The Scholarship of Teaching and Learning and the Online Classroom

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ABSTRACT

This article explores the meaning of the scholarship of teaching and learning and describes how the concept has evolved over time. It then discusses how the scholarship of teaching and learning might contribute to developing effective online learning and, reciprocally, how online learning might change and advance the scholarship of teaching and learning. Through reflective, inquiry-based learning about teaching and the interactive capabilities of Internet communication technologies, higher education teachers can pursue excellence in promoting student learning.

RÉSUMÉ

Cet article explore la signification de l'érudition de l'enseignement et de l'apprentissage, et décrit comment ce concept a évolué avec le temps. Ensuite, on y discute comment l'érudition de l'enseignement et de l'apprentissage pourrait contribuer au développement d'un apprentissage efficace en ligne et, réciproquement, comment l'apprentissage en ligne pourrait changer ou faire avancer l'érudition de l'enseignement et de l'apprentissage. Les enseignants en études supérieures peuvent rechercher de l'excellence dans la promotion de l'apprentissage tout réfléchissant et enquêtant sur l'enseignement et sur les capacités interactives des technologies des communications de l'Internet.

INTRODUCTION

For this special issue on learning and teaching in online environments, we focus on the role of the scholarship of teaching and learning (SoTL) in advancing the field of online learning in higher education settings. "Online" is a term used to describe learning activities that take place using computer networks to provide access to learning materials, activities, and support. We chose to address this theme for two reasons. First, given our respective fields of academic interest and expertise (over the past 10 years, one of us has published extensively on SoTL and the other on online learning), we find ourselves uniquely positioned to explore how the two fields may intersect. Second, we believe that although a growing body of literature on SoTL has been developing since the Carnegie Foundation first published its influential report (Boyer, 1990), only a few books, articles, or conference presentations have discussed the role of SoTL specifically in relation to online learning.

We do not suggest that online learning is entirely unexplored territory within SoTL circles. However, the proceedings of the 2004 inaugural conference of the International Society of the Scholarship of Teaching and Learning (ISSoTL), held in Bloomington, Indiana, exemplify the tendency of SoTL to concentrate largely on face-to face teaching. The proceedings featured more than 300 abstracts of which only 15 mentioned online learning. The numbers for such contributions were comparable for the second ISSoTL conference held in Vancouver a year later (2005).

The continued focus on face-to-face teaching and learning may not be surprising given that most course offerings still take place in on-campus classroom settings (Centre for Educational Research and Innovation [CERI], 2005). Although much of the literature on this topic claims that fully online-delivered courses (e.g., distance courses delivered using Internet communication tools) have become part of the mainstream, research has revealed otherwise. CERI (2005) surveyed 19 tertiary-education institutions in 13 countries (Australia, Canada, France, Germany, Japan, Mexico, New Zealand, Spain, Switzerland, the United Kingdom, the United States, Brazil, and Thailand) regarding their online learning practices. Its findings revealed that student enrolment in fully online-delivered courses was well below 5% of total enrolments. One conclusion made by CERI was that "contrary to the predictions of the dot-com boom, distance online learning in general and cross-border e-learning in particular . . . have generally failed to emerge as significant activities or markets to date" (p. 12).

However, although online learning is not a mainstream activity in most higher education institutions, it is offered (in one form or another) by many, if not most, of these institutions. Indeed, according to Sir John Daniels, "Today no self respecting university president can admit to not offering

courses online" (p. 28). As such, it becomes imperative for those with respon-sibilities for the design or teaching of these courses to be mindful of how students studying in online learning environments can be best supported in their learning endeavours. In this regard, it is encouraging that the third ISSoTL conference held in Washington, DC, in November 2006 explicitly invited contributions on online learning. Specifically, the call for proposals stated:

> The ISSoTL 2006 Conference theme emphasizes how the scholarship of teaching and learning connects with broader currents of transformation. Possibilities include current research in the learning sciences, dialogue around issues of social justice and student ethical development, grow-ing imperatives for globally-conscious education, current approaches to disciplines and interdisciplinary thinking, new modes of teaching and learning through digital technologies and governmental interests in accountability. (http://www.issotl.indiana.edu/ISSOTL/call.html)

When Kreber (2002a) conducted a Delphi study on significant features and unresolved issues regarding SoTL, her research participants showed a high level of consensus on this statement: "How new technologies of instruc-tion may influence the development of a scholarship of teaching remains an unresolved issue" (p. 162). The Delphi panel in Kreber's study suggested that new technologies of instruction may shape or influence SoTL, but the editors of this special issue of *CJUCE* have conceptualized the relationship the other way around, namely, that SoTL possibly advances online learning. We chose to conceive of the relationship between SoTL and online learn-ing as reciprocal, and in this vein we discuss two questions in this article: first, how might SoTL advance the field of online learning and, second, how might the field of online learning inform or shape SoTL? Prior to engaging in this discussion, it is important that we be explicit about what we mean by online learning in this article.

ONLINE LEARNING DEFINED

We understand online learning to mean the use of Internet communication technologies to enhance and/or support learning in higher education, includ-ing technology-enhanced, blended/hybrid, and fully distance delivered. We acknowledge that many asynchronous and synchronous Internet commu-nication technologies and social software are currently being used in online courses (e.g., Centra/Elluminate; iVisualize/vocalize; Skype; blogs; Wikis; podcasts; instant messaging; Groove). However, learning management systems (LMS)—FirstClass, Blackboard, WebCT, Moodle, Lotus Notes—con-tinue to be the dominant technology for online courses. Thus, this article is concerned only with the use of LMS as the technology for online learning.

We also acknowledge that online learning can take on many forms, ranging from supplementing an on-campus course with online resources and a web-based course outline to fully online, distance-delivered courses. Based on the CERI (2005) survey finding that fully online courses will remain a minority, we focus here on the more widespread practice of blended online learning. Blended learning requires students to participate in online activities (e.g., online discussions, collaborative group projects/presentations, accessing course notes) as part of the course load, which is otherwise supported through face-to-face activities.

