The Twentieth Year of CJSMTTE: a Journey Through Two Decades

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As we embark on our 20th year as a journal, I want to start by thanking the editors and CJSMTTE Editorial Board for their continuous contributions in support of Science, Mathematics and Technology Education. At our June 2019 retreat, the CJSMTTE editors and personnel orchestrated our plans for volume 20. We wanted to recognize where we have been as a journal over the past 20 years and to think about where the journal may be going over the next few years.

Hodson et al. (2001) launched the first issue of the journal with an editorial that recognized the diversity of the community, and they wanted to “produce a journal with a distinctive and independent voice, a voice that not only welcomes but celebrates diversity” (p. 5). They wanted to encourage both French and English manuscripts and ensure that abstracts would appear in both languages. They wanted the journal to grow and to have a long and productive shelf life as “one of Canada’s principal vehicles for academic growth among science, mathematics, and technology educators” (p. 6).

In his first editorial as the new editor-in-chief, John Wallace analyzed the first 32 issues of the journal (Wallace, 2009). He outlined the distribution of English and French articles and viewpoints, and the location of the authors. He saw this distribution diversity as a strength. He also encouraged Special Issues with guest editors. In volume 20.4, we will provide a summary of the journal’s first 20 years and how the distribution diversity may have changed over time.

In an editorial celebrating the fifteenth anniversary of the journal, editor-in-chief John Wallace discussed the identity of the journal as being both Canadian and international (Wallace, 2015). As editor-in-chief from 2008 to 2018, John strived to examine issues of “local and national importance, to represent Canada to the world, as well as to look at international developments in the field” (p. 335). In this twentieth volume, we will continue this mission.

In issue one, we look into the future by exploring Engineering Education research in Canada. This special theme provides a foundation for the opportunities and challenges that engineering education faces as an emerging scholarly community. The articles also seek to better understand how this research can provide methodological depth as well as develop effective instructional practices. In the editorial “Cultivating disciplinary expectations for engineering education research in Canada”, Burke, Chong, Evans and Romkey introduce engineering education and describe the salient points of the four papers in this special theme.

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In addition to this special theme, there are five other articles on this issue. In the first article, Sheldrake and Majtaba explore children's aspirations towards science-related careers in a cohort of 7820 children in England. They identified ethnicity, gender and science self-confidence as important factors at age 11. At age 14, they found that children's aspirations were predictively associated with their prior aspirations at age 11, science self-confidence as of age 15, ethnicity and gender. This longitudinal research follows these students for 3 years to investigate the changes over time. Boys, for example, were more likely to express science/engineering aspirations and less likely to express medicine/health aspirations. Some children from minority ethnic backgrounds were more likely to express medicine/health aspirations. As children are more likely to encounter medical- and health-related professionals in everyday experiences, they could better identify with these professions than a physical scientist. This article further explores the factors that affect their aspirations and describes the need to promote the feasibility of different science careers for all children.

In the second article of 20.1, there is a debate about the number of undergraduate courses in mathematics that preservice elementary school teachers require to be successful teachers. Holm and Kajander identified upper elementary teacher candidates with undergraduate mathematics degrees to study their initial understanding of the conceptual underpinnings of elementary mathematics. The participants were tested on their conceptual understanding of elementary school mathematics, before and after an elementary mathematics methods course at a faculty of education. They noted that only 3% of the elementary school teacher candidate cohort had mathematics degrees. They also found that the teacher candidates with mathematics degrees were not able to model or demonstrate the concepts. However, after the methods course in mathematics, these teacher candidates were able to demonstrate an increased understanding of the model and demonstrate concepts. They provide evidence that additional undergraduate courses in mathematics may not be helpful to teacher candidates in their pursuit to better understand how to teach elementary school mathematics.

Tanguay, Bergé and Barallobres explore, in the first issue of volume 20, the dialogue and written documents produced by two teacher candidates as they solve a version of the “Fixed Point” problem (Pontille et al., 1996). The authors identified five tasks and explored the effect of one of the stages on a set of numbers that has a maximum of five decimal places. The authors explored the properties of density and completeness through the understanding of these two teacher candidates.

In the fourth article, Evagorou, Nicolaou and Lymbouridou conduct a qualitative study of a classroom of 10- to 12-year olds as they collaboratively worked in argumentation and modeling in science. They found that these students provide rebuttals as they engage in argumentation and suggest that the use of models might have contributed to high-level argumentation. They propose that, if we want to have more productive learning of science concepts with younger children, teachers should develop argumentation and modeling at the same time. This paper provides practical advice on how this could be accomplished.

The issue of biodiversity has been studied from a variety of perspectives. In the fifth article of 20.1, Wiegmann and Zabel conducted a survey of 12 biodiversity researchers in four focus groups. They identified the conflicts that eight of these scientists have between their relationship to nature and their personal work. However, some participants have developed effective strategies to positively integrate their personal values and scientific knowledge. The authors describe three strategies in more detail as they developed a preliminary guideline that can encourage education about biodiversity.

As we look ahead into the next decade, we await eagerly to more special issues in this twentieth volume. In the next three issues in our twentieth year, we will have a special theme on the “M in STEM” in 20.2, a perspective on the most influential CJSMT articles in mathematics as selected by the current and past mathematics editors of the journal will be appearing in 20.3, and a special issue with articles from the original editors and authors of the journal will appear in 20.4, along with a retrospective review of the first 20 years of the journal.

The CJSMT team, including the staff, editors and Editorial Board, are reflecting on monumental moments in the journal's past 20 years and are also looking ahead at what the new decade has to offer. We hope you follow our journey in CJSMT's twentieth year.

References

- Hodson, D., Hanna, G., & Désautels, J. (2001). Finally, A Canadian voice. *Canadian Journal of Science, Mathematics and Technology Education*, 1(1), 5–7.
- Pontille, M. C., Feurly-Reynaud, J., & Tisseron, C. (1996). Et pourtant, ils trouvent. *Repères IREM*, 24, 11–34.
- Wallace, J. (2009). Looking Back, Looking Forward. *Canadian Journal of Science, Mathematics and Technology Education*, 9(1), 1–4.
- Wallace, J. (2015). Happy Anniversary: Fifteen Years of the *Canadian Journal of Science, Mathematics and Technology Education*. *Canadian Journal of Science, Mathematics and Technology Education*, 15(4), 335–338.

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