

## Modalities of Faculty Engagement with the Scholarship of Teaching and Learning

Celeste Suart, McMaster University, suartce@mcmaster.ca

Martha Cassidy-Neumiller, McMaster University

Kelsey Harvey, McMaster University

**Abstract.** This article reports on a mixed-methods study examining the ways in which faculty and staff engage with the Scholarship of Teaching and Learning (SoTL) at a medium-sized research-intensive university in southern Ontario, Canada. Survey data was collected from fifty-six faculty and staff respondents, along with eight faculty completing follow-up semi-structured interviews. We found respondents used multiple engagement modalities to stay informed on SoTL literature, carry out SoTL research, and disseminate their findings. Barriers to SoTL participation include lack of dedicated time, limited formal SoTL training, and inexperience with different disciplinary norms found in SoTL articles. Participants emphasized the importance of collaborative SoTL inquiry, highlighting in particular the benefits of partnering with students on scholarly projects. Additionally, participants underscored the importance of implementing evidence-based teaching strategies. Our findings mirror trends in the literature regarding SoTL engagement activities, barriers to participation, and faculty perceptions of SoTL. This study contributes novel insight into the ways faculty choose to engage with SoTL and common obstacles, as well as suggestions for how teaching and learning centers can use engagement data to better support faculty and staff SoTL scholars.

**Keywords:** Scholarship of Teaching and Learning (SoTL); scholarly teaching; research engagement; dissemination; discipline-based education research

Engagement with Scholarship of Teaching and Learning (SoTL) is known to have many benefits for faculty, staff, and students. Studies indicate faculty who conduct SoTL inquiry employ more student-centered pedagogical approaches, boast improved student learning outcomes, and develop their own teaching practices (Openo et al., 2017; Trigwell, 2013). Additionally, SoTL inquiry provides opportunities for interdisciplinary exchange which aid in the development of innovative teaching practices, as well as critical reflection on disciplinary norms (Huijser et al., 2021; Marquis, 2015). Despite these benefits, there are several known barriers to faculty and staff participation in SoTL, including epistemological discomfort, limited time and monetary resources, and lack of perceived value of SoTL research by peers (McKinney & Jarvis, 2009; Miller-Young et al., 2018; Schroeder, 2007). Support for SoTL engagement is frequently offered through institutional teaching and learning centers (Kim et al., 2021; Wuetherick & Yu, 2016). However, teaching and learning centers must adapt support practices from the literature to suit their specific institutional contexts.

In this paper, we explore the myriad ways that faculty and staff engage with SoTL at our medium-size, research-intensive university in southern Ontario, Canada. We

investigated how faculty members participated in threefold aspects of SoTL: (a) staying current on the literature, (b) conducting SoTL inquiry, and (c) publicizing research findings. Additionally, we examined barriers and frustrations faculty experienced when trying to engage in SoTL activities. We used this information about modalities of SoTL engagement to inform future decisions about SoTL programming and support activities offered by our teaching and learning center. In this article, we outline how we documented current trends of faculty SoTL participation at our institution, and connect themes expressed by our respondents to the broader literature, so that others might be able to conduct similar environmental scans at their own institutions.

### **Literature Review**

Faculty and staff engage with SoTL literature in manifold ways. Extant literature demonstrates that, in addition to reading academic papers and books, faculty and staff learn about evidence and trends in SoTL by attending presentations, participating in workshops, reading professional blogs, and engaging with other products of knowledge mobilization efforts (Miller-Young et al., 2017; Newton et al., 2019). At times, this can be overwhelming given the considerable growth in avenues for the publication and dissemination of teaching and learning scholarship (Vithal, 2018).

It can be challenging for both newcomers and more experienced SoTL researchers to know where to begin to find relevant literature (Kenny & Evers, 2011; Kim et al., 2021). Entry into the SoTL literature is further complicated by the broad range of research methods employed, which draw on a variety of disciplinary foundations (Divan et al., 2017). Navigating and engaging with literature outside of one's disciplinary expertise can be daunting for newcomers to SoTL (Kenny & Evers, 2011; Miller-Young et al., 2018; Simmons et al., 2013). Further, faculty who explore interdisciplinary research, such as SoTL, report epistemological friction between the research norms of their disciplinary background and those of other disciplines (Miller-Young et al., 2018). Although these epistemological tensions can lead to growth and self-reflection, it does not make the process of engaging with SoTL literature any less challenging. Due to this potential for disorientation, faculty and staff often also engaged with literature with the assistance of experts in the field (Dalgarno et al., 2020; Kim et al., 2021; Williams et al., 2013). This might take the form of pre-prepared bibliographies on common teaching and learning subjects or as forms of professional development (Dalgarno et al., 2020).

Rather than approach the literature on teaching and learning systematically, Felten (2013) described the process used by most faculty when engaging with SoTL literature as "ad hoc." What this means is that faculty and staff looked to the literature to address problems they faced while teaching (Felten, 2013). Allen and Field (2005) describe these faculty and staff who consult the literature and integrate findings into their teaching practice as "scholarly teachers." Often, faculty and staff look to disciplinary journals, rather than general journals devoted to SoTL or teaching and learning in higher education (Tierney, 2017). Tierney (2017) speculates that this is due in part to the fact that faculty and staff receive little

formal training on how to engage in SoTL research, so they default to their disciplinary training. This lack of formal training, may contribute to frustration on the part of faculty and staff who wish to engage in SoTL (Billot et al., 2017; Harland et al., 2014; Brownell & Tanner, 2012). This frustration stems from the fact that faculty and staff, who are experts in their respective fields, are novices in SoTL but unrealistically, expect a high degree of competence when engaging with SoTL literature (Harland et al., 2014; Simmons et al., 2013).

Unfortunately, for most faculty and staff, the work involved in keeping up with SoTL literature is often described as “off the side of one’s desk,” as it is not part of scholars’ disciplinary research and often “doesn’t count” toward their research portfolio (DiGregorio et al., 2016; Harland et al., 2014). Sometimes this labor is supported by the work of student partners, however, the precarity of faculty members engagement with SoTL can in turn limit opportunities for student participation (Mercer-Mapstone et al., 2017). Although there is a small but growing number of academics whose primary research focus is SoTL, disciplinary inquiry continues to take precedence over SoTL engagement for many practitioners (Webb & Tierney, 2020). As SoTL is perceived as less valued than disciplinary scholarship (Allen & Field, 2005; Harland et al., 2014), some faculty and staff may not engage with the literature in this field much, if at all.

Moreover, not all faculty and staff have equal access to or support for this type of work (Brown et al., 2013; Vajoczki et al., 2011). According to Vander Kloet and colleagues (2017), contingent faculty (e.g., part-time sessional or adjunct faculty and those with contractually limited appointments) are marginalized from scholarship as they face myriad institutional barriers from participation therein. These barriers include the length of contracts, the precarity of future contracts, exclusion from holding grants or awards, lack of knowledge about institutional support that might be available, and more. Although, these facilitators and barriers vary by institution, with some institutional cultures being more supportive than others (Miller-Young et al., 2016; Schroeder, 2007).

Therefore, there are several known obstacles to faculty and staff engagement with SoTL research. How to best support SoTL practitioners has been frequently discussed in the literature. Supports include providing research funding, creating communities of practice, and providing protected time for SoTL research (Cambridge, 2004; McKinney & Jarvis, 2009). Others have argued that changing institutional culture to value SoTL inquiry is key (Maheux-Pelletier et al., 2019; Marquis et al., 2017; McKinney, 2006; Wuetherick et al., 2016). Whatever the intervention, institutional teaching and learning centers play a vital role in supporting researchers’ engagement in SoTL (Kim et al., 2021; Miller-Young et al., 2016). Being that institutional context has been identified as an integral component for the design and delivery of SoTL supports (Kim et al., 2021; Kolomitro et al., 2018), how might a teaching and learning center identify which supports would most benefit its faculty and staff SoTL practitioners? To that end, the objective of this study was to identify modalities of faculty and staff engagement in SoTL. The purpose herein, was to leverage our findings when (re)developing research supports and training in SoTL that accounted for our institution’s culture.

