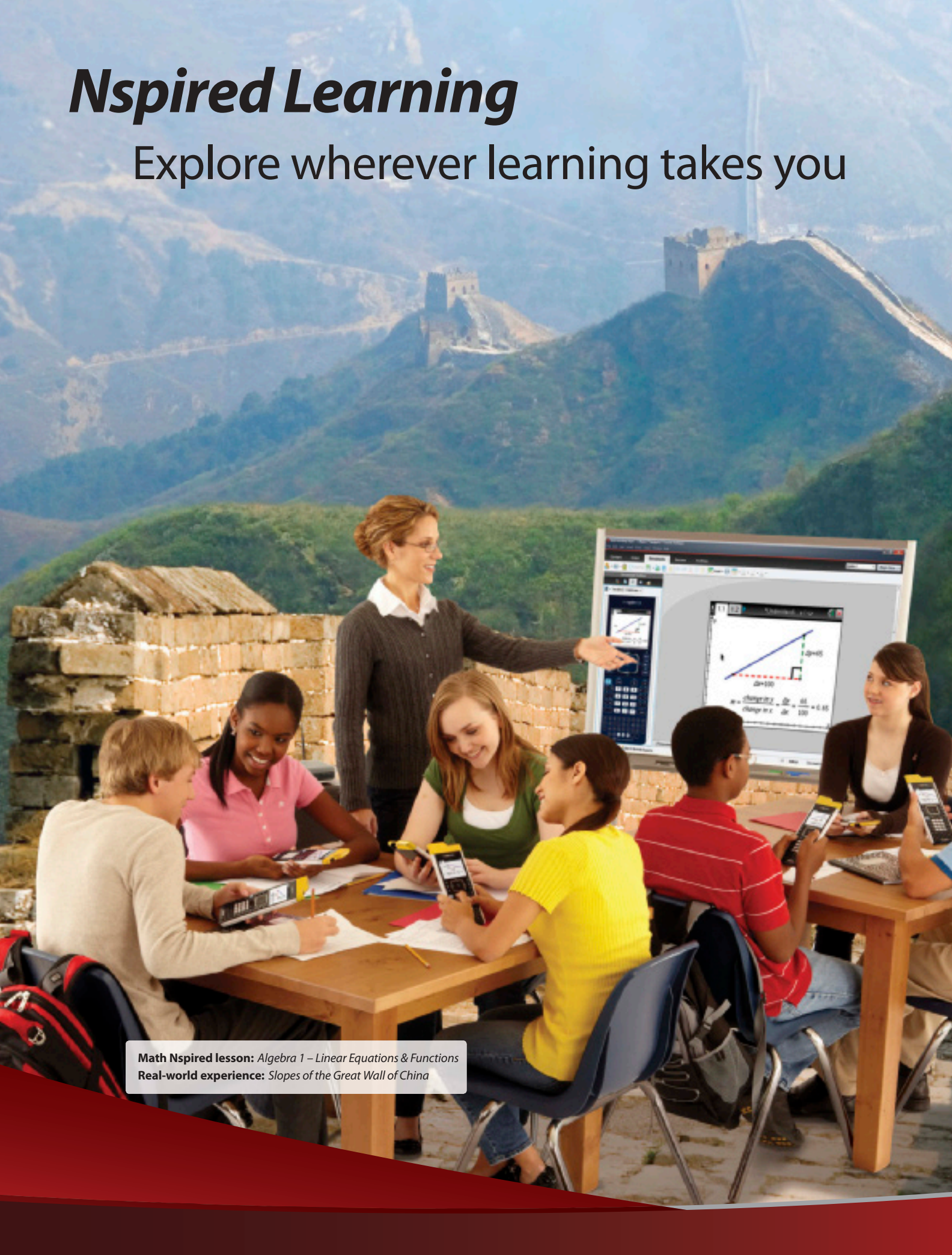



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Creating Transnational Mathematics Classrooms



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refugee children face a number of challenges in school, such as—

- xenophobic attitudes (fear or hatred of strangers) in and out of school (UNHCR 2006);
- interrupted or limited previous schooling (Miller 2009);
- linguistic and cultural differences that may hamper communication (Miller 2009); and
- behavioral challenges that may include hoarding, aggression, difficulty with authority, failure to concentrate, and explosive anger (Strekalova and Hoot 2008; Szente, Hoot, and Taylor 2006).

