

PROFESSIONALS OR ADVENTURE SEEKERS? ELICITING THE IMPACT OF  
RELOCATION AND MOBILITY ON TEACHING QUALITY OF  
MATHEMATICS AND SCIENCE TEACHERS

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June 2014

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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## ABSTRACT

### PROFESSIONALS OR ADVENTURE SEEKERS? ELICITING THE IMPACT OF RELOCATION AND MOBILITY ON TEACHING QUALITY OF MATHEMATICS AND SCIENCE TEACHERS

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Globalization has been traditionally associated with cultural, social, economic, and environmental changes in the global contexts and how people react to these changes. The role of a teacher in managing a culturally diverse classroom environment became important in regulating the effect of these changes in the classroom. The main purpose of the current study was to explore the professional life stories of four teachers who moved to teach mathematics or science in a country other their own. The study inquired how these teachers reflected on their understandings of the relationship between teaching and culture while they developed skills to survive in a foreign country. The naturalistic inquiry was instrumental throughout the study. Semi-structured interviews were conducted with four informants. Data were analyzed by using the constant comparative method. The result of the study showed that movement could be categorized either as a relocation or mobility, both of which

had a positive impact on the personal and professional development of the teachers. Moving to another country helped those teachers, who chose mobility as a life style, successfully embed cultural aspects into their teaching. However, it was found that all four teachers believed that the key element to sustain effectiveness was the personal effort to enculturate to the host culture, which was empowered by an interest in cultural diversity, in general. Findings were discussed in terms of existing research on globalization theory, internationalism, and teacher movement.

Key words: Globalization theory, multiculturalism, internationalism, professional growth, teacher movement.

## ÖZET

### PROFESYONELLER YADA MACERAPERESTLER? MATEMATİK VE FEN ÖĞRETMENLERİNİN YER DEĞİŞİMLERİNİN ÖĞRETME NİTELİĞİ ÜZERİNE ETKİSİNİN ORTAYA ÇIKARILMASI

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Küreselleşme; kültürel, sosyal, ekonomik ve çevresel deđişiklikler ile insanların bu deđişikliklere verdikleri tepkilerle ilişkilidir. Farklı kültürlü sınıf ortamlarında da ortaya çıkan bu tepkilerin idaresinde öğretmenin rolü araştırılmalıdır. Bu çalışmanın amacı, bir başka ülkede çalışmak üzere yer deđiştiren fen ve matematik öğretmenlerinin meslekî hayat hikayelerini açıklamaktır. Öğretmenlerin, bir başka ülkede yaşam mücadelesi verirken meslekleri ve kültür arasındaki ilişkiyi nasıl yorumladıkları incelenmiştir. Çalışmanın tüm aşamalarında naturalist araştırma yöntemlerinin etkisi vardır. Bu çalışma bünyesinde dört öğretmen ile yarı-yapılandırılmış mülakatlar yapılmıştır. Veri sürekli karşılaştırma metodu kullanılarak analiz edilmiştir. Çalışmanın sonucunda öğretmenlerin yer deđişimlerinin yerleşme ve sürekli hareketlilik olarak sınıflandırılabilceđi ve her iki durumun da öğretmenlerin kişisel ve meslekî gelişimlerine olumlu katkıda bulunduđu gözlemlenmiştir. Sürekli hareket içerisindeki öğretmenlerin branşlarının kültürel boyutuna önem veren bir öğretmenlik sergiledikleri görülmüştür. Ancak, tüm

öğretmenler etkinliklerinin sürdürülebilir olmasının kültürlenme konusundaki kişisel çabalarına ve kültürel farklılıklara olan ilgilerine bağlı olduğuna inanmaktadırlar. Bulgular küreselleşme teorisi, uluslararasılaşma ve öğretmenlerin yer değişimleri ile ilgili çalışmalar ışığında tartışılmıştır.

Anahtar Kelimeler: Küreselleşme teorisi, çok kültürlülük, uluslararasılaşma, meslekî gelişme, öğretmenlerin yer değiştirmeleri.

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## **CHAPTER 1: INTRODUCTION**

### **Introduction**

This study focuses on mathematics and science teachers, who moved abroad to teach in a country other than their own. While the study is grounded in globalization theory at large, diverse perspectives on culture, enculturation and multiculturalism are used to explore to what extent the expatriate teachers are able to sustain their effectiveness at their new destination or destinations. The challenges with regard to expatriate life in a foreign culture, specific challenges in the classroom, and teachers' roles in managing a culturally diverse classroom environment are some of the other issues that are touched upon in this study.

### **Background**

The existence of today's increasingly interconnected world is generally explained in terms of the changes in human innovation and technological progress, with controversial effects on economy, individual and social life, and the way knowledge is exchanged (Dreher, 2006). In other words, these changes imply that the movement of goods, money, people, and knowledge is transforming and becoming easier and faster than ever (International Monetary Fund, 2002). In addition to the traditional facilitators, who regulate or initiate the movement, such as national governments, migrant populations or individual entrepreneurs, new facilitators emerge each day. Global companies or organizations are the new facilitators of globalization which are not far away from dominating the movement of goods, money, people, or knowledge (Wade, 2003). They provide employment across the nations (Spence, 2011), creating

a global pool of talented individuals (Scholte, 2005). Globalization is changing the way people live and work.

Globalization has a lot of different definitions. Some scholars define globalization as awareness of the connections between the local and the distant (Scholte, 2005).

Similarly, some perceive globalization as cultural-social, economic, and environmental interconnections that cross borders and boundaries (Taylor, 2000).

Some believe that globalization creates its own unique culture, which affects every aspect of life, including education (Guttek, 2009). These views are justified through an understanding of the notion of globalization that creates new opportunities for individuals or systems to interact. While some view globalization as the exchange of goods and money, others interpret globalization by placing the human at the center.

The particular impact of globalization on education can be seen in three different aspects. First, with the increasing impact of international comparative research studies, policy makers are showing an interest in other educational systems around the world. Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) are some of the examples of studies that foster an interest at the system level (Sahlberg, 2011). Second, globalization fosters awareness of and consequently, a need at the individual level, for a better education regardless of national borders (Zhong, 2012). Individuals express a desire to receive a more well-rounded education for better life standards. Third, international education emerges as the representative of the new facilitators of globalization with its schools (i.e., international schools), curricula (i.e., International Baccalaureate [IB], International General Certificate of Secondary Education

[IGCSE]), teachers and students; providing a medium of interaction among individuals. According to some researchers, international education plays a mediating role between national systems by providing an open door to close national systems. As a result, national education systems start to take into consideration of the philosophy of and practices implemented at international education (Farra, 2000). International education emerges as one of the new facilitators of globalization that influences the movement of humans and knowledge.

The impact of globalization on teachers can be observed in the increasing number of teachers who seek jobs abroad. Globalization provides teachers with a motivation to seek better professional and living standards elsewhere (Gibson-Graham, 1996).

What attracts them to live and work outside of their countries is dependent on the value given to their knowledge and skills (Templer, 2006; Varghese, 2009). The increase in the number of these teachers reveals that they are successful in applying their expertise in new situations, possibly by relating their instruction to the culture of their students at their new destination.

Yet, teachers are faced with several challenges during their move from their own country to the host-country or from one host-country to another. Some of these challenges are associated with logistics, whereas the others are embedded deep in the cultural differences (Gassner, 2009). For instance, the job application process and early initiation process are some of the foreseen challenges. Cultural adaption to the life style, adaptation related to the pedagogy in the classroom, behavior management of students with different routines, and language differences are some of the

challenges that can be expected to surface at later stages (Sharplin, 2009). In that sense, teaching in another country is a challenging job in many ways.

### **Problem**

Studies on the multicultural education are much abundant; however, most of the research on multicultural education is relevant to disadvantaged or under-represented communities that reside in Western urban cities (Barton, 2002; Gay, 1994; Ramsey, 2004; Tomlinson, 1997). On the other hand, the link between globalization theory and education needs to be explored for communities that permanently move to another country or for communities that choose movement as a lifestyle (Benson & O'Reilly, 2009; Kennedy & Roudometof, 2001). Thus, it is not clear whether the existing theories on globalization are sufficient enough to explain the movement of teachers or how they could continue to be effective at new destinations, if they could. There is a need to re-interpret the globalization theory for the movement of teachers with respect to the relationship between culture and teaching.

### **Purpose**

The main purpose of current study was to explore the professional life stories of mathematics and science teachers who moved to another country for teaching. The study aimed to voice these teachers so that they can reflect on their understandings of teaching and culture, and the relationship between those two.

### **Research questions**

The main research question of the study was:



To what extent is the globalization theory successful in explaining the commonalities and differences in the professional life stories of mathematics and science teachers, who moved to another country for teaching?

The sub-questions were as follows:

1. How does mobility across culturally different countries contribute to the teaching practices?
2. How does relocation from one country to another contribute to the teaching practices?
3. To what extent do relocating or mobile teachers incorporate culture in their teaching?

### **Intellectual merit & broader impact**

This study contributes to the knowledge base on teacher movement in two ways: (a) it extends globalization theory to the movement of mathematics and science teachers across countries; (b) it establishes the missing link between enculturation and globalization theory. The study is important as it explores the influences of multiculturalism on education and the changes that may occur in teaching practices.

As a broader impact, this study contributes to our understanding of the conditions that result in teachers to move, changes in teaching practices after they move, particularly with respect to managing a culturally diverse classroom environment. At the end of this study, teachers are expected to benefit from the outcomes related to teaching in culturally diverse classrooms or to incorporate culture in their teaching practices. The results may be used as a guide of survival for teachers who move to

another country or to ease their transition to the host culture by revealing some of the challenges of living and teaching in a foreign country.

### **Definition of terms**

*Globalization Theory:* It is associated with modernization. Modernization explains how modernization and new technologies transform rural, local, and agricultural societies into modern and global societies (Guttek, 2009).

*Globalization:* The process of international integration arising from the exchange of world views, products, ideas, and other aspects of culture (Rodhan & Stoudmann, 2006).

*Enculturation:* The process by which people learn the requirements of their surrounding culture and acquire values and behaviors appropriate or necessary in that culture (Grusec & Hastings, 2008).

*Multiculturalism:* It is more than just having more than one culture in a community (Heywood, 2000).

*Teacher Mobility:* Movement of teachers from one school to another, within a single nation or across nations (Guarino, Santibañez & Daley, 2006). However, international movement is the focus of the current study.

*Teacher Relocation:* The movement of teachers to a new settlement for working in different cultures (Joslin, 2002).

*Internationalism:* It is more specifically about the cooperation of international structures and organizations to become more global, fostering membership of a global community (Gunesh, 2007).

*IB:* International Baccalaureate is an international curriculum program that aims to develop internationally-minded people in order to help them create a better world (Hayden & Wong, 1997).

*IGCSE:* International General Certificate of Secondary Education is the world's most popular international curriculum for 14-16 year olds, leading to globally recognized Cambridge IGCSE qualifications (CIE, 2014).

*TIMSS:* The Trends in International Mathematics and Science Study provides data on the mathematics and science achievement of U.S. students compared to that of students in other countries (IES, 2014).

*PISA:* The Program for International Student Assessment is a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students (OECD, 2014).

*UWC:* By offering an educational experience based on shared learning, collaboration and understanding the United World schools, colleges and programs deliver a challenging and transformative educational experience to a diverse cross section of

students, inspiring them to create a more peaceful and sustainable future (UWC, 2014).

## **CHAPTER 2: REVIEW OF LITERATURE**

### **Introduction**

This chapter presents a synthesis of theory and research on globalization and discusses its impact on education. Several perspectives on enculturation and movement of teachers are included. First, the different definitions of globalization theory and the relationship between education and globalization have been explored through an analysis of relevant studies. Second, globalization and its relation to teacher development and enculturation have been explored. This section provides the readership with a research-based rationale on how the impact of globalization caused changes in education, teaching, and enculturation. Finally, cultural dimensions of mathematics and science were analyzed with respect to classroom teaching and the values that teachers bring with them to the classroom. This chapter served as a framework to understand how movement of teachers changes their teaching practices as well as the way teachers develop a culturally diverse perspective in their teaching.

### **Globalization theory**

Early 1980s was an era when globalization as a theory was associated with theory of modernization (Jiafeng, 2009). Modernization was explained through modern ideas and technologies that led to a transformation of traditional societies into the modern ones. From this perspective, two theories were similar in terms of being predominantly industrial and urban, having technological, engineering, scientific elites, having loyalty to and primary identification centered on the nation-state, and placing more emphasis on scientific rationality over custom and tradition (Roberts & Hite, 1999). Despite, some theorists claimed that globalization was a broader theory

than modernization because of its economic, technological, cultural, political, and educational dimensions (Guttek, 2009).

Globalization has been generally represented by the increasing sensitivity of people towards cultural-social, economic and environmental changes in global contexts. Each of these factors has been analyzed separately. First, the increase in cultural-social sensitivity resulted in an increase in the intensity and frequency of interactions among people from different cultural backgrounds (Dale, 2000). Second, globalization affected the economic systems of many countries by reshaping old ideas about market economy (Rizvi & Lingard, 2000). Practically speaking, globalization shook the national and close-system economies through opening national job markets to international competition. Third, some claimed that globalization increased the overall quality of life through environmental processes (Merryfield, 2004). In recent years; however, the notion of globalization has evolved into a more practical understanding as the movement of people across different regions of the world. This view placed people at the focus of globalization. The increase in the number of people who moved away from their home countries brought along the dissemination of diverse ideas, practices, and systems freely. Therefore, the relationship between globalization and culture, economy, and environment has been fostered through movement of people to a certain degree.

