Can SoTL Generate High Quality Research while Maintaining its Commitment to Inclusivity?

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The Scholarship of Teaching and Learning (SoTL) faces an emerging challenge as it seeks to balance commitments to disciplinary inclusivity and scholarly quality. We undertake a scoping review of 64 articles across three leading SoTL journals to investigate how the literature balances these twin commitments by exploring what questions are being asked, what methods are being used, and how these may be impacting the inferences that are being made within that scholarship. We advocate for a more focused definition of SoTL that can help reinforce its legitimacy within institutional power structures of scholarship, and for partnerships across disciplinary boundaries to be a central pillar of SoTL that is both high quality and disciplinarily inclusive.

INTRODUCTION: SOTL'S COMMITMENT TO INCLUSIVITY

The Scholarship of Teaching and Learning (SoTL) occupies a unique position within the landscape of academic research. It remains a relatively new area of inquiry, having only cemented its status as a free-standing discipline over the past few decades. Boyer's (1990) definition of teaching as a scholarly activity catalyzed the emergence of SoTL as a field that provides evidence-based change to teaching and learning at various scales across the university (Felten & Chick, 2018; Hubbal & Clarke, 2010). Today, SoTL is among the fastest growing of all academic disciplines. Alongside mounting institutional support for SoTL, the number of SoTL publications continues to swell, as does its institutional profile; in Canada, membership of SoTL Canada grew eightfold in just under four years (Chick et al., 2021; Simmons & Poole, 2016).

But what makes SoTL truly unique amongst its comparator disciplines is its inclusivity and invitations to scholars beyond its disciplinary boundaries, with practitioners gravitating to SoTL from across the university. The diversity of backgrounds means that a constant within the field is the trans-, multi-, and cross-disciplinary nature of methods and approaches rooted in their own epistemologies (Hubball & Clarke, 2010), resulting in a "…relatively loose set of practices rather than a singular or simple set of methodologies" (Felten & Chick, 2018, p. 5). This commitment to pluralism is a crucial part of SoTL's identity as a "methodological and theoretical mutt" (Felten, 2013, p. 121), one that welcomes and encourages contributions from every disciplinary background. This is touted as a strength of SoTL (Glassick, Huber, & Maeroff, 1997), with the metaphor of a "big tent" often being used to describe the boundaryless confines of a field defined by the absence of walls (Huber & Hutching, 2005).

In our view, this commitment to disciplinary inclusivity is at once SoTL's greatest strength and potentially its greatest weakness. It represents a strength in that this sprawling, welcoming branch of scholarship is accessible to all regardless of their disciplinary origins, and this foundational appreciation for the value offered by a plurality of perspectives adds to the richness of the scholarship produced and the pathways one can explore to enrich their teaching and the student experience. We agree with Huber and Hutching (2008) that "the scholarship of teaching and learning is strengthened by its methodological and theoretical pluralism, and by having, as a consequence, the potential for lots of lively exchange across fields and contexts" (p. 233). But, in our experience, SoTL's commitment to disciplinary inclusivity can also be perceived as a weakness, particularly to those peering into the tent from outside. SoTL's trajectory has been largely defined by transdisciplinary tensions. Miller-Young, Yeo, and Manarin (2018) contend that SoTL continues to rely on language, measures and methodologies adopted from the social sciences; one of the major barriers reported for instructors engaging in SoTL is a lack of training in social science methods (see Boshier, 2009; Niamh, Nesbit, & Oliver, 2012). SoTL practitioners are often required to learn and apply new languages, measures, methodologies, and ideas of knowledge and evidence that may be incongruent with their disciplinary approaches to scholarship, leaving many feeling unprepared or ill-equipped to take on SoTL questions and projects (Lattuca & Creamer, 2005). Work exploring these tensions in STEM fields found that the epistemological shift required faculty to appreciate the value of qualitative and mixed methods approaches, which tended to contradict their more positivistic perspectives on research and evidence (Borrego, 2007; Kelly et al., 2012). Faculty from the humanities often report feeling marginalized within SoTL and a pressure to change to empirical methodologies that challenge their traditional disciplinary approaches to scholarship (Bloch-Schulman et al., 2016; Chick, 2013; Potter & Wuetherick, 2015).

SoTL's commitment to disciplinary inclusivity has left it vulnerable to critiques that it lacks the scholarly quality of more established disciplinary research. The most scathing critiques have been levied by education researchers, who disparage SoTL as a "thorn in the flesh of serious scholarship into learning and teaching in higher education" (Canning & Masika, 2020, p. 1. See also Kanuka, 2011; Gordon, 2012; Macfarlane, 2011). Some critics argue that SoTL's lack of rigor and validity has served to devalue and delegitimize research into teaching and learning: "the big tent… is not as robust as it ideally should be" (Bernstein, 2018). Others have been less reserved in their assessments: "after 30 years SoTL needs to be thrown on the ash heap of educational history." (Canning & Masika, 2020, p. 12). These tensions may be fueling the presence of disciplinary-based education research (DBER), a growing arm of STEM-centric education research (Singer,

Nielsen, & Schweingruber, 2012). DBER, while a sister to SoTL, believes it separates itself from SoTL by being "research-focused" (Paul & Brennan, 2019, p. 2), concentrating on generalizability and advancing disciplinary ways of knowing, as opposed to the "practice-focused" (p. 5) SoTL, which is framed as prioritizing the advancement of teaching effectiveness through the use of individual classroom-evidence and reflective practices (NRC, 2012). More and more, DBER scholars in STEM fields are seeking out additional training in the discipline of education research (Aikens et al., 2016; Knaub et al., 2018), often focused on supplementing their disciplinary approaches to research with those grounded in education and the social sciences.

We believe that one of the most urgent tensions facing SoTL is ensuring its ability to retain its theoretical and methodological inclusivity while also asserting its standing as a fully-fledged field that produces scholarship on par with established disciplines. If SoTL is to continue to flourish as an important component of teaching practice, both SoTL scholars and those external to the practice (i.e., university administrators, hiring committees, tenure and promotion gatekeepers) must have faith in the quality and value of scholarship undertaken and produced. The goal of this study is to investigate how the SoTL literature balances these twin commitments to disciplinary inclusivity and quality by exploring what questions are being asked, what methods are being used, and how these may be impacting the inferences that are being made within that scholarship.

