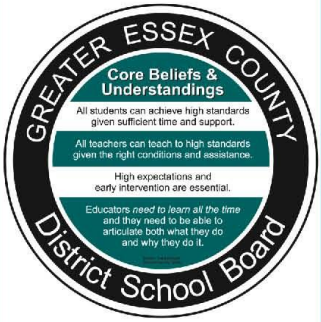
APPENDIX D: Learning Briefs

GREATER ESSEX COUNTY DISTRICT SCHOOL BOARD

Creating International Conversations

The GECDSB believes in learning together and seeks out opportunities to build conversations with our international partners. The Reciprocal Learning Program is an initiative developed between the University of Windsor, the Greater Essex County District School Board, Southwest University, and Chong Qing schools. This partnership has helped to shift the conversation from: comparison to collaboration; from obstacles to opportunities; and from limits to learning.



The Greater Essex County District School Board provides mathematics education that engages and empowers students through collaboration, communication, inquiry, critical thinking, and problem-solving, to support each student's learning and nurture a positive attitude towards mathematics.

GECDSB, A Vision for Mathematics, 2016

The purpose of these learning briefs is to share the research, discussion and insight garnered from the intensive work of the Greater Essex County District School Board's Math Task Force. These papers are rooted in the GECDSB core beliefs, the Full-Day Early Learning—Kindergarten program and the Ontario Mathematics Curricula for grades 1-8, 9-10, and 11 & 12. The briefs are meant to elevate, enrich and extend the discourse of mathematics education with the intention of encouraging a positive and productive disposition toward mathematics for all learners.

Each paper provides a list of sources to extend the professional conversation and enhance the learning. In addition, live links appear at the end of the papers with connections to various resources.

MATH TASK FORCE

A comparison between nations that examines achievement scores in isolation of the culture and context is incomplete and ultimately inadequate in informing the work of educators.

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MATH TASK FORCE

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CREATING INTERNATIONAL CONVERSATIONS

Mathematics achievement is a global focus. Sound bites in the media share bits of data from international reports that rank and compare countries. However, when conclusions about student achievement are limited to 140 characters, we miss the fullness, insight and depth of the evidence. A comparison between nations that examines achievement scores in isolation of the culture and context is incomplete and ultimately inadequate in informing the work of educators.

The Reciprocal Learning Program is an initiative developed between the University of Windsor, the Greater Essex County District School Board, Southwest University, and Chong Qing schools, which has become the essential part of a 7-year Canada-China Reciprocal Learning Partnership Project funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) with five other Canadian and Chinese partner institutions (Xu & Connelly, 2013). The goals of the Reciprocal Learning Program are: to provide an exceptional learning experience for teacher candidates, educators and administrators; to expand perspectives regarding societies of increased diversity; to foster international collaboration among faculty members who are interested in cross-cultural studies; to promote multicultural education; and to enhance international education relationships (Xu, 2011). The core of the Reciprocal Learning Program and the SSHRC Partnership Grant project rests in the reciprocity between educators, parents and students from both nations. This partnership has helped to shift the conversation from: comparison to collaboration; from obstacles to opportunities; and from limits to learning.

From Comparison to Collaboration

In 2012, the Organization for Economic Cooperation and Development (OECD) released results from the Program for International Student Assessment (PISA) which demonstrated a slide in Canadian students' ranking. At that time, the former Deputy Prime Minister John Manley was quoted in the Globe and Mail as saying that the performance of Canadian students was "on the scale of a national emergency" (Alphanso, 2013). This statement fueled a frenzy of media attention on the Canadian "math problem" and sparked controversy over the ways in which we can emulate the high-ranking Chinese education system.

One of the main foci of the media attention was on the way in which Chinese math teaching focused on "rote learning" which was erroneously positioned in opposition to "discovery learning." This drove a fruitless public debate, distracting conversations from a thorough analysis of the data and the learning that could have been garnered.

Countries differ in such global characteristics as the centralization of educational policies, the organization and types of schools, and the success of efforts to provide universal access to education. The status of teaching in the society, the composition and mobility of the student population, and the extent to which external examinations determine one's life chances, all constrain the ways in which mathematics is taught and learned.

(National Research Council, 2001, p. 31)

Assessments like PISA can generate discussion, inferences and further investigation. There is unquestionably information to be uncovered. However, attempts at comparisons between the education practices of nations are at best interesting and at worst a red herring. When we examine practices in isolation of their context, we tell an incomplete and incoherent story. These comparisons fall drastically short of identifying which practices are responsible for student achievement. Therefore, we must dig deeper into the evidence in order to help guide our educational improvements.

The values of a nation inform their systems of education. What is taught, who is taught and who does the teaching are simple examples of how the ideals and structures of mathematics education are tied to the complex cultural conditions of each nation. Certainly, the learning experience in Canada is not the same as the learning experience in China; but the living experience in Canada is not the same as the living experience in China. Each country provides a unique context for mathematics learning and when we compare stories, our learning needs to be positioned in an understanding of this context.

The results from PISA and other international data identifies the Canadian (Ontario) education model as world leading with respect to critical criteria such as equity, inclusiveness and support for all learners – criteria which define our national values. Our educational system is also lauded for the richness, diversity and comprehensiveness of the curricula (Council of Ministers of Education of Canada, 2012).

Insights from the Project

"It is not about copying and borrowing; it is about relating and understanding" was a statement made by Dr. ShiJing Xu, Associate Professor, University of Windsor, during a presentation about the learning of the Reciprocal Partnerships Project (2016). One of the great understandings that has come from the project is this idea that mathematics education is rooted in a culture, and no one practice can be isolated and replicated with the expectation of similar results in student achievement.

Through conversation, educators are able to build a better understanding of practices that support student learning. These cross-cultural perspectives support new approaches to research on curriculum and their application in classrooms. The insights from the project participants are demonstrated through their reflections. Educators' feedback focused on to the overall social standard of mathematics. They noticed the prominent social standard of mathematics among their Chinese partners, and observed how this focus influences the systems within the schools. Our values identify our priorities. Thus, an intentional and thoughtful prioritization of mathematics education will certainly serve to direct our energy to its service.

In order to capitalize on the potential for improving mathematics, we need to understand the entire story. Although the data may start the discussion, the learning is in the details. Through our international partnerships, we gain insight and understanding. Once we appreciate the "why" and "how," we can move the conversation toward "let's try." *The learning* is the heart of this partnership, because when we learn together, we can learn far more than when we are learning alone.

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"It is not about copying and borrowing; it is about relating and understanding" by Dr. ShiJing Xu

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LINKS

Globe and Mail - What Shanghai Can Teach Us about Teaching Math
http://www.theglobeandmail.com/news/national/education/what-shanghai-can-teach-us-about-teaching-math/article17835021/?page=all

OECD - Programme for International Student Assessment (PISA)
https://www.oecd.org/pisa/

Doing Math with Your Child
http://www.edugains.ca/newsite/math/offeredotherlanguage.html