Despite globalization's positive aspects, some researchers believed that globalization has numerous negative factors on the distinctive features of local culture (Sampatkumar, 2007). For some, globalization was another word for homogenization of culture (Rizvi & Lingard, 2000). Individuals were negatively affected by the role

of globalization in transforming their daily social life and culture and were forced to have a global culture (Bak, 2006). Globalization decreased the diversity of local cultures through developments in society, environment, technology and economics.

### **Globalization and enculturation**

The increasing effect of globalization on individuals and societies changed the nature of enculturation. Enculturation was defined as a “process by which individuals learn about and identify with their ethnic minority culture” (Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996, p. 295). Enculturation was also defined as the extent to which individuals identify themselves with their ethnic culture; a sense of pride in their cultural heritage and increased participation in the local (traditional) cultural activities (Weinreich, 2009). However, considering the negative effects of globalization, the nature of enculturation was exposed to non-local effects. For example, learning a local language became more challenging than ever, because global languages affected the prevalence of learning process of the local language (Byram, Zarate & Neuner, 1997). Moreover, finding a job in the swelling national markets became harder and harder due to the increasing power of transnational cooperations (Hirschhorn & Gilmore 1992). Even work-ethics changed due to negative impacts of globalization.

As borders among the nations became more transparent in this rapidly changing world, education became more and more internationalized because expectation of the society from schooling has changed (Howe, 2002). The effect of globalization on schooling resulted in the transformation of educational systems, educational policies, institutions of education, teaching practices and the particular experiences and values

that teachers and students bring into education (Rizvi & Lingard, 2000; Stromquist & Monkman, 2000). Globalization affected the enculturation in the school settings, as well. This new enculturation had an impact on all members of a school community, including students and teachers (Corlu, 2005). This enculturation at the school settings has been associated with globalization in the sense that individuals learn to think and act globally under the influence of a prevailing global culture. This was what some called the new enculturation (Howe, 2002).

### **The agents of the new enculturation**

The new enculturation helped national educational systems to be aware of different systems around the world. International comparative studies such as PISA and TIMSS allowed policy makers to know the place of their countries in the world by comparing the effectiveness of their local educational systems with educational systems of other countries (Sahlberg, 2011). Systems interacted as a result of policy makers' interactions. The popularity of Finnish and Singapore educational systems are some of the outcomes of these interactions.

The new enculturation had an impact on schools, students and teachers at both national and international levels. Academic movement of students and teachers increased due to the freedom of cross-border exchanges (Hobson, 2007). Cross-border education, in the context of globalization, became visible by the involvement of numerous providers, guiding students who want to be a part of this education (Varghese, 2008). In addition to movement of students, cross-border education became an opportunity for teachers, as well (Varghese, 2009). The numbers of teachers who seek jobs abroad increased dramatically during the last decade.



Teachers were attracted by financial incentives, such as earning more money in another host country (Appleton, Morgan & Sives, 2006) or reaching better living standards was their motivation for movement (Templer, 2006).

The overall number of students who chose to study overseas has displayed an exponential growth during last two decades (Engle & Engle, 2003). The programs for a study abroad, including European Union student-exchange program—Erasmus Program (European Community Action Scheme for the Mobility of University Students) and Fulbright Student Program became highly popular among students. European Union’s Comenius and Erasmus programs for teachers and Fulbright Teacher-Exchange Program are also popular among teachers as they foster cross-border exchanges of ideas and temporary movement of teachers to a host-country. Some reported that these programs had substantial benefits to their participants: They develop to sense of empathy for individuals living in another country, improving their academic knowledge, gaining new professional and personal experiences, learning about new cultures, increasing job prospects, experiencing adventure and improving language skills (Lindsey, 2013; Mutlu, Alacahan, & Erdil, 2010). These programs helped teachers and students to become globally-aware.

The movement of teachers and students created culturally, socioeconomically, and racially diverse classrooms. Schools had to face with an unusual responsibility of educating these students (Banks, 2008). While some researchers used the word *diverse* in race, gender, class, and behavior, with a reference to the classrooms populated with such students; others defined the concept as a variety of cultures. Reflecting on this perspective, multicultural education emerged as a set of practices

to ensure that students with different racial, ethnic, language and cultural backgrounds have equal chance to be academically and socially successful (Banks & Banks, 2010). The new enculturation created different practices that affected both teachers and students.

### **Teaching in diverse classrooms and globally minded teachers**

The diverse classrooms raised the need for a change in teaching and teacher development. Certain types of specialized knowledge, skills, and values such as multilingual oral, reading, and communication; a willingness and ability to recognize and appreciate different cultures were needed to develop in order to enculturate individuals of the modern society (Wang, Lin, Spalding, Odell, & Klecka, 2011). Teachers were needed to be prepared to teach in diverse classrooms. However, most of the teachers were not educated to meet students' needs or prepared to teach in multicultural learning environments. Both pre-service and in-service teachers needed to learn methods to help students preserve their unique culture while learning the subject-matter in diverse classrooms (Ball, 2009). In order to connect with students' backgrounds and their schools, communities, and families; teacher selection, employment and education became important issues to consider (Ladson-Billings, 1999). Teachers and schools needed to change.

Teachers of diverse classrooms needed to be prepared to encounter challenges of these classrooms: They needed to be globally thinkers as well as culturally responsive (McAllister & Irvine, 2002). These globally minded teachers or international minded teachers or multicultural teachers, had knowledge about international context of education; educational systems around the world and

different global practices in order to address the needs of their diverse composition of students in their school settings (Snowball, 2009). In a global world, teachers needed to be culturally responsive. When teachers started to implement culturally responsive perspectives in their classes, their students learned to think critically and also creatively (Calder & Smith, 1996). Some of those teachers could encourage their students to explore the connection between subject-matter in the curriculum and culture (Le Roux, 2001).

### **Teacher movement across countries**

Movement of people from their home country to other parts of the world was explained through a variety of reasons, such as economic migration, social migration, and environmental migration. Economic reasons behind movement to a different region were explained with the need for better job opportunities or a better career path (Grugel & Piper, 2011). Social reasons consisted of changes such as looking for personal freedom, being able to live a certain lifestyle, or reuniting with family and friends who have already migrated (Curran & Saguy, 2001). Environmental movement was defined in terms of unusual circumstances, including natural disasters (Kozlarek, 2001). People have moved to another country for a variety of reasons, which had the potential to create an intermingling of diverse languages, religions, and cultures (Merryfield, 2004).

Movement of teachers from their home country to other parts of the world was tied to a variety of reasons: financial reasons (for better working conditions) or a motivation for adventure. Higher salary was the leading financial reason for working abroad as given by the migrant teachers (Appleton, Morgan, & Sives, 2006). As a result,

successful teachers were attracted by living and working conditions in another country (Appleton, Morgan, & Sives, 2005) or by just adventure and a personal need for change (Carson, 2012).

With their movement to another country, teachers brought their own values and perspectives including their cultural heritage, school culture of their home country and expatriate culture. They acquired similar new perspectives from the new working place. If intentional and successful, this interaction of cultures has been found to be personally and professionally enriching for the teachers because they became more globally minded with a stronger sense of professionalism (Armitage & Powell, 1997; Quezada, 2010).

The way expatriate teachers do their job differed from teachers of the host country. Several researchers have investigated how cultural and other characteristics of these teachers influenced their teaching both inside and outside the classroom (Casey, 1993; Finley, 1984; Henry, 1992). As a result, teachers who moved to another country needed to be aware not only of the cultures of their students, but also of the cultures that they bring into the classroom.

### **Cultural dimension of mathematics and science**

The interaction of educational systems or increasing movement of people across borders revealed the need for instructional practices that consider the cultural dimensions of the subject-matter, even of mathematics and science (D'Ambrosio, 1986). Every culture developed their unique perspectives of mathematics and science (Wiest, 2001). The *ethnomathematics* concept was used in order to define the

mathematical thinking and practices of culturally diverse groups (D'Ambrosio, 1997). People used different mathematical thinking for similar situations due to their experiences in their own culture (Wiest, 2001). Some researchers defined mathematics as a cultural product which was influenced by the cultural backgrounds of students, particularly strongly in the multicultural school environments (Presmeg, 1998). The cultural perspective of mathematics is explained as the rich cultural histories of mathematics and helped teachers to foster culturally-responsive teaching of mathematics, multicultural mathematics or ethnomathematics (Kress, 2005). This instructional approach focused on mathematics that is meaningful and relevant to the students (Davison & Miller, 1998) because even the mathematical procedures can be different from one country to another: For example, in some countries, people use the comma instead of a point in order to separate the whole and the decimal part of a number. A similar practice can be observed in the way long division is performed. Thus, ethnomathematics is considered as a cultural product of mathematical knowledge and its applications.

The literature on ethnomathematics was more extensive than the literature on *ethnoscience*. The term *ethnoscience* was defined in terms of making the curriculum relevant to the individual culture of the students (Davison & Miller, 1998). Some assumed that *ethnoscience* was a practical approach to teaching and learning of science by relating the instruction to students' existing knowledge, backgrounds, and environments (Maxwell & Chahine, 2013). *Ethnoscience* provided students with opportunities to study scientific material and concepts while students interact with their different cultural backgrounds in the context of science (Shizha, 2010).

Teachers of mathematics and science needed to be knowledgeable about different ways of doing mathematics or science. In this sense, students' and teachers' cultural backgrounds and their real-world experiences were essential in building a culturally-relevant mathematics and science learning in the classroom (Wiest, 2001), or teaching of the subject from a multicultural perspective (Gorgorio & Planas, 2001). Cultural characteristics, experiences, and perspectives of a teacher are particularly important for culturally-responsive teaching (Atwater, Freeman, Butler & Draper-Morris, 2010). Gay (2002) described effective teachers as practitioners with skills and knowledge to relate their instruction to students' different cultural backgrounds, or with ability to develop culturally-relevant curriculum.

## **CHAPTER 3: METHODOLOGY**

### **Introduction**

This study focuses on mathematics and science teachers, who moved abroad to teach in a country other than their own. With this study, I seek to understand the relationship between teaching and culture as it is reflected in the movement of teachers by critically analyzing their life histories, experiences and classroom practices. The study utilizes exploratory approaches by highlighting the perceptions and experiences of those teachers regarding teaching and culture.

### **Research design**

The naturalistic inquiry was instrumental throughout this qualitative study. In naturalistic inquiry, the researcher “begins with the assumption that the context is critical” (Lincoln & Guba, 1985, p. 200). The naturalistic inquiry was chosen because, as Merriam (1988) stated, “the selection of a particular design is determined by how the problem is shaped, by the questions it raises, and by the type of end product desired” (p.6). In this study, the problem was identified and then the research questions emerged from that particular problem. The end product was considered to be a detailed description of experiences and life stories of teachers who moved abroad to teach.

### **Sampling procedure**

Purposive sampling was used to select the participants from mathematics and science teachers, who chose to teach in a country other than their own country. The purposive sampling was defined as a nonrandom method of selecting respondents

(Lincoln & Guba, 1985). Two science teachers and two mathematics teachers were chosen as the informants of the study. The researcher chose these information rich participants because they were teachers who would provide with unique perspectives of teaching and who were accessible to the researcher. Respondents were reached through either personal contact or through gatekeepers. The head of department of the international school where the researcher completed her internship study was the main gatekeeper to two of the respondents. The other two informants were known to the researcher for several years as personal friends.

### **Data collection**

Several different schemes were employed to contact the possible respondents. Due to logistical reasons, including the availability and accessibility of the respondents among the several teachers who were initially shortlisted, four of them expressed an interest and intention to commit their time for the interviews. Despite the variety in the way they were recruited, all shortlisted teachers received a formal invitation letter in which I explained the purpose of the study and procedures. As a follow up to the formal invitation letters, respondents were contacted via telephone, Skype or through face-to-face meetings in order to obtain a written consent form. This follow-up process also included the arrangement of the exact time and date of the interviews; either face-to-face or online. The formal invitation letter sent to the shortlisted teachers is presented in Appendix A.

### **Instrumentation**

Human element is at the center of all stages of naturalistic inquiry, including data collection. According to Lincoln and Guba (1985), “the researcher, by necessity,



engages in a dialectic and responsive process with the subject under the study” (pp. 44-45). Researcher’s personal interest in the matter and education as an international teacher in addition to the focus of the present study influenced this dialectic and responsive process.

Due to her personal interest and strengths as a researcher, the investigator was the main data-gathering instrument for several reasons. First, the researcher was educated as an international teacher through International Baccalaureate (IB) Teaching and Learning Certificate and has been in progress for acquiring her U.S Massachusetts Teacher Certificate, which would make her eligible to teach abroad. Second, the researcher studied international teaching and curriculum in detail during her initial teacher education, which consisted of both theoretical and practical issues of international teaching. Third, the researcher was trained in conducting qualitative research.

#### *The profile of the researcher*

I was born in 1987, in Istanbul, Turkey. I graduated from an English medium high school. I completed my bachelor’s degree in mathematics. Upon my graduation, I started to work as a mathematics tutor (an unofficial teacher title) at several private tutoring institutions (dershane) for four years. I wanted to be a teacher since I was a high school student. That’s why; I started to work as a mathematics tutor in order to learn teaching and make a head start before officially becoming a teacher. However, my bachelor’s degree did not allow me to teach officially at school settings. I needed a teaching certificate. Besides, working as a tutor was not satisfactory for me in terms of my professional goals and I did not feel like I was teaching or doing my job

properly. I wanted to be a teacher working at private schools because private schools in Turkey recruit the best teachers and pay much better than public schools or private tutoring. When a family friend recommended the master's program in Curriculum and Instruction with Teaching Certificate at Bilkent University, I was curious about what it can offer me. After investigating the program and seeing that graduates work at top private schools in Turkey, I decided to apply to this English-medium program. I was extremely happy when I learned my admission because I could achieve my goal of working at private schools. In addition to learning about teaching mathematics, I took several courses grounded in international dimension of teaching and international curricula as a part of IB Teaching and Learning Certificate. Bilkent sent me to the UK to experience teaching in British private schools, including the Eton College. This experience sparked my interest in international curricula. When I met the international teachers in Turkey, my interest widened to their personal stories, adventures and challenges. Based upon these experiences, I started the process for acquiring the Massachusetts Teaching Certificate in the US last summer. At the final days of my education at Bilkent, I have accomplished my first goal of finding a teaching job at a private school in Turkey. Hopefully, this job will encourage me to seek different jobs in different countries at later stages of my career. I envision reaching my second goal as working internationally because I am en route for obtaining a teaching certificate in the United States, as well.