## **Methodology**

This paper represents one sub-aim of a larger environmental scan and strategic assessment of teaching and learning scholarship at McMaster University, a research-intensive doctoral-granting university in Ontario, Canada (Harvey et al., 2022). The environmental scan was conducted by the research team on behalf of the Paul R. MacPherson Institute for Leadership, Innovation & Excellence in Teaching, the teaching and learning center for McMaster University, with the goal to examine how faculty and staff members describe teaching and learning research, engage in research activities, and what motivates their engagement. The goal of this larger assessment was to document the current state of teaching and learning research at McMaster University, allowing for the development of tailored supports and resources. We were guided by the question: How do faculty and staff engage with scholarly literature and research on teaching and learning? From this information, our institutional teaching and learning center would have better knowledge and awareness to make informed decisions about SoTL programming and related activities. Herein, we share findings from our inquiry into how faculty and staff engage with scholarly research on teaching and learning.

## **Research Design**

Reflecting on Pat Hutchings's (2000) taxonomy of SoTL work, we designed our study to follow the paradigms of "What is?", where SoTL projects seek to describe a current state of teaching and learning. Our aim was to better understand the landscape of faculty and staff engagement with SoTL at our institution. This would allow us to know which forms of engagement are most popular, thus allowing the McMaster University Teaching and Learning Center to better tailor its supports for SoTL. As such, we employed a concurrent, nested, mixed-methods research design, allowing us to quantitatively assess faculty and staff engagement modalities with SoTL while incorporating qualitative data to provide situational context (Creswell et al., 2003; Warfa, 2016). We used an anonymous online survey to gather quantitative data. After completion of the survey, respondents could indicate their interest (on a separate page so as to not link their identity with their survey response) in participating in an optional, follow-up semi-structured interviews to gather qualitative data. Data was analyzed concurrently, with integration following analysis to broadly interpret 'what is' engagement with SoTL by faculty and staff.

## **Participants**

Our target population was faculty and staff members at McMaster University who had participated in SoTL research in the past five years. We narrowed our scope of inquiry to those with SoTL experience in the past five years to better understand the impact of present SoTL support, university policies, and teaching contexts on SoTL engagement. We received 56 complete responses to our online survey. The majority of respondents were from STEM disciplines (N=35, 63%), with 23% (N=13) having humanities and social science backgrounds (Table 1). Additionally, 7% (N=4) of respondents indicated multidisciplinary and cross-faculty affiliations (Table 1).

**Table 1**

*Survey respondent faculty affiliation at McMaster University*

Faculty	Respondents (%)	Respondents (N)
Science	23.2	13
Health Sciences	21.4	12
Engineering	17.9	10
Humanities	12.5	7
Social Sciences	7.1	4
Business	3.6	2
Other	7.1	4
Prefer not to disclose	7.1	4

*Note.* Examples of “Other” category affiliations included multidisciplinary appointments and the Teaching and Learning Center. N=56.

Over half of respondents were research-track faculty members (52%), 14% were full-time teaching-track faculty, and 16% were sessional or contractually limited instructors (Table 2). At McMaster University, sessional instructors are part-time contract workers who facilitate a course offering during a specific academic term, while contractually limited instructors are contracted to instruct multiple courses for one to three years. More junior academic positions, such as postdoctoral fellows (7%), graduate students (5%), and instructional or research assistants (4%) were also represented in our sample (Table 2).

**Table 2**

*Survey respondent academic position at McMaster University*

Academic Position	Respondents (%)	Respondents (N)
Research-Track Faculty Member	51.8	29
Teaching-Track Faculty Member	14.3	8
Contractually Limited Appointment Faculty or Sessional Instructor	16.1	9
Postdoctoral Fellow	7.1	4
Graduate Student	5.4	3
Instructional Assistant or Research Assistant	3.6	2
Other	8.9	5

*Note.* Respondents could select multiple responses. Examples of role descriptions in the “Other” category include Research Coordinator, Assistant Dean, and recently completed Postdoctoral Fellow. N=56.

Overall, our survey sample was largely comprised of research-track faculty members from STEM disciplines (Tables 1, 2). This skew is representative of the known demographics of McMaster University faculty (McMaster University, 2022).

Each week while the survey was live, we contacted respondents who expressed an interest in being interviewed to schedule a time to meet. If we did not hear back from a respondent, we sent one reminder email 2-4 weeks after the original email. Eighteen survey respondents expressed an interest in being interviewed but ultimately eight elected to participate in a follow-up interview. The aim of these semi-structured interviews was for us to gain a deeper understanding of their varied experiences engaging in SoTL activities. While limited in scope due to the small number of interviewees, the participants were diverse in their positionalities and experiences. Half identified as men and half as women. Faculties represented were Science, Health Sciences, Social Sciences, Business, Engineering, Humanities, Arts & Sciences. Their ranks ranged from Contractually Limited Appointments to Full Professor. There was also a balance between faculty with teaching and research-track appointments.

### **Data Collection**

The online survey was open from May 10, 2021, to August 31, 2021. It was delivered through LimeSurvey, an open-source statistical web survey program. The survey took approximately 20-30 minutes to complete. The survey tool consisted of quantitative measures, including multiple choice and Yes-No forced-choice questions.

All data collected through the survey was anonymized. Demographic questions, including faculty affiliation and academic position, had options to indicate if respondents would prefer not to answer. Surveys containing blank responses to mandatory questions were treated as participant withdrawal from the study and were not included in analysis.

Virtual interviews took place over the summer of 2021 and were conducted by members of the research team. Interviews were recorded using Zoom. Members of the research team cleaned and anonymized the AI-generated transcripts.

### **Data Analysis**

Descriptive statistical analysis was conducted on survey data using SPSS version 26.0 (IBM Corporation, Armonk, United States) (Pallant, 2020). Graphs were designed using GraphPad Prism 9.3.1 (GraphPad Software, San Diego, USA).

Thematic analysis was used to examine interview data (Braun & Clarke, 2006; Kara, 2022). First, the researchers familiarized themselves with the data through transcribing and reading each transcript. Then, the researchers coded the transcripts using both deductive and inductive coding to identify passages and sub-themes related to engagement with scholarly research and literature.

## **Results**

We classified faculty and staff SoTL engagement activities into three main categories: staying informed on SoTL literature, conducting SoTL research, and

disseminating SoTL findings. Herein, research participants used a variety of terms to describe their teaching and learning research, such as pedagogical research, education research, and SoTL. In this paper, we will describe these research activities as SoTL, as they represent “the systematic study of teaching and learning. . . resulting in products that are publicly shared for critique and use” (Potter & Kustra, 2011, p. 2).

### **Staying Informed on Literature**

Participants reported a variety of activities to stay informed of SoTL research. All participants had engaged with at least one activity to stay informed over the past five years. The most common activities included attending a teaching and learning conference (77%) and reviewing the teaching and learning center website for information (77%). Many (71%) respondents reported implementing research findings of others into their own teaching (Figure 1). Although three-quarters of respondents indicated they used the teaching and learning center website to find information on SoTL research, only 30% used other McMaster University websites for similar purposes (Figure 1).

Passive, or one-way, activities used to stay informed of SoTL research included subscriptions to newsletters (52%), subscriptions to publication or journal alerts (43%), and reading the literature (57%) (Figure 1). Active, or two-way, activities used to stay informed included participating in a teaching and learning research network (50%), attending relevant professional development sessions (57%), or attending teaching and learning sessions at disciplinary conferences (64%) (Figure 1). Echoing the survey, the faculty we interviewed described engaging in myriad one-way and two-way knowledge-sharing scholarly activities to stay informed on SoTL literature. One-way activities highlighted in interviews included conducting literature reviews and listening to SoTL presentations, while two-way activities included attending SoTL workshops and community of practice meetings. Overall, there was no distinct preference for one-way or two-way knowledge-sharing activities, with respondents indicating participation in both. This reinforces the need to maintain both styles of activities to help faculty, staff, and students stay informed about SoTL research.

However, interviewees did lament the struggle of staying informed on scholarly teaching literature, particularly due to lack of time.

