



The 4M Framework as Analytic Lens for SoTL's Impact: A Study of Seven Scholars

ABSTRACT

The Scholarship of Teaching and Learning (SoTL) encompasses research on postsecondary teaching and learning across all disciplines. Why do scholars engage in the study of teaching and learning? What supports and challenges do they encounter? What is the impact of SoTL? Using a micro-meso-macro-mega (4M) framework, I explore these questions in interviews with seven SoTL scholars from various disciplines in one institution. Primarily, this article provides a case study illustration of the use of the micro-meso-macro-mega framework to explore SoTL. In addition to exploring participants' reflections vis-à-vis the four levels, I reflect on possible connections to motivation theory as a lens for themes arising from the participants' accounts of supports and barriers and the impact of their SoTL work.

KEYWORDS

SoTL, micro-meso-macro-mega, 4M, motivation, impact

IMPACT AND THE 4M FRAMEWORK

The Scholarship of Teaching and Learning (SoTL) is a growing area of study in which postsecondary educators engage in inquiry about their teaching and their students' learning with an aim of improving these processes (Poole & Simmons, 2013). In numerous institutions, this work is supported by grants, staff, and collaborative research groups. For many, this work informs their scholarly teaching practice; for some who make it public beyond their classrooms, it may also build pedagogical knowledge in and across the disciplines (Shulman, 1993).

While SoTL may be well supported in many ways, questions remain as to how scholars navigate their roles to include this work, for which they typically have little or no background. As Myers (2008) notes, "prior work has spent much effort on *what* is the SoTL and little effort on *who* actually practices the SoTL" (p. 38). Some scholars have explored this issue, focusing on the challenges faced moving from disciplinary work into the transdisciplinary SoTL space; Huber (2004), for example, provides several detailed case studies of successful SoTL academics to illustrate these issues. Simmons, Abrahamson, Deschler, Kensington-Miller, Manarin, Morón-García, Oliver, and Renc-Roe (2013) highlight the sense of impostership (Brookfield, 2006) of working in new terrain along with the support of being part of a community of like-minded academics. Kelly, Nesbit, and Oliver (2012) similarly note the difficulties that newcomers face in trying to adjust to the SoTL "trading zone" (p. 3). Tsang (2010) also explores the challenges of working in "uncharted territory" (p. 2), of trying to engage in SoTL as a solitary practitioner, and of finding time to do the work on top of other responsibilities. While there are accounts of the challenges of engaging in SoTL, what remains under-investigated is faculty members' reasons for

undertaking SoTL work and what sustains them in doing so, particularly when that work may not be acknowledged in promotion and tenure review.

In addition, and more centrally for this article, while the micro-meso-macro-mega framework (or what Friberg (2016) termed the “4M framework”) has been used by several authors as a lens for exploring the SoTL's impact at different levels, both within and beyond the institution (Poole & Simmons, 2013; Poole, Taylor, & Thompson, 2007; Simmons, 2009; Simmons, 2016; Weston, Matsushita, Berthiaume, & Timmermans, 2008; Wuetherick, Yu, & Greer, 2016), the literature is missing examples of the application of this framework. Prior quantitative work by Poole and Simmons (2013) has shown that at the micro level, academics engage in SoTL to improve student learning (p. 125). Eighty-five percent of their participants felt SoTL improved their teaching. It is important to note that 50 percent of their participants communicated their findings about teaching and learning to others; in a culture of greater isolation, one could expect significantly less reach of SoTL's impact. For example, Wuetherick, Yu, and Greer (2016) note that only 27 percent of faculty in their study collaborate on SoTL. This scholarly isolation makes it more difficult to grow a culture of SoTL on campus. As the lens on SoTL in Poole and Simmons's (2013) study moves to meso and macro levels, the percentages drop substantially: 67 percent felt their SoTL improved others' teaching, and only 34 percent felt SoTL influenced teaching policy decisions. There is an opportunity to augment these findings with qualitative case studies that explore more deeply what happens at each level from the perspective of SoTL academics.