On my first day with my new class, I scan the class list and see several unfamiliar names. I ask a colleague about it, and she says, “There is a new refugee resettlement agency in the area, and they are placing newcomer families in the housing project near the school. So their children are coming to us.” Standing in the hallway, I wonder: “Where are they from? Do they speak English? Have they gone to school before? How can I prepare to teach them?”

This scenario may have sounded like fiction a few years ago. But with the number of forcibly misplaced children around the world on the rise (UNHCR 2006), this reality may be increasingly familiar. Newcomer

How can teachers support students with these challenges and find ways to empower them academically and socially? How can they build on students’ prior knowledge and create classrooms that respond to their needs? While recommending possible pathways for effective classroom teaching and learning with newcomer refugee students, we will discuss four main elements of this approach and the meaning of the underlying central vision, that of a transnational mathematics identity.

ELEMENT 1: RECOGNIZING STUDENTS’ BACKGROUNDS

Where can we find information that will help us understand our students’ backgrounds? An important starting point for developing inclusive class-

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rooms is building a greater understanding of our newcomer students, although asking students, parents, and community members direct questions may be intrusive or illegal. Two possible sources of information are the United Nations High Commissioner for Refugees Web site (www.unhcr.org) and the Migration Policy Institute's (MPI) Web site (www.migrationpolicy.org). These two sites contain information about various countries and the journeys of different groups of people to help us understand where our students are coming from and what hardships and joys they may have recently experienced. For instance, although the transfer into refugee camps may be a challenge, reaching a destination such as the United States can be considered an end to a hard journey and a beginning to a new, exciting life. Likewise, living in challenging conditions can become a source of resilience and strength.

Newcomer refugee students' relationship to mathematics does not have to be created from scratch. These students have mathematics knowledge and evolving mathematics identities that we can build from and enhance. Their mathematics background has most likely been developed in formal and informal learning situations in native countries or refugee camps. They may not know the terminology in English (Miller 2009), but they may be familiar with the concepts that we are trying to teach. For example, they may not know the term *perimeter*, but they may understand how to find the distance around a polygon.

ELEMENT 2: USING MATERIAL THAT ENGAGES ALL STUDENTS

How can we scaffold learning opportunities for newcomer students? An important substep is to analyze teaching material and expand our repertoire beyond our classroom and country. For example, addressing

the complex phenomenon of human migration, including reasons for and responses to forced migration, allows students to critically engage a topic of global significance in combination with mathematics learning.

Gathering, organizing, representing, and interpreting data associated with human migration and other transnational themes (e.g., world hunger, access to education, and economic welfare) are important processes and can provide relevant activities for middle school students. Examining patterns and making predictions fit well with these explorations, which also serve the middle school mathematics Standards (NCTM 2000).

We do not want to focus too much on students' native countries to avoid triggering homesickness or potentially negative memories, but we do want to go beyond the borders of our country with our lessons. This journey can be beneficial to not only newcomer students but also all students. If new students volunteer information about their experiences, we should welcome it but not solicit it. Instead, opt for indirect ways to include all students without emphasizing differences. It is appropriate to ask, "Can anyone show or explain how to do division in another country?" instead of "Tuan, how do students do division in Vietnam?"

