For over 20 years, mathematical and scientific literacy for all students has been the goal for many national and international reforms in mathematics and science. However, indigenous students are still underachieving in mathematics and science when compared to majority students (National Center for Education Statistics, 2010; Battiste, 2002; Fu, 1999, 2003; Chien, 1998). Strong contributions have been made in recent years examining the achievement gap and contributing to our understanding of indigenous knowledge, mathematics and science education and the aspirations of indigenous students (McKinley, 2007; Barnhardt, 2005; Aikenhead, 2001; Cajete, 2000). The research is rich with descriptions about the inequalities that exist in mathematics and science education classrooms and the contexts in which they occur but less is written about how those inequities occur and are maintained.

There is a call within mathematics and science education to create culturally relevant pedagogy as a way to support mathematics and science learning among indigenous students by educating teachers about indigenous peoples’ lifestyles, suitable teaching methods, and how to integrate traditional ecological knowledge (TEK) into the curriculum (Ogunniyi, 2007; Van Eijck & Roth; 2007; Gibson & Puniwai, 2006; Russell & Russell, 1999; Ogawa, 1995). However, McKinley (2001) makes clear that researchers and educators cannot ignore power relationships in the classrooms that arise from the “relations between dominant and subordinate groups marked by histories of oppression” (pg 75).

Most mathematics and science curricula, teaching methodologies, and assessment strategies associated with mainstream schooling are based on a worldview that does not adequately recognize or appreciate indigenous knowledge or worldviews (McKinley &
Stewart, 2009; Kawagley et al. 1998). Therefore, indigenous students potentially internalize negative images of their culture created and propagated by the institution of schooling as unable, historically and currently, to be producers of mathematical and scientific knowledge and indigenous students as low-achieving mathematics and science learners (Kidman, Abrams McRae, 2011). Other factors implicit in role of schooling may be causing indigenous learners to “opt out” of the learning of science and mathematics (Abrams et al, 2009).

This special issue will take a contextualized and international view of the teaching and learning of indigenous students in mathematics and science classrooms. The focus of the papers within this issue will be on the conscientization, or the making explicit, the knowledges and resources of repressed groups and to examine the structures that are designed to maintain the status quo of the majority class. Research papers will reflect international perspectives that support the excellence of indigenous students in science and mathematics and create mathematics and science classrooms that consciously build an inclusive learning community. To provide the reader with an informed perspective, the issue will include a paper that examines some of the reasons that may cause indigenous students to disengage with mathematics and science learning. These causes include power structures implicitly residing within schools as institutions, the testing regimes existing within many countries and tensions that may exists between the goals of education between majority and indigenous communities.

We invite papers from educational researchers who have conducted research with indigenous schools, teachers and communities on examining how to support the learning of indigenous students in the areas of mathematics and science. The guest editors are especially interested in contributions in the area of mathematics education. We are intending that this special issue of IJMSE be published in December of 2012. The deadline for submission of manuscripts is April 1st, 2012—earlier if possible to facilitate prompt review and revision.

Please forward any indications of interest and participation to Eleanor Abrams at the University of New Hampshire (eleanor.abrams@unh.edu).
References