Therefore, using Friberg's (2016) 4M framework, where *micro* refers to the individual researcher, *meso* to department level factors, *macro* to the institutional level, and *mega* to disciplinary and interdisciplinary impact (Simmons, 2009; Poole & Simmons, 2013; Simmons, 2016), I illustrate how the key themes of participants' experience play out across these institutional levels. The article, therefore, has two purposes: (1) to illustrate the use of the 4M framework as an analytic tool for SoTL; and (2) to draw on the experiences of seven scholars to explore themes what motivates academics to engage in SoTL, what supports and challenges they encounter, and what the impact of their engagement is for themselves, for their students and departments, for their institutions, and for their disciplines.

STUDY FOCUS AND METHODS

The questions for this study arose from a keynote presentation given at a conference on SoTL (Poole, 2009). In that session, Poole posed three questions about SoTL scholars and their work:

1. What draws scholars to SoTL work?
2. What supports them in this work?
3. What challenges them in this work?

These questions led directly to my exploration of the implications of the work SoTL scholars do—for themselves, for their departments, for their institutions, and for their disciplines. Further, they led me to pose a fourth question that would allow exploration of patterns regarding the above three questions: What is the impact of this work at the micro-meso-macro-mega (4M) levels?

To explore these questions, using semi-structured interviews of 60-75 minutes that took a conversational approach (Kember, 1997) (see the appendix for initial questions), I invited SoTL scholars to outline their perspectives on their work, the supports and challenges they find, and its impact at different levels. Seven staff and faculty already engaged in institutionally funded SoTL at one Canadian university responded to an emailed invitation to the SoTL researchers' listserv (ethics

clearance was obtained for this research). A mix of disciplines was represented with the participants' SoTL experience ranging from 1 to 15 years (see Table 1). Participants were offered a choice of interview in person or by email. In-person interviews were audiotaped and transcribed; the tapes, transcripts, emails, and my field notes made during the interviews served as data for analysis. Pseudonyms were assigned in order of their length of SoTL experience.

Table 1. Participant demographics

PARTICIPANT	DISCIPLINE*	SoTL EXPERIENCE	INTERVIEW FORMAT
Alice	ESL	1 year	Email
Beatrice	Social work	1 year	Email
Cindy	Philosophy	2 years	Email
Daphne	Statistics	5 years	Email
Eric	Accounting	6 years	In-person
Frank	Foreign language	9 years	In-person
Gary	English literature	15 years	In-person

*No STEM participants volunteered; further investigation is needed to understand why

All participants had received institutional grants to undertake their SoTL projects, and each had taken advantage of supports (e.g. workshops on research, writing, SoTL processes, and publication) hosted by the teaching and learning center.

Data analysis proceeded in an iterative process both deductively using the 4M framework and inductively toward building emergent patterns (Neuman, 1997). Key themes based on the questions (engagement, supports, challenges, and impact) were also mapped across all levels. In the next section, I present these themes and excerpts of participant perceptions to illustrate how the framework helps identify impact at various levels.

SOTL AT THE MICRO-MESO-MACRO LEVELS

While the seven participants represent seven different disciplines, there were common themes among them regarding engaging in SoTL. Under each level, I discuss participants' responses to the study questions: what encourages them to engage in SoTL, what supports them, what challenges them, and what impact the work has had. The purpose of presenting the data in this way is to illustrate what can be understood by considering variations and similarities across the levels.

Micro: Individual level

The micro level includes personal reasons for engaging in SoTL, challenges around knowledge and time, and personal professional learning that occurs through SoTL work.

Engagement in SoTL

Participants primarily expressed an intrinsic wish for teaching improvement as a motivator for undertaking SoTL work. As Gary offered, "It was just my own love of the material, and the students, and I guess I would have to say my own discovery—as the years went by—of the importance of giving myself to the students."