SOTL'S COMMITMENT TO SCHOLARLY QUALITY

We have juxtaposed disciplinary inclusivity with scholarly quality because quality remains one of the most contested terms within academic research. While the university administration's preoccupation with quality tends to revolve around a meaning that is conflated with excellence, we adopt a definition more in line with the micro-approach articulated by Newton (2002), which prioritizes a situated version of quality that resonates within one's context, regardless of epistemological position. For SoTL, we argue that to truly maintain inclusiveness, SoTL quality should be defined with appreciation, rather than limitation, of context across classrooms and discipline, and avoid what education research and DBER have opted to use, which are metrics rooted exclusively in the social sciences.

Quality matters for several reasons. It matters in a pragmatic sense: the rise of research assessment exercises and performance-based funding systems in the United Kingdom, Australia, and elsewhere have tied the calibre of research outputs to decisions around operational budgets, infrastructure development, and other forms of funding (Cotton, Miller, & Kneale, 2018). In this context, quality is a measure of external accountability (i.e., compliance) and internal improvement. It matters in a political sense, in that SoTL's novelty and its commitment to disciplinarity inclusivity leaves it often struggling to find a welcoming home within the architecture of higher education, and its traditional disciplinary silos. Others have complained about a persistent "institutional marginalization," in that SoTL experts rarely figure prominently within initiatives related to institutional design and decision-making, including those pertaining directly to teaching and learning (Schroeder, 2007). A coherent and epistemologically diverse approach to what counts as high quality scholarship may also help to cement SoTL's credibility and legitimacy relative to

discipline-specific research within the hierarchy of academia. This matters in terms of professional progression for research and teaching stream academics, as SoTL continues to occupy a hazy place within the tenure and promotion process at research intensive universities. All too often, SoTL publications are considered add-ons to a candidate's file, a complement—but not a substitute—for discipline specific research (Shapiro, 2006). In our experience, faculty members unfamiliar with SoTL often dismiss it as not being "real" scholarship, minimizing its focus on self-reflection as a form of "navel gazing" with limited impacts beyond one's own teaching context.[1] We feel that if SoTL wishes to be accepted as a valuable practice in academic culture it should be seen as equal on the playing field with disciplinary research, and for this, scholarship quality needs to be considered essential to its practice.

While others have tried to grapple with SoTL's delicate balance between disciplinary inclusivity and quality, this work often emphasizes the former at the expense of the latter. For instance, in Peter Felton's (2013) seminal work on the five principles of good practice in SoTL, only one is focused on questions of quality (that SoTL should be "methodologically sound"). The elaboration that "good practice in SoTL requires the intentional and rigorous application of research tools that connect the question at the heart of a particular inquiry to student learning" (p. 123) is accurate but could engage more critically with quixotic descriptors of "intentional" and "rigorous." Glassick, Huber, and Maeroff's (1997) listing of key criteria for high quality SoTL could be considered equally modest. Few would disagree that "clear objectives," "appropriate engagement with the relevant literature" or "appropriate methods" are bedrocks of effective research, but more specifics are needed to break down what each of these entails and what constitutes appropriate thresholds for producing high-quality scholarship, particularly within the context of SoTL and its breadth of disciplinary approaches to, and languages of, scholarship. Grauerholz and Main (2013) suggest that the privileging of social scientific research norms, including the need for a control group, and the expectation for generalizability, serve to marginalize more reflective ways of knowing common in the humanities by dismissing them as "academically soft" (Gale, 2005, p. 5. See also Little, Donnelli-Sallee, & Michael, 2021).

Disciplinary-specific interventions have similarly lamented the absence of clear-cut benchmarks and often offered more forceful definitions of what counts as high-quality SoTL through their own epistemological lens. For instance, Wilson-Doenges and Gurung (2013) argue that "psychological science provides gold standards of design and analysis" (p. 63) based on a series of components—including experimental design, power analyses, double-blind design, strong theoretical groundings—that are much easier to implement given their own expertise as social and cognitive psychologists but present a significant barrier to entry for faculty with divergent backgrounds. Bartsch (2013) similarly defines "good research" in terms of standards derived from their own discipline of psychology, prescribing a series of best practices, including the use of existing scales, graded measures, posttests, control groups, standards that may be completely new to researchers in other fields. Most of these interventions are geared not towards articulating specific standards for SoTL but rather explicating why particular disciplinary standards should be applied to research on teaching and learning (Dolan et al., 2018; Paul & Brennan, 2019).

We believe that it is this tension between disciplinary inclusivity and research norms that has forced the field of SoTL to side-step important discussions around how SoTL can effectively bridge quality of inquiry alongside context of practice. This gap in the field of SoTL has ultimately led to unclear pathways in, around, and through SoTL's "big tent." What is needed, in our view, is an examination of the existing SoTL knowledge base and its ability to balance these twin commitments of inclusivity and quality. We believe that if SoTL wishes to be disciplinarily inclusive, the field must begin conversations around what constitutes "quality" and how might we borrow from a **range** of disciplines beyond the social sciences to begin to define quality ways that appreciates and welcomes all.

The work of Carol Evans and colleagues in the field of higher education research is instructive here and can provide criteria of quality that transverse disciplinary boundaries and languages. Evans et al. (2021) situate their assessment of quality within the axis of the two Rs of rigour and relevance (originally laid out in Hodgkinson, Herriot, & Anderson, 2001).

The concept of relevance includes a commitment to creating research projects that are novel and original within their context. Results that are relevant within a particular body of scholarship are judged primarily based on their significance and their impact; that is, the ability to more forward our understanding of key issues in important ways. SoTL also seeks to be relevant for the process of teaching and learning, as Bernstein (2018) notes, "[t]he critical issue should be alignment—the methods we use to assess learning must align with the kind of learning we hope to see" (p. 121). The ethos of SoTL is the loop back into one's practice and the transformation of the student experience. A final characteristic of relevance is congruity – a logical alignment between research goals and approaches employed to gather and interpret evidence to generate conclusions that are convincing and beyond reproach.

