decisions, teacher-student interactions (Schoenfeld, 1992), and students’ performance (Schoenfeld, 2006). If teachers ignore the fact that there are different cultural perspectives, those differences can become obstacles for both the student and the teacher. However, if teachers are aware of the diversity and take advantage of the situation, the teachers can strengthen the diverse students’ understanding of mathematics.

Regarding the role of race/ethnicity and socioeconomic status/class, teachers need to be open-minded in regards to their diverse students, as students from different backgrounds are more likely to have different worldviews from their own. This understanding will bring teachers to respect and appreciate cultural differences among their students. With all of these factors, teachers must consciously be aware that their expectations, attitudes, and beliefs impact on the racial/ethnic and socioeconomic status/class of students. This makes the challenge for teachers to be learning how to take advantage of students’ diversity in their classrooms.

In addition, teachers themselves need to change their low and/or negative expectations of their minority students and begin focusing on their diversities. Teachers need to recognize that all students are capable of being successful at learning mathematics, regardless of their race/ethnicity and socioeconomic status/class. Moreover, in spite of race and ethnicity, teachers need to provide cultural responses in order to empower and respect their students. Teachers’ concerns for the well being of students as learners in the classroom and people in their society as “ethnic of caring” can motivate diverse students’ learning (Noddings, 1988). The ability for teachers to perceive situations from a student’s point of view is considered as empathy. The ability of teachers in realizing a student’s ideas, feelings, and needs is regarded as understanding. In addition, the ability of teachers to be aware of and response to students in an appropriate manner is referred as responsiveness (McCroskey, 1992). However, teachers who are less expressive about their cares (empathy, understanding, and responsiveness) for students are related to lower students’ learning outcomes (Finn et al., 2009). In the same way, teachers need to have positive attitudes and high expectations of low
socioeconomic status students so that the teachers would try their best to encourage and promote the students to learn mathematics.

In a classroom with students from various linguistic backgrounds, teachers need to adjust their teaching and speech patterns to accommodate their students. Simplistic instructional changes such as “visible talking” require the teacher to use complete sentences and thoughts with simplified mathematical language, while avoiding the use of incomplete and confusing statements and phrases (Gorgorió & Planas, 2001). Mathematics teachers’ role in a classroom with bilingual students is not to be an English as a Second Language teacher, but rather a teacher of language that is necessary for learning mathematical concepts and skills (Cuevas, 1984). In promoting bilingual students’ participation in the classrooms, teachers need to focus on students’ contributions to mathematical content instead of their use of English or official language (Moschkovich, 1999). The teachers also need to help the students clarify their thoughts by accepting and building on students’ responses, and repeating their statements aloud, if at all possible (Moschkovich, 1999). Additionally, in a range of mathematics discourse, teachers should keep their minds on how to promote students’ participation by using different languages presented in their classrooms (Setati, 2005).

In a larger context, all parties that are involved with educational reform and movement in Thailand have to play their roles in pushing forward for preparing not only pre-service teachers, but also in-service teachers for diverse classrooms. For instance, issues related to diversity can be included as a selective subject or some kinds of general knowledge or perspectives in the first or second years of teacher preparation. Then, in later years of teacher preparation, specific knowledge and classroom practices related to diverse classrooms are blended. However, for in-service teachers, general and specific knowledge as well as classroom practices related to diverse issues should be introduced in a more practical manner because their teaching experiences and backgrounds related to the issues are varied. There are several approaches that can be applied such as conducting professional development activities/processes through workshops, meetings, seminars, short courses, lesson studies, and so forth. The issues related to diversity should be merged into teachers’ professional development from time to time, not just for a short period of time, as it is involved with changing and shaping teachers’ attitudes, beliefs, perceptions, and perspectives. Thus, it will definitely take time to prepare the teachers to effectively teach diverse students. There is no better time to prepare mathematics teachers for diverse classrooms in Thailand than now.

5. Conclusions and suggestions

Issues related to diversity are ones of many challenges that are emerging in today’s mathematics classrooms. However, the issue may not be obvious in Thai classrooms. Hence, they have been given less attention than in many other countries. As soon as AEC is activated, Thai mathematics teachers will come across the issues more directly. Soon enough, the importance of preparing the teachers for diverse classrooms undeniably becomes essential in order to support all learners’ learning successfully. To this end, the teachers need to develop their awareness of the issues related to diversity in teaching and learning of mathematics. With regard to further preparing the teachers for diverse classrooms, I argue that, in order to be more effective teachers of diverse classrooms, understanding diversity and culturally theoretical perspectives as well as implementing culturally teaching approaches are the next crucial steps. The awareness and understanding of various perspectives on diversity in mathematics classrooms will not only allow teachers in Thailand, but also in other countries worldwide, to continuously learn and develop ways to educate diverse students.

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