In the first part of this article we explore the meaning of SoTL and discuss how the concept has evolved over time. Although we acknowledge the important role of the Carnegie Foundation in the United States in defining and advancing SoTL (we refer interested readers to http://www.carnegie-foundation.org/programs/index.asp?key=21 for further information), we have chosen to emphasize different conceptualizations of SoTL and some of their common key features. In the second part of this article, we examine how SoTL might contribute to developing effective online learning environments and how SoTL itself might evolve as a result of effective online learning practices.

EXPLORING THE MEANING OF SoTL

SoTL has gained some prominence in higher education in recent years (Charbonneau, 2005; Huber & Hutchings, 2005). First introduced in the early 1990s by the Carnegie Foundation for the Advancement of Teaching in the United States (e.g., Boyer, 1990), the idea soon intrigued academics internationally, especially in the United Kingdom (D'Andrea & Gosling, 2002; Elton, 1992; Healey, 2000), Australia (Andresen, 2000; Martin & Ramsden, 2000; Trigwell, Martin, Benjamin, & Prosser, 2000), and Canada (Kreber, 2006a, 2005, 2002b; 2001; Taylor, 1993; Weston & McAlpine, 2001). Supporters of SoTL have suggested that university teaching is challenging and intellectual work and poses interesting as well as consequential questions, especially about student learning. Some have gone even further and recognized that the questions academics ask about their teaching and their students' learning, the approaches they use to answer them, and eventually the outcomes of their inquiries are worthwhile sharing with colleagues in ways that allow them to build on this work (Huber & Hutchings, 2005; Shulman, 2000). Members of the latter group are seen as those who practice SoTL. Therefore, the most common interpretation of SoTL is that of teachers "seeking evidence for what works" and then making their findings more widely available through various forms of dissemination (Charbonneau, 2005; Huber & Hutchings, 2005). Shulman's (2000) definition of SoTL is frequently cited:

> We develop a scholarship of teaching when our work as teachers becomes public, peer-reviewed and critiqued. And exchanged with members of our professional communities so they, in turn, can build on our work. These are the qualities of all scholarship. (p. 50)

SoTL is also deeply embedded within the disciplines (Healey, 2000; Huber & Morreale, 2002). Those who practise the scholarship of teaching and learning usually do not pursue pedagogical inquiry in just any discipline but rather in the one in which they have studied and developed expertise (e.g., social anthropology, human geography, astrophysics, or English literature). Huber and Morreale (2002) suggested that SoTL is characterized by many different disciplinary styles that have developed as a result of the research processes practised by academics from different disciplines. Thus, the questions that academics from sociology ask about student learning and teaching will be different from those posed by engineers, as will be the methods they use to seek answers to their questions. Huber and Morreale referred to these differences as the disciplines' "intellectual capital," which uniquely informs and contributes to SoTL. These multifaceted approaches are seen as adding to the richness of SoTL and to our understanding of how students learn and develop in different fields of study (Huber & Hutchings, 2005).

In the United Kingdom, there is a tendency to view SoTL principally as pedagogical research within a particular program or discipline. Although this perspective has certainly gained momentum in North America as well (and Shulman's definition of SoTL cited earlier is frequently interpreted in this vein), it is important to note that Huber and Hutchings (2005), in the latest Carnegie report on SoTL, espoused what they call "a big tent view" of SoTL. They suggested that while pedagogical research within the disciplines is clearly one important way of engaging in SoTL, much more modest or small-scale efforts aimed at reflecting on one's classroom teaching and at sharing what was learned also need to be recognized as valid ways of engaging with this kind of work.

A particularly important feature of SoTL is its ultimate aim of enhancing the student learning experience. Indeed, the evolution of SoTL over the past 15 years can be partially attributed to significant advances in our understanding of how students learn (Rice, 2006). Influential in this regard were the various private foundations in the United States (e.g., Kellogg, Lilly, Danforth, Ford) that for many years have made generous funding available for the study of teaching and learning. Rice (2006) described the situation this way:

> By the second half of the 1990s it was clear that a fundamental pedagogical change was taking place in American higher education and that the teaching role was being transformed . . . This pedagogical revolu-

tion was being effectively urged on by research on how people learn. The prestigious National Research Council launched a publication effort that documented and disseminated widely what was being discovered about learning from the cognitive sciences, psychology, education, and other disciplines. A new interdisciplinary field called "the science of learning" is in the throes of being established. (p. 19)

In the mid-1990s, Barr and Tagg (1995), writing in the widely read *Change* magazine, argued for a new paradigm for undergraduate education, one in which the focus would be not so much on teaching but on learning. In the same issue, Donald Schön (1995) suggested that the study of teaching and learning requires a new epistemology, one that acknowledges the importance of reflective practice in better understanding and exploring student learning and professional practice. The time was ready for SoTL to "come of age."

Recently, an important dimension has been added to the meaning of SoTL. It was proposed that students' success in meeting the challenges associated with the complexity of today's world hinges on them acquiring a "pedagogical intelligence"—a better understanding, or "meta-cognition," of themselves as learners (Huber & Hutchings, 2005; McKinney, 2002). More importantly, it was suggested that in order to help students acquire this pedagogical intelligence, they must be invited into SoTL. In effect, SoTL is not only seen as a process that is geared to creating a better learning experience *for* students but one that may also involve doing so *with* students. The process of faculty inquiring into student learning and teaching should (or at least could) directly involve students and, thus construed, students would become true participants in the scholarship of teaching and learning, rather than mere providers of data, and faculty and students would both engage in pedagogical learning and development. At the undergraduate level, this implies exploiting opportunities to directly involve students by encouraging them to become more reflective, more meta-cognizant, and more effective in their learning; at the graduate level, it implies providing opportunities for students to become involved as research assistants on pedagogical inquiry projects to allow them to develop not only content and research expertise within their discipline but also knowledge about what it means to teach the discipline at the university level.