The concept of rigor relates to both the validity and reliability of results and their corresponding interpretation. While definitions and expectations vary considerably across disciplines, most researchers agree that rigor comprises credibility (the degree of confidence that causality exists, i.e. internal validity), transferability (the degree of confidence that results apply to other contexts, i.e. external validity), and consistency of results over time (reliability). Best practices to enhance the rigor of research include commitments to thoughtful research design, refutational analysis, triangulation, the use of representative samples, appropriate data analysis strategies, and peer review (independent of disciplinary approaches and epistemologies). While rigor may conjure up feelings of epistemological bias and is often seen as an identifier of quantitative research, similar concepts exists within qualitative research, such as trustworthiness (Lincoln & Guba, 1985) and provide a meeting point for disciplinary approaches to scholarship.

Our study builds upon the work of Divan et al. (2017), who published one of the first comprehensive reviews on methodological approaches employed in SoTL, and Evans et al. (2021), who sought to develop a criterion-based framework for assessing high-quality research. While this work provided a useful starting point, it did not assess the core tension between paradigmatic diversity and rigor. For the "transformational agenda" of SoTL to be achieved (Hubball & Clarke, 2010, p. 1), it requires a systematic process that upholds the integrity of good scholarly inquiry while retaining an inclusive breadth that welcomes diverse methodologies and epistemologies from all disciplines. While embracing the diverse philosophical perspectives of SoTL practice, our field cannot forget to support and encourage relevant and rigorous work that also incorporates congruence between outcomes and design choices. Our study directly addresses a recent call from Chick, Nowell, and Lenart (2019) for SoTL scholars to move beyond theoretical inquiry into the field and participate in "… rigorous inventory taking and analysis that maps the field to show the highly traveled questions, topics, methods, and areas where more work needs to be done…" (p. 187). While previous work has reviewed SoTL as a topic of inquiry, few have systematically explored what methodological approaches are being employed and critically assessed the quality of the results produced.

METHODS

The focus of this study was to explore what methods and approaches are being used by SoTL scholars and assess the quality of their application. We used a scoping review method, rather than a systemic approach, in order to include findings from a range of disciplines employing diverse design approaches and methods (Arksey & O'Malley, 2005). Scoping reviews allow for topics of complexity and diversity to be explored more broadly (Sucharew & Macaluso, 2019), which is fitting given the intersection of multiple disciplines within the field of SoTL and our goal to be inclusive of the variety of methodological and epistemological context that exist within this field.

Reflecting on our own Disciplinary Assumptions

Essential to this exploration was acknowledging that in critiquing scholarship quality of our peers we must first use a critical lens inward. We believed that 1) the biggest threat to this work was its vulnerability to *our own* epistemological biases, and 2) we needed to embrace disciplinary inclusivity and build a team that had breadth both in disciplinary perspectives and research expertise. The team was comprised of individuals from the fields of Law, Health Sciences, International Development Studies, and Educational Development, and we each engaged in either quantitative, qualitative, or mixed-methods disciplinary research. By integrating the diversity in epistemology during the development and application of the appraisal tool, we hoped to minimize the impact of our own disciplinary biases and assumptions while also modeling a partnership between disciplinary inclusivity, relevance, and rigor.

Setting the Scope

Our review prioritized depth over breadth. We deliberately set a narrow scope to delve deeply into the range of methods and approaches employed. We explored 64 English-language articles published in *Teaching & Learning Inquiry (TLI)*, *The Canadian Journal for the Scholarship of Teaching and Learning (CJSoTL)*, and the *International Journal for the Scholarship of Teaching & Learning (IJSoTL)* between January 2018 and January 2019. These journals were chosen because they provided both a local (Canadian) and international focus and are sources that are associated with the promotion and publication of disciplinary diverse SoTL. We opted to explore transdisciplinary journals, as we wanted to avoid the inherent methodological and epistemological bias in selecting disciplinary-focused SoTL journals (although we believe this would be a fruitful and important exploration). We included pieces that were categorized in the publications as either "research papers," "articles," "research articles" or "essays," and excluded reviews

(*n* = 2), opinion pieces (*n* = 8), theoretical explorations of the field of SoTL (*n* = 2) or pieces not related to higher education (*n* = 1) (Table 1).

Table 1. Overview of sample		
Journal	**Total Articles**	**Articles Included**
Teaching & Learning Inquiry	22	17
The Canadian Journal for the Scholarship of Teaching and Learning	26	24
International Journal for the Scholarship of Teaching & Learning	29	23

Appraising quality

Using Evans et al.'s (2021) lens to explore aspects of relevance and rigor in published SoTL, an appraisal tool was created to assess the integrity of methodologies being employed. The tool included 90 questions adapted from standardized measures of assessment (Table 2), and encompassed standards of relevance and rigor for quantitative, qualitative and mixed-methods scholarship. The use of multiple tools allowed for a structured appraisal of high-quality evidence and minimized the epistemological biases of the researchers who were doing the assessments.

Table 2. Standardized tools used for appraisal	
Tool	**Reference**
The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)	Von Elm et al., 2007
Standards for Reporting Qualitative Research (SRQR)	O'Brien et al., 2014
Standards for Quality Improvement Reporting Excellence (SQUIRE)	Ogrinc et al., 2015
Methodology and Qualitative review criteria from the Cochrane Review Handbook	Higgins et al., 2019
Joanna Briggs Institute (JBI) critical approach checklists for cross sectional studies, cohort studies, qualitative research, quasi-experimental studies, randomized controlled trials, text and opinion.	Aromataris and Munn, 2017

The tool (Appendix A) was broken down into 16 sections including demographic information (e.g., number of authors, authors' disciplines); literature synthesis (e.g., was there a conceptual, theoretical, or analytical framework used?); ethical practices (e.g., was institutional ethics approval obtained?); research design (e.g., sampling, methods, data analysis strategy) and conclusions, e.g. (e.g., does the study effectively answer the cited research question(s)/objective(s)/goal(s)?)

The appraisal tool was piloted on a sample of nine articles randomly selected from the three journals. The research team independently applied the tool and then met to compare responses. This discussion covered potential implicit differences between disciplinary classification and critique of scholarship, and where appropriate, further clarification was made to the tool to ensure that reviewers from across the disciplines would apply the tool consistently. Each article was then assessed by two independent reviewers from different disciplines, while a third compared results and looked for implicit differences between the assessments. When discrepancies were identified, the third reviewer reassessed the article and consulted the reviewers to form a consensus. A total of 120 discrepancies were found between reviewers out of a total of 5760 items assessed across the 64 articles, making an average of 1.88 (*SD*: 1.50) discrepancies per assessment (98% inter-rater reliability).