ELEMENT 3: IMPLEMENTING INCLUSIVE TEACHING METHODS

What teaching methods should be used with newcomers? The answer is not universal. Multiple teaching methods are required to address diversity in student learning styles and background experiences. Varied methods allow students to engage in those they find familiar and learn new approaches. For example, when the first author came to the United States as a newcomer in graduate studies, she was initially appalled by frequent use

of small-group discussions and tasks. She did not value these unfamiliar teaching methods. However, a gradual introduction to dominant instructional approaches eventually led her to appreciate their potential benefits.

Students transitioning to a new culture may not know all the rules inherent in a mathematics classroom. Teachers should help students learn classroom routines and expectations. Within these typical patterns, however, students should be encouraged to pursue learning in ways that are personally relevant as long as they are pedagogically sound.

ELEMENT 4: CREATING OPPORTUNITIES TO BOND

How can we foster a classroom environment that is safe and academically enriching? One aspect of building a healthy and productive classroom community is recognizing and emphasizing similarities among students' lives and between teacher and students. This can form a safe foundation from which to explore differences. For instance, relocation is a key experience of newcomer refugees, which can be shared with those who have moved within the borders of their own country.

Creating lessons and problems developed from current events of local or global significance can simultaneously engage students in contextualized mathematics learning and enhance awareness of current issues. For instance, to tie in the recent housing crisis, students might be asked to analyze graphs of house values over time locally and elsewhere in the country and world. A comparative analysis among geographic regions can sharpen students' critical-thinking skills and global understandings while exercising key middle school mathematics skills.

These types of explorations can build mathematics skills and agency, in addition to fostering social bonding among students. These goals can also

be achieved through group work and using technology. Lessons might be crafted around information provided by the United Nations Global Teaching and Learning Project Cyberschoolbus (<http://www.cyberschoolbus.un.org/>). Students can access quizzes+games on the home page and grapple with world problems that involve mathematics skills. For example, lessons structured around the disaster simulation game Stop Disasters can help students identify with one another through common environmental issues while sharpening mathematics and critical-thinking skills. The use of such video games builds on popular youth culture to help students relate to classroom material and one another.

BUILDING A TRANSNATIONAL MATH CLASS

In our increasingly interdependent world, transnational mathematics understanding benefits all students. Castles (2003) defines transnational communities as “groups based in two or more countries that engage in recurrent, enduring and significant cross-border activities, which may be economic, political, social or cultural in character” (p. 20). If we imagine transnational mathematics classrooms having a similar scope, they would engage in “recurrent, enduring, and significant” mathematics activities that extend beyond the borders of one’s own nation.

The overarching goal of our approach is to create spaces of belonging for all students, including those who may be newcomer refugees. This can occur if we recognize both similarities and differences in students’ approaches to learning mathematics.

We may not know how to reach all students on the first day of class. However, if we try the general approaches outlined here to engage students, we can help them develop powerful mathematics identities. Martin (2009)

defines mathematics identity as “the dispositions and deeply held beliefs that individuals develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics to change the conditions of their lives” (p. 136). Promoting transnational mathematics identity could enhance student performance in mathematics and other academic areas.

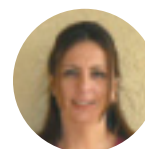
We are not proposing that people leave their location to travel abroad, seeking information about world events and cultures. Students and community members can serve as resources. By developing instructional activities that allow students to draw on and voluntarily share their differing life experiences, these students can show us how to become more globally aware mathematics instructors. Technological innovations can also assist us in finding relevant content and in engaging all students. (See, for example, Web sites such as The UN Refugee Agency at <http://www.unhcr.org/> and Bridging Refugee Youth and Children’s Services at <http://www.brycs.org/>)

Our goal is not to overemphasize differences or create more work for already busy teachers. The framework we propose is not about and for newcomer refugee and immigrant students only. This vision is for all students in our classrooms, who will grow to become members of an increasingly interconnected world. The proposed framework, which attends explicitly to global topics such as relocation across and within national borders, can engage a broad range of students.

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