*I must admit that one of the biggest difficulties that I have, and I've heard my colleagues have, is just the amount of time it takes to keep up to date with what's going on. That the sort of the lovely-- background reading, the absorbing, the thinking about things, that-- we just don't have time. (Participant C)*

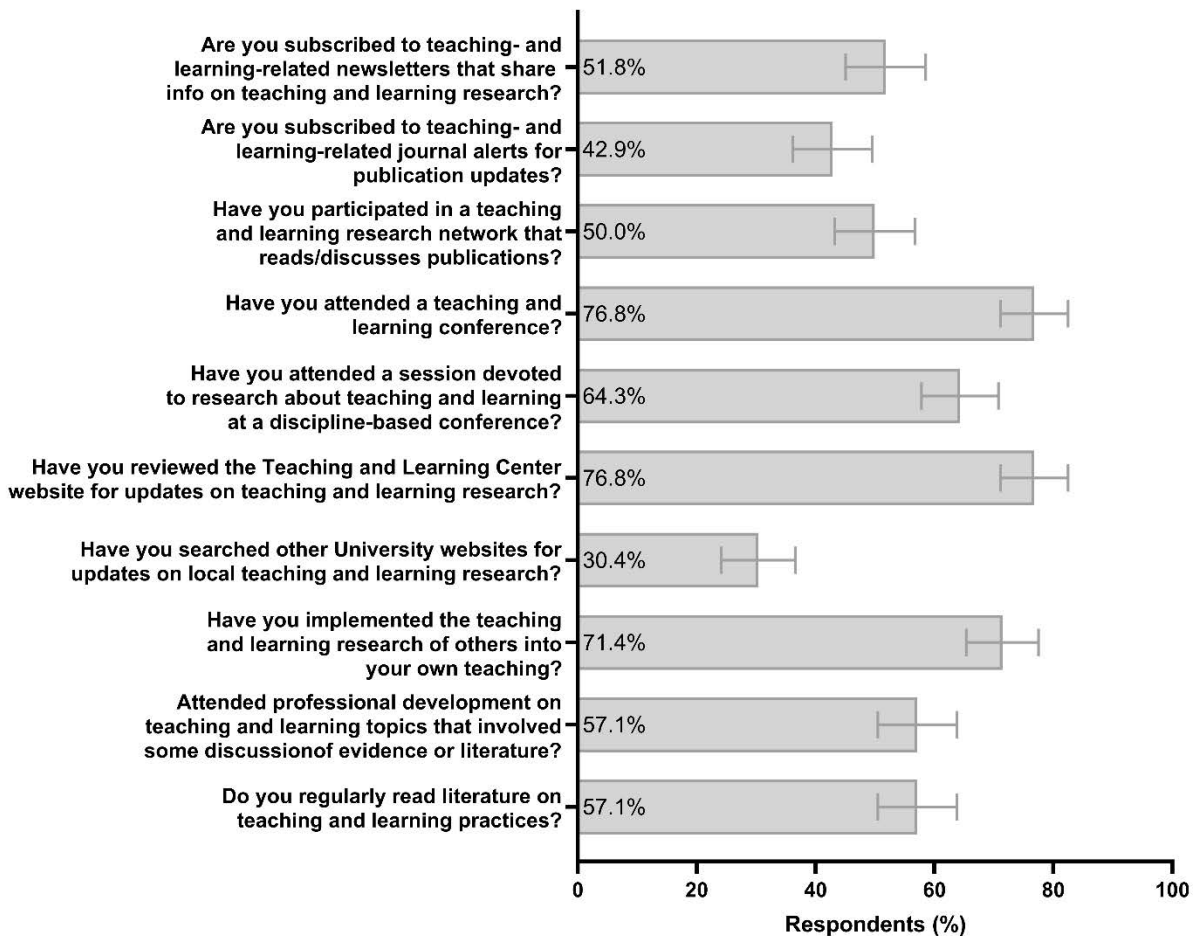
Faculty interviewees also expressed frustrations with the quantity of SoTL literature. Part of this frustration seemed to stem from researchers' disciplinary

traditions and epistemological positions that faculty perceived as ill-suited to research questions being asked in SoTL:

*... There's a lot of [STEM education research] work that's extremely poor primarily because we're applying [STEM] ways of thinking to something that should really involve much more social science ways of looking at [the] world. Right? (Participant H)*

**Figure 1**

*Information sources and activities used by faculty and staff to stay informed about research on teaching and learning*



*Note.* Percentage value represents the proportion of respondents who answered 'Yes' to the listed questions. N=56, error bars display Standard Error of the Mean.

Additionally, some interviewees from STEM disciplines were dissatisfied with the literature they found on teaching and learning when trying to implement evidence-informed practices. These sentiments seemed particularly linked to reflective essays and a longing for what interviewees perceived as more objective analysis:



*I was frustrated because we would make some change [to our teaching], and I would look in the literature for some evidence and the evidence was bad. I just found it was just arbitrary... [In the literature] somebody was saying [this] was their experience, and I'm not saying that's not a type of data, it's just not a type of data that I find is actionable (Participant F)*

In contrast, some faculty shared that they specifically sought literature that was practical and based on educators' lived experiences, or as Participant G put it "something that comes out of, you know, out of actually from people who are actually teaching."

*I want to know from my colleagues who tell me 'Okay, I tried to implement, you know, I tried to do it this way, I tried to tweak it this way...' You know what I'm saying? That's useful to me... (Participant G)*

Thus, survey respondents and interviewees expressed a preference in a variety of knowledge sharing activities to stay informed on the SoTL literature. This friction may also reflect the breadth of research methods used in SoTL (Divan et al., 2017), given the wide variety of disciplinary training and perspectives that faculty and staff bring to SoTL inquiry.

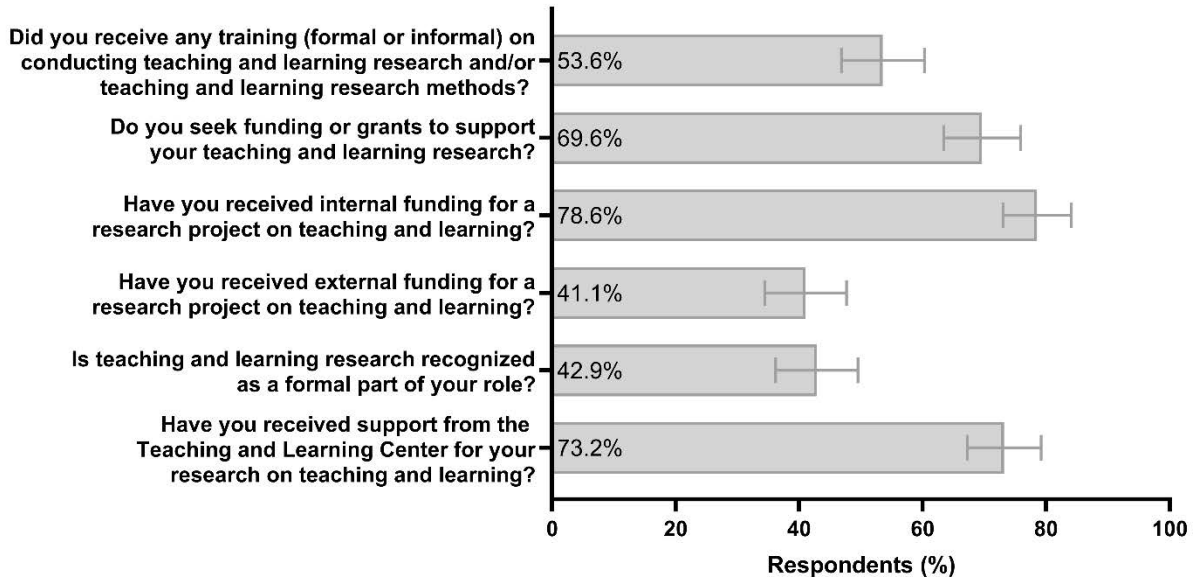
### **Conducting Research**

Next, we asked respondents about activities associated with conducting SoTL research. Only 54% of respondents indicated they received formal or informal training on conducting SoTL research over the past five years (Figure 2). This suggests that respondents may be drawing on their disciplinary-specific knowledge when conducting SoTL research or relying on past training. However, this may also indicate a gap in availability or opportunities to be trained in teaching and learning specific research methodology. Indeed, few faculty we interviewed had received formal teaching or SoTL research training during their own educational trajectories. Many were self-taught, learned from mentors, or engaged in educational workshops offered by a teaching and learning center. Indeed, just over 73% of survey respondents indicated they received support from the Teaching and Learning Center when conducting SoTL research (Figure 2).