### **Developing the interview protocol**

The interview protocol consisted of three sections: Arrangement for the interviews, interview questions, member check. These were important to ensure the integrity of the research because developing an interview protocol helped the researcher

systematically obtain detailed data about respondents. The interview protocol is included in Appendix B.

It was critically important to consider several conditions in order to have a successful series of interviews. In the interview protocol, the researcher noted down that she needed to call respondents in order to confirm the exact time and venue of the interviews. Interview protocol also included several procedures against unlikely situations, including internet connection problems and malfunctioning of voice recording equipment. During the interviews, the researcher knew that she needed to remind each respondent about the purpose of the research and other procedures. Some of these procedures referred to situations where participants may ask for clarification of questions during the interview, choose not to respond to any of the questions, stop the interview or even withdraw from the study without any negative consequences on their part. After reviewing the procedures, the researcher planned to ask the respondents to sign two separate informed consent documents to include a separate statement about audio-recording of the interview. The consent forms are included in Appendix C and Appendix D.

The second section of the interview protocol included the interview questions. An initial set of interview questions was developed as a result of researcher's readings, personal teaching experiences at international schools and information obtained from personal contact with other international teachers. The initial set of interview questions was slightly modified to reflect the specific circumstances of respondents' subject areas, either mathematics or science. For example, the question asked to the science teachers, *How do you use lab experiments in your lessons?*, was replaced

with the question, *How do you use instructional materials such as graphing calculators in your lessons?*, for the mathematics teachers. After discussing with the auditor, interview questions were finalized and included in the interview protocol. The interview questions are included in Appendix E.

The last part of the interview protocol included the member check procedure. An informal member check procedure was planned for implementation during the interview, when necessary. The formal member check procedure was scheduled to happen after the initial analysis of data. All interviews were scheduled to last for at least an hour and conducted in the native language of the respondents, Turkish or English. The researcher e-mailed a formal letter of appreciation to the respondents for their participation and their time. The thank you letter is included in Appendix F.

### **Interview process**

Data for this study came from a variety of resources, including semi-structured interviews. Interviews with two of the informants were conducted face-to-face and the other two were contacted via video conferencing. Having a visual contact helped the researcher get in-depth information about respondent's body language, gestures, and expressions. While formulating her specific questions, the researcher benefited from her prior background investigation of the interviewees' education, experience in public or private schools, years of professional experience, and age.

### **Observations**

Observations provided the researcher with an understanding of the cultural contexts of the respondents and their experiences (Spradley, 1980). In addition to observations

during the interviews, the researcher gathered a rich array of data during her formal observations at respondent's respective schools. These observations helped the researcher realize the similarities and differences among respondents' teaching styles, beliefs, and other relevant issues.

### **Artifacts**

The researcher collected several artifacts in order to enrich her data. These artifacts enabled the researcher to understand each respondent's unique approach to lesson planning and to triangulate the interview data. The triangulation process compared interview data and evidence obtained from the written documents in terms of respondents' classroom practices (Gonzales, 2004). Written artifacts in this study included several documents such as lesson plans, worksheets, and handouts prepared by the respondents.

### **Journals**

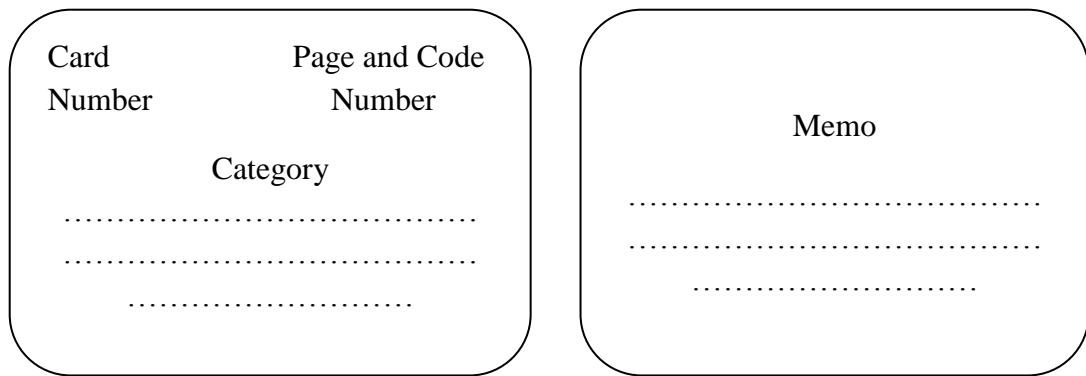
The researcher used two journals to increase the trustworthiness of her data (Gonzales, 2004). The researcher kept two types of journals in order to record either observations or methodological reflections. The reflexive journal included several entries which were recorded according to when, where and with whom the interviews were conducted or lesson observations took place. Methodological journal included several entries which were shaped by the discussions throughout the year with the auditor. Both journals provided the researcher with a capstone opportunity to evaluate the emergent research design, including the working hypothesis, data analysis and interpretation of the results. The researcher's personal experiences were central to this evaluation process.

## **Data analysis**

The research design was an emergent design which is a result of interaction with and interpretation of data (Lincoln & Guba, 1985). Interviews, observations, and artifacts were the main data sources of the current study. Interviews were transcribed. Observations were recorded in reflexive journals. Artifacts included all written documents given to the researcher by the respondents.

Data were analyzed by using the constant comparative method. The data analysis method included unitizing data, coding data, identifying patterns emerging from data and categorization of these patterns (Glasser & Strauss, 1967 as cited in Gonzalez, 2004). These categories were translated into major themes. These themes were efficient to display the commonalities and differences among the respondent's teaching practices and experiences.

First, interview data, either in English or in Turkish, were transcribed from recordings to Word files. Second, the interview transcripts were coded. In addition, some of the literature content was used as a guide during this coding process. After that, data were transferred into cards in four different colors indicating each of the four respondents.



*Figure 1.* Example of a unit card  
(Used with permission of Bayram, 2014)

Moreover, memos were used to represent interviewer’s comments and feelings about data during the interviews. Information was coded on the front side of each card with a category name (left-figure) and a memo was included on the back side of the card. Interview data consisted of 48 pages of transcripts. See *Figure 1*.

The objective of categorization is to connect similar content which is related to each other (Lincoln & Guba, 1985). In this way, the researcher easily identified the patterns in the categories. The researcher selected a card and studied it, and then, put into the place with similar data collected for forming categories. This process continued until all similar data and relevant information in the cards created the different categories. The cards that were not related with one of the categories were collected in different piles. This process was repeated several times (Alsmeyer, 1994). Each category was further analyzed in order to check all categories whether to have the similar data pile. Table 1 represents the 60 categories identified by categorization of units of data.

Table 1  
Categories of the Study

Category			
1.Comparing schools	2.Gaining experience	3.Student profile	4.Mathematics-Physics connection
5.Differences of culture	6.Teaching strategies	7.Real-life examples	8.Comparing countries
9.Teaching materials	10.Turkish educational system	11.Creativity	12. American educational system
13.Science Experiments	14. Lecturing	15.Classroom Activities	16.Effects of mobility
17.Self-efficacy (teachers)	18.Changes in strategies	19.Comparing curriculum	20.School facilities/conditions
21.Contributions of USA in teaching	22.Student engagement	23.Examination system	24.Resources
25.Knowledge about students	26.Student's perception	27.Changes in resources	28.Effects of culture
29.Acceptance of students	30.Group work	31.Orientation	32.Curriculum knowledge
33.Teacher competency	34.Advantages of different culture	35.Classroom management	36.Language
37.Requirements of lesson	38.Conceptual understanding	39.Diversity of school	40.Disadvantages of different culture
41.Interpersonal knowledge	42.Different question types	43.Communication with students	44.Nature of science
45.Inquiry	46.Family structure	47.Sharing knowledge with teachers	48.Open-ended activities
49.Projects	50.Coaching	51.Department	52.Scaffolding
53.Accumulation of experience/knowledge/teaching	54.Background/pre-knowledge effects	55.Teacher positions in schools	56.Effects of exams on teaching strategies
57.School requirements	58.Reasons of strategies	59.Examples of own culture	60.Videos



As the next step, similar categories were collected to reduce category numbers to a manageable size, which helped the researcher define the overarching themes. In order to identify themes, the researcher consulted the peer-debriefer and identified themes during the categorization process. The themes are presented in Table 2.

Table 2  
Identified Themes of the Study

Themes
Theme 1) The pedagogical beliefs about teaching mathematics or science
Theme 2) Benefits and challenges of teacher movement
Theme 3) Culturally diverse perspectives in the classroom

### Ensuring trustworthiness

The researcher used several elements to ensure trustworthiness in the research; prolonged interviews, peer debriefing, member check, audit, researcher reflexivity, and working hypothesis. See *Figure 2*.



*Figure 2.* Elements of trustworthiness

First, the researcher conducted prolonged interviews and observations. Interviews were at least one hour, and sometimes were extended half and an hour more. During the interviews, observations of the environment and respondent's body language helped the researcher analyze the context and link the responses to the reality of the classroom practice.

Second, peer debriefing helped the researcher check the research process. A peer-debriefer must be "someone who is in every sense the inquirer's peer, someone who knows a great deal about both the substantive area of the inquiry and the methodological issues" (Lincoln & Guba, 1985, p. 308). The researcher asked a fellow graduate student, who had a similar research context and using the naturalistic paradigm in her data collection and analysis, to be the peer-debriefer of the research. The peer-debriefer and the researcher met once a week and discussed the methodological issues. Moreover, the peer-debriefer helped the researcher explore meaningful findings, clarify her interpretations from the data, and discussed possible future directions.

Third, member checks helped the researcher interpret the original data and to clarify information that had already been provided (Gonzales, 2004). A member check is a technique that helps the researcher ensure *credibility*, *dependability*, and *confirmability* of the research (Lincoln & Guba, 1985). During the interviews, the respondents were asked to clarify and confirm their own answers. After the interviews, data from the interviews were transcribed to computer files and analyzed. After analyzing the data, the researcher contacted with the respondents and shared her findings with them. This allowed respondents to confirm the accurate

representation of their statements and make comments on the researcher's interpretation (Gonzales, 2004). Every member check provided the researcher *dependable* findings about data.

Fourth, the audit should be someone who knows about naturalistic inquiry better than the researcher and is interested in the context of the study. It should be a person other than the researcher's thesis supervisor to ensure *confirmability*. The purpose of using an external auditor is to ensure the level of credibility as a second opinion (Lincoln & Guba, 1985). The researcher chose her audit with some characteristics such as knowledge about the subject matter of the study, shared personal interest and preferably an experienced researcher (Lincoln & Guba, 1985). The researcher and audit met once a month during the data analysis process as well as during the process of writing methodology and result sections.

Fifth, the researcher reflexivity was another element for ensuring trustworthiness. The researcher kept a detail reflexive journal which described the research process including the researcher's experiences over the course of the research, daily schedule, and descriptions of respondents, places, and lessons. Methodological logs were used to ensure *credibility*.

Further, the researcher refrained from referring to the respondents by a name, and avoided details that could identify any of the respondents in order to ensure confidentiality. Participation in the study was voluntary. All information was given to the respondents in order to determine their decision to participate in this study.

The respondents were informed about the details of study, data collection process, and use of this information to protect their *confidentiality*.

### **Working hypotheses**

The working hypotheses of the current study are limited to specific context but may be generalized from the findings of the study (Erlandson, Harris, Skipper, & Allen, 1993). The context of the study is the effect of globalization on multicultural education and the role of the teacher's culturally diverse perspectives must be investigated in terms of multicultural experiences in teacher's development as effective practitioners. In other words, the working hypothesis of the study is that highly mobile teachers may be successful multicultural teachers in a global context.

## **CHAPTER 4: RESULTS**

### **Introduction**

In this study, I seek to understand the relationship between teaching and culture by critically analyzing teachers' life histories, experiences, and classroom practices of mathematics and science teachers who moved abroad for teaching. This chapter begins with a detailed description of the profiles of each informant. Next, I present the findings that emerged from the qualitative analysis of interview data and data from other artifacts. I organized findings under three themes: The pedagogical beliefs about teaching mathematics or science, benefits and challenges of teacher movement, and culturally diverse perspectives in the classroom.

### **The profiles of participants**

#### **Mr. Ahmet**

Mr. Ahmet, who was born in 1973 (41 years old), in a small Anatolian town, moved to Istanbul, with his family to continue his education at one of the elite English medium high schools in Turkey. After finishing high school, he was accepted to an internationally known university in Turkey. He always wanted to be a teacher, that's why; he chose to be a physics teacher. He explained his reasons: "Physics has more connections with real life than other subjects, so, at that time, it seemed more interesting to me". Although he started his teaching career in Turkey at private schools, he chose to move to the United States. His first move to the United States was with the Fulbright teacher exchange program. The duration of the program was limited to a year. After working for a year in Boston, he had to come to Turkey and worked at least one year at the same school he left as a requirement of the program.