Others viewed SoTL as a natural integration of scholarly work. For example, Frank said, “it’s really just a question of tying the two together. I’ve always been interested in the teaching side as well. It’s really ideal: teaching and research together.” Eric elaborated on SoTL and its importance in academic work: “The scholarship of teaching and learning resonates with me; it makes all kinds of sense. There should be something scholarly that we are involved with, related to teaching and learning . . . It just makes sense to me, in terms of what we should be doing.” SoTL thus aligned with participants’ perspectives on the nature of their work and how they should undertake it, along with their sense of the importance of their involvement in improving quality in teaching and learning. They engaged in SoTL because it fit with their view of what postsecondary teaching should comprise.

Supports

Interestingly, while participants identified supports at other levels, they did not point to micro-level supports, such as personal attributes, knowledge of research approaches, or organizational skills. It is unclear whether they were unaware of personal attributes that made their SoTL work possible. It may be that, having been trained as researchers in their disciplines, they did not sense personal strengths for doing SoTL work, as is highlighted in the challenges they experienced.

Challenges

Participants identified both lack of relevant experience and lack of time as barriers to undertaking SoTL work. For example, not having a background in SoTL methods was seen as an impediment. As Cindy observed, “I’m not a social scientist, but SoTL still works on a social science model . . . I don’t want to put the time into reinventing myself as a social scientist. I’m a humanist. [I] would prefer to carve out legitimate SoTL work drawing on humanist traditions/methods.” Gary pointed to the impact of this lack of training in SoTL methods, saying “it’s been rather a trial and [error] procedure, as I discover that this works, and that doesn’t work.”

Another challenge was having time to dedicate to SoTL projects. Participants commented on the fractured focus of adding SoTL to their academic responsibilities. Cindy saw it as “hard to align it with my primary areas of research. I don’t want to neglect those areas or do half-ass SoTL work. So, doing SoTL work makes me feel (sometimes unpleasantly) bicameral or fragmented.”

Time challenges to engaging in SoTL were ongoing. Alice noted that “of course, it has increased my workload significantly.” Eric noted in more detail,

I have not done what I had hoped I would have done . . . The paper that I wrote is sitting there, and I haven’t done anything more in terms of seeing about getting it published. There’s been another fairly big chunk of scholarly work that I have been involved with for four years now . . . and again, we haven’t published anything at this point. So, I’m feeling very frustrated right now.

Participants described the challenge of coming to terms with different approaches to research within SoTL and the pressure of finding time to focus on SoTL work. These impediments seemed to work against their desire to feel a sense of competence or mastery in their work.

Impact

Participants outlined some personal benefits in pursuing SoTL projects. For example, Beatrice said,

So far, it has been quite enjoyable! . . . learning about a “new” field— especially when it connects to my role as a teacher. This is a nice way to integrate research into my teaching (by conducting research on teaching). I hope it will make me a better teacher . . . I have increased my own knowledge and have been invited to reflect on my own teaching practices and preferred pedagogy.

Micro summary

At the micro level, there was a focus on SoTL to develop teaching mastery as aligned with the participants’ values about teaching. Participants noted, however, their lack of knowledge about SoTL methods and lack of time to pursue the work. They did not identify any individual supports for their work but did comment on the personal value of learning about teaching through their SoTL work.

Meso: Department level

The meso level comprises departmental-level encouragement from colleagues, feedback from students, and the importance of ongoing collegial and departmental leadership support. The lack of implementation of SoTL work remains a challenge, though participants outline the positive impact on students of the SoTL work.

Engagement

At the department level, participants experienced encouragement from colleagues to engage in SoTL work. Beatrice identified the catalyst of “discussions with colleagues about our teaching practices and an interest in diverse teaching practices.”

Some pointed to learning issues and student feedback as the prompt for SoTL engagement. Daphne identified seeing an issue that the “employment of technology in our classrooms is very limited . . . so I started experimenting with various IT [information technology] educational techniques.” Eric attributed his SoTL start to his desire to respond to student comments to improve his course, saying, “I had identified through feedback from students the consistently difficult concepts in a course that I was teaching at the time . . . I was on the lookout for opportunities to do things that would help improve me as a teacher.” Whether encouragement came from colleagues or a desire to respond to student learning issues, these external factors at the meso level encouraged engagement in SoTL.