Some faculty expressed irritation with other academics' perceptions that SoTL research was easier than disciplinary research. This sentiment was shared by Participant F: "There's this idea that anybody can do [education research] right away. . . It's right to say that anybody could do education research, pretty much. But it's just not that easy." This impression that SoTL was simpler than disciplinary research led some interviewees to feel that their SoTL inquiry was "second-class" compared to disciplinary research.

Figure 2

Activities completed by respondents in the past five years to support their research on teaching and learning



*Note.* Percentage value represents the proportion of respondents who answered 'Yes' to the listed questions. N=56, error bars display Standard Error of the Mean.

Curiously, only 43% of survey respondents identified that SoTL research was part of their formal role and responsibilities (Figure 2). By far the biggest complaint interviewees shared was regarding the lack of time to conduct SoTL research. As explained by Participant C, "...people who are teaching professors normally do not have time in their pie chart of their duties: there's 80% teaching and 20% service. Where does this scholarship occur?" This suggests many respondents are conducting SoTL research in addition to their other professional responsibilities, which highlights the importance of available SoTL research supports.

Another interesting trend was related to how respondents' research was funded, with 79% indicating they received internal funding and 41% indicating they had external funding support. It is unclear if this is due to higher success rates of internal funding applications or if fewer external funding applications are submitted compared to internal funding applications. One potential explanation for fewer external funding applications is the limited number of respondents who have SoTL research as part of their formal role. If this work is not part of a broader program of research, respondents may not consider entering external funding competitions and instead focus on disciplinary-based research funding.

Nevertheless, this highlights the potential impact of McMaster University's internal funding options for SoTL, such as the Student Partners Program grants, Small Teaching and Learning Exploration Grant, the Priority Areas for Learning and

Teaching Research (PALAT) grants, and Inclusion, Diversity, Equity, Accessibility and Sustainability (IDEAS) grants. Eighty-six percent of respondents reported receiving at least one source of funding for their teaching and learning research. Overall, it appears respondents conduct SoTL research of their own accord, despite this being outside their formal role and their lack of recent formal training, which is consistent with previous literature (Billot et al., 2017; Brownell & Tanner, 2012).

We also asked respondents about the scope of their SoTL-related research activities, namely who they work with, what kind of work they do, and if they take on leadership-related activities. The majority of respondents reported working with colleagues at the same institution (73%), followed by student partners (59%), colleagues at different institutions (52%), and lastly Teaching and Learning Center staff (43%) (Figure 3). 57% of respondents had research questions related to their own classroom context, and 48% worked on interdisciplinary teams to accomplish their goals (Figure 3). Much of this SoTL research, according to the faculty interviewed, remained disciplinary. For example, participant G shared that they “would never [have] gotten tenure, if [I] only published in [disciplinary] education. So, my tenure case was based on the combination of publications in [discipline] and [disciplinary] education. And for [disciplinary] education, I was told only international publications counted.” Thus, interviewees felt that some of the activities in which faculty engaged “did not count” and were “in addition to” their disciplinary duties (Participant C).

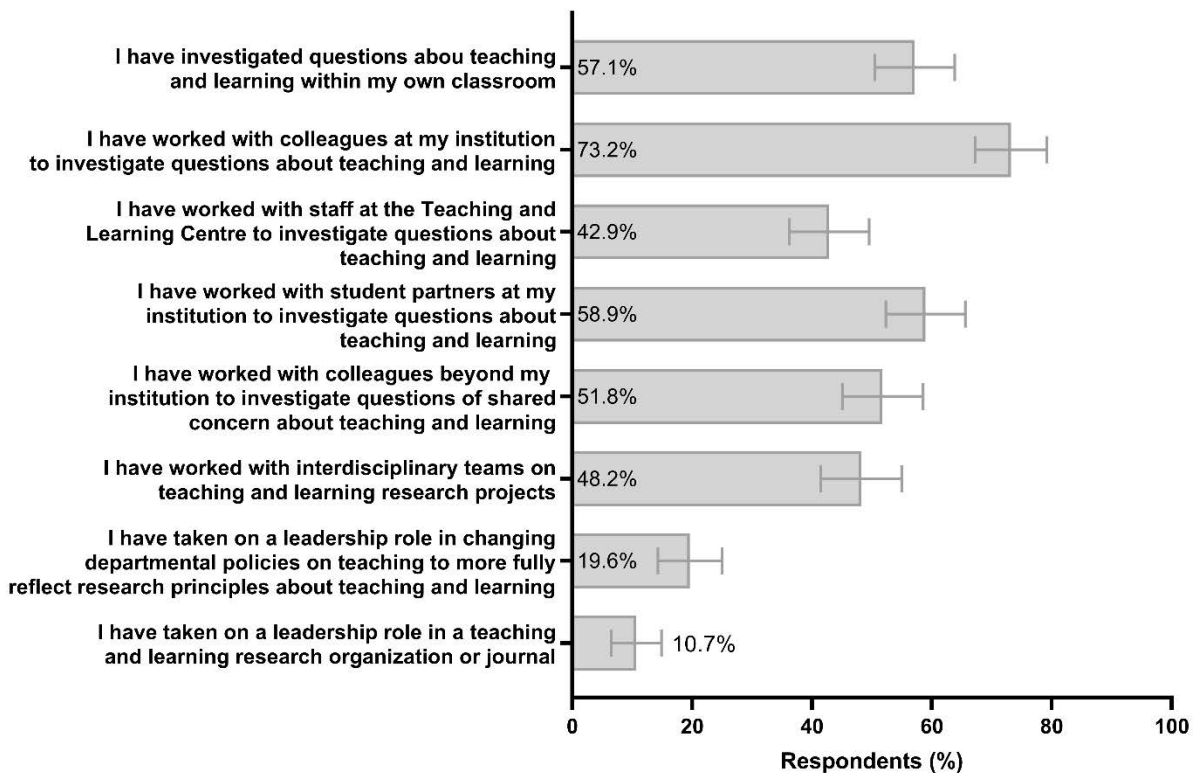
Overall, 95% of respondents indicated they had collaborated with at least one other person on their teaching and learning research work, such as a colleague, student partner, or Teaching and Learning Center staff member (Figure 3). In the interview data, participants elaborated on their participation in collaborations with scholars within and outside of McMaster on SoTL research. Faculty herein expressed appreciation particularly for involving students as partners in the research process, so that students learn to become “generators of information, as opposed to just consumers” (Participant E). It was in this manner that conducting research was also an act of educating and teaching students. Some faculty considered this act an additional benefit:

*I mean, there's the inherent value of actually kicking the ball down the field and gaining some knowledge about what things work and don't work, and then there's that secondary gain of teaching other people how to do research so that they can continue to kick the ball down the field, right? To me, that's the thing. There's the inherent and then there's the secondary gain or the collateral help that you get. (Participant F)*

However, these research collaborations with students were not always equitable partnerships. Although faculty participants reveled in sharing the research process with students, some revealed that more time-consuming tasks, like literature review writing, were often a duty they would offload to students. However, it was the faculty member who reaped the rewards of students' efforts, including formal recognition from publications and presentations.

Figure 3

Scope of research on teaching and learning activities reported by respondents



*Note.* Percentage value represents the proportion of respondents who answered 'Yes' to the listed questions. N=56, error bars display Standard Error of the Mean.

Compared to the high percentage of respondents reporting collaborative engagement, far fewer respondents indicated they took on leadership roles related to SoTL research. Twenty percent of respondents indicated they have tried to influence departmental teaching policies, while 11% took a leadership role in a SoTL research organization or journal (Figure 3). This suggests that while respondents conduct SoTL research with a variety of collaborators, they may be less invested in taking on leadership positions involving SoTL.