Demographics

The articles ranged from single authors to collaborations across ten authors, with the average number of authors being three. Most articles (68.7%, n = 44) were intra-institutional collaborations compared to cross-institutional collaborations (31.3%, n = 20). 70.3% (n = 45) of studies were strictly at a micro-level (i.e., course), compared to studies that only addressed meso- (6.3%, n = 4), macro- (10.9%, n = 7) or multi-level (12.5%, n = 8) contexts. Studies exploring questions at a micro-level either focused on themes across different courses (11%, n = 5), different iterations of the same course (22.2%, n = 10), or within one iteration of a course (66.7%, n = 30).

Analysis

Using a similar analysis framework as Divan et al. (2017), the purpose of our review was to assess systematically each article using a pre-determined appraisal tool also reducing the impact of reviewer's disciplinary or personal interpretation of the research. Appraisal tool data were entered into SPSS Statistical Package version 17.0 and descriptive analyses were conducted.

RESULTS

Relevance

Most of the articles surveyed clearly articulated the rationale or need for the study (81.3%, *n* = 52) while grounding their study in literature that supported their rationale (79.7%, *n* = 51). Authors largely situated their work in the broader SoTL literature (81.3%, *n* = 52) compared to disciplinary education-based literature (21.9%, *n* = 14). Theoretical, conceptual, or analytical frameworks were used in 53.1% (*n* = 34) of the studies. Most articles had a clear research question, objective or goal stated (76.6%, *n* = 49), and directly described their impact on the student experience (79.7%, *n* = 51). However, more than half of the articles (56.3%, *n* = 36) did not provide either a conceptual or operational definition of learning and only nine (14.1%) explicitly referred back to their individual teaching practice, making it difficult to understand the context in which learning was occurring.

Across studies, most (88.3%, *n* = 47) presented a detailed results section that included tables, figures or quotes that provided the needed information to answer their research questions/objectives (78.3%, *n* = 47). Quantitative studies were largely descriptive (59.4, *n* = 19), while qualitative studies were often guided by a theoretical or methodological framework (78.1%, *n* = 25) and employed the use of a coding framework (65.6%, *n* = 21). Most (78.1%, *n* = 25) described their coding process which often included multiple people to prevent bias (43.8%, *n*= 14), and 43.8% (*n* = 14) described how they situated themselves within the context of their data. Only 2 (4.4%) studies had participants review the results, and less than half (43.8%, *n*= 14) provided descriptions of the codes or themes that were developed. The results of mixed-method studies were often not reported together (58.8%, *n* = 10), with inferences not being made across the data sources (52.9%, *n* = 9). Studies often used primary and secondary data sources to draw conclusions about their work (76.6%, *n* = 49), but only 23.4% (*n* = 15) tied their SoTL findings back to their own teaching practice or the student experience. 57.8% (n = 37) discussed limitations to their work. Based on our analysis of the assessment criteria, most studies (71.9%, *n* = 46) provided enough evidence to support their conclusions, in that they effectively answered their research questions/goals (71.9%,

n = 46) and made novel contributions of knowledge to the field of SoTL (76.6%, *n* = 49).

Rigor

Almost half of the studies employed exclusively qualitative approaches (50%, *n* = 32), while 23.4% (*n* = 15) employed exclusively quantitative and 26.6% (*n* = 17) used a mixed methods approach. Most studies were either case studies (26.6%, *n* = 17), reflective pieces (25.0%, *n* = 16), or retrospective (20.3%, *n* = 13) in nature (Table 3). Only 12 (18.8%) used a control group, and of those 3 (4.7%) randomly assigned participants to groups.

Table 3. Research designs of articles	
Research Design	**Percentage (*n*)**
Cross-Sectional	4.7 (3)
Longitudinal	9.4 (6)
Pre-post	14.1 (9)
Case study	26.6 (17)
Retrospective	20.3 (13)
Ethnographic	4.7 (3)
Autoethnographic	3.1 (2)
Reflective	25.0 (16)
Exploratory	17.2 (11)
Experimental	1.6 (1)

Most studies provided a clear description of their sample (78.1%, *n* = 50), which often included learners (67.2%, *n* = 43), compared to faculty or instructors (23.4%, *n* = 15) or staff and administration (6.3%, *n* = 4). Purposeful sampling was the most utilized approach (82.8%, *n* = 53), while two studies (3.1%) used randomized sampling, and 11 (17.2%) did not describe their sampling approach. No study described how they determined their sample size, and 41 (*n* = 64%) did not describe who collected the data and their relationship with it.

A total of 34 (53.1%) of the articles used surveys as their method of data collection. Most used online means to collect data (32.8%, *n* = 21), while seven (10.9%) used paper and six (9.4%) did not identify how the survey was administered. Less than half of the studies indicated if participants completed the surveys during class (9.4%, *n* = 6) or outside of class time (14.1%, *n* = 9), while 55.9% (*n* = 19) did not indicate when participants were asked to complete their survey. Studies using surveys integrated a mixture of open and closed-ended questions (61.8%, *n* = 21), while 6 (17.6%) did not describe the types of questions that were asked. Only 38.2% (*n* = 13) of studies used existing measures as part of their survey, and of those most (69.2%, *n* = 9) mention indicators of reliability or validity. Most studies (78.1%, *n* = 25) developed all or portions of their survey, often piloting (60%, *n* = 15) their tool prior to use but not listing measures of reliability (64%, *n* = 16). A total of 21 (32.8%) studies used a form of document analysis, with student assignments (61.9%, *n* = 13) being the primary source of textual data. Others included course texts (e.g., textbooks, syllabi, assignments; 14.3%, *n* = 3), teaching dossiers (4.8%, *n* = 1), or institutional documents (19%, *n* = 4). Of the 17 studies that utilized a mixed-methods approach, 23.5% (*n* = 4) provided a clear rationale for this approach and described the relationship between the quantitative and qualitative designs, and were either equal in nature (36.8%, *n* = 7) or largely qualitative (31.6%, *n* = 6).

Most (57.9%, *n* = 11) did not indicated if the study was a concurrent or sequential design, while the remaining were an even split between the two.

Only 57.8% (*n* = 37) of the studies indicated that they had received institutional ethical approval to conduct their work, while 3.1% (*n* = 2) indicated that their institution did not require their project to undergo a review. Only 40.6% (*n* = 26) outlined the process of enlisting participant consent.