How Conceptualizations of SoTL Have Evolved

Although the Carnegie report *Scholarship Reconsidered* (Boyer, 1990) was widely read and stimulated vibrant discussion on many campuses shortly after its release, it left several questions unanswered. Among these questions were whether excellence in teaching was the same as the scholarship of

teaching (Kreber, 2002b); how this form of scholarship might link to the three other areas of scholarship Boyer had referred to—the scholarships of discovery, application (now engagement), and integration (Paulsen, 2001); whether there was a difference between scholarly teaching and the scholarship of teaching (Richlin, 2001); whether all academics should be expected to engage in this kind of work (Kreber 2001); and how such work could possibly be assessed. In response to the last question, the Carnegie Foundation proposed that a new set of standards was needed for evaluating faculty performance. In its 1997 book *Scholarship Assessed*, a follow-up report to Boyer's (1990) *Scholarship Reconsidered*, Glassick, Huber, and Maeroff (1997) argued that for the various forms of scholarship (teaching, research, integration, and application) to be equally recognized, they all "must be held to the same standards of scholarly performance" (p. 22). To this end, they proposed six new standards: scholarly work must have clear goals, require adequate preparation, make use of appropriate methods, produce significant results, demonstrate effective presentation, and involve reflective critique. These criteria appear to be particularly useful for two types of projects, both of which can be easily recorded or reported: 1) discipline-specific pedagogical research and 2) pedagogical practices or educational innovations. Kreber and Cranton (2000) have since suggested that SoTL may include activities that are not captured by these two types of projects and argued that the traditional criteria by which to assess scholarly work, namely, that it requires a high level of discipline-related expertise, be innovative, can be replicated, elaborated, documented, and peer-reviewed, and, finally, be of significance or have impact (Diamond & Adam, 1993), if slightly reinterpreted, provide a solid foundation for the evaluation of teaching portfolios by which faculty (and other higher education teachers) could demonstrate their engagement in SoTL.

Given the various questions that the Boyer (1990) report raised, several conceptions or models of the scholarship of teaching (and learning) were developed, some of which are briefly outlined below.

Upon a review of the literature published up to the mid-1990s, Kreber and Cranton (2000) observed that SoTL was prone to at least three different interpretations. The first equated SoTL with what could be documented and read in books, articles, and peer-reviewed conferences on teaching (Richlin, 2001). According to this perspective, SoTL is conceptualized as the published outcome or product of pedagogical research. The second interpretation suggested that the scholarship of teaching could be observed by watching excellent teachers in action (Morehead & Shedd, 1996). Evidently, the assumption underlying this perspective was that SoTL and excellence in teaching were the same. However, Kreber (2002b) cautioned that although SoTL was certainly linked to teaching excellence, the reverse may not necessarily be the case, given the rather narrow ways by which excellence in university

teaching is sometimes determined. The third interpretation held that the scholarship of teaching was the prerogative of the educationalist whose publications, when read by faculty from disciplines other than education, would promote among them a more "scholarly approach" to teaching (Menges & Weimer, 1996).

Kreber and Cranton (2000) also offered their own interpretation of SoTL, which, in light of the emphasis it placed on reflective practice, was informed by transformative learning theory (Cranton, 1994; Kreber, 2006a; Mezirow, 1991). In essence, they proposed that the scholarship of teaching was both a process and an outcome and therefore involved both "learning" about matters related to university teaching (e.g., student learning) and "knowing" about university teaching. As a consequence of acquiring knowledge about teaching and student learning, faculty members would use this knowledge to inform their teaching practice. Kreber and Cranton further suggested that individuals who practise SoTL engage in reflection in three different knowledge domains with respect to university teaching: first, knowledge about the generic goals and purposes of higher education and those relating specifically to the courses and programs they are responsible for; second, knowledge about learning and student development in relation to these identified goals and purposes; and, third, knowledge about teaching strategies, learning activities, and assessment methods suited to bring about the desired learning or development (Kreber, 2006a). As academics engage in reflection in each of these three interrelated domains, they construct, validate, and possibly revise their knowledge about why, what, and how they teach, which in turn may lead to changes in practice. Before clarifying what is meant by "reflection," however, we offer two general observations about the knowledge domains just described.

First, it seems obvious that the knowledge base of university teaching also includes a deep understanding of the discipline or subject being taught. Years of (post) graduate study have prepared most university teachers very well in this regard. It has been argued that those who are actively engaged in research could make the most important contributions to teaching at the undergraduate level (Boyer Commission, 1998). At the same time, it is widely known that the best researchers are not necessarily the best teachers (Hattie & Marsh, 1996). This finding strongly suggests that the knowledge base of teaching needs to involve not only subject-matter knowledge or content expertise (although this is one essential aspect of scholarship in university teaching) but also "pedagogical content knowledge" (Shulman, 1987). Teachers who have acquired pedagogical content knowledge know how the subject or content needs to be taught so that student learning is optimally facilitated. These teachers know where students are likely to experience difficulty and how to explain difficult constructs in ways that students under-

stand. The knowledge domain of "learning and student development" in Kreber and Cranton's (2000) model is to be interpreted as being inclusive of pedagogical content knowledge.