However, he stayed in Turkey for 4 more years. Yet, finally, he decided to move back to United States again. This time, he moved with his Turkish wife, whom he got married while he was in Turkey. His wife was also a teacher, certified to teach mathematics. Nowadays, Mr. Ahmet is teaching at a public school in Massachusetts, the state which is known to host the top schools of the country. When I talked to one of Mr. Ahmet's coworkers at his school, he described him as he was the one of those inspiring physics teachers.

### **Mr. Burak**

Mr. Burak, who was born in 1978 (36 years old) in Istanbul, graduated from one of the elite English medium schools in Istanbul. The first time he met non-Turkish teachers was at this school. Thanks to his education at this school, he recognized and appreciated the value of the cultural diversity. In fact, this school helped him have a distinct fluency in English. In university entrance exam, he made his choice to be a mathematics teacher. He was accepted to an internationally known university in Turkey. After graduating, he did six years of teaching at a private school in Turkey, an international school in Turkey, another international school in Africa and finally, another international school in Switzerland. He was the only participant actually worked at an international school. He said that being an international educator is a challenging experience in many ways; referring to his experiences in international schools. After extensive travelling around the world as a teacher, Mr. Burak decided to do his doctorate on mathematics education in Texas, US. During this time, he continued to work part-time as a teacher both at the university and school level as well as to implement professional development activities for Texan teachers. Nowadays, he works as a professor at a university in Turkey. He said "working in

different countries with people from different cultures changed my vision of the world”. He emphasized the way he perceived teaching; both as a lifestyle and a professional job. He said: “being a mathematics teacher should not be hobby...I prefer to think it as a professional job that you earn your life from it”.

### **Mr. John**

Mr. John, who was born in 1958 (56 years old) in Denmark, had an engineering degree from Norway. “Engineering happens at school which are specially designed for engineering; not at a university, not under the universities”, as he described the difference between modern engineering and what he experienced in Norway. After a while, he was bored working as an engineer and decided to change his career with an education in *the department of mathematics-computer science philosophy* at a Danish university. He did not contempt with what he has and pursued further education with a master’s degree in mathematics. At the beginning of the interview, he indicated that he was expelled from the high school; twice! He said, “I was a bad student, hated school, expelled from regular high school twice, but I got into a different system, which is very much so, kind of Danish version of IB system. Best thing, I liked the school.” He completed his education at the age of 37. He met with a Turkish lady and followed her all the way to Turkey. He could find a job as a mathematics teacher in elite private schools in Turkey, and works nowadays, as a teacher in one of the best private schools in Istanbul. He also mentors his fellow teachers as he is now considered as an experienced teacher.

### **Ms. Tory**

Ms. Tory, who was born in the United States, did not tell me her age, stating “It is not nice to ask a lady of her age, but I can say that I have been teaching over 20 years”. She taught biology for about 21 years in seven elite schools in Turkey and three years in the United States before that. When I asked her how she teaches biology, she said that she can give me 150 answers. However, she specifically said that “memorizing the concepts” is not the best and absolutely not the only way to learn biology. This was an unusual approach because it contradicts with the common belief that she observed in the Turkish schools. She complained that “if students like me, then they learn from me. If they do not like me, then they stop learning”, indicating the importance of disposition in reaching out to Turkish students. That sounded like a complaint to me. She continued, “That was the saddest part of Turkish culture and it is kind of immaturity in my opinion”. She believed that students paid too much attention to the personality of the teacher. For her, knowing your student’s learning ability is more important than trying to be liked by them.

### **Findings**

In this section, data from the interviews and several other artifacts were combined to display the findings in coherent paragraphs. I organized my findings along three themes: (a) the pedagogical beliefs about teaching mathematics or science; (b) benefits and challenges of teacher movement; (c) culturally diverse perspectives in the classroom.



### **The pedagogical beliefs about teaching mathematics or science**

It was important to determine participants' pedagogical beliefs about mathematics or science teaching. In this part, I analyzed participants' beliefs in terms of their teaching methods, practices, and strategies. There were some similarities in their beliefs in regards to effective teaching methods. Some examples included *selecting worthwhile tasks* and *considering the different learning styles of students*. It can be conjectured that their perceptions about their role as a teacher were the result of their pedagogical beliefs. Despite some similarities, some of their perceptions, including their perceptions about the *use of technology* and *students' role in the classroom* differed between science and mathematics teachers.

Although all teachers emphasized the importance of selecting worthwhile tasks in their teaching, science teachers emphasized the use of hands-on materials and making connections with real-life situations, in particular. While science teachers were selecting their tasks according to a belief that scientific concepts are best taught by relating them to students' lives and interests or by using tools (*toys* as Mr. Ahmet called them), mathematics teachers were emphasizing the use of technology in mathematics.

When I asked Mr. Ahmet to give an example about how he related physics to students' real-lives, he explained in an exciting voice how he was teaching the unit on inertia (the resistance of physical object to any change in its state of motion). In this lesson, Mr. Ahmet asked his students to pull one piece from the paper towel by using only one of their hands and to compare this experience to a second situation where they could use both of their hands. In order to have a successful lesson, he

believed that this was not just enough, indicating the importance of knowing about his students' lives and their interests. He strongly believed that how much they already knew about the subject before coming to class was equally important. He specifically tailored his lessons according to his students' readiness levels, as well:

I change my strategies according to the prior knowledge of my students. If they know something about the topic beforehand, then I start with an activity. If they do not know, then I start with little lecturing to inform them about the topic, then I move on to the activity.

Similar to Mr. Ahmet's consideration of students' prior knowledge in selecting his instructional tasks, Mr. Burak emphasized that knowing your student's learning styles is critical in deciding which task to use. Although he could list a variety of strategies that were relevant to different learning styles, such as styles that are relevant to visual or kinesthetic learners, he said that he needed to work hard to search different resources, "like an inspector to find the most appropriate strategy". According to him, most boys were more "keen on physical stuff", while both girls and boys enjoyed visually-strong learning environments.

Supporting Mr. Ahmet's strong beliefs about the usefulness of real-life connections as a teaching strategy for science, Mr. John pointed out that: "We, [mathematics teachers] have to connect math to the real world and allow [students] to apply it". He continued to talk about the importance of being skilled in presenting different ideas to students in terms of application and visualization of mathematics; thus, he believed that engaging students about the nature of mathematics required a good repertoire and wide interest of real-life mathematical tasks.

Although in agreement with Mr. Ahmet about the usefulness of hands-on tools for students' conceptual understanding of science, Ms. Tory emphasized the role of somehow more expensive toys for teaching biology, such as those could be found in laboratories. She organizes her classroom teaching, lab experiments, and after-school activities by considering a variety of factors. I sensed that *making students do science* was one of her most popular strategies for teaching biology. She confirmed my initial understanding that she chose her tasks depending on what topic of biology she was teaching and how much time she could allocate. When I asked about what specific tasks her students do in the classroom, she gave me a list, including brainstorming, poster making, story-telling, and analogies. All four teachers believed that the nature of their subject is instrumental in their decisions regarding which task is worthwhile to select.

Showing his commitment to *individualistic learning*, Mr. John said that, "to learn how to swim, the best way is to just get into water and get on with it. That's how I look at math too: Get on with it". Ms. Tory was convinced about the positive role of *learning by doing*. She believed that, "I think students learn by doing things... [Students need to] find [science] practical and useful in some way; so, that is the way I try to design my lessons to get students learn and understand something [which is relevant to their lives]".

In contrast to Mr. John and Ms. Tory, who believed in holding students responsible for their own learning, it was noteworthy to observe how detailed the lesson plans of Mr. Burak were. He was clearly putting himself as the main responsible person for

his students' learning. That required him to plan every word he was going to say and every action he was going to do in the classroom. He said that he gained such lesson planning skills during his first year of teaching, under the mentorship of an ex-navy officer, who was his department head at the Turkish school he worked. As a teacher who started his career at a Turkish school, Mr. Ahmet also provided me with some of the worksheets he used in his class. It was obvious that he, too, gained good lesson planning skills during this part of his career. His plans were prepared in detail.

Although all teachers seemed to care a lot about their students' learning, Turkish teachers were more meticulous in their lessons plans; as I interpreted, with a belief that learning environment has to be designed under their control and thus, leaving little room for chaos. When I observed their teaching in the classroom, American (Ms. Tory) and Danish (Mr. John) teachers gave more responsibility to students on their own learning and allowed their students to find their own way of mastery with less-structured activities.

Although all the respondents indicated that they were using *technology to support their teaching*, mathematics teachers were using technology as an effective teaching tool. Both mathematics teachers were using videos, the smart board, and individual laptops as well as software including Mathematica, Geometer's Sketchpad, and GeoGebra or online mathematical games as the main activity in their lessons. Mr. Burak said that he used mathematical software especially to increase students' engagement while learning the concepts. He added that using technology stimulated his own motivation as a teacher, as well. When he started to feel doubtful about for whom the technology was more fun (students or him), he needed evidence. Was technology serving his own comfort or was he using it to foster students'

understanding? “Thanks to those research courses I took at the university”, he started by explaining his mini-scale action-research experiment, he found that most of the programs in his software collection were helping students develop only their procedural knowledge. He became a little worried because he believed that he was ignoring the most important part of his responsibility as a teacher: teaching conceptual knowledge. Similar to Mr. Burak’s views on the role of technology as a motivational tool, Mr. John indicated that visualization was very important for stimulating learning in mathematics. However, I observed him in the classroom several times during my internship that he was using all sorts of mathematical software in order to visualize the concepts. I found him particularly successful in connecting theory behind mathematics and its applications. He, once said to me during these observations that, “Seeing a graphic or how a formula is derived is how students visualize or understand better”.

Although science teachers did not believe in the importance of technology as much as the mathematics teachers, they used it frequently, as well. For example, Ms. Tory was using technology to create a community to extend learning after school. She was emailing several intriguing questions that she wanted her students to get engaged with and to email her their answers. She was organizing such after-school online activities every week night between 10-10.30 pm. Ms. Tory believed that this was a great way *to create a community and make her students to be responsible for their own learning*. They were supposed to investigate the answers individually or as a group. She admitted that preparing questions were very time consuming for her. Another example for the use of technology was about how Mr. Burak extended his formal classroom teaching to after-school hours: Mr. Burak used his website and

blog to give students worksheets or occasionally, fun activities. He was *helping them become more organized*. Internet was helpful in the sense that it allowed him to create discussion groups for students to *interact with him*. He believed that would increase the overall quality of interactions in the classroom.

When I asked about the perceptions of the role of a teacher, Mr. Burak indicated that he would like to see himself as *being a part of a show*. According to him, teaching was about producing something new each time he stepped in the classroom. He said that teachers needed to rejuvenate themselves if they wanted to keep up with the requirements of the new world. Mr. Ahmet was in agreement with this role of a teacher when he was considering his early teaching days in Turkey. He said that being in the United States helped him stay as an effective teacher because he learned how to use his time more effectively. When I asked him to explain how, he said that being able to reach all those endless resources, such as toys which he used to produce by himself back in Turkey, were now available very conveniently, or he could ask his school to purchase them for him. Websites that he could not use because of the language barrier were also available now, as well as countless number of demonstrations or videos.

Related to teachers' self-perceptions about their role as teachers, it was interesting to hear that Ms. Tory gave her students the opportunity to *evaluate her teaching*. She explained that it was important for her to know about her students' feedback. After doing that, she always spared a moment of reflection to self-evaluate her teaching. This was enough to understand the dynamics in her classroom where students were responsible for their own learning and even had a say in the way they wanted their

teachers to teach. The comments of Mr. John were particularly interesting to enlighten the way he perceives himself as a teacher:

I know why I was kicked out from two high schools because I hate that type of teachers. I know why I liked my third high school. From day one, it was a very unique school. There were teachers who involved the students, they were never lecturing. We were there to be involved. We were expected to be a part of the class and discussion. That's why; I know what kind of teacher I want to be.

All four teachers were professional and extremely hard working teachers who strived to stay effective even though they moved to another country. As it was obvious in the case of Mr. Ahmet, who adjusted his teaching strategies to suit the needs of American students, they showed an effort to adapt to their new countries and sometimes benefited from it. They all believed in the effectiveness of student-centered strategies rather than teacher-centered strategies. They were also trying to use technology to support their teaching. Despite the similarities among these four teachers, Mr. Ahmet and Mr. Burak gave me the impression that they were ready to invest a bulk of their own personal time to keep a close eye on their students' progress. However, Mr. John and Ms. Tory placed more responsibility on the shoulders of the students. In return, this enabled them to be able to create a democratic classroom environment.

### **Benefits and challenges of teacher movement**

Teacher movement is the second theme of the result section. Teachers' movement between countries and schools helped them improve their teaching. This

improvement did not occur without any challenges. Some of these challenges included the adaptation process to the host country life style, employment-related issues or particular challenges in the classroom.

When I asked Ms. Tory to talk about her movement from the United States to Turkey, she responded in a very adventurous way, indicating that it was a big change for her to move from California to Istanbul. She had some difficulties in adjusting to the Turkish life style; however, she learned to manage several challenges by embracing them as cultural differences or perhaps, drawing herself away from any cultural belonging.

What I find when I am in America, I am not an American, I am Turkish.

When I asked her about how she feels when she is in Turkey, she responded by referring to the challenges, especially with her distinct physical appearance—she is over 190 cm tall:

In Turkey, I am not Turkish, I am American. So, I am kind of without a country.