Supports

Frank commented that the department chair had made statements such as “I have no idea what this guy’s doing, but it must be good because he gets these things published.” Alice noted that she was “fortunate to have a [d]irector who is supportive of this work . . . so she has allowed me time to work on this project.”

Leaders at the department level who provided support and encouragement were significant supports to SoTL work (see also Verwoord & Poole, 2016). Affirmation of SoTL efforts contributed to a sense that their efforts were valued and that they thus contributed to a larger institutional purpose.

Challenges

While collaboration with colleagues was recognized as positive, it did not always occur, despite the participants' wishes. Frank bemoaned, "there is very little [collaboration] . . . I tried, but . . . you know, you only have time for so many things . . . it didn't work."

Gary speculated, "it's an emotional/psychological thing for faculty members . . . They don't want to . . . be told by some half-baked psychologist that they need to do this or that . . . I have long advocated that people sit in on each other's classes, but it doesn't seem to take very well." Faculty seemed to desire opportunities for discussion and collaboration; finding like-minded others at the department level may be an ongoing challenge.

Participants also commented on their frustration at the lack of broader (departmental) impact of their work. Daphne noted challenges with getting results implemented once the research was done: "I feel sometimes frustrated that some of the new developments are not fully utilized and implemented in our courses although they are found to be useful." Eric reported similar experiences:

I have tried on multiple times to get the department to formally commit: to say that this [project] is an integral part of our program, and something that we perceive as of value. There certainly is a departmental block . . . What's going on in the department has been very frustrating. I ended up, over the course of last year, just thinking "okay, I give up."

Some participants thus felt that little value was seen in their work, which they saw as demotivating.

Impact

Participants perceived their SoTL work as having a positive impact on current and past students. Alice noted, "we are in the middle of our research project . . . I hope that our hypothesis will prove correct. If that is the case, then student outcomes should be improved . . . [it's] professionally rewarding, with the potential to make a difference in the lives of your students, or in establishing a program that will help students."

Similarly, Cindy said, "I think it's clear that departmental recruitment and retention has definitely improved as a consequence of the work." Beatrice offered, "I also hope that participating in my research has invited the participants (students and faculty) to think about their learning/teaching differently."

Daphne echoed the benefit to students, reporting that "we have a number of conference presentations and now are finishing the paper. More importantly, I get a lot of feedback from alumnae who indicate that the experience was very fruitful for them and they learned a lot in the course with the help of the newly proposed IT techniques." Frank also addressed student involvement in projects: "It's a kind of research training . . . we've always involved each individual in the different aspects of the project . . . the book chapter that we submitted had the students that worked on it . . . hopefully next year we present at conferences and so on." Participants saw a significant benefit to students of their SoTL work, noting a positive impact on student learning and increased student engagement with the department and scholarly tasks.

Meso summary

At the meso level, participants pointed to encouragement from colleagues and student feedback as reasons to engage in SoTL. They found ongoing support from colleagues and departmental leaders to be positive factors, while lack of collegial collaboration in addition to lack of implementation of research findings were seen as detrimental. Students getting involved in SoTL and benefiting from its findings was seen as having positive impact.

Macro: Institutional level

At the macro level, connections across the institution were supported by the teaching and learning center and the overall culture of the institution. Connections across disciplinary boundaries to like-minded colleagues and greater institutional visibility through SoTL work was appreciated.

Engagement

At the institutional level, the teaching and learning center was a source of encouragement to engage in SoTL. Cindy noted that she became involved with the center “through new faculty orientation events. This exposed me to a bit of (other people’s) SoTL research and encouraged me to apply for a [grant].” Eric said that he “became informed of the funding opportunities here within the university to provide support for enhancing teaching and learning.” The teaching and learning center seemed to serve a central role in connecting faculty to SoTL colleagues and resources.