Second, although the second knowledge domain (i.e., student learning and development) has gained secure status within SoTL, the first domain (goals and purposes) is typically less strongly emphasized. This we perceive as problematic, given that higher education institutions are operating in an increasingly complex policy environment. Not only are classes getting bigger and the student audience more diverse (which has all kinds of immediate implications for teaching and assessment methods) but universities and colleges also need to respond to (oftentimes) conflicting demands from governments, industry, students, and the public at large. Internationally, universities have also become increasingly more corporate as they begin to model their internal governance structures after big organizations that emphasize efficiency and effectiveness and become more profit driven (Aronowitz, 2000; Deem & Brehony., 2005; Newson & Buchbinder, 1988; Slaughter, 1998). As a result they could far too easily lose sight of their traditional values such as curiosity-driven research, social criticism, and the preparation for civic life. The repeated call for universities to produce "knowledge workers" and otherwise ensure the employability of their graduates has led at least one Canadian colleague to observe:

> More than ever, higher education is expected to cater directly, quickly, and continually to the demands of the marketplace . . . Preparing graduates for employment is undeniably part of the university endeavour . . . but in the race for riches, symbolized by endless rhetoric about the need for Canada to become globally competitive, technologically advanced, and proficient at churning out "knowledge workers" for the twenty-first century, something significant is being lost. (Axelrod, 2002, pp. 3–4)

Clearly, questions that require thoughtful debate in such an environment include: How can specialized training and development be complemented with more generic education and training? and How can institutions strike a balance between skills development on the one hand and knowledge acquisition on the other? Delegates to the World Conference on Higher Education (1998), sponsored by UNESCO, proposed that, next to discipline-specific knowledge and skills, university graduates should be able to demonstrate that they can cope with uncertainties, work in teams, apply generic skills that cut across different disciplines, and be literate in areas of knowledge that form the basis for various professional skills, for example, in new technologies (also cited in Kreber, 2006b). Although generic skills may be teachable to some extent through discipline-specific courses (Kreber, in press), it is widely acknowledged that there are discipline-specific differences in the

thinking skills that students acquire as part of their university education (Donald, 2002). Indeed, designing curricula and employing pedagogies that are suited to promote student learning toward both generic and discipline-specific knowledge and skills is a challenging task. We therefore suggest that "knowledge," or rather "reflective critique" (see below), of the generic goals, purposes, and learning outcomes of higher education and of those specific to particular disciplines (courses and programs) needs to be recognized as an important dimension of SoTL. If scholars of teaching do not ask questions with respect to goals and purposes, who will?

Content, Process, and Premise Reflection

What is the nature of reflection in Kreber and Cranton's (2000) model of SoTL? Reflection can take three forms—content reflection, process reflection, and premise reflection (see also Cranton, 1994; Mezirow, 1991).

Content reflection is directed at describing the problem to be solved and typically elicits a habitual response. As such, it helps us articulate what at any given time we assume to be true (e.g., I know that students are more motivated to study if assessment pressures are high). Although it can be argued that individuals making such a statement have engaged in "reflection," this (content) reflection has not helped them further their own (let alone anyone else's) knowledge as it has led essentially to nothing more than them making an assertion. In process reflection, teachers direct their thinking at the effectiveness of the problem-solving strategy itself (e.g., How effective am I in generating alertness to assessment throughout the semester so that students feel motivated to learn and prepare for class?). Finally, in premise reflection, a typical question would be: Why do I think that alertness to formal assessment is the best motivator for student learning—what might be alternative ways of motivating students to engage with the material? The crucial difference between process and premise reflection is that process reflection takes the premise (or presupposition) articulated through content reflection for granted, whereas premise reflection calls this premise into question. All three forms of reflection have their place, but as the illustration has shown, it is process and particularly premise reflection that hold the greatest potential for promoting teacher development.

Kreber and Cranton's (2000) model further suggested that reflection is informed by two sources of knowledge. The first relates to knowledge that academics construct through their personal and collective experiences of teaching (see also Weimer's [2006] notion of a "wisdom of practice"); the second relates to what is already known about teaching and learning through pedagogical research, the latter being carried out either by others (and accessible through books, articles, or conferences on teaching and learning) or

by the academics themselves. Finally, Kreber and Cranton proposed that there are various ways for individuals who engage in this kind of work to go public and share their insights. The essential feature of their model is the understanding that the knowledge claims made by academics in regard to the three domains of "teaching knowledge" (i.e., educational goals and purposes, learning and student development, and instruction and assessment) need to be validated and that this validation process must somehow be documented and "peer reviewed" for the work to count as scholarship. Kreber and Cranton went on to propose alternative ways to conduct peer reviews, based on teaching portfolios, and provided numerous examples of indicators of the different forms of reflection, which range from observing and talking to students to writing articles based on pedagogical inquiry.

Kreber and Cranton's model is compatible with Andresen's (2000) definition of scholarship. Andresen suggested that the "scholarship of teaching" can be observed when academics engage in critical scrutiny of the "what," "how," and "why" of teaching, just as they would with respect to any proposition in their discipline's field of research or theory. He added that the work requires a deep knowledge base and that it needs to be peer reviewed and made public.

Kreber and Cranton's model also shares important features with the model introduced by Trigwell et al. (2000). They explored the meaning of SoTL from the perspective of 20 faculty members at an Australian university in order to identify the conceptions of SoTL espoused by these participants. Following the tradition of phenomenography (Marton, 1981), their study revealed five qualitatively different ways in which SoTL was interpreted. These five conceptions were hierarchical in nature, moving from a concern with what the teacher does to an increased focus on students and their learning. Each conception was defined by a teacher's stance along four dimensions: first, the extent to which he or she is informed about the relevant pedagogical literature (note that this pedagogical literature can be discipline-specific or more generic); second, the extent to which he or she is engaged in reflection; third, the extent to which he or she communicates or shares obtained insights; and fourth, the extent to which he or she holds either a teacher- or student-focused conception of teaching.

Précis

Teachers who practice SoTL engage in inquiry-based learning about teaching as they become involved in a process of pedagogical problem-solving and discovery. This inquiry process shares important features with the kind of learning they are familiar with in their discipline. The extent to which they engage in such inquiry varies; some engage in full-fledged pedagogical research in their discipline, while others engage in it in more modest

ways, as by critically reflecting on their teaching (Huber & Hutchings, 2005) and demonstrating such reflection. More recently, academics interested in broadening the scope of SoTL have begun to apply the process of pedagogical inquiry to online learning practices. As noted earlier, it has also been suggested that "new technologies of instruction" may have implications for SoTL (Kreber, 2001). A discussion follows on how SoTL might advance the field of online learning and how online learning might change and advance SoTL.