She continued:

I stand way too close when I talk to people; I want to say *kolay gelsin* all the time. There's no American equivalent *afiyet olsun*. There's no American equivalent to *bon appetite*. ...we don't do that... culturally ...we say, thanks this is a great food [referring to *Afiyet Olsun*], and we say, yeah thank you, I am glad you like it.



I even had the impression from her words that Ms. Tory's coping mechanism with the challenges included *moving from one school to another*; however, she had no immediate future plans to leave Turkey. At the time of this interview, she was celebrating the 21st year of her teaching in Turkey. Despite all the conversation I had with her, it was still not clear to me after all, whether she was a *relocating teacher* who moved to Turkey for good or a teacher who chose *moving as a life style*:

Every time I changed, I have learned something, mostly positive but sometimes negative. It is fun to learn different things from different places, different people, and doing things with different ways, that to me; it is enjoyable.

She extended her views to her fellow teachers:

The more different teachers from different backgrounds, from different schooling places the more opportunities you have to get ideas from them and work on stuff, you know, developing different ideas. They are the resources that you have.

Ms. Tory seemed to have relocated to Turkey deliberately with a purpose of trying to have fun in life. She defined the worst teachers as the teachers "who were bored" or those teachers "who teach the same way forever". When she did not have fun, she preferred to change her employer rather than choosing to go back to her native country or move to another country. In fact, she changed seven schools during her time in Turkey and the reason, as she put it, was *boredom*. There were exceptions, sometimes, she simply disagreed with the way that the school was run, or the way her administrators managed the school or some other policy that bothered her.

However, she was confident in her ability as an effective teacher and never doubted that she would have trouble finding another job.

Mr. Ahmet was less of an adventurous person. Although his students and colleagues described him as a really fun guy, I had the impression that he was very cautious in his actions or *relocation*. For example, he decided to move to the United States only after experiencing the American life during his one year at Fulbright Teacher-Exchange Program. When he decided to relocate to the United States for good, he moved to the exact same city that he lived during that year. Referring to his first temporary relocation, he said that, “it helped me learn how fit into [American] society and culture”. It was apparent that this short experience also helped him pedagogically:

When I came to the United States in 2003, which was my first time in here, my teaching strategies that I used in Turkey started to not work for these students. The students in here used to learn by doing projects and experiments that I had few experiences with them.

Another benefit of his relocation was that Mr. Ahmet seemed to have gained confidence in working students with a different culture than his Turkish culture. When he relocated permanently to the United States three years after his Fulbright year—now he was with his wife as a newly wedded couple—life in and outside of the school was easier for him and also for his wife. His wife started her master’s degree while she improved her fluency in English. They even had a baby, who was born as an American citizen. He learned how to benefit from his teaching in Turkey by relating it to his teaching in the United States:

There are no major national exams [in the United States] as we have in Turkey. Students take a state exam at the end of the 9<sup>th</sup> grade and all students have to take it. I said to myself that I can easily analyze these state exams in terms of its question types. Thus, I can easily prepare students according to the type of questions. I know which questions I need to solve in the classroom, which type of activities I need to prepare [for success in the exam]. This [his experiences in Turkey] was my advantage in coaching my students. Even, some other science teachers admitted that my students had better results in common midterm exams. So, they were curious about how I prepared my students, they were asking me.

Mr. Ahmet admitted his lack of experience as a teacher with projects and experiments; especially, during his Fulbright year. He said:

I started to search activities, projects, and experiments. I talked with other experienced teachers at the school. I changed myself; I improved my skills. After my Fulbright year in Boston, I came back to Turkey and started to work at a different school. This new school had a similar teaching philosophy with the school I worked in the United States. I modified the lesson plans that I used before. It was easier to prepare activities, projects and experiments than ever because I knew how to prepare and where to search.

Mr. Ahmet indicated that his understanding of the curriculum improved, as well. That helped him develop a sense of confidence and flexibility in the way he organized his coursework:

I believe that every school should have its own curriculum. In Turkey, we had to follow the curriculum that was imposed on us by the Ministry of National Education. Here, in States, I learned about their curriculum approach. I started to think about the order of topics more deeply because I was allowed to do changes. I made my changes confidently. I changed them according to their importance or to make them more understandable for my students. I understand that some of the topics were more important and should have priority over some other topics. I believe, it works, as it is clear in the success of my students.

Mr. Ahmet used his background as a teacher from Turkey to his an advantage when preparing his students to state-wide examinations. He did not believe that his expertise on preparing students for the Turkish centralized tests would ever help him because he thought *exam preparation* was specific to Turkey. My observations of his teaching in the Unites States, however, showed me that he was not *teaching to the test* but he was not ignoring the reality, either. Despite his initial challenges with life and teaching in the United States, Mr. Ahmet indicated that there were no major differences between two countries; however, he also emphasized that every place has its own difficulties. He said:

Kids are kids everywhere. Every school has own policies and necessities that are applied by academic staff. If the school gives importance to exams or study abroad, teaching strategies change according to student's needs.

Mr. John emphasized that he *needed* to relocate to another country because of the increasing youth unemployment in his own country. Meeting a Turkish lady during this time just conduced him to relocate to Turkey:

At some point of my life, I did not really have any idea what I was going to do. It was a period in Denmark where there was a lot of unemployment among young people. I tried to work in different areas [later he told me that he worked as a construction worker and a mathematics tutor] but finally I found myself in Turkey as a mathematics teacher.

Mr. John said that what he did during this period of unemployment actually helped him a lot when he started teaching at a local school in Turkey:

In Turkey, there is tendency to focus on what is going on the board. But this school that I am working now is a way ahead of the other schools in Turkey. We try to kill this. I think we succeed in certain level. I think we still have a long way to go. We are nowhere close to I want to be. We want, we had this idea about independent learners that students can go and search the knowledge they own instead of always depending on teachers. This kind of ideas and success when you try something new comes from our experiences in different places.

He added that his experiences also helped him to take the right action in the classroom rapidly, especially when it comes to classroom management or student-centered teaching:

I can teach something in many different ways. I can sometimes decide [to do] something new in a few seconds. You have to be able to improve and get on

with it according to needs, and it only comes with an experience and willingness.

Just to get a teaching job at an international school, Mr. Burak had to teach other subjects, including technology and biology. He said that he could not believe that he had accepted to teach biology just to be able to live in Morocco.

I hate biology. I failed it so badly at school that I had a negative score in the university entrance exam.

However, he could bounce from the challenges of teaching a subject that he hated. Even though he had to pay for excess baggage, he brought many books with him whenever he moved from one country to another. “I compiled my book collection by constantly looking for resources that could help me. Many times”, he continued:

American textbooks I bought from second-hand sellers in Turkey saved my life as an inexperienced teacher. I was going to these stores hoping to find the teacher editions. I knew that foreign teachers normally come and go. They sell their textbooks to these places and I was picking books after them: like a mom tidying her son’s room.

Another challenge with respect to moving from one country to another was due to the large discrepancies between the socio-economic situations of the schools and countries. For example, Mr. Burak had a small-scale culture shock when he moved from Morocco to Switzerland. He continued to seek for Moroccan food although he had not really liked it much when he was there. “Not only I just got used to it, I

wanted to cherish my time in Morocco. I felt like, I owed Morocco to promote their local culture”. However, the real shock came when he saw the resources available to him in the international school that he worked in Switzerland. He could not believe that all students were given a laptop. He was encouraged to teach with these laptops. He enjoyed this experience very much.

Mr. Burak had to learn some mathematics-education specific skills, including how to use graphing calculators as part of his teaching. He said that:

I was in Turkey, having a short vacation before I move to the cold-cold Switzerland from a small village in Morocco. I was relaxing, you know. I purchased a second-hand TI [the brand of the graphing calculator] and was practicing; imagining myself in the classroom and trying to anticipate what kinds of questions can be solved with this incredible machine. I knew about these calculators when I was in Turkey but never had the chance to use them as part of my teaching.

Mr. Burak highlighted that “I can say that my vision has broadened after I was exposed to all those different cultures in Turkey, Africa, Europe and America”. He developed socially; becoming friends with teachers from all over the world and learning about the way they live, enjoy life, and work as teachers at the international school environment. He gave a striking example about some of his challenges as an expat in Africa: “At the beginning, it was a little bit disturbing to see that some of the local teachers were using their hands to eat their food”. However, Mr. Burak developed a joy of wearing his jellaba (a local Moroccan dress) in his Texas home or wearing his large cowboy hat when he was visiting his brother in Boston. His

enlightenment with respect to the role of culture, applied to his out-of school life, as well. For example, ethnical diversity of Turkey, which has always been a controversial issue in the country, started to look like a cultural richness to him. Mr. Burak developed *an idealizing view of culture*.

Mr. Ahmet indicated that living in a different culture contributed to his personal development because knowing people from different cultures and learning their different point of views helped him see the world differently. “I started to watch baseball games instead of soccer [or football] to learn their sports culture because I needed to communicate with my students and friends; to share same views at some point”, displaying a more *pragmatic approach to culture* both in and out of the classroom.

When I asked Mr. John whether he developed a culturally diverse perspective when he moved to Turkey, he answered as “I would hope so”, appreciating cultural diversity. Mr. John continued with a different approach from the other respondents by displaying a more *objective understanding of culture*:

I do not look here as 20 Turkish students, they are 20 individuals. I never look at them as Turks and compare them with other nations. There are lots of different approaches that people from different cultural backgrounds. So, it cannot fit with your approach all the time. You need to learn their ways and be respectful.



He continued:

When I came here 18 years ago, there were Turks and some Americans and British, but then rapidly, with a new headmaster; they started to hire people from all over the world, which is important. It is important for all students to be exposed to different ideas from everywhere. Yes, we all do things differently, but there is no one right way to do it. For me, that is a great plus. I really appreciate being here. We have people, math teachers, from everywhere. These students are going to probably work in where they will have lots of international contacts. I think it is very important for them to be exposed to people and to their habits. I think, in the modern world, that is one of the most important things. It is hard job to break down national barriers but I think being exposed to such an international the environment like this can help breaking those barriers.

Ms. Tory believed that her relocation from the United States to Turkey helped her develop a *professional view of the culture*. She benefited from her short teaching experience in the multicultural Californian classrooms. Although her students in the Turkish schools were mostly of a uniform culture, Ms Tory realized that they were not all the same. She started to realize that her colleagues were not the same, either, which had a profound effect on her philosophy as a science teacher:

Sometimes I have to change my view of teaching. I like to think that teaching to me is like a bag of tricks, so some tricks work for some groups and some tricks work for others. You can think that activities are lessons but whatever the more tricks you got, the more tools you got to use, the better teacher you can be. If you can learn only one way, maybe that's great, but if you learn two

ways, wow, that's better, or three ways, wow you are really top, you are going to be really good...The more different teachers from different backgrounds, from different schooling places the more opportunities you have to get ideas from them and work on stuff, you know, developing different ideas. They are the resources that you have.

During my observations of her classes, I had a chance to look at Ms Tory's rich collection of resources. She had all different resources taken from different countries or schools. Although Ms. Tory's teaching experiences abroad were limited to her time in Turkey, she had the opportunity to work at elite Turkish schools that employ non-Turkish teachers for all subject areas, including mathematics and science. She said that working with teachers from different educational backgrounds changed her cultural perspectives.

Also displaying a professional view of culture, Mr. Burak said that his mobility across countries contributed to his teaching due to the endless resources he was given at international schools. Working with experienced teachers, with expertise of different national curricula, was awarding. He indicated that most of his coworkers were either young professionals, with whom it was fun outside of the school to hang out with, or more old-hands, from whom he learned about teaching. To be in communication with experienced teachers and benefitting from their experiences helped him develop a diverse repertoire of teaching strategies and having a rich collection of resources. Particularly, their weekly meetings with other teachers were the most useful for sharing views and expertise. He told that working in different cultures even improved his mathematics knowledge:

Division is done differently in different countries. Americans divide differently from the way I learned at school, so do the Japanese and Spanish. I needed to learn all those different ways in order to talk the same language with my students.

In fact, Mr. Burak proved to be the only mobile teacher in my sample; someone who moved from the hot Moroccan deserts to the Swiss Alps; “eating tagine one day and Steak tartare the other”. In the meantime, “missing [his] former students in Turkey and döner kebab”. In conclusion, from those exciting life stories, I believe that teacher’s mobility or relocation between countries or schools contributed positively to their growth. Relocation and mobility of teachers had a rejuvenating effect on their professional and personal lives. Despite, teachers had some challenges including adaptation to the life style in the home country and challenges in the classroom. All four teachers developed a unique understanding of culture and integrated their understanding into their teaching.

### **Culturally diverse perspectives in the classroom**

Working in an environment with people from different countries or teaching students with different cultures had positive impacts on the way teachers facilitate learning in mathematics or science. While some of the participants (Mr. John and Ms. Tory) were developing a general sense of cultural awareness, others (Mr. Ahmet and Mr. Burak) were successful in creating a culturally diverse environment in their mathematics or science classrooms. However, the overall experience of expatriate life had a major role in explaining how teachers became culturally-sensitive individuals over their careers.

In order to introduce a culturally-relevant perspective in the classroom, Mr. Burak developed an interest about mathematicians from different cultures and used their life stories frequently in his lessons:

There was a student from India in my class. I searched about Indian mathematicians in order to know more about her culture and to help her relate. I needed to show my students that I give value to their cultural heritage. This is a part of my job as an international teacher.