DISCUSSION

This scoping review offers an exploration into the balance between disciplinary inclusivity and scholarship quality within the field of SoTL by zeroing in on a snapshot of articles published in three leading journals over one year. Our results present an interesting contrast to arguments that SoTL typically favours social science approaches, as the articles assessed here used a range of approaches within and beyond the social sciences, suggesting that of the journals investigated, those platforms actively encourage and support a range of disciplinary backgrounds and authors.

The results of our work reinforce findings from Evans et al. (2015), who found the quality of the articles reviewed to be highly variable. Only 13% of the articles surveyed in that study (*n* = 36) were found to demonstrate aspects of both relevance and rigor, as measured by aspects of "…pedagogical clarity, methodological transparency; methodological congruence; evidence-based; accessibility of findings; and evidence/potential of transferability of ideas across disciplinary boundaries" (p. 5). Surprisingly, while SoTL promotes disciplinary inclusivity, the studies reviewed largely did not describe the context of their work with relation to their discipline or teaching practice. This not only runs counter to SoTL's big tent ethos, but also discounts the impact of how disciplinary assumptions and methodological choices are inherently linked to aspects of quality. Miller-Young and Yeo (2015) argue that "neglecting to articulate these in the report to make SoTL more accessible can contribute to a perception that a lack of rigor is acceptable in SoTL" (p. 38). Our findings suggest this concern remains prescient.

Many of the studies within our review revolved around a single source of data collected at a single time point. This corroborates findings from Matthews et al. (2013) who reported that over 70% of the publications in their review relied exclusively on data collected at a singular timepoint, and Manarin et al. (2021, p. 358) whose survey revealed that a majority of studies offered a "snapshot" of a single undergraduate course. Divan et al. (2017, p. 25) also found that over 2/3 of their reviewed studies relied on one-off data collection, leading them to conclude that nearly 90% of SoTL research in their sample constituted an overreliance on a single source of data. The dependence on a single form of data creates a persistent lack of triangulation, regardless of quantitative or qualitative approaches, that limits the ability for SoTL research to understand both the contexts under which learning occurs and the impact of teaching on the student experience.

Lastly, we believe what is also problematic is that the singular source of data that underpins most of SoTL are survey responses from undergraduate students. This mirrors both Divan et al. (2017) and Manarin et al. (2021), whose own reviews found that self-reported experiences of learning constituted 83.9% and 87.6% of all research undertaken. Most of the studies reviewed in our sample do not define the learning process or make explicit connections to learning theories, lending credence to Boshier

and Yuang's (2008) assertion that the metaphorical house of SoTL has teaching living upstairs while learning remains relegated to the basement. We echo their lament regarding "the subordinate position of the 'L' in SoTL" (p. 646) and agree that SoTL could benefit from acknowledging the variety of ways their subjects are both taught and learned and how explorations into each of these processes are context dependent (Adams, 2016; Scott, 2013). We believe that the studies reviewed here would enhance both their relevance and rigor if they stopped trying to avoid the complexities of learning and the contexts of their discipline and teaching practice.

RECOMMENDATIONS

To help support the bridging of disciplinary inclusivity and scholarly quality, we advocate for a narrower, more focused definition of SoTL that disentangles the "Scholarship" from the "Teaching and Learning." This leaner version of SoTL would seek to shed much of the "educational administration and case study series publications" and perhaps even some of the more reflective essays that currently populates SoTL (Secret et al., 2011, p. 15). This is not to say these are not important endeavors – they surely are! But disentangling these categories of inquiry will ensure that SoTL is not "used as a synonym for other activities" (Boshier, 2009, p. 1). This may seem counter to Chick's (2014) "big tent" philosophy and may risk being dismissed as an elitist or exclusionary move that will "create new and unnecessary hurdles for the diversity of participants engaged in this work to present their narratives" (Cook-Sather, Abbot, & Felten, 2019, p. 17). But our data suggests that disciplinary context is rarely illuminated in the existing scholarship and using disciplinary inclusivity to argue against the advocacy of quality may continue to create a barrier to establishing SoTL's legitimacy as a field of inquiry. We echo Canning and Masika's (2020) concern that broadening what counts as SoTL runs the risk of devaluing research into learning and teaching and that "those of us who research teaching and learning in higher education need to affirm confidence in the theoretical foundations and methodological rigour of our work and not 'open up' to all sorts of other agendas in the name of inclusivity" (p. 8).

Protecting SoTL as a domain of relevant and rigorous research means intentional delineations between it and its ambiguous cousin – scholarly teaching. The difference between these two activities needs to be affirmed and entrenched: willfully focusing the former to research-oriented practice allows the later to cover a wider range of reflexive and sharing practices designed to enhance the experience of teaching and learning across disciplines. Too often, SoTL is positioned on a continuum or a shared axis alongside scholarly teaching, its distinctiveness rooted in its explicit engagement with the broader literature, public dissemination, and peer review (see for instance Hubball, Clark, & Poole, 2010, Kern et al., 2015). This conflation might stem from the rapid evolution of the Boyer model, which was initially conceptualized as a means of addressing the inequity between teaching and research but has since become a framework used to assess the efficacy of student learning (Manarin et al., 2021; Potter & Kustra, 2011). The results from our work suggest that while the studies included here frame themselves through a SoTL lens, many sit within Boyer's original model of scholarly teaching, rather than the scholarship *of* teaching and learning.

Perhaps our most contentious and personally-debated belief is that not all scholarly activities can, or should, be counted as

scholarship. The difference between scholarly teaching and SoTL must not simply be that the latter "…extends the process by making public the results of the investigation…" (Secret et al., 2011, p. 13). We believe that sharing and dissemination is no longer just an identifying quality of SoTL, but rather an essential shared principle with scholarly teaching. Instead, SoTL should embrace standards of relevance and rigor such that these are comparable to norms within other forms of research. That's not to say SoTL must be a twin practice to other forms of disciplinary scholarship, utilizing their parameters and benchmarks of quality, or what Hutchings, Huber, and Ciccone (2011) refer to as "narrow constructions" of scholarship. Rather, this work must seek to say something relevant to practice and be based on sound methods that are grounded within the context of one's teaching practice, creating the much-needed bridge for disciplinary inclusivity. Another entry point might be to revise what counts as research, "If faculty understand that 'research' is a public event requiring rigorous review, they may be more motivated to design methodical approaches to analyzing their teaching effectiveness and student learning" (Secret et al., 2011, p. 5). The act of sharing may allow us to centralize aspects of internal and external validity in SoTL, directing the intent for our SoTL practice to exist within two key questions of purpose "Is what I am doing having an impact? Moreover, what can others learn from the work I am doing?" (Bernstein, 2018, p. 123). SoTL should be judged both on uncovering evidence to determine whether meaningful changes in teaching and learning are occurring, and ensuring that regardless of our unique context, aspects of our SoTL work can be applied beyond our own individual practice.