HOW SoTL CONTRIBUTES TO THE FIELD OF ONLINE LEARNING

Leaders in the field have argued that online learning can overcome many of the challenges currently facing institutions of higher learning, especially the growing criticism of the declining quality of teaching, most notably in large first- and second-year undergraduate courses, which provide little more than content dissemination through the lecture method. A particularly optimistic and prominent view of online learning is that the integration of computer conferencing into on-campus courses (known as "blended/hybrid learning") could increase the quality of the student learning experience through initiating critical discourse in the discussion forums. If effectively facilitated, so the argument goes, this could lead to higher levels of learning (e.g., critical, creative, and complex thinking) and, hence, overcome the lack of interactivity that currently characterizes most early undergraduate on-campus courses (Garrison & Kanuka, 2004; Twigg, 2003). Evidence of the widespread belief that online learning (including the use of Internet communication tools for blended learning and fully distance-delivered learning) is effective at promoting high levels of learning was revealed in a Canada-wide survey conducted by McGraw-Hill Ryerson (Saundercook & Cooper, 2003). The survey results indicated that 57% of respondents believed that online learning has a positive impact on course content, course delivery, and student learning. Similar findings were also reported in the Centre for Educational Research and Innovation (CERI) (2005) study, with most participants claiming that the Internet has a "broadly positive pedagogic impact" (p. 13). Respondents in the McGraw-Hill Ryerson survey further suggested that online learning is effective at achieving greater student participation and greater student interest: "Over a third of 'extremely or very satisfied' faculty say they are so because their students are satisfied" (Saundercook & Cooper, 2003, p. iii). Of even greater significance was respondents' perception that "web-based technology allows the opportunity to . . . improve critical thinking" (pp. 17–18), which is, after all, a fundamental objective of higher education.

Unfortunately, however, the research conducted on online learning over the last two decades has revealed that higher-order learning is not easily achieved in the online classroom (Garrison, Anderson, & Archer, 2001; Gunawardena, Lowe, & Anderson, 1997; Kanuka & Anderson, 1998). On this topic, Ehrmann (1999) observed that not only do we lack good data about online learning but also few institutions of higher education are making efforts to get this information. Even though research has shown that Internet technology *can* bring about higher levels of learning (Klemm & Snell, 1996), much remains to be understood about implementing online learning activities in order that they optimally facilitate the development of a meaningful educational experience for students (Kanuka & Garrison, 2004). The McGraw-Hill Ryerson survey (Saundercook & Cooper, 2003) provided further empirical evidence of this problem when survey results revealed that, although more than half of those surveyed perceived online learning to be capable of facilitating higher-order learning skills such as analysis, synthesis, and evaluation, respondents also expressed that they "still need considerable support for more advanced uses such as creating online learning activities that encourage critical thinking and students' engagement with course content" (p. 12). Only 1% of the survey participants indicated that they were able to use online resources to help improve critical thinking and ranked "promoting critical thinking" as the number one area where support is required.

Despite evidence that there is still much to learn about how to facilitate higher levels of learning in the online classroom, most institutions of higher education offer some form of online learning today. Given the expanding interest and demand for online learning, coupled with the results of studies showing that higher levels of learning are not easily achieved in online courses, there is an imperative to advance our understanding of how to facilitate effective online learning activities.

Past research has revealed a variety of possible reasons why we continue to lack understanding about how to achieve higher-order thinking in the online classroom. The most probable reason is that teachers are trying to facilitate their online learning activities in the same way as they facilitate their face-to-face learning activities (Kanuka, 2002a, 2002b). In this case, it appears that our understanding of effective learning is shaped by the experiences with which we are most familiar. More often than not, academics enter the university teaching profession without much teacher preparation and/or teaching experience. And yet, despite this lack of adequate training, many academics manage to meet their teaching responsibilities by emulating professors whom they thought highly of as teachers. Although there has been much debate on whether the absence of adequate teacher preparation results in less-effective university teaching, many academics nevertheless do a satis-

factory job in the classroom based on little more than their own experiences as students. In the online classroom, however, academics have little (if any) prior experience upon which to guide their teaching practices. Consequently, traditional tenets of teaching tend to be transferred to the online classroom, creating the same discontinuities to online learning that are present in established on-campus learning environments (Haughey, 1995; Kanuka, 2002b). This is partly the result of the transfer of traditional beliefs to online learning and partly the result of the ways in which online instructors have chosen to use communication technologies.

If the potential of online learning is to be reached, there is a recognized need to expand our perspectives of online teaching and learning practices beyond the current dominant practices in face-to-face and on-campus classrooms (Kanuka, 2005). To move us beyond the desire to replicate on-campus classroom traditions in online classrooms, it is useful to engage in pedagogical problem-solving and discovery about online teaching—or SoTL. For example, Kreber and Cranton's (2000) model of SoTL can contribute to our understanding of how to develop effective online learning environments. By using the three forms of reflection (content, process, and premise) within the three domains of teaching knowledge (goals and purposes of online learning, desirable learning and developmental outcomes, and online teaching and assessment strategies), we can explore the effectiveness and meaningfulness of online learning practices from two sources of knowledge: first, the knowledge that academics construct as a result of their personal experiences of teaching online courses and, second, the knowledge they gain from pedagogical inquiry (either research done by others and accessible through books, articles, and conferences or inquiry they carry out themselves). In so doing, teachers involved in online learning become engaged in inquiry-based learning about online teaching or, put differently, become online teachers who practise SoTL. As these teachers become involved in the process of pedagogical problem-solving, they gain insight into online teaching by actively seeking such knowledge. If we also take into account Andresen's (2000) understanding of scholarship (noted earlier), then reflective online teacher-practitioners will work from a deep knowledge base (which relates to both their expertise in the discipline per se and their knowledge of what is known about online learning) and make their discoveries public and peer reviewed. When such discoveries are made public, the results contribute to the body of knowledge on how to develop effective online learning environments.