Mr. Burak explained his rationale to do so by explaining that students from other countries experienced different mathematics in their host countries or at homes other than in school. He gave an example about the use of the percent sign. In Turkey, he said that he was used to placing it before the numeral whereas it is the opposite case in many other countries. He values those small differences and believes that they should be recognized in the classroom. As a result, some of his students believed that mathematics was utilized differently by different people in different times. One of his students said:

It was good to learn that Indian people or people in Africa did some mathematics, too. They created several games to amuse themselves. Many of them used pebbles to count their sheep. But they never needed big numbers, so they did not invent googolplex. For example, the sun was a religious thing for them, so they invented calendars. They developed architecture in order to build big temples to salute their kings, and they needed sines and cosines or angles... I believe we use math differently. I think I have a different mathematical understanding than many people in my class (Corlu & Alapala,

n.d., p. 8; used with permission obtained from the author for use in this thesis only).

I found another example in another article he wrote to a professional journal on international teaching. Mr. Burak talks about his *Spy Game*:

It was about cryptology. Students from different cultures shared their ideas about cryptologists in their own countries. Two of my students from Russia were less interested in the lesson. I told them about Russian cryptologist who were trying to break the codes of the Americans. It made them more curious about the topic; they wanted to learn more about Russian cryptologist (Corlu, 2013, p. 75; used with permission obtained from the author for use in this thesis only).

While Mr. Burak was interested in his students' cultures, Mr. Ahmet highlighted that he showed an effort to relate his own culture into his teaching. He believed that it was a part of his job and he was expected to do it as an international hire. For example, he came up with, what he called the *Rice Pudding Question*. Rice Pudding (helva yapsana) is one of the most known songs in Turkey and the students loved it because it seems different to them. In his own words, he explained the Rice Pudding:

I have a definition which I called the *Rice Pudding Question*. Kids love it. You probably know, there is a song of Ibrahim Tatlıses about making a rice pudding. He is asking, 'Do you have flour?', 'Do you have sugar?', 'Do you have milk?' and 'What are you waiting for; start making pudding' or something like that. I changed this song into questions for kids. I am telling

them ‘Do you have mass?’, ‘Do you have acceleration?’ and they say ‘yes’.

Oh, okay then, what can we find? They are all shouting, Force!

He said that students search variety in their lives, so he, coming from a different culture, provides them with this type of change from the routine. Mr. Ahmet also said that he can feel closer to his students because his culture gives importance to a more personal student-teacher relationship. He benefits from this:

I can challenge students easily, without any complaining because of my close relationship with my students.

## **CHAPTER 5: DISCUSSION**

### **Introduction**

This study focused on the relationship between teaching and culture by critically analyzing life histories, experiences and classroom practices of teachers who moved abroad for teaching. This chapter provides explanations of the major findings of the study with references to the globalization theory, previously conducted research and other perspectives. I also discussed several implications for teachers and some suggestions for future research.

### **An overview of the study**

The current study was undertaken to explore the relationship between teaching and culture. In addition; life histories, experiences and classroom practices of teachers who moved abroad for teaching were also investigated. The sample consisted of four teachers from different backgrounds selected with a purpose of reaching information rich participants who could provide unique perspectives of teaching abroad.

Interviews and observations made up the data of this study. Semi-structured interviews were conducted face-to-face or via online conferencing. Data were enriched by several artifacts including written documents such as lesson plans, worksheets, and handouts prepared by the respondents. Thus, the current study investigated:

To what extent is the globalization theory successful in explaining the commonalities and differences in the professional life stories of mathematics and science teachers, who moved to another country for teaching?

### **Summary of the major findings**

1. Informants believed that they needed to show an effort to adapt to their new environment, which helped them develop positive attitudes towards cultural diversity.
2. Globalization theory was instrumental in conceptualizing the movement of teachers in terms of two other constructs: mobility and relocation. It was found that Mr. Burak was mobile between countries while Ms. Tory was mobile between schools of the host-country. Relocation was observed as a one-time of permanent settlement in the cases of Mr. Ahmet and Mr. John. Relocating to another country may require a certain level of careful planning, as it was in the case of Mr. Ahmet, while mobile teachers seemed to be more adventurous in their movement decisions.
3. Selecting worthwhile tasks and considering the different learning styles of students were some of the common beliefs in regards to effective pedagogy in the classroom. Although the perceptions about technology differed between mathematics and science teachers, they were all proficient users who believed in its importance as an effective pedagogy.
4. Mr. Ahmet and Mr. Burak gave me the impression that they were ready to invest a bulk of their own time to help their students, if they needed it. However, Mr. John and Ms. Tory placed more responsibility on the shoulders of the students.

### **Discussion of the major findings**

The finding related to participants' efforts to adapt to the conditions of their new environment can be explained with their perception of teaching as a professional job



because teachers with a strong sense of professionalism usually manage to adapt to changing conditions (Darling-Hammond & Bransford, 2007). It is evident that all four teachers willingly exerted a great amount of effort to do their jobs in the best possible way despite a number of challenges.

While *student diversity at school may foster a positive attitude towards cultural diversity* for Mr. Burak in particular; *working with teachers from different cultural backgrounds may stimulate an interest in cultural diversity* for all teachers. Their positive attitude towards cultural diversity can be due to informants' interpretation of the notion of culture; an idealizing view of culture for Mr. Burak, pragmatic approach to culture for Mr. Ahmet, an objective understanding of culture for Mr. John, and a professional view of the culture for Ms. Tory. All of these different interpretations may benefit from experienced colleagues who support them with their guidance and mentorship on curriculum or teaching, in general (Corlu, 2005; Feiman-Nemser, 2003; Murthadra-Watts & D'Ambrosio, 1997, Watkins, 2010), while students or other fellow young teachers may be of help to ease their transition before they become effective (Pepin, 1998). However, this initial enculturation period can be more difficult for those teachers who work at international schools because of the extra difficulty resulting from a dissonance between the culture of the host-country and that of the school (Corlu, 2005).

Thus, the idealizing and the personal views of culture can be influenced by the views of those scholars, who claimed that the aim of education was to foster the moral and social development of the individual.

In this approach, moral development was defined in terms of developing positive attitudes towards peace and educating students as responsible citizens of the world (Cambridge & Thompson, 2004). The social development referred to a multicultural environment in which students respect and appreciate other cultures, beliefs, and values (Hill, 2000). (as cited in Yağız, 2014, p. 9).

In contrast, pragmatic and objective approaches to culture can be explained with the view of those scholars, who believed that global education is a reaction to the need for a global workforce; which is composed of teachers in this context.

...people with effective communication, problem solving, creative thinking and responsibility skills that would help them act and think globally.

Moreover, these individuals needed to be able to efficiently work in a foreign country or with people from different countries and cultural backgrounds (Cambridge & Thompson, 2004). (as cited in Yağız, 2014, p. 9).

All those experiences may be beneficial for teachers' personal and professional development (Szczyrek-Boruta, 2013), embracing cultural diversity as useful.

A well-rounded teacher preparation period can be helpful in coping up with the challenges of working abroad. This statement is supported by Darling-Hammond (2000) who claimed that "...teachers who have had more preparation for teaching are more confident and successful with students than those who have had little or none" (p. 166). A second explanation of the mechanisms developed for survival in a foreign culture may be due to the cultural component of an initial teacher education

program during which teachers may have learned specific ways to manage the challenges that cultural diversity brings into the classroom (Gay, 2002). This may particularly apply to Ms Tory, who completed her teacher education in the United States. She may have a developed knowledge of multiculturalism before arriving at her host country or just practiced teaching in multicultural school environments during her time in the United States. Third, teachers' positive attitudes toward cultural diversity may also be due to their multi-cultural upbringing (Kano Podolsky, 2004). A fourth explanation is that their expert knowledge on their subject area may allow them to have more time to focus on issues related to cultural diversity, resulting in an interest and positive attitude towards it (Sleeter & McLaren, 1995).

It is evident from the current study that the movement of teachers can be interpreted as either mobility or relocation. Mr. Burak is mobile between countries as an international school teacher (Alapala & Corlu, n.d.; Appleton, Morgan, & Sives, 2005) and possibly one of those agents of the new enculturation (Appleton, Morgan & Sives, 2006), while Ms. Tory is mobile between schools of the host-country. Relocation is observed as a one-time permanent settlement in the cases of Mr. Ahmet and Mr. John. Relocating to another country may require a certain level of careful planning, as it was in the case of Mr. Ahmet, while mobile teachers seems to be more adventurous in their movement decisions. It may be speculated that relocating teachers are the ones who are attracted by the conditions and facilitates of the new school (Garton, 2002) or who want to widen their professional experience. Mr. John, whose wife is of Turkish citizen, partially fits into the condition described by Garton (2000). This situation describes teachers who relocated because of family situations (e.g., marriage) in order to find employment in the country. Although Mr. John did

not relocate only due to family reasons, his prolonged stay in the country may be affected by his marriage with a Turkish lady. On the other hand, mobile teachers may be more interested in a career of international teaching (Yağız, 2014) or can be described as those who “want to see different places around the world and they like adventure of living in another country” (Sylvester, 2002 as cited in Yağız, 2014, p. 13); they may like working with students from different cultural backgrounds.

The commonalities among teachers in their beliefs in regards to effective pedagogy in the classroom can be best explained with the changing teacher qualifications of the 21st century. These qualifications emerge as a result of a new understanding of globalization at the nexus of globalization theory and new enculturation. For instance, because all informants were teaching at English-medium schools (Fail, 2007), they may be expected to support English language learning (Fail, 2007); develop themselves in intercultural sensitivity, global awareness and multicultural literacy (Saavedra & Opfer, 2012); “develop their instructional strategies ...by adapting enquiry, student-centered approaches and reflective practices” (Yağız, 2014, p. 9).

The interactions among teachers or between the teachers and their students may help teachers become more globally minded (Banks & Banks, 1995; Merryfield, 2000; Quezada, 2010; Slavin, 1992; Sleeter, 1996). It is evident that all four teachers developed some level of cultural sensitivity motivated by either personal or professional reasons. The changes in their visioning of the world may help them become more globally minded because cross-cultural experiences may result in changes in the way they think and interpret the world around them (Whipp, 2013).

This may, in return translate into an understanding of globalization as a way of action within a multicultural or international environment (Cambridge & Thompson, 2000).

Teachers may also bring their own values and perspectives into their new working places as it is evident in the case of Mr. Ahmet, who proudly represented his own culture in a foreign country or in the case of Mr. Burak, who longingly represented a foreign culture in another foreign country. Such motivations may play a significant role in determining the nature of teachers' purposes in the classroom. These motivations may even affect their professional work, including lesson planning or assessment practices (Bryan & Atwater, 2002).

The finding related to being a proficient user of technology can be best explained through the evidence that all four teachers worked at schools with plenty of resources. Although not by necessity, the availability of the resources may motivate teachers to be skilled in using technology (Baylor & Ritchie, 2002). They may even feel a pressure to use these resources although they are not competent at the beginning. This is particularly evident in the case of Mr. Burak, who learned to use graphing calculators when he needed to use them at his new school. Other possible explanations include teachers' proficiency in English, which may ease their access to a world of technologies and resources (Bolton & Kachru, 2006) or that they may be genuinely keen on using new technologies in their classrooms or may be frequently using them in their personal lives (Barak, Herscoviz, Kaberman, & Dori, 2009).

Technology is a motivation for students, too, and that may be considered by teachers as a way to increase the overall quality of learning in the classroom (Orlich, Harder,

Callahan, Trevisan, & Brown, 2010). Especially for Mr. Ahmet—some of his students in the United States were described as being *at risk*— technology may work as a motivation. On the other hand, all other teachers may need to use technology because their students were from high socio-economic status and that they may be frequently using relevant technologies in their personal lives.

The differences between Turkish teachers (Mr. Ahmet and Mr. Burak) and teachers from Western countries (Mr. John and Ms. Tory) can be partially explained. Western teachers seem to give more responsibility to the student (Orlich, Harder, Callahan, Trevisan, & Brown, 2010). Both Turkish teachers' inclination to plan all details of their lesson may indicate the central role of the teacher in the classroom, in contrast to a teacher-centered education. From this perspective, “the dilemma between the past and the future, between East and West” (Akarsu, 1999, p.322) may explain the dilemma of the Turkish teachers with regards to their central role in the classroom, in contrast to a teacher-centered education.

It was obvious from the data obtained that students with an Eastern cultural background were comfortable learning in a rigid curriculum, and with structured teaching whereas Western students preferred to discover concepts at their own. Turkish students, however were only slightly seemed to belong to Eastern culture at this sense. Accordingly, Akarsu (1999, p.320) defines Turkish national curriculum as rigid and uniform at all levels. She also emphasizes that the “...teachers lecture; students are passive learners”. However, Akarsu (1999) makes it clear that the geographical ambiguity in Turkey's location reflects on the mentality and identity of its citizens, as well.

### **Implications for practice**

I believe that this study can provide insights to school administrators or other decision-makers who want to employ foreign teachers. After employment, they may be informed on ways to ease teachers' initiation period. In addition, teachers who want relocate to another country or teachers who want to become mobile teachers can benefit from the results of this study by having an advanced knowledge of the challenges and benefits. Teacher education programs at universities and professional development planners can reconsider their programs according to the competencies displayed by the informants, as well.

### **Implications for future research**

I suggest future researchers to analyze students' perceptions and investigate the impact of the relocating or mobile teachers on their achievement as well as on their cultural and social development. The impact of these teachers on other members of the school community also needs to be investigated.

### **Limitations**

A limitation to this qualitative study suggests that the findings should be interpreted with caution in terms of generalizing the findings. It became apparent to the researcher that the informants, whose life stories were presented in the current study, shared certain characteristics. They can be considered as successful and effective teachers: They graduated from the most popular universities in their countries; thus, received an exceptional education both as teachers and content-experts. They also worked at top schools in different countries and were qualified to be described as *in demand*.