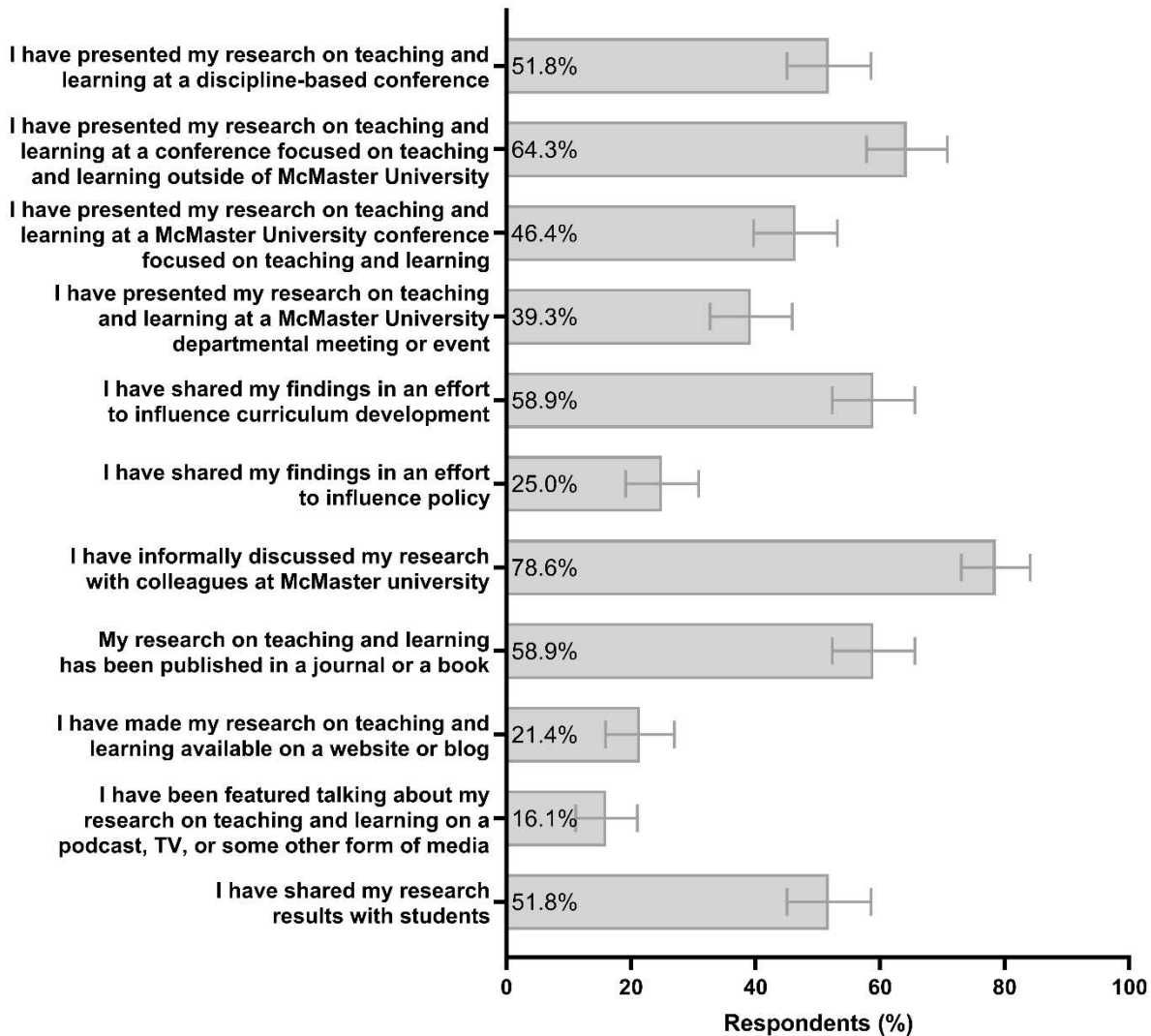
### Disseminating Findings

Finally, we asked respondents about how they disseminated their research on teaching and learning. When asked where they delivered formal presentations, 64% indicated SoTL research conferences outside of McMaster University, 52% at discipline-based conferences, 46% at a McMaster University SoTL research conference, and 39% at a departmental meeting or event, with 77% indicating they have delivered at least one type of presentation (Figure 4). 59% of respondents reported publishing their SoTL research findings in a journal or book (Figure 4). In the interview data, participants further identified knowledge translation activities,

conference presentations, and incorporating research evidence into their teaching practice as approaches to disseminating findings.

**Figure 4**

*Research on teaching and learning dissemination methods reported by respondents*



*Note.* Percentage value represents the proportion of respondents who answered 'Yes' to the listed questions. N=56, error bars display Standard Error of the Mean.

While over half of respondents said they shared their findings to influence curriculum development (59%), only 25% made efforts to influence policy (Figure 4). Interviewed faculty cautioned that implementation of educational practices and policy must be driven by evidence "rather than the way it is now, [in] which [educational change] is just adopted on the basis of novelty" (Participant F). Meaning, faculty perceived other educators and administrators as adopting some pedagogical practices on the basis of what was new or trending, rather than

adopting practices with strong empirical support. This highlights a need for further SoTL dissemination efforts influencing departmental, faculty, or institutional-level educational policies to encourage the use of evidence-based teaching strategies. When asked about more informal means of dissemination, 79% of respondents indicated they discussed their findings with colleagues at McMaster University, and 52% shared their research results with students (Figure 4). A few respondents used other informal means of research dissemination, such as a website or blog post (21%) or media interview (16%) (Figure 4). Overall, this data indicates that respondents use a mix of formal and informal research dissemination methods.

### **Discussion**

In this study, we explored how faculty and staff at a medium-sized, research-intensive university engage with SoTL, including activities to stay informed about SoTL literature, carry out their own SoTL inquiry, and disseminate SoTL research findings. Similar to previous scholarship, we identified a multitude of SoTL engagement possibilities (Kim et al., 2021; Miller-Young et al., 2017; Newton et al., 2019). We also identified familiar hurdles which may impede SoTL participation by faculty and staff members (Kolomitro et al., 2018; Maheux-Pelletier et al., 2019). While these opportunities and challenges for SoTL practitioners echo extant literature, our analysis provides further insight into how these phenomena are related to effective teaching practices.

When we asked respondents about their preferences when engaging in the literature, we found mixed preferences for more passive forms of participation, such as newsletter and journal subscriptions, as well as active forms of participation, such as professional development sessions and conference attendance. SoTL organizations often emphasize the importance of active engagement for students and teachers (McKinney, 2013). However, these types of activities often require a greater time commitment than passive engagement strategies. Similar to other groups, our participants identified a lack of protected time as a barrier to engaging with the literature (Brownell & Tanner, 2012; Kim et al., 2021; Kolomitro et al., 2018), which would explain the level of passive engagement activities. This highlights the need for teaching and learning centers to provide multiple modes of SoTL training and engagement, to provide options for faculty and staff to engage with SoTL in ways that match their interest and time availability. Moreover, teaching and learning center staff could provide syntheses of SoTL research. Doing so could alleviate faculty time constraints and would ensure that staff who possess a high degree of expertise in SoTL research methods are tasked with translating the literature in a way that would be useful to faculty from a variety of disciplinary backgrounds.

A compounding factor reducing time for SoTL activities is the absence of SoTL from formal job descriptions, a precarity which has been identified by other groups (DiGregorio et al., 2016; Vander Kloet et al., 2017). At a structural level, the inclusion of SoTL research into formal roles of faculty and staff members would increase individual time for SoTL inquiry. Additionally, formalizing SoTL as part of job descriptions is a way for institutions to indicate they prioritize scholarly teaching

and learning. Above all, the fact that study participants were actively engaged in SoTL, despite a lack of training and formal recognition, speaks to the intrinsic motivation driving SoTL research at our institution.