CONCLUSIONS

How Online Learning Contributes to the Field of SoTL

Although we acknowledge there is still much to be learned about effectively facilitating higher-order learning in the online classroom, on the flip side, online learning has contributed a great deal to the knowledge of effective teaching and learning and there is enormous potential for the field of online learning to contribute to SoTL. Online learning has already made several contributions, including the reality that the visibility and accountability associated with online courses are greater, courses benefit from a team of instructional-design experts, and coming to class unprepared is simply not an option for instructors (Collett, Kanuka, Blanchette, & Goodale, 1999). Twigg (2003) argued that perhaps the most significant impact of online learning has been higher education institutions' acknowledgment of the value of instructional-design methodology. For example, because online learning allows for greater flexibility in terms of delivery, it has enormous potential to transform the dominant practice of teaching with texts and talk to more reflective and interactive learning activities. In particular, online learning permits the interactive capabilities of Internet communication technologies to enable the discovery of new kinds of pedagogical practices—such as engaging students in inquiry-based learning (Kanuka, 2006)—for exploring the possibilities of forming new connections between and among the students, the teachers, and the content. These kinds of exploratory practices result in an increased capacity to interact with students as learning partners, rather than as receptacles of disseminated course content.

The motivation to engage in inquiry-based online teaching practices stems from the need to pay attention to the front-end of the design process. In particular, online learning has the potential to be very effective in higher education institutions because online courses must be designed such that alternative instructional methods take the place of the lecture method. In terms of promoting higher-level learning, the lecture method has been identified as largely ineffective in comparison to other, more interactive instructional methods (Garrison & Anderson, 2003). When instructors try to replicate their lecture methods in the online classroom by merely placing their lecture notes on websites, it becomes painfully visible that the students' experience in the course involves little, if any, interaction and communication between and among the teacher and other students. Indeed, when lecture notes are placed on the web without corresponding learning activities, the instructional experience students enjoy is little different from what could be achieved through a correspondence course. The question then becomes: How different is the dominant on-campus practice of the lecture method

from correspondence study (a form of educational delivery that most higher education institutions do not consider to be a credible form of learning)?

It has also become evident that the lecture method used successfully by many academics relies quite heavily on personal charisma. Specifically, online learning has been shown to have a levelling effect between teachers who are charismatic and those who teach their content in a rigorous and critical manner. Prior research indicating that student ratings of instruction are good indicators of student satisfaction with a course—but offer little as a measure of effective instruction (Dziuban, Wang, & Cook, 2004)—comes to mind in this context.

The need to use instructional-design methods in the online classroom often forces teachers to rethink and reflect on their current teaching practices and to engage in pedagogical problem-solving, which oftentimes results in their use of alternative instructional strategies such as self-assessment activities, simulations, peer-to-peer online discussion groups, online portfolios, online tutorials, digital learning object repositories, and WebQuests or similar inquiry-based activities (Garrison & Kanuka, 2004; Kanuka, 2005). These kinds of online learning approaches—which are antithetical to established transmission models such as the lecture method—tend to be particularly effective at enhancing the on-campus experience by extending learning through creative uses of Internet communication technologies. Learners appreciate educational experiences characterized by learning that is practical, situated, inquiry based, authentic, active, and context dependent. To facilitate these kinds of learning activities, however, teachers must be familiar with both instructional and blended-learning designs and be able to deal with their subject matter in a thorough and critical manner. As online learning becomes more pervasive in higher education institutions (in particular, blended/hybrid learning), teachers are realizing that they must rethink their current practices. It is in this way that online learning is making important contributions to the field of SoTL. Thoughtful and reflective teacher-practitioners in higher education institutions are realizing that when online learning is effectively integrated, using interactive methods of alternative instructional strategies in combination with face-to-face instruction, the results can be remarkably effective at achieving higher-order learning objectives (for examples, see Kanuka, 2005; Kanuka, Rourke & Laflamme, in press).

Finally, it should be mentioned, albeit in passing, that online teaching (or "new instructional technologies," as Kreber's [2002a] Delphi panel put it) changes the ways in which teachers will be able to conduct and disseminate SoTL projects. With respect to dissemination, there are now several online journals that focus specifically on SoTL projects, for example, *Mountainrise*, *International Journal for the Scholarship of Teaching and Learning*, and *The International Journal of Teaching and Learning in Higher Education*. With respect

to carrying out such projects, classroom research (Steadman & Cross, 1996) and classroom-assessment techniques as introduced by Cross and Angelo (1993) will need to take on different forms in the online classroom. Most generally, it can be argued that online teachers will experience fewer opportunities to rely on informal feedback to inform their practice (such as observing students in class, talking to students after class, and listening to students' comments in the hallway) and that SoTL calls for more robust pedagogical inquiry approaches, such as online surveys, textual analysis of students' comments (e.g., discourse analysis), and careful examination of students' assignments, interviews, etc. Again, it is obvious that the entire SoTL community stands to benefit from the robust data collection and analysis methods employed by online scholars of teaching.

Advancing the Field of Online Learning through SoTL and Vice Versa

It is widely accepted that asynchronous online communication can support various important forms of interaction between students and teachers (Bates, 2005; Bates & Poole, 2003; Salmon, 2000). The central pedagogical gains are the opportunities provided by online learning for student-student and student-teacher interaction, such as discussion and dialogue (Bates, 2005). Online learning can enable and inspire instructors to acquire radically new and different understandings of pedagogy, as well as transform practices entrenched in university traditions that are less effective in promoting higher-order learning—such as the lecture method (Garrison & Anderson, 2003). As a result, higher education institutions may become more successful in graduating students who have developed critical and creative thinking skills.

REFERENCES

Allen, I. E., & Seaman, J. (2005). *Growing by degrees: On-line education in the United States 2005*. Needham, MA: The Sloan Consortium.

Andresen, L. W. (2000). A usable, trans-disciplinary conception of scholarship. *Higher Education Research and Development*, *19*(2), 137–153.

Aronowitz, S. (2000). *The knowledge factory. Dismantling the corporate university and creating true higher learning*. Boston: Beacon Press.