## REFERENCES

- Akarsu, F. (1999). Transition and education: A case study of the process of change in Turkey. In K. Mazurek, M.A., Winzer, & C. Majorek (Eds.), *Education in a global society: A comparative perspective* (pp. 315-327). MA, USA: Allyn & Bacon.
- Al Farra, S. (2000). Images of international education in national and international schools: A view from Jordan. In M. Hayden & J. Thompson (Eds.), *International schools and international education: Improving teaching, management and quality* (pp. 51-61). London, UK: Kogan Page Limited.
- Al-Rodhan, N. R., & Stoudmann, G. (2006). *Definitions of globalization: A comprehensive overview and a proposed definition*. Occasional Papers, Geneva Centre for Security Policy, Ginebra. Retrieved from [http://www.academia.edu/download/30929642/Definitions\\_of\\_Globalization\\_\\_A\\_Comprehensive\\_Overview\\_and\\_a\\_Proposed\\_Definition.pdf](http://www.academia.edu/download/30929642/Definitions_of_Globalization__A_Comprehensive_Overview_and_a_Proposed_Definition.pdf)
- Alsmeyer, A. (1994). *An analysis of institutional commitment among older alumni of Texas A&M University* (Unpublished doctoral dissertation). Texas A&M University, College Station.
- Appleton, S., Morgan, J., & Sives, A. (2005). Teachers as community leaders: The potential impact of teacher migration on education for all and millennium development goals. *International Journal of Adult and Lifelong Education*, 3(1), 3-11.



- Appleton, S., Morgan, J., & Sives, A. (2006). Should teachers stay at home? The impact of international teacher mobility. *Journal of International Development, 18*(6), 771-786.
- Armitage, K., & Powell, L. (1997). A re-examination of expatriate recruitment for education in developing countries. *International Journal of Lifelong Education, 16*(6), 504-517.
- Atwater, M. M. (1996). Social constructivism: Infusion into the multicultural science education research agenda. *Journal of Research in Science Teaching, 33*(8), 821-837.
- Atwater, M. M., Freeman, T. B., Butler, M. B., & Draper-Morris, J. (2010). A case study of science teacher candidates' understandings and actions related to the culturally responsive teaching of 'Other' students. *International Journal of Environmental & Science Education, 5*(3), 287-318.
- Bak, A. H. (2006). *Globalization and education*. [online document] Retrieved from <http://rudar.ruc.dk/handle/1800/1781>
- Ball, A. F. (2009). Toward a theory of generative change in culturally and linguistically complex classrooms. *American Educational Research Journal, 46*(1), 45-72.
- Banks, C. A., & Banks, J. A. (1995). Equity pedagogy: An essential component of multicultural education. *Theory into Practice, 34*(3), 152-158.
- Banks, J. A. (2008). Diversity, group identity, and citizenship education in a global age. *Educational Researcher, 37*(3), 129-139.
- Banks, J. A., & Banks, C. A. M. (2010). *Multicultural education: Issues and perspectives* (7th ed.). Hoboken, NJ: John Wiley & Sons.

- Barak, M., Herscoviz, O., Kaberman, Z., & Dori, Y. J. (2009). MOSAICA: A web-2.0 based system for the preservation and presentation of cultural heritage. *Computers & Education*, 53(3), 841-852.
- Barton, A. C. (2002). Urban science education studies: A commitment to equity, social justice and a sense of place. *Studies in Science Education*, 38(1), 1-37.
- Baylor, A. L., & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Computers & Education*, 39(4), 395-414.
- Bayram, G. İ. (2014). *Exploring academic and social challenges of visually impaired students in learning high school mathematics* (Unpublished master's thesis). Bilkent University, Ankara, Turkey.
- Benson, M., & O'Reilly, K. (2009). Migration and the search for a better way of life: A critical exploration of lifestyle migration. *The Sociological Review*, 57(4), 608-625.
- Bolton, K., & Kachru B. B. (2006). *World englishes: Critical concepts in linguistics*. New York: Routledge.
- Bryan, L. A., & Atwater, M. M. (2002). Teacher beliefs and cultural models: A challenge for science teacher preparation programs. *Science Education*, 86(6), 821-839.
- Byram, M., Zarate, G., & Neuner, G. (1997). *Sociocultural competence in language learning and teaching: Studies towards a common European framework of reference for language learning and teaching*. Strasbourg Cedex, Germany: Council of Europe Publishing.
- Calder, M., & Smith, R. (1993). A better world for all: Development education for the classroom. *AusAID, Canberra*.

- Cambridge, J., & Thompson, J. (2000). Towards the construction of a framework for the description and classification. *Collected Original Resources in Education*, 24(1).
- Cambridge, J., & Thompson, J. (2004). Internationalism and globalization as contexts for international education. *Compare*, 34(2), 161-175.
- Carson, S. F. (2012). Locked out: An adventure in teacher perception. *Study of Peace and Conflict*, 2010, 1-18.
- Casey, K. (1993). *I answer with my life: Life histories of women teachers working for social change*. New York: Rutledge.
- Corlu, M. S. (2005). Creating an international culture. *International School Magazine, Autumn/Spring*, 8(1), 29-30.
- Corlu, M. S. (2013). Describing the dynamic nature of mathematics as a cultural product. *International Schools Journal*, 32(2), 72-79.
- Corlu, M. S., & Alapala, B. (n.d.). Teaching mathematics at an international school. Manuscript submitted to the *Journal of Humanistic Mathematics*.
- Curran, S. R., & Saguy, A. C. (2001). Migration and cultural change: A role for gender and social networks? *Journal of International Women's Studies*, 2(3), 54-77.
- D'Ambrosio, U. (1986). Socio-cultural bases for mathematical education. In *Proceedings of the fifth international congress on mathematical education*. Birkhäuser, Boston.
- D'Ambrosio, U. (1997). Where does ethnomathematics stand nowadays? *For the Learning of Mathematics*, 17(2), 13-17.

- Dale, R. (2000). Globalization and education: Demonstrating a “common world educational culture” or locating a “globally structured educational agenda”? *Educational Theory*, 50(4), 427-448.
- Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education*, 51(3), 166-173.
- Darling-Hammond, L., & Bransford, J. (2007). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco, CA: John Wiley & Sons.
- Davison, D. M., & Miller, K. W. (1998). An ethnoscience approach to curriculum issues for American Indian students. *School Science and Mathematics*, 98(5), 260-265.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10), 1091-1110.
- Engle, L., & Engle, J. (2003). Study abroad levels: Toward a classification of program types. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 9(1), 1-20.
- Erlandson, D., Harris, E. L., Skipper, B. L., & Allen, D. S. (1993). Quality criteria for a naturalistic study. *Doing naturalistic inquiry*. Newbury Park, CA: Sage.
- Fail, H. (2007). The Potential of the Past in Practice: Life Histories of Former International School Students. *The SAGE Handbook of Research in International Education*, 103-112.
- Feiman-Nemser, S. (2003). What new teachers need to learn. *Educational Leadership*, 60(8), 25-29.
- Finley, M. K. (1984). Teachers and tracking in a comprehensive high school. *Sociology of Education*, 57, 233-243.

- Fokaidou, M., & Hadjitheodoulou-Loizidou, P. (2014). The selfish giant: Narration and language instruction in a multicultural pre-primary class as a model for teacher change and development. *Intercultural Education*, 25(1), 55-67.
- Garton, B. (2000). Recruitment of teachers for international education. In M. Hayden & J. J. Thompson (Eds). *International schools and international education: Improving teaching, management and quality* (pp. 85–95). London: Kogan Page.
- Gasser, O. (2009). ENTEP and European teacher education: Policy issues since 2000. *Descrierea CIP a Bibliotecii Naționale a României The first ten years after Bologna/ed.: Otmar Gassner*, 13.
- Gay, G. (1994). *A Synthesis of Scholarship in Multicultural Education*. *Urban Monograph Series* [online report]. Retrieved from <http://files.eric.ed.gov/fulltext/ED378287.pdf>
- Gay, G. (2002). Preparing for cultural responsive teaching. *Journal of Teacher Education*, 53, 106-116.
- Gibson-Graham, J. K. (1996). Querying globalization. *Rethinking Marxism*, 9(1), 1-27.
- Glaser, B. G., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York, NY: Aldine de Gruyter.
- Gonzalez y Gonzalez, E. M. (2004). *Perceptions of selected senior administrators of higher education institutions in Mexico regarding needed administrative competencies* (Unpublished doctoral dissertation). Texas A&M University, Texas, USA.
- Gorgorio, N., & Planas, N. (2001). Teaching mathematics in multilingual classrooms. *Educational Studies in Mathematics*, 47, 7-33.

- Grugel, J., & Piper, N. (2011). Global governance, economic migration and the difficulties of social activism. *International Sociology*, 26(4), 435-454.
- Grusec, J. E., & Hastings, P. D. (2008). *Handbook of socialization: Theory and research*. New York: Guilford Press.
- Guarino, C. M., Santibañez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, 76(2), 173-208.
- Gunesh, K. (2000). International education's internationalism: Inspirations from cosmopolitanism. In M. Hayden & J. Thompson (Eds.), *International schools and international education: Improving teaching, management and quality* (pp. 90-101). London, UK: Kogan Page Limited.
- Guttek, G. (2009). Globalization and education. *New perspectives on philosophy and education*. Columbus, OH: Pearson.
- Hayden, M. (2011). Transnational spaces of education: The growth of the international school sector. *Globalisation, Societies and Education*, 9(2), 211-224.
- Hayden, M. C., & Wong, C. S. (1997). The International Baccalaureate: International education and cultural preservation. *Educational Studies*, 23(3), 349-361.
- Henry, A. (1992). African Canadian women teachers' activism: Recreating communities of caring and resistance. *The Journal of Negro Education*, 61(3), 392-404.
- Heywood, A. (2000). *Key concepts in politics*. New York: Palgrave Macmillan.
- Hill, I. (2000). Internationally-minded schools. *International Schools Journal*, 20(1), 24-37.

- Hirschhorn, L., & Gilmore, T. (1992). The new boundaries of the “boundaryless” company. *Harvard Business Review*, 70(3), 104-115.
- Hobson, D. (2007). The impact of globalization on higher education. . In M. Hayden, J. Levy, & J. Thompson (Eds.), *The sage handbook of research in international education* (pp. 476-485). London, UK: SAGE.
- Howe, E. (2002 Fourth Quarter). The enculturation of traditional schools- the significance to world culture, *In Focus*. Retrieved from <http://www.escotet.org/infocus/forum/howe.htm>
- Jiafeng, W. (2009). Some reflections on modernization theory and globalization theory. *Chinese Studies in History*, 43(1), 72-98.
- Joslin, P. (2002). Teacher relocation reflections in the context of international schools. *Journal of Research in International Education*, 1(1), 33-62.
- Kano Podolsky, M. (2004). Cross-cultural upbringing: A comparison of the *Third Culture Kids*” frame.
- Kennedy, P. T., & Roudometof, V. (2001). *Communities across borders under globalising conditions: New immigrants and transnational cultures*. University of Oxford. Transnational Communities Programme.
- Kozlarek, O. (2001). Critical theory and the challenge of globalization. *International Sociology*, 16(4), 607-622.
- Kress, H. M. (2005). Math as a civil right: Social and cultural perspectives on teaching and teacher education. *American Secondary Education*, 34(1), 48-56.
- Ladson-Billings, G. J. (1999). Preparing teachers for diverse student populations: A critical race theory perspective. *Review of Research in Education*, 24, 211-247.

- Le Roux, J. (2001). Re-examining global education's relevance beyond 2000. *Research in Education, 65*, 70-80.
- Leung, F. K. (2001). In search of an East Asian identity in mathematics education. *Educational Studies in Mathematics, 47*(1), 35-51.
- Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.
- Lindsey, E. W. (2013). Study abroad and values development in social work students. *Journal of Social Work Education, 41*(2), 229-249.
- Maxwell, K. L., & Chahine, I. C. (2013). Cultural immersion and mathematics teacher education: Explorations in Morocco and South Africa. *Journal of Humanistic Mathematics, 3*(2), 62-75.
- McAllister, G., & Irvine, J. J. (2002). The role of empathy in teaching culturally diverse students: A qualitative study of teachers' beliefs. *Journal of Teacher Education, 53*(5), 433-443.
- Merriam, S. B. (1988). *Case study research in education*. San Francisco, CA: Jossey-Bass Inc. Publishers.
- Merryfield, M. M. (2000). Why aren't teachers being prepared to teach for diversity, equity, and global interconnectedness? A study of lived experiences in the making of multicultural and global educators. *Teaching and Teacher Education, 16*(4), 429-443.
- Merryfield, M. M., & Kasai, M. (2004). How are teachers responding to globalization. *Social Education, 68*(5), 354-359.



- Murtadha-Watts, K., & D'Ambrosio, B. (1997). A convergence of transformative multicultural and mathematics instruction? Dilemmas of group deliberations for curriculum change. *Journal for Research in Mathematics Education*. Washington: Dec 1997
- Mutlu, S., Alacahan, O., & Erdil, M. (2010). Comparison of the personal and cultural change taking place between EU Erasmus students and Turkish Erasmus students (within the sample of Adam Mickiewicz University in city of Poznan, Poland). *Eurasian Journal of Anthropology*, 1(1), 33-43.
- Orlich, D. C., Harder, R. J., Callahan, R. C., Trevisan, M. S., & Brown, A. H. (2010). *Teaching strategies: A guide to effective instruction*. Boston, MA: Wadsworth.
- Pepin, Y. (1998). Practical knowledge and school knowledge: A constructivist representation of education. *Constructivism and Education*, 173-192.
- Perrons, D. (2004). *Globalization and social change: People and places in a divided world*. New York, NY: Psychology Press.
- Presmeg, N. C. (1998). Ethnomathematics in teacher education. *Journal of Mathematics Teacher Education*, 1(3), 317-339.
- Quezada, R. L. (2010). Internationalization of teacher education: Creating global competent teachers and teacher educators for the twenty-first century. *Teaching Education*, 21(1), 1-5.
- Quezada, R. L. (Ed.). (2010). Internationalization of teacher education. *Teaching Education*, 21(1).
- Quezada, R. L., & Alfaro, C. (2010). International teacher professional development: Teacher reflections of teaching and learning experiences. *Teaching Education*, 21(1), 47-59.