With regards to the self-disclosed lack of formal SoTL training reported by participants, this observation is consistent with previous findings which suggest that SoTL practitioners rely frequently on their disciplinary training or self-taught SoTL research skills (Billot et al., 2017; Brownell & Tanner, 2012; Tierney, 2017). Not only did this result in a perception that SoTL research was easier than disciplinary inquiry, but also unfamiliarity with the best practices and norms employed in SoTL, particularly those originating from social sciences and humanities. Many SoTL practitioners have reported similar epistemological tension between the norms of their disciplinary training and SoTL, leading to a disruption of academic identity (Miller-Young et al., 2018; Simmons et al., 2013). This further emphasizes the potential benefit of SoTL workshops and training programs offered through teaching and learning centers, not only to learn practical research skills but also to navigate disciplinary disorientation amongst a group of like-minded individuals.

Collaborating with other like-minded SoTL practitioners was also of importance to faculty and staff participants, given that 95% of survey respondents indicated they worked with at least one other person on their teaching and learning research. SoTL as a field has historically emphasized collaborative inquiry as vital (Chick & Poole, 2013; Elton, 2009). Working in teams has been shown to decrease feelings of invisibility and isolation reported by SoTL practitioners, as well as help scholars acculturate to SoTL norms and develop relevant research skills (Kolomitro et al., 2018; Vander Kloet et al., 2017). Faculty interviewees also brought up the importance of including students in the research process, thus increasing student confidence by becoming producers of knowledge through engaging in scholarly inquiry. There are several positive outcomes stemming from partnerships between faculty, staff, and students through SoTL, including increased student engagement and confidence, student development of research skills, and development of better teaching materials (Mercer-Mapstone et al., 2017). However, the students-as-partners literature emphasizes the need for reciprocity and equity in student-faculty-staff partnership for these benefits to occur (Marquis et al., 2022; Mercer-Mapstone et al., 2017), something that was not always present in the partnerships described by the interviewees. Teaching and learning centers could, therefore, play an important role in supporting student engagement in SoTL. This could take the form of training and mentoring students in SoTL, as well as ensuring students are equally recognized for their SoTL contributions (e.g., paying students to work as SoTL research assistants and/or student partners) (Healey et al., 2014; Mercer-Mapstone et al., 2017).

When examining SoTL dissemination methods, a foundational part of SoTL best practices (Felten, 2013), a greater proportion of survey respondents indicated using lower-cost dissemination strategies such as talking with colleagues (79%) or delivering presentations (77%), than more cost and time intensive dissemination strategies including journal publications (59%). Indeed, others have identified a lack of access to dissemination-oriented funding as a barrier to more formal or costly means of sharing research findings (Brown et al., 2013; Vander Kloet et al.,

2017). Though these lower-cost dissemination approaches help with personal and colleagues' scholarly teaching practices (Vajoczki et al., 2011), these barriers contribute to gaps within published scholarship. This in turn limits the evidence available for administrators crafting educational policy. In response to this barrier, other SoTL programs have created grants specifically for dissemination activities (Miller-Young et al., 2016). Teaching and learning centers can play a valuable role in guiding and funding SoTL dissemination, both for scholarly publications and crafting educational policy.

### **Limitations**

One limitation of our study was our use of self-reported survey tools, results of which can be impacted by social desirability bias (Larson, 2019). However, we implemented best practices to reduce the potential impact of social desirability bias, including anonymizing our survey, providing options to decline demographic questions, emphasizing respondent confidentiality, and the use of forced-choice Yes-No questions (Lau & Kennedy, 2019).

Additionally, we must consider the limitations of our sample size (Survey N=56, Interview N=8) when generalizing about faculty and staff engagement with SoTL. Additionally, the majority of our respondents were from STEM disciplines and were research track faculty members. Although our demographic factors support that we had broad representation from faculty and staff across McMaster University, when seeking to apply our findings to other postsecondary institutions we need to consider how different contextual factors, such as disciplinary affiliation and academic position, may limit generalizability.

### **Implications**

Our findings offer insights as to how faculty and staff can engage with SoTL literature and research. Teaching and learning centers, and other postsecondary units like departments or schools/faculties, can draw several implications from these findings when considering how they can foster a culture of support for SoTL inquiry. When reading these suggestions, one must keep in mind that different institutional cultures and viewpoints of SoTL will impact what supports are needed and which engagement strategies are most effective. These proposals should be viewed as starting points for conversation, in order to be adapted to each institutional context.

First, this work offers an outline of how to conduct similar evaluations of faculty and staff SoTL engagement in other institutional contexts. The literature has consistently demonstrated the impact of contextual factors on individual SoTL practitioner experiences (Kolomitro et al., 2018; Wuetherick & Yu, 2016). Thus, when drawing on inspiration from SoTL supports documented in the literature, one should consider their institutional context and the current engagement needs of faculty and staff. The culture at the institution where this study took place values SoTL and is proud of its reputation in being a leader in education-related research. Therefore, the institution has devoted resources to supporting SoTL and this



support has been championed by some key members of the administration. Building on recommendations from Kim and colleagues (2021), we believe that intentional, structured SoTL support can yield long-term benefits for individual SoTL practitioners and their academic organizations. With this in mind, present methods of faculty and staff SoTL engagement must be examined to inform how practices could be improved.

Second, a common barrier to all types of SoTL engagement, from reading literature to conducting primary research to disseminating findings, was a lack of time to do SoTL work. This lack of time stemmed from SoTL not being perceived to be as valuable as disciplinary inquiry and not having SoTL incorporated into formal job descriptions. Breaking down the false dichotomy between disciplinary research and SoTL inquiry can encourage scholars at the individual level to use their time to pursue SoTL (Billot et al., 2017; Webb & Tierney, 2020). Toward this aim, we recommend embedding recognition of SoTL into faculty job descriptions. The findings from this study are currently being institutionally enacted at McMaster University by first performing a review of criteria for promotion and tenure for faculty and then ensuring SoTL is reflected therein. This change in policy largely stems from the advocacy work by faculty members calling for increased recognition and protected time for SoTL activities. Other options include arguing for the inclusion of SoTL in job descriptions, as well as in the tenure and promotion criteria when negotiating new contracts for faculty. These will ensure that faculty have the time to devote to SoTL. Protected time should not only be extended for faculty engaging in the creation of SoTL research, but also to the “scholarly teachers” described by Allen and Field (2005) who engage by reading the literature and incorporating evidence-based teaching strategies into their classrooms. In short, the synthesis and application of SoTL, in addition to the creation of new ideas, must become an activity which is seen as valuable.

Indeed, for sustainable change to occur, structural changes must be implemented to shift institutional views on the value of SoTL. Departments, programs, and teaching and learning centers aiming to embed SoTL into their institutional cultures need to set up structures that reward SoTL excellence and provide protected work hours to pursue SoTL inquiry (Webb & Tierney, 2020). Sustained monetary and professional support allows for faculty and staff to have meaningful engagement with SoTL, as opposed to doing it “off the side of one’s desk” (Webb & Tierney, 2020; Williams et al., 2013). Our institution offers three grant programs dedicated to funding SoTL, which helps provide financial resources to faculty undertaking SoTL. These funds can be used to hire student partners and research assistants who can assist faculty with their projects, as well as support project dissemination costs like conference and publishing fees.

Third, this research speaks to the value of creating partnership opportunities for SoTL. Examples of effective practices from the literature to foster collaborations include targeted communities of practice, cohort-based programs, and informal social networks for scholars (Kim et al., 2021; Marquis et al., 2017; Miller-Young et al., 2016; Tierney et al., 2020). These strategies cultivate a sense of community amongst individual scholars, allowing for the sharing of resources, ideas, and

struggles (Marquis et al., 2017). Moreover, creating equitable partnership opportunities for students interested in SoTL can provide faculty and staff with much-needed support while also helping train the next generation of SoTL scholars. Teaching and learning centers can play a key role in affecting these sorts of collaborations (Simmons & Taylor, 2019). For example, the teaching and learning center at McMaster University has dedicated educational developer staff support who foster research circles and writing retreats with faculty who are undertaking SoTL research. These educational developers also aid in the dissemination of SoTL findings through both active and passive strategies, including weekly newsletters, research summaries, annual research symposia, a teaching and learning month event series, and other professional development opportunities. The aims of having this variety of activities is to aid in the dissemination of SoTL findings to colleagues who may not be familiar with the SoTL literature, as well as to bring together and foster connections between faculty from various departments who share an interest in SoTL.

