

What is Inquiry?

Inquiry is both a process and a set of skills. The inquiry process is about exploring, discovering, and ultimately, reaching a higher level of understanding. This process has several steps, including:

- actively identifying a topic or issue;
- generating a researchable question;
- investigating the problem by undertaking relevant research;
- critically thinking about the issue;
- answering the question(s);
- drawing conclusions; and,
- reflecting on the inquiry process.

Ultimately, inquiry is a form of research. Inquiry promotes student-directed learning and helps the student to develop the skills necessary to acquire and reflect on new knowledge and understanding.

Lee and others (2004), suggest that inquiry-guided learning:

Refers to a range of strategies used to promote learning through students' active, and increasingly independent, investigation of questions, problems and issues, often for which there is no single answer. A range of teaching strategies is consistent with inquiry-guided learning including interactive lecture, discussion, problem-based learning, case studies, simulations, and independent study (p. 5).

The Challenges

Although the positive learning outcomes of inquiry learning are widely accepted, only the Faculty of Social Sciences from the original three Faculties (i.e., Humanities, Science and Social Sciences) continue to operate small, level-one courses in inquiry. Justice et al. (2009) describe the tensions to inquiry teaching at McMaster.

1. A tension exists with regards to inquiry and whether it should be a stand-alone course or a pedagogical approach integrated across a curriculum. The tension around the delivery of inquiry leads to varying levels of support by disciplines for a stand-alone course.
2. Although inquiry learning has been practiced at McMaster for more than fifteen years there is modest understanding within the university community about what is meant by inquiry as a pedagogical approach.
3. Teaching large number of inquiry classes requires a large number of inquiry instructors. Some faculty members resist teaching inquiry because they see inquiry as a threat to their role and responsibilities. Sometimes instructors perceived inquiry teaching as additional work or as a threat to their performance reviews (inquiry instructor ratings of effectiveness typically dropped during the first two or three years they taught using this pedagogical approach).
4. Structural barriers, including the Faculty departmental funding structure, placed additional financial barriers on the success of inquiry in a climate already impacted by budget shortfalls.

Inquiry as Research: A Case Study from McMaster University

Inquiry-based learning was first formally used as a pedagogical approach at McMaster University, a research-intensive university, in the Arts and Science program in the early 1980s (Jenkins 2007). During the 1998-99 academic year the Faculties of Social Sciences, Science and Humanities at McMaster University introduced stand-alone, small-sized inquiry courses for first year students. Students were divided in to a number of small classes, within their own Faculty and instructors in each Faculty worked as a team to deliver the course; each small class was facilitated by one faculty member. The broad process-based learning outcomes for these courses are to enhance ability and proclivity to **learn deeply, think critically, take active control** of learning, be **precise, accurate and clear** in communicating, learn in a **participatory** fashion and be open and enjoy the pursuit of understanding (Justice et al. 2002).

Utilizing an earlier framework by Pettigrew (1985) on contextualist research that links theory and practice, Justice et al. (2007) have demonstrated that inquiry learning is associated with statistically significant, positive differences in the rate of students earning passing grades, achieving Honours standing, achieving and staying on the Dean's Honour list, and remaining in university. Research has demonstrated that the positive learning outcomes of this inquiry experience include: the development of critical thinking skills; the ability to undertake independent inquiry; and the ability to become responsible for ones own learning, intellectual growth, and maturity (Kuhn et al., 2000; Kinkead, 2003; Kirschner et al. 2006). Skills developed in inquiry learning prepare students to become both researchers and lifelong learners (Justice et al., 2006).

Vajoczki et al. (*forthcoming*), building on the work of Justice et al. (2006 & 2007) examined the level of inquiry infiltration across the Social Sciences curriculum at McMaster through an examination of 545 course outlines. Findings demonstrated that the amount of inquiry varies greatly by level, department and class size. All departments within the Faculty exhibited some level of inquiry learning, with the greatest levels in the disciplines of Social Work, Labour Studies and Political Science; whereas, Gerontology, Anthropology and Geography exhibited the least amount of inquiry learning. In general, inquiry learning was more prevalent in small, upper year courses, although there were examples of large classes (>200 students) being taught using an inquiry approach at the earlier levels.

Conclusion

Ultimately, this work has demonstrated that although inquiry is an effective pedagogical approach based on learning outcomes, long-term sustainability is complicated. There are a number of questions that remain to be understood, such as: should level one inquiry as a stand alone course be replaced with discipline integrated inquiry now that sufficient instructors have taught inquiry in the stand-alone format; thus, developed their skills in this pedagogical approach?

This case study demonstrates that inquiry learning is a pedagogical approach that can permit a wide number of undergraduate students, at an early level of their undergraduate career, exposure to a student-centred, research-based experience according to the model proposed by Healey & Jenkins (2009). The Canadian case study from McMaster University aligns with the both, the Australian (Brew, 2010) and New Zealand (Spronken-Smith, 2010) perspective on the use of inquiry learning, as a pedagogical approach to enhancing the research-teaching nexus.

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