- Ramsey, P. G. (2004). *Teaching and learning in a diverse world: Multicultural education for young children* (Vol. 93). New York, NY: Teachers College Press.
- Rizvi, F., & Lingard, B. (2000). Globalization and education: Complexities and contingencies. *Educational Theory*, 50(4), 419-426.
- Roberts, J. T., & Hite, A. (1999). *From modernization to globalization: Perspectives on development and social change*. Malden, MA: Blackwell.
- Russell, M., Bebell, D., O'Dwyer, L., & O'Connor, K. (2003). Examining teacher technology use implications for pre-service and in-service teacher preparation. *Journal of Teacher Education*, 54(4), 297-310.
- Saavedra, A. R. & Opfer, V.D. (2012). *Teaching and learning 21st century skills: Lessons from the learning sciences* [online report]. Retrieved from <http://asiasociety.org/files/rand-0512report.pdf>.
- Saavedra, A., & Opfer, V. (2012). Learning 21st-century skills requires 21st-century teaching. *Phi Delta Kappan*, 94(2), 8-13.
- Sahlberg, P. (2011). *Finnish lessons*. New York: Teachers College Press.
- Sampatkumar, R. (2007) Global citizenship and the role of human values. In M. Hayden, J. Levy, & J. Thompson (Eds.), *The sage handbook of research in international education* (pp. 70–78). London, UK: SAGE.
- Scholte, J. A. (2005). *Globalization: A critical introduction*. New York: Palgrave Macmillan.
- Sharplin, E. (2009). Bringing them in: the experiences of imported and overseas-qualified teachers. *Australian Journal of Education*, 53(2), 192-206.

- Shizha, E. (2010). The interface of neoliberal globalization, science education and indigenous African knowledges in Africa. *Journal of Alternative Perspectives in the Social Sciences*, 2(Special Issue), 27-57.
- Slavin, R.E. (1992). When and why does cooperative learning increase achievement? Theoretical and empirical perspectives. In R. Hertz-Lazarowitz & N. Miller (Eds.). *Interaction in cooperative groups* (pp. 145–174). Cambridge: Cambridge University Press.
- Sleeter, C. E., & McLaren, P. (1995). *Multicultural education, critical pedagogy, and the politics of difference*. Albany, NY: State University of New York Press.
- Snowball, L. (2009). Intercultural Education: A bridge to intercultural understanding. *International Schools Journal*, 28(2), 16.
- Spence, M. (2011). Impact of globalization on income and employment: The downside of integrating markets. *Foreign Affairs*, 90, 28.
- Spradley, J. P. (1980). *Participant observation*. New York: Holt, Rinehart and Winston.
- Stromquist, N. P., & Monkman, K. (2000). *Globalization and education: Integration and contestation across cultures*. Lanham, MD: Rowman & Littlefield Pub Incorporated.
- Sylvester, R. F. (2002). Mapping international education: A historical survey 1893–1944. *Journal of Research in International Education*, 1(1), 90–125.
- Szczurek-Boruta, A. (2014). Intercultural education in Cieszyn Silesia. *American Journal of Educational Research*, 2(3), 154-158.
- Taylor, P. J. (2000). World cities and territorial states under conditions of contemporary globalization. *Political geography*, 19(1), 5-32.

- Templer, K. J., Tay, C., & Chandrasekar, N. A. (2006). Motivational cultural intelligence, realistic job preview, realistic living conditions preview, and cross-cultural adjustment. *Group & Organization Management, 31*(1), 154-173.
- Tomlinson, S. (1997). Diversity, choice and ethnicity: The effects of educational markets on ethnic minorities. *Oxford Review of Education, 23*(1), 63-76.
- Varghese, N. V. (2008). Globalization of higher education and cross-border student mobility. *International Institute for Educational Planning (IIEP) Research Paper, UNESCO. Paris: IIEP.*
- Varghese, N. V. (2009). Globalization, economic crisis and national strategies for higher education development. *International Institute for Educational Planning (IIEP) Research Paper, UNESCO. Paris: IIEP.*
- Wade, R. H. (2003). What strategies are viable for developing countries today? The World Trade Organization and the shrinking of 'development space'. *Review of International Political Economy, 10*(4), 621-644.
- Wang, J., Lin, E., Spalding, E., Odell, S. J., & Klecka, C. L. (2011). Understanding teacher education in an era of globalization. *Journal of Teacher Education, 62*(2), 115-120.
- Watkins, D. (2010). Learning and teaching: A cross –cultural perspective. *School Leadership & Management: Formerly School Organization, 20*(2), 161-173.
- Weinreich, P. (2009). 'Enculturation', not 'acculturation': Conceptualising and assessing identity processes in migrant communities. *International Journal of Intercultural Relations, 33*(2), 124-139.

- Whipp, J. L. (2013). Developing socially just teachers the interaction of experiences before, during, and after teacher preparation in beginning urban teachers. *Journal of Teacher Education*, 64(5), 454-467.
- Wiest, L. R. (2001). Teaching mathematics from a multicultural perspective. *Equity & Excellence in Education*, 34(1), 16-25.
- Yağız, B. (2014). *Investigating the impact of international general certificate of secondary education scores and gender on the diploma programme scores in mathematics and science* (Unpublished master's thesis). Bilkent University, Ankara, Turkey.
- Zhong, H. (2013). Does education expansion increase intergenerational mobility? *Economica*, 80(320), 760-773.
- Zimmerman, M. A., Ramirez-Valles, J., Washienko, K. M., Walter, B., & Dyer, S. (1996). The development of a measure of enculturation for Native American youth. *American Journal of Community Psychology*, 24(2), 295-310.

## APPENDICES

### APPENDIX A: Invitation letter to participants

<<Date>>

<<First>><<Last>>

<<Address>>

<<City>>, <<Zip>>

Dear <<First>> <<Last>>;

I am contacting you from Bilkent University as a part of my thesis research. I am conducting a study in which I am interested in interviewing multicultural teachers.

The tentative title of my thesis topic is “*Professionals or Adventure Seekers? Eliciting the Impact of Relocation and Mobility on Teaching Quality of Mathematics and Science Teachers*”.

Because educational trends and initiatives are different among countries, it is not surprising that global teachers will present specific needs raised by cultural diversity of countries. The purpose of this study is to explain the movement of teachers in terms of globalization theory, explore the commonalities of unique teachers and understand how teacher relocation and mobility plays a role in teaching effectiveness.

Four teachers from different backgrounds will be involved in this study. I would like to have the opportunity to face-to-face interview you if you agree. These interviews usually last about 90 minutes. Before conducting the interview, I will first call you in order to arrange the date and the time for the interview.

If any questions should arise about this study, please feel free to contact me at 05067787292 or email me at [r.nigdelioglu@bilkent.edu.tr](mailto:r.nigdelioglu@bilkent.edu.tr). Otherwise, I will call you in the next few days to schedule the interview.

Thank you for your time in advance. I am looking forward to talking you.

Sincerely,

Rabia Merve Niğdeliođlu

Researcher

Bilkent University

## APPENDIX B: Interview guide or protocol

### Interview Guide

#### I. Preface

- a. The interview will be pre-arranged so participants know in advance when and where they will be interviewed, and for how long. Once introductions are made, we proceed with the interview.
- b. I will thank the participants for their participation and briefly explain the purpose of the interview. I will also tell them they can stop and ask for clarification of a question in any time. They may choose not to respond to a question, or they can stop the interview at any time.
- c. I will ask participant to sign the Informed Consent Documents.
- d. I will ask permission to the interview to be taped; explaining it will serve as a means of recalling the interview information. Consent forms will be signed.

#### II. Ask descriptive information

Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Date: \_\_\_\_\_

Descriptive Information:

-Age \_\_\_\_\_

-Gender \_\_\_\_\_

-Position \_\_\_\_\_

-Years in teaching \_\_\_\_\_

-Schools that have worked \_\_\_\_\_

#### III. Semi-structured Questions

Some of the questions that will guide the interviews are:



1. In your opinion, what is learning?
2. What do you think how people learn?
3. Can you explain how you learned physics/mathematics/biology concepts or other concepts when you were a student?
4. How did you learn physics/mathematics/biology or other educational concepts when you were a pre-service teacher?
5. Now you are a physics/mathematics/biology teacher for many years, can you tell me about your learning style as a teacher?
6. Do you see any differences in your learning style at different moments of your life (as a student, a pre-service teacher and a teacher)? If so, how?
7. Can you tell me how students learn physics/mathematics/biology concept from your point of view from your experience because you have been in different countries and thought physics/mathematics/biology there?
8. Which methods/strategies do you use for students to learn physics/mathematics/biology? For example, experiments, projects, individual or group work worksheets. How? Why? At what level?
9. How did your movement contribute to your teaching?
10. What are the effects/contributions of working in other cultures to your teaching?
11. What teaching strategies did you prefer to use in the countries that you have worked? Why?
12. How were the classes in the countries you worked?
13. How was the approach of students to you as coming from different culture?
14. What did you do to adapt yourself to other cultures?

#### IV. Closure

Member check:

- a. Ask if there is any questions about the interview
- b. Ask if there is something else that he/she would like to add
- c. Reiteration of the confidentiality aspect of the interview
- d. Thank them for their participation and their time to this study

## **APPENDIX C: Informed consent document**

### **Informed Consent Document**

The purpose of this study is to provide Rabia Merve Niğdelioğlu, a graduate student in Bilkent University Graduate School of Education, with information that will assist her in completing the requirements for her thesis. The purpose of the study is to explain the relocation and mobility of teachers in terms of globalization theory, explore the commonalities of unique teachers and understand how teacher relocation and mobility plays a role in teaching effectiveness.

I will be one of the four participants in this study. I will be asked to respond to interview questions on a voluntary basis and there is not penalty or loss of benefits for refusal to participate. Whether or not I choose to participate will not affect my employment. The interview content will be confidential and my name will not be revealed or used in any publication.

The data will be gathered through face-to-face interviews. Each interview sessions will last approximately 90 minutes. A tape recorder will be used during the interviews. I have a choice whether or not I want to be audio-taped.

- I understand that I am one of the teachers participating in this study.
- There is no compensation for or from participating in this study.
- No personal documents will be examined and no name-assigned will be used.
- I may refuse to answer any question(s) that makes me uncomfortable. There is no consequence for refusal to answer questions.
- My participation in this study is voluntary and I may withdraw from this study at any time, with no consequences.



## **APPENDIX D: Consent to be audio-taped**

### **Audio-Tape Release Forms**

I voluntarily agree to be audio-taped during the study being conducted by Rabia Merve Niğdelioğlu. I understand that the tapes will be transcribed so that content of the interview can be thoroughly analyzed, and only Rabia Merve Niğdelioğlu will have access to the tapes. These tapes will be identified by the alias assigned to each of the participants. The tapes will be kept during the study in the computer of the investigator. After study completed, the tape will be erased, and the transcriptions will also be destroyed.

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of the Investigator

\_\_\_\_\_  
Date

### **Refusal to be Audio-Taped**

I do not agree to be audio-taped during this study being conducted by Rabia Merve Niğdelioğlu. I understand I will not receive compensation by such a refusal. By refusing to be audio-taped, I understand that I may continue to participate in the study.

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of the Investigator

\_\_\_\_\_  
Date

## **APPENDIX E: Interview questions**

### **Interview Questions**

Some of the questions that will guide the interviews are:

1. In your opinion, what is learning?
2. What do you think how people learn?
3. Can you explain how you learned physics/mathematics/biology concepts or other concepts when you were a student?
4. How did you learn physics/mathematics/biology or other educational concepts when you were a pre-service teacher?
5. Now you are a physics/mathematics/biology teacher for many years, can you tell me about your learning style as a teacher?
6. Do you see any differences in your learning style at different moments of your life (as a student, a pre-service teacher and a teacher)? If so, how?
7. Can tell me how students learn physics/mathematics/biology concept from your point of view from your experience because you have been in different countries and thought physics/mathematics/biology there?
8. Which methods/strategies do you use for students to learn physics/mathematics/biology? For example, experiments, projects, individual or group work worksheets. How? Why? At what level?
9. How did your mobility contribute to your teaching?
10. What are the effects/contributions of working in other cultures to your teaching?
11. What teaching strategies did you prefer to use in the countries that you have worked? Why?
12. How were the classes in the countries you worked?

13. How was the approach of students to you as coming from different culture?

14. What did you do to adapt yourself to other cultures?

## **APPENDIX F: Thank you letter to participants**

<<Date>>

<<First>><<Last>>

<<Address>>

<<City>>, <<Zip>>

Dear <<First>> <<Last>>;

I am writing you to tell you how much I appreciate your volunteer participation to the interviews and I am writing to convey my thanks.

By your volunteer participation and honest sharing about your experiences, I have collected rich information and I have reached significant data. Your response let me reach the results of my study and explore the impact of teacher mobility on teaching quality.

I appreciate your participation and thank you for your interoperability for the research study. If you have any further questions about this study or interviews, please feel free to contact me by telephone or by email anytime.

Thank you for your time and support during the research study.

Sincerely,

Rabia Merve Niğdelioğlu

Researcher, Bilkent University