Axelrod, P. (2002). *Values in conflict*. Montreal, QC: McGill-Queens University Press.

Barr, R., & Tagg, J. (1995). From teaching to learning—A new paradigm for undergraduate education. *Change*, *November/December*, 13–25.

Bates, A. W. (2005). *Technology, e-learning and distance education* (2nd ed). New York: Routledge Falmer Studies in Distance Education.

Bates, A. W., & Poole, G. (2003). *Effective teaching with technology in higher education: Foundations for success*. San Francisco: Jossey-Bass.

Boyer, E. (1990). *Scholarship reconsidered*. Washington, DC: The Carnegie Foundation.

Boyer Commission on Educating Undergraduates in the Research University. (1998). *Reinventing undergraduate education: A blueprint for America's research universities*. Stony Brook, NY: Stony Brook State University.

Cambridge, B. L. (2000). The scholarship of teaching and learning: A national initiative. In M. Kaplan & D. Lieberman (Eds.), *To improve the academy* (pp. 55–68). Bolton, MA: Anker.

Centre for Educational Research and Innovation (CERI). (2005). *E-learning in tertiary education. Where do we stand?* Paris: Organisation for Economic Co-operation and Development (OECD) Publishing.

Charbonneau, L. (2005). Scholarship of teaching comes of age. *University Affairs* (AUCC), *June-July*, 1–3.

Collett, D., Kanuka, H., Blanchette, J., & Goodale, C. (1999). *Learning technologies in adult distance education.* Edmonton: University of Alberta Press.

Cranton, P. (1994). *Understanding and promoting transformative learning.* San Francisco: Jossey-Bass.

Cross, P., & Angelo, T. (1993). *Classroom assessment techniques.* San Francisco: Jossey-Bass.

Cross, P. K., & Steadman, M. H. (1996). *Classroom research: Implementing the scholarship of teaching.* San Francisco: Jossey-Bass.

D'Andrea, V., & Gosling, D. (2002). *A multidisciplinary approach to promoting scholarship of teaching and learning*. Paper presented at the Meeting of the International Consortium for Educational Development, Spheres of Influence: Ventures and Visions in Educational Development, July 3–6, The University of Western Australia, Perth.

Daniel, J. (Sir). (2000). *The university of the future and the future of universities*. Retrieved April 29, 2006, from http://www.open.ac.uk/ johndanielspeeches/FrankfurtJuly2000.htm.

Deem, R., & Brehony, K.J. (2005). Management as ideology: the case of 'new managerialism' in higher education. *Oxford Review of Education, 31*(2), 217–235.

Diamond, R. M., & Adam, B. E. (Eds.) (1993). Recognizing faculty work: Reward systems for the year 2000. *New Directions for Higher Education, 81.* San Francisco: Jossey-Bass.

Donald, J. G. (2002). *Learning to think.* San Francisco: Jossey-Bass.

Dziuban, C. D., Wang, M. C., & Cook, I. D. (2004). *Dr. Fox rocks: Student perceptions of excellent and poor college teaching.* Retrieved April 29, 2006, from http://www.oswego.edu/~celt/Dziuban_FoxJan_2004.DOC.

Ehrmann, S. (1999). *What do we need to learn about technology use in education?* Retrieved April 30, 2006, from http://www.tltgroup.org/resources/fquestions.html.

Elton, L. (1992). Research, teaching and scholarship in an expanding higher education system. *Higher Education Quarterly, 46*(3), 252–268.

Garrison, D. R., & Anderson, T. (2003). *E-learning in the 21ˢᵗ century: A framework for research and practice.* New York: Routledge Farmer.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education, 15*(1), 7–23.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education, 7*(2), 95–105.

Glassick, C. E., Huber, M. T., & Maeroff, G. I. (1997). *Scholarship assessed. Evaluation of the professoriate.* San Francisco: Jossey-Bass.

Gunawardena, C., Lowe, C., & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. *Journal of Educational Computing Research, 17*(4), 395–429.

Hattie, J., & Marsh, H. W. (1996). The relationship between research and teaching: A meta-analysis. *Review of Educational Research, 66*, 507–542.

Haughey, M. (1995). Distinctions in distance: Is distance education an obsolete term? In E. Keough & J. Roberts (Eds.), *Why the information highway? Lessons from open and distance learning* (pp. 2–14). Toronto: Trifolium Books.

Healey, M. (2000). Developing the scholarship of teaching in higher-education: A discipline-based approach. *Higher Education Research and Development, 19*(2), 169–189.

Huber, M., & Hutchings, P. (2005). *The advancements of learning: Building the teaching commons*. *The Carnegie Foundation Report on the Scholarship of Teaching and Learning*. The Carnegie Foundation for the Advancement of Teaching. San Francisco: Jossey-Bass.

Huber, M. T., & Morreale, S. P. (2002). Situating the scholarship of teaching and learning: A cross-disciplinary conversation. In M. T. Huber & S. P. Morreale (Eds.), *Disciplinary styles in the scholarship of teaching and learning: Exploring common ground* (pp. 25–45). Washington, DC: American Association for Higher Education and The Carnegie Foundation for the Advancement of Teaching.

Kanuka, H. (2006). Inquiry-based learning with the net: Opportunities and challenges. In C. Kreber (Ed.), *Exploring research-based teaching. New Directions for Teaching and Learning, No. 107* (pp. 57–69). San Francisco: Wiley/Jossey-Bass.

Kanuka, H. (2005). An exploration into facilitating higher levels of learning in a text-based Internet learning environment using diverse instructional strategies. *Journal of Computer Mediated Communication, 10*(3). Available at http://jcmc.indiana.edu/vol10/issue3/kanuka.html.

Kanuka, H. (2002b). Guiding principles for facilitating higher levels of web-based distance learning in post-secondary settings. *Distance Education, 23*(1), 163–182.

Kanuka, H. (2002a). A principled approach to facilitating diverse strategies for web-based distance education. *Journal of Distance Education, 17*(2), 71–87.