We propose three recommendations that we believe are bridges that encourage disciplinary inclusivity and support individuals in undertaking SoTL that is both rigorous and relevant:

First, we believe that more intentional collaborations are needed to displace the largely "ad hoc" nature of SoTL (Hubball, Clarke, & Poole, 2010). Multi-disciplinary partnerships are the ideal mechanism for balancing the goals of disciplinary inclusivity and quality: they are by their very nature inclusive of disciplinary background and expertise and enable the foregrounding of different definitions and expectations of what it means to undertake quality research (Svinicki, 2012). The contours of these multi-disciplinary partnerships would be further enriched by expanding to include teaching and learning experts who are ideally suited to support SoTL that is at once inclusive and high in quality. This paper exemplifies these collaborative ideals, underlining the value offered by pairing faculty members with substantive expertise in disciplinary teaching alongside educational developers whose expertise in teaching and learning straddles disciplinary contexts from across the institution. This recommendation complements and builds upon the existing students-as-partners ethos of SoTL (see Healey, Flint & Harrington, 2016), and integrates faculty/academic/educational developers as another integral stakeholder in the process. The resulting synthesis blends expertise in both content and process. This partnership model can be explored and facilitated through institutional communities of practice that amplify cross- and multi-disciplinary participation and foster faculty mentorship as a way to help navigate and learn diverse approaches to research (see examples including Marquis et al., 2017; Author, 2021).

Second, we need to explore and expand what constitutes ethical practice within SoTL. The unique setting of classroom-based research require particular attention to how a study

is designed, what data is collected and analyzed, and how the unequal power dynamic that underlies the student-instructor relationship are managed and mitigated. At the same time, we remain concerned that current Institutional Review Boards processes exaggerate the risks associated with SoTL; at our own institution, SoTL was one of three areas of scholarship that are immediately flagged as high-risk—the other two being research involving children and research involving Indigenous populations—which immediately triggers a full board review, instead of the delegated review reserved for low-risk applications (this despite the fact that most SoTL research projects present only minimal risk to participants and are thus deserving of expedited review (see Linder, Elek, & Calderon, 2014; Pool & Reitsma, 2017; Author, 2019). We believe that a more permissive understanding of institutional ethics—one that removes restrictions on the use of class time for conducting SoTL research and endorses the incorporation of both Students Ratings of Instruction (SRI) and student work as data sources—will enhance the quality of SoTL data collected, regardless of disciplinary approaches.

Third, we need to encourage triangulation of data within SoTL. SoTL cannot be satisfied with investigations that foreground one class, one iteration, one timepoint, or one source of evidence (Wilson-Doenges & Gurung, 2013). There is great potential for SoTL to enhance its impact and research standing if work focuses on gathering data over multiple points in time and integrating multiple sources of evidence that are both teacher and learner focused. We do recognize the caution made by Simmons et al. (2021) that the ability to undertake research over multiple iterations of a course is much easier for tenured professors with the privilege to set their teaching assignments than it is for more precarious faculty who have little control over their teaching schedule. Our hope is that the collaborations and institutional ethical considerations we advocate for above could be nimble enough to include comparisons of different courses taught by different instructors, which would enable analysis of long-term trends and empower our colleagues with more precarious employment to participate in SoTL.

LIMITATIONS

While much of the work outline here compliments and aligns with previously published work, the interpretation of the data and our recommendations must be done with appreciation of the limitations of this work. Firstly, we acknowledge that the scope of the chosen journals is limiting. We included only three publication outlets and excluded disciplinary-based journals purposefully. While previous studies like Divan et al. (2017) explored a more comprehensive set of journals, we made a strategic choice to prioritize depth over breadth in this study. While this precludes us from capturing the full spectrum of published SoTL, we believe that the value of this work rests on the insights generated by the comprehensive nature of our assessment tool applied to a smaller subset of existing scholarship. Second, we believe that in many ways our own disciplinary epistemologies impact our perceptions and definitions of rigor and relevance. The research team was intentionally composed of individuals from a diversity of disciplines in an effort to mitigate against disciplinary bias shaping the construction of the appraisal tool. Still, researchers from different disciplines will have legitimate objections to our definitions of both inclusivity and quality and might feel that their own epistemological perspectives are not captured by the tool

utilized here. Lastly, we want to acknowledge the impact of the pandemic on this work. The original review took place in 2019 prior to the pandemic, and this delayed the publication of this work. We recognize that the subset of articles explored here are not the most recent publications, and while we debated if we should include more recent publications, we knew that this would further delay this work and potentially incorporated a new, and potentially different, subset of SoTL that explores the impact of the pandemic on teaching and learning.

CONCLUSION

SoTL's meteoric rise within both intellectual and institutional circles has prompted questions about its ability to balance simultaneous commitments to disciplinary inclusivity and scholarship quality. Using Raffoul, Potter, and Andrews's (2021) metaphor of SoTL as constituent parts of the human body, these questions might simply amount to growing pains. Or, to continue with this same metaphor, this tension between inclusivity and quality could represent symptoms of a more pernicious ailment that could evolve and prove debilitating moving forward. Our diagnosis suggests that SoTL's commitment to disciplinary inclusivity is often hampering its ability to undertake high-quality scholarship that foreground rigor and relevance during conceptualization and implementation. Our prescription: SoTL researchers should consider prioritizing scholarly quality over disciplinary inclusivity by committing to multi-disciplinary collaborations that produce ethically-sound, longitudinal and triangulated studies of the learning process.