Fourth, when designing assistance programs to foster SoTL engagement, one must also consider how to stimulate the dissemination of SoTL knowledge in addition to programming that aids in the creation of knowledge. Public sharing of findings is a foundational aspect of SoTL inquiry (Felten, 2013), yet the methods and target audience of dissemination of SoTL scholarship is frequently an afterthought. Teaching and learning centers can aid SoTL practitioners in identifying and creating avenues for dissemination (Pechenkina, 2020), which can lead to increased uptake and impact of findings. In addition to the aforementioned avenues for dissemination, centers can also support SoTL practitioners with addressing reviewer feedback, as faculty may be unfamiliar with the norms and expectations of SoTL journals (Miller-Young et al., 2018).

### **Conclusion**

There are countless ways that faculty and staff members can engage in SoTL inquiry. Individual SoTL practitioners will choose different modalities to read SoTL literature, conduct primary research, and share research findings based on their own preferences and goals, as well as structural barriers. By examining trends in how faculty and staff members participate in SoTL, institutions can identify common trends and barriers which shape the individual choices made by scholars. This information can be used to design strategies to support faculty and staff who conduct SoTL inquiry which fit institutional and disciplinary contexts.

### **Conflicts of Interest**

The authors declare that there is no conflict of interest regarding the publication of this article. This research was supported by the Paul R. MacPherson Institute for Leadership, Innovation and Excellence in Teaching Internal Operating Grant and Summer 2021 Student Partner Program Award.

## References

- Allen, M. & Field, P. (2005). Scholarly Teaching and Scholarship of Teaching: Noting the Difference. *International Journal of Nursing Education Scholarship*, 2(1). <https://doi.org/10.2202/1548-923X.1094>
- Billot, J., Rowland, S., Carnell, B., Amundsen, C., & Evans, T. (2017). How experienced SoTL researchers develop the credibility of their work. *Teaching & Learning Inquiry The ISSOTL Journal*, 5(1). <https://doi.org/10.20343/teachlearningqu.5.1.8>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brownell, S. E., & Tanner, K. D. (2012). Barriers to faculty pedagogical change: lack of training, time, incentives, and...tensions with professional identity? *CBE Life Sciences Education*, 11(4), 339–346. <https://doi.org/10.1187/cbe.12-09-0163>
- Brown, N. R., University of Tasmania, Kelder, J.-A., Freeman, B., Carr, A. R., University of Tasmania, University of Melbourne, & University of Tasmania. (2013). A message from the chalk face—what casual teaching staff tell us they want to know, access and experience. *Journal of University Teaching & Learning Practice*, 10(3), 102–118. <https://doi.org/10.53761/1.10.3.6>
- Cambridge, B. L. (2004). *Campus progress: Supporting the scholarship of teaching and learning*. American Association for Higher Education.
- Chick, N., & Poole, G. (2013). Launching TLI: SoTL's purposes, processes, and people. *Teaching & Learning Inquiry The ISSOTL Journal*, 1(1), 1–4. <https://doi.org/10.20343/teachlearningqu.1.1.1>
- Creswell, J. W., Plano Clark, V. L., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209–240). SAGE.
- Dalgarno, N., Laverty, C., Egan, R., Garton, K., Soleas, E., Babando, J., & Van Wylick, R. (2020). Participant perceptions of the faculty development Educational Research Series. *Teaching & Learning Inquiry*, 8(1), 221–245. <https://doi.org/10.20343/teachlearningqu.8.1.15>
- DiGregorio, N., Maurer, T. W., & Pattanaik, S. (2016). Documentation of scholarship of teaching and learning trends at National Council on Family Relations Annual Conferences 2006-2015. *Family Science Review*, 21(2). <https://doi.org/10.26536/FSR.2016.21.02.03>
- Divan, A., Ludwig, L., Matthews, K., Motley, P., & Tomljenovic-Berube, A. (2017).

- Research approaches in Scholarship of Teaching and Learning publications: A systematic literature review. *Teaching & Learning Inquiry*, 5(2), 16.  
<https://doi.org/10.20343/teachlearning.5.2.3>
- Elton, L. (2009). Continuing professional development in higher education. *Arts and Humanities in Higher Education*, 8(3), 247–258.  
<https://doi.org/10.1177/1474022209339955>
- Felten, P. (2013). Principles of good practice in SoTL. *Teaching & Learning Inquiry*, 1(1), 121–125. <https://doi.org/10.2979/teachlearning.1.1.121>
- Harland, T., Raja Hussain, R. M., & Bakar, A. A. (2014). The scholarship of teaching and learning: Challenges for Malaysian academics. *Teaching in Higher Education*, 19(1), 38–48. <https://doi.org/10.1080/13562517.2013.827654>
- Harvey, K., Suart, C., Aspenlieder, E., Evanovitch, J., Karim, F., Minhas, A., Krone, J., Cassidy-Neumiller, M., & de Bie, A. (2022). *Results from an environmental scan of research on teaching and learning across McMaster University*. MacPherson Institute for Leadership, Innovation, and Excellence in Teaching. [https://mi.mcmaster.ca/app/uploads/2022/09/Research-on-Teaching-and-Learning-at-McMaster-A-Discussion\\_April2022.pdf](https://mi.mcmaster.ca/app/uploads/2022/09/Research-on-Teaching-and-Learning-at-McMaster-A-Discussion_April2022.pdf)
- Healey, M., Flint, A., & Harrington, K. (2014). *Engagement through partnership: Students as partners in learning and teaching in higher education*. The Higher Education Academy. <https://www.advance-he.ac.uk/knowledge-hub/engagement-through-partnership-students-partners-learning-and-teaching-higher>
- Huijser, H., Reis, C., Soo, Y. J., Tan, V., Walker, I., & Wu, S. M. (2021). SoTL enquiries in four disciplines: Unlocking the potential of interdisciplinary approaches and methodologies. *Asian Journal of the Scholarship of Teaching and Learning*, 11(1), 38–45.  
<https://nus.edu.sg/cdtl/engagement/publications/ajsotl-home/archive-of-past-issues/v11n1/v11n1-Huijser-et-al>
- Hutchings, P. (2000). Approaching the scholarship of teaching and learning. In P. Hutchings (Ed.), *Opening Lines: Approaches to the Scholarship of Teaching and Learning* (pp. 1–10). Carnegie Foundation for the Advancement of Teaching.
- Kara, H. (2022). *Qualitative research for quantitative researchers*. SAGE.
- Kenny, N., & Evers, F. (2011). 4. Responding to the challenging dilemma of faculty engagement in research on teaching and learning and disciplinary research. *Collected Essays on Learning and Teaching*, 3, 21–26.  
<https://doi.org/10.22329/celt.v3i0.3234>
- Kim, A. S. N., Popovic, C., Farrugia, L., Saleh, S. A. F., Maheux-Pelletier, G., & Frake-Mistak, M. (2021). On nurturing the emergent SoTL researcher: responding to challenges and opportunities. *The International Journal for*