Kanuka, H., & Anderson, T. (1998). On-line social interchange, discord, and knowledge construction. *Journal of Distance Education, 13*(1), 57–74.

Kanuka, H., & Garrison, D. R. (2004). Cognitive presence in online learning. *Journal of Computing in Higher Education, 15*(2), 30–49.

Kanuka, H., Rourke, L., & Laflamme, E. (in press). The influence of instructional methods on the quality of online discussion. *British Journal of Educational Technology.*

Klemm, W. R., & Snell, J. R. (1996). Enriching computer-mediated group learning by coupling constructivism with collaborative learning. *Journal of Instructional Science and Technology, 1*(2). Retrieved March 29, 2004, from http://www.usq.edu.au/electpub/e-jist/docs/old/vol1no2/article1.htm.

Kreber, C. (Ed.). (in press). *Teaching and learning within and beyond disciplinary boundaries.* London and New York: Routledge.

Kreber, C. (2006b). Setting the context: The climate of university teaching and learning. In C. Kreber (Ed.), *International policy perspectives on improving learning with limited resources. New Directions for Higher Education* (chapter one). San Francisco: Jossey-Bass/Wiley.

Kreber, C. (2006a). Developing the scholarship of teaching through transformative learning. *Journal of the Scholarship of Teaching and Learning*, *6*(1), 88–109.

Kreber, C. (2005). Charting a critical course on the scholarship of university teaching movement. *Studies in Higher Education, 30*(4), 389–407.

Kreber, C. (2002b). Teaching excellence, teaching expertise, and the scholarship of teaching. *Innovative Higher Education, 27*(1), 5–23.

Kreber, C. (2002a). Controversy and consensus on the scholarship of teaching: A Delphi study. *Studies in Higher Education, 27*(2), 151–167.

Kreber, C. (Ed.). (2001). Kreber, C. (Ed.) (2001). Scholarship revisited: Perspectives on the scholarship of teaching and learning. *New Directions for Teaching and Learning, 86*. San Francisco, CA: Jossey-Bass.

Kreber, C., & Cranton, P. A. (2000). Exploring the scholarship of teaching. *Journal of Higher Education*, *71*(4), 476–495.

Martin, E., & Ramsden, P. (2000). Introduction. *Higher Education Research and Development, 19*(2), 133–135.

Marton, F. (1981). Phenomenography—Describing conceptions of the world around us. *International Science*, *10*, 177–200.

McKinney, K. (2002). *The scholarship of teaching and learning: Current challenges and future visions*. Paper presented at installation of the Cross Endowed Chair in the Scholarship of Teaching and Learning, July, Illinois State University, Normal, Illinois.

Menges, J., & Weimer, M. (1996). *Teaching on solid ground: Using scholarship to improve practice.* San Francisco: Jossey-Bass.

Mezirow, J. (1991). *Transformative dimensions of adulthood*. San Francisco: Jossey-Bass.

Morehead, J. M., & Shedd, P. J. (1996). Student interviews: A vital role in the scholarship of teaching. *Innovative Higher Education*, 20(4), 261–269.

Newson, J., & Buchbinder, H. (1988). *The university means business: Universities, corporations, and academic work*. Toronto: Garamond Press.

Paulsen, M. B. (2001). The relationship between research and the scholarship of teaching. In C. Kreber (Ed.), *Revisiting scholarship: Identifying and implementing the scholarship of teaching*, *New Directions for Teaching and Learning, No. 86* (pp. 19–29). San Francisco: Jossey-Bass.

Rice, G. (2006). Enhancing the quality of university teaching and learning: The U. S. experience. In C. Kreber (Ed.), *International policy perspectives on improving learning, New Directions for Higher Education, No. 133* (pp. 13 22). San Francisco: Jossey-Bass/Wiley.

Richlin, L. (2001). Scholarly teaching and the scholarship of teaching. In C. Kreber (Ed.), *Revisiting scholarship: Identifying and implementing the scholarship of teaching*, *New Directions for Teaching and Learning, No. 86* (pp. 57–68). San Francisco: Jossey-Bass.

Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.

Saundercook, J., & Cooper, P. M. (2003). *Technology and student success in higher education. A research study on faculty perceptions of technology and student success. (4th annual)*. Toronto: McGraw-Hill Ryerson.

Schön, D. (1995). The new scholarship requires a new epistemology. *Change*, *November/December*, 27–34.

Shulman, L. S. (2000). From Minsk to Pinsk: Why a scholarship of teaching and learning? *Journal of Scholarship in Teaching and Learning* (JoSoTL), *1*(1), 48–53.

Shulman, L. S. (1987). Knowledge and teaching. *Harvard Educational Review*, *57,* 1–22.

Slaughter, S. (1998). National higher education policies in a global economy. In J. Currie & J. Newson (Eds.), *Universities and globalization. Critical perspectives* (pp. 45–70). Thousand Oaks, CA: Sage.

Taylor, K. L. (1993). The role of scholarship in university teaching. *The Canadian Journal of Higher Education, 23*(3), 64–79.

Trigwell, K., Martin, E., Benjamin, J., & Prosser, M. (2000). Scholarship of teaching: A model. *Higher Education Research and Development, 19*(2), 155–168.

Twigg, C. A. (2003). Improving learning and reducing costs: New models for online learning. *EDUCAUSE Review, 38*(5), 29–38.

Weimer, M. (2006). *Enhancing scholarly work on teaching and learning*. San Francisco: Jossey-Bass.

Weston, C., & McAlpine, L. (2001). Making explicit the development towards the scholarship of teaching. In C. Kreber (Ed.), *Revisiting scholarship: Identifying and implementing the scholarship of teaching*, *New Directions for Teaching and Learning, No. 86* (pp. 89–97). San Francisco: Jossey-Bass.

World Conference on Higher Education. (1998). *Higher education in the twenty-first century. Vision and action. Volume I, Final Report*. Paris: UNESCO Publishing.

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