This leaner version of SoTL runs the risk of alienating folks for whom this prioritization of quality signals a return to positivism (Godbod et al., 2021) or excluding vulnerable colleagues who do not see themselves in this more restrictive landscape. As Chick notes correctly (2014, p. 3), "definitions are boundary markers," and this trimmed-down version of SoTL may be viewed as limiting, even exclusionary of disciplines, particularly those outside the social science. Cook-Sather et al. (2019, p. 16) argue that such a narrow view of SoTL could omit "the uncertain, the unfinished, the relational—in short, the human—aspects and processes of scholarship and the phenomena at the heart of learning and teaching" (p. 16), and this is not what we are advocating. Rather, our hope is that by focusing on rigor and relevance, familiar concepts within all disciplinary research, that this definition of SoTL can form pathways into the big tent for individuals looking to extend their scholarship to teaching and learning while also increasing it's value in the academy as an important part of academic work.

In our view, SoTL's quiet commitment to straddling disciplinary inclusivity and scholarship quality constitutes a barrier to establishing SoTL's legitimacy within institutional power structures. Many SoTL practitioners lament the lack of standing associated with these pursuits, which tends to be viewed as less credible and important than disciplinary research, a "soft option" (Tsang, 2010) suitable only for the "tiny tots" of the academic journal community (Mathany, Clow, & Aspenlieder, 2017) that does "not evoke the same respect or carry the same weight as traditional scholarship" (Schroeder, 2007, p. 1). This concern around low status and standing is about more than pride; it can have real impacts on career progression, as SoTL remains undervalued within hiring, tenure, and promotion decisions (Cashmore, Cane, & Cane, 2013; Forrest, 2013; Kern et al., 2015; Tierney et al., 2020). Codifying its purpose as research-oriented practice will help to ensure that the mean-

ing and value of SoTL is not diluted in a personal, professional, or political sense (Wilson-Doenges & Gurung, 2013) and may inadvertently encourage disciplinary inclusivity by welcoming those who have traditionally dismissed the value of SoTL to come into our big tent. Implementing these recommendations might make SoTL less of a "hard sell" (Boshier, 2009) and serve to enhance both the quantity and quality of diverse knowledge produced, and if anything, we hope this generates conversations that embolden scholars across disciplines to engage in SoTL that is both high quality and inclusive of disciplinary differences.

NOTES

1. This dismissive assessment of SoTL as navel gazing was made by one of the author's departmental colleagues in 2015, and is used here as anecdote that reflects the attitude towards SoTL at a research-intensive institution.

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APPENDIX A. ASSESSMENT TOOL

Variable Name	Variable Labels	Notes
Article Code		
Journal	1 – T&LI (19) 2 – CJSoTL (25) 3- IJSoTL	
Year of publication		
Number of authors listed		
Type of collaborations	1 – Single author 2 – Intradisciplinary 3 – Interdisciplinary 4 - Unknown	
Is the collaboration across institutions	0 - No 1 - Yes	
Course Iterations	0 – Not associated with a course 1 – Across 1 iteration of a course 2 – Across multiple iterations of the same course 3 – Across different courses 4 – Across multiple iterations of different courses	
Research Questions		
Clearly stated and verifiable research questions(s) or objectives(s)	0 - No 1 - Yes	
Clearly identified metrics that are specific, measurable, and realistic	0 - No 1 - Yes	
Identified any contextual factors	0 - No 1 - Yes	See Felton's principles of SoTL for contextual factor examples
Contextual factors identified	0 – None 1 – Institutional context 2 – Disciplinary context 3 – Course level context 4 – Listed multiple context	
List all context if there are multiple		
Clearly described independent variable(s)	0 - No 1 - Yes	
Clearly described dependent variable(s)	0 - No 1 - Yes	
Clearly described covariate(s)	0 - No 1 - Yes	*E.g., age, sex, English as an additional language, class level, etc.
Is the rationale for the study clearly articulated?	0 - No 1 - Yes	
Is the rationale for the study supported by literature?	0 - No 1 - Yes	
Literature Review		
Is the study grounded in disciplinary literature?	0 - No 1 - Yes	
Is the study grounded in SoTL literature?	0 - No 1 - Yes	
Do the authors make use of a theoretical, conceptual, or analytical framework?	0 - No 1 - Yes	
Literature review is comprehensive	0 - No 1 – Yes	
Literature review cites recent scholarship	0 - No 1 - Yes	Recent *Last 5 years*
Ethics		
Was institutional ethics obtained?	0 - No 1 – Yes 2- Indicated that it was not required	
Do they discuss the consent process?	0 - No 1 – Yes 2 – Did not need to consent	

Variable Name	Variable Labels	Notes
Research Design		
What is the research design? a – Cross-sectional b- Independent c– Longitudinal d– Trend e – pre-post f – Case study g – Retrospective h – Ethnographic i – Reflective j - Other	Check all that apply	
Article would be best described as	1 – Quantitative 2 – Qualitative 3 – Mixed Methods 4 - Other	
Other described	String text	
What level is the research at?	1 – Micro (classroom, individual practice) 2 – Meso (Departmental, curriculum, programmatic) 3 – Macro (Institutional) 4 – Multiple levels	
List multiple levels		
Sample		
Sample was clearly described	0 - No 1 – Yes	
Who was sampled	0 – Not described 1 – Learners (UG) 2 – Learners (Grad) 3 – Faculty / Instructors 4 – Academic Leaders 5 – Staff 6 – Academic/Educational developers 7 - Other	Select all that apply.
Are inclusion or exclusion criteria listed	0 - No 1 - Yes	
Sampling methods	0 – Not described 1 – Random 2- Stratified 3 – Purposive 4 – Judgement 5 – Quota 6 – Snowball 7 – Multi-staged	
Response Rate (%)		
Sample size		
Did they use a method to determine sample size?	0 - No 1 – Yes	
Who collected the data	0 – Not described 1 – Instructor or TA of course 2 – Student (Not in course) 3 – Instructor or TA not in course 4 – Institution 5 – Academic /educational developer 6 – Other	Select all that apply.
Describe other		
Methods		
Is the research methodology structured as to ensure successful achievement of the research question/objectives?	0 - No 1 – Yes	