- Academic Development*, 26(2), 163–175.  
<https://doi.org/10.1080/1360144x.2020.1842743>
- Kolomitro, K., Laverty, C., & Stockley, D. (2018). Sparking SoTL: Triggers and stories from one institution. *The Canadian Journal for the Scholarship of Teaching and Learning*, 9(1), 1–14. <https://doi.org/10.5206/cjsotl-rcacea.2018.1.10>
- Larson, R. B. (2019). Controlling social desirability bias. *International Journal of Market Research*, 61(5), 534–547. <https://doi.org/10.1177/1470785318805305>
- Lau, A., & Kennedy, C. (2019). *When online survey respondents only "select some that apply."* Pew Research Center.  
<http://www.pewresearch.org/methods/2019/05/09/when-online-survey-respondents-only-select-some-that-apply/>
- Maheux-Pelletier, G., Marsh, H., & Frake-Mistak, M. (2019). The benefits of writing retreats revisited. In N. Simmons & A. Singh (Eds.), *Critical collaborative communities: Academic writing partnerships, groups, and retreats* (Vol. 17, pp. 92–105). Brill. [https://doi.org/10.1163/9789004410985\\_008](https://doi.org/10.1163/9789004410985_008)
- Marquis, E. (2015). Developing SoTL through organized scholarship institutes. *Teaching & Learning Inquiry*, 3(2), 19–36.  
<https://doi.org/10.20343/teachlearningqu.3.2.19>
- Marquis, E., Carrasco-Acosta, E., De Bie, A., Krishna Prasad, S., Wadhvani, S., & Woolmer, C. (2022). Toward redressing inequities through partnership: A critical assessment of an equity-focused partnership initiative. *International Journal for Students as Partners*, 6(1), 10–29.  
<https://doi.org/10.15173/ij sap.v6i1.4895>
- Marquis, E., Holmes, T., Apostolou, K., Centea, D., Cockcroft, R., Knorr, K., Maclachlan, J. C., Monteiro, S. D., & Karamanis, T. (2017). SoTL Research Fellows: Collaborative pathfinding through uncertain terrain. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8(3), 1–19.  
<https://doi.org/10.5206/cjsotl-rcacea.2017.3.9>
- McKinney, K. (2006). Attitudinal and structural factors contributing to challenges in the work of the scholarship of teaching and learning. *New directions for institutional research*, 2006(129), 37–50. <https://doi.org/10.1002/ir.170>
- McKinney, K. (2013). *The scholarship of teaching and learning in and across the disciplines*. Indiana University Press.
- McKinney, K., & Jarvis, P. (2009). Beyond lines on the CV: Faculty applications of their scholarship of teaching and learning research. *International Journal for the Scholarship of Teaching and Learning*, 3(1).  
<https://doi.org/10.20429/ij sotl.2009.030107>

- McMaster University (2022). *McMaster University fact book 2021-2022*.  
<https://ira.mcmaster.ca/app/uploads/2022/11/Fact-Book-2022-Final.pdf>
- Mercer-Mapstone, L., Dvorakova, S. L., Matthews, K. E., Abbot, S., Cheng, B., Felten, P., Knorr, K., Marquis, E., Shammas, R., & Swaim, K. (2017). A systematic literature review of students as Partners in higher education. *International Journal for Students as Partners*, 1(1).  
<https://doi.org/10.15173/ij sap.v1i1.3119>
- Miller-Young, J., Anderson, C., Kiceniuk, D., Mooney, J., Riddell, J., Schmidt Hanbidge, A., Ward, V., Wideman, M. A., & Chick, N. (2017). Leading up in the scholarship of teaching and learning. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8(2), 1–17. <https://doi.org/10.5206/cjsotl-rcacea.2017.2.4>
- Miller-Young, J., Yeo, M., & Manarin, K. (2018). Challenges to disciplinary knowing and identity: Experiences of scholars in a SoTL development program. *International Journal for the Scholarship of Teaching and Learning*, 12(1), 3. <https://doi.org/10.20429/ij s ot l.2018.120103>
- Miller-Young, J., Yeo, M., Manarin, K., Carey, M., & Zimmer, J. (2016). SoTL2: Inquiring into the impact of inquiry. *New Directions for Teaching and Learning*, 2016(146), 55–62. <https://doi.org/10.1002/tl.20187>
- Newton, G., Miller-Young, J., & Sanago, M. (2019). Characterizing SoTL across Canada. *The Canadian Journal for the Scholarship of Teaching and Learning*, 10(2). <https://doi.org/10.5206/cjsotl-rcacea.2019.2.8174>
- Openo, J. A., Laverty, C., Kolomitro, K., Borin, P., Goff, L., Stranach, M., & Gomaa, N. (2017). Bridging the divide: Leveraging the scholarship of teaching and learning for quality enhancement. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8(2), 1–18. <https://doi.org/10.5206/cjsotl-rcacea.2017.2.6>
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. McGraw-Hill Education (UK).
- Pechenkina, E. (2020). Chasing impact: The tale of three SoTL studies. *Teaching & Learning Inquiry*, 8(1), 91–107. <https://doi.org/10.20343/teachlearningqu.8.1.7>
- Potter, M. K., & Kustra, E. (2011). The relationship between scholarly teaching and SoTL: Models, distinctions, and clarifications. *International Journal for the Scholarship of Teaching and Learning*, 5(1).  
<https://doi.org/10.20429/ij s ot l.2011.050123>
- Schroeder, C. (2007). Countering SoTL marginalization: A model for integrating SoTL with institutional initiatives. *International Journal for the Scholarship of Teaching and Learning*, 1(1). <https://doi.org/10.20429/ij s ot l.2007.010115>

- Simmons, N., Abrahamson, E., Deshler, J., Kensington-Miller, B., Manarin, K., Morón-García, S., Oliver, C., & Renc-Roe, J. (2013). Conflicts and configurations in a liminal space: SoTL scholars' identity development. *Teaching & Learning Inquiry, 1*(2), 9–21. <https://doi.org/10.20343/teachlearning.1.2.9>
- Simmons, N., & Taylor, K. L. (2019). Leadership for the scholarship of teaching and learning: Understanding bridges and gaps in practice. *The Canadian Journal for the Scholarship of Teaching and Learning, 10*(1). <https://doi.org/10.5206/cjsotl-rcacea.2019.1.7995>
- Tierney, A. M. (2017). Threshold concepts in academic practice: Engagement with the scholarship of teaching and learning. *Practice and Evidence of Scholarship of Teaching and Learning in Higher Education, 12*(2), 65–184. <https://www.pestlhe.org/index.php/pestlhe/article/view/167>
- Tierney, A. M., Aidulis, D., Park, J., & Clark, K. (2020). Supporting SoTL development through communities of practice. *Teaching & Learning Inquiry, 8*(2), 32–52. <https://doi.org/10.20343/teachlearning.8.2.4>
- Trigwell, K. (2013). Evidence of the impact of scholarship of teaching and learning purposes. *Teaching & Learning Inquiry, 1*(1), 95–105. <https://doi.org/10.20343/teachlearning.1.1.95>
- Vajoczki, S., Watt, S., Vine, M., & Liao, R. (2011). Inquiry learning: Level, discipline, class size, what matters? *International Journal for the Scholarship of Teaching and Learning, 5*(1). <https://doi.org/10.20429/ijstl.2011.050110>
- Vander Kloet, M., Frake-Mistak, M., McGinn, M. K., Caldecott, M., Aspenlieder, E. D., Beres, J. L., Fukuzawa, S., Cassidy, A., & Gill, A. (2017). Conditions for contingent instructors engaged in the scholarship of teaching and learning. *The Canadian Journal for the Scholarship of Teaching and Learning, 8*(2), 1–20. <https://doi.org/10.5206/cjsotl-rcacea.2017.2.9>
- Vithal, R. (2018). Growing a scholarship of teaching and learning institutionally. *Studies in Higher Education, 43*(3), 468–483. <https://doi.org/10.1080/03075079.2016.1180350>
- Warfa, A-R. M. (2016). Mixed-methods design in biology education research: Approach and uses. *CBE Life Sciences Education, 15*(4). <https://doi.org/10.1187/cbe.16-01-0022>
- Webb, A. S., & Tierney, A. M. (2020). Investigating support for scholarship of teaching and learning; We need SoTL educational leaders. *Innovations in Education and Teaching International, 57*(5), 613–624. <https://doi.org/10.1080/14703297.2019.1635905>
- Williams, A., Verwoord, R., Beery, T., Dalton, H., McKinnon, J., Strickland, K., Pace, J., & Poole, G. (2013). The power of social networks: A model for weaving the scholarship of teaching and learning into institutional culture. *Teaching &*

*Learning Inquiry*, 1(2), 49–62. <https://doi.org/10.20343/teachlearningqu.1.2.49>

Wuetherick, B., & Yu, S. (2016). The Canadian teaching commons: The scholarship of teaching and learning in Canadian higher education. *New Directions for Teaching and Learning*, 2016(146), 23–30. <https://doi.org/10.1002/tl.20183>

Wuetherick, B., Yu, S., & Greer, J. (2016). Exploring the SoTL landscape at the university of Saskatchewan. *New Directions for Teaching and Learning*, 2016(146), 63–70. <https://doi.org/10.1002/tl.20188>