Variable Name	Variable Labels	Notes
What data was primary mode of data collection?	1 – Surveys 2 – Interviews 3 – Focus groups 4 – Workshops 5 – Consultations 6 – Assessment/assignment 7 – Grade 8 – GPA 9 – Attendance 10 – Classroom observations 11 – e-learning analytics 12 – Institutional data 13 – Self reflective 14 – Teaching practice 15 - Other	Select all that apply.
What is the methodology for data collection?	0 – Not described 1 – Experimental 2 – Quasi-experimental 3 – Case study 4 – Phenomenology 5 – Systematic review 6 – Observational 7 – Retrospective 8 – Reflective 9 - Other	Add in any additional categories that are listed under "Other".
Was there a control or comparison group used?	0 – No 1 – Yes 2 – Not relevant for study design	
Were participants randomly assigned to groups?	0 – No 1 – Yes 2 – Not relevant for study design	
Was pre and post testing used?	0 – No 1 – Yes 2 – Not relevant for study design	
Was there an intervention or tasked used?	0 – No 1 – Yes 2 – Not relevant for study design	
Describe briefly		
Was blindness used?	0 – No 1 – Participants blinded 2 – Those delivering task/intervention blinded 3 – Outcome assessor blinded 4 – Not relevant for study design	
Do the author(s) acknowledge their potential influence on the interpretation of results?	0 – No 1 – Yes 2 – Not relevant for methodology	
Survey		
Method of survey	1 – Paper 2 – Online 3 – Telephone 4 - Other	Add in any additional categories that are listed under "Other".
Survey completed	1 – in class 2 – out of class 3 – Other	
Describe other		
Survey questions	1 – Does not describe 2 – Closed ended questions 3 – Open ended questions 4 – Mixed	
Was an existing measure used for the survey?	0 – No 1 – Yes 2- Not clear	
If yes, was the reliability and/or validity stated?	0 – No 1 – Yes	
If yes, was literature cited to support the measure	0 – No 1 – Yes	
Do they provide evidence that the measure is appropriate for their sample?	0 – No 1 – Yes	

Variable Name	Variable Labels	Notes
Was a measure created?	0 – No 1 – Yes	
If yes, did they pilot the measure?	0 – No 1 – Yes	
If yes, did they test the reliability of the measure?	0 – No 1 – Yes	
What measure did they use	0 – Not listed 1 – Internal 2 – Test-retest 3 – Other	
Did they include a copy of the measure(s)?	0 – No 1 – Yes	

Observational Method

What environment were observations being made in?	0 – Not listed 1 – Classroom 2 – Lab 3 - Other	Add in any additional categories that are listed under "Other".
Who was doing the observing?	String text	
What was being recorded	String text	
How were observations being recorded?	0 – Not listed 1 – Written notes 2 – Video 3 – Audio	
Were there multiple observers?	0 – No 1 – Yes	

Mixed Methods

Is there a clear rationale stated for mixed-methods?	0 – No 1 – Yes	
Have they described a relationship between the quantitative and qualitative samples?	0 – No 1 – Yes	
Are the methods…	0 – Not enough information to know 1 – Concurrent 2 – Sequential	
More dominant method	0 – Not enough information to know 1 – Both methods are equal 2 – Quantitative more dominant 3 – Qualitative more dominant	
Are results reported separately?	0 – No 1 – Yes	
Are inferences made across data sources?	0 – No 1 – Yes	
Is there appropriate integration of both quantitative and qualitative results?	0 – No 1 – Yes	

Systematic Review

Was the search strategy appropriate?	0 – No 1 – Yes	E.g., Databases used, key words listed.
Are there criteria for appraising the studies?	0 – No 1 – Yes	
Was the appraising conducted by more than one reviewer independently?	0 – No 1 – Yes	
Were methods listed to minimize error?	0 – No 1 – Yes	

Results Section

Are the results clearly presented?	0 – No 1 – Yes	
Do the results provide appropriate information to answer the research question(s)?	0 – No 1 – Yes	
Were tables, figures, quotes or diagrams included in results?	0 – No 1 – Yes	
Was specialized softer used for analysis (e.g., SPS, R, NVivo, Atlas, etc.)	0 – No 1 – Yes	

Quantitative Analysis

What type of statistics were used?	0– None 1– Descriptive 2- Inferential tests 3 - Both	

Variable Name	Variable Labels	Notes
List quantitative analysis and information in article		

Qualitative Analysis

Variable Name	Variable Labels	Notes
Is there a framework or approach guiding analysis process	0 – No 1 – Yes	(e.g., grounded theory, thematic analysis, etc.)
Was qualitative coding used?	0 – No 1 – Yes	
Did they describe the coding process?	0 – No 1 – Yes	
What type of coding was done?	1 – Inductive 2- Deductive	
Are there clear descriptions of the coding?	0 – No 1 – Yes	
Did multiple people code the data in order to control for potential bias?	0 – No 1 – Yes 2 - Unknown	
Do they mention that participants review results?	0 – No 1 – Yes	
Was the data triangulated?	0 – No 1 – Yes	
Are participants, and their voices, adequately represented?	0 – No 1 – Yes	
Were quotes provided to supplement themes?	0 – No 1 – Yes	
Were quotes used appropriately to describe themes?	0 – No 1 – Yes	
Was context considered in interpretation of themes?	0 – No 1 – Yes	See Felten's work.

Textual Analysis

Variable Name	Variable Labels	Notes
Description of text	0 – No 1 – Textbook 2- Assignment 3- Teaching philosophy 4- Teaching dossier 5- Syllabus 6 - Other	Add in any additional categories that are listed under "Other".
Description of how text was obtained?	0 – No 1 – Yes	
Is the selection of text appropriate for answering the research questions?	0 – No 1 – Yes	
Is there a description of how the text was coded or quantified?	0 – No 1 – Yes	
Appropriate format for describing findings?	0 – No 1 – Yes	
Is there indication of the source's perspective in the analysis?	0 – No 1 – Yes	
Is there indication of the researcher's perspective using a conceptional framework (instrumental interpretation)?	0 – No 1 – Yes	

Discussion Section

Variable Name	Variable Labels	Notes
Are conclusions based on a combination of primary and secondary data sources?	0 – No 1 – Yes	
Are conclusions and inferences made with appropriate evidence?	0 – No 1 – Yes	
Did the author(s) include a reflective critique around their own practice and/or learning?	0 – No 1 – Yes	
Do authors effectively answer the cited research question(s)/goal(s)?	0 – No 1 – Yes	
Are limitations reported?	0 – No 1 – Yes	
Does the study make an important contribution to knowledge?	0 – No 1 – Yes	
Does it move forward our understanding of key concepts in important ways?	0 – No 1 – Yes	