Support

As much as the teaching and learning center encouraged initial engagement in SoTL, it also served an important role in sustaining that work over time by providing ongoing supports. Alice outlined how the center organized “conferences which connected me with others doing this kind of work.” Similarly, Eric identified that “it was the institution . . . providing the grants. It was also providing me the expertise in terms of ‘how do you do it.’”

Daphne noted the support of an institutional grant “that helped to kick off my first online database . . . and initiated my interest in conducting research on teaching and learning.” She also pointed to the consulting support she received from the teaching and learning center—both in terms of co-authoring external grant applications and providing very “motivating discussions.” Similarly, Beatrice found being able to use the teaching and learning center consultant as a sounding board very helpful, and she appreciated “the emails informing us of upcoming conferences and funding opportunities. As a newbie to this area, this is particularly helpful, especially in terms of orienting me to the landscape.”

In addition, participants found the institution overall supportive of SoTL work. Alice noted she experienced “more support for individuals seeking to do research in the area of teaching and learning than I have seen on any other university campus.” Frank pointed to support from the highest level, saying, “the thing that always impressed me was our president, you know . . . even if it’s only a couple of words of encouragement, within the larger community.”

While it is not clear if participants perceived there to be institutional support because they were already doing SoTL, or whether the positive culture influenced their ability to continue to do SoTL, they clearly felt they were working in a SoTL-supportive environment.

Challenges

Institutional constraints were also expressed. While some participants had been able to secure institutional funding, others identified funding as a scarce and much needed resource. Beatrice detailed the challenges of the lack of institutional funding for SoTL work, especially for moving larger projects forward: “I have begun to realize that I cannot do everything myself and still carry a 5-course teaching load. Qualified/experienced research assistants are essential—so funding could really help me to acquire the resources I need to continue this line of research.” Eric noted, “the institution has been unwilling to commit the resources in terms . . . of people power. It’s been a struggle for years, to basically get support.” Securing funding for SoTL work seems to be an ongoing challenge.

Impact

Opportunities to connect with colleagues beyond the home department had positive impact. At the institutional level, Beatrice said, “I have met some very interesting people who are doing valuable work.”

SoTL work gave participants institutional visibility beyond their departments. Alice observed that

[c]ertainly, I have been drawn from a peripheral to a more central role in the “learning and teaching research community” at the university. I know more faculty (other grant recipients) and I’m more “on the radar” of the Dean of Arts and the AVPA’s offices. I’ve attended the [SoTL] conference and met other faculty members there, and seen what other folks are doing.

On a pragmatic level, Alice also pointed to the impact on her department’s status, saying that within the university, “My director appreciates the visibility this grant has brought to our Institute.”

While these benefits include personal (micro) impact, they also point to the ways in which SoTL with colleagues from other areas both strengthens the work and contributes to the positive culture about teaching and learning.

Macro summary

Macro-level connections across the institution encouraged, supported, and sustained SoTL work while also strengthening the quality of the work and contributing to a positive teaching and learning culture. The teaching and learning center fulfilled a key role in enabling these connections; support from senior administrators was a bonus. There is a perceived need for additional funding to support SoTL work.

Mega: Beyond the institution

The mega level refers to encouragement, support, challenges, and impact beyond the institution. While no participants discussed encouragement, supports, challenges, or impact pertaining to this level, some mentioned benefits to engaging with other disciplinary scholars beyond their institutions. Cindy reflected, “my SoTL work has allowed me to network and exchange ideas with other [disciplinary academics] doing SoTL work; it has changed my teaching practices and those of some of my colleagues.” Similarly, Eric found that his SoTL work connected him more strongly to his disciplinary community: “[It] involves me in a little subgroup of an educational committee organization . . . there is a

small group of us that are see the value of SoTL, and so we are undertaking, currently, basically to develop and promote SoTL within our Canadian community.” Daphne, on the other hand, found transdisciplinary connections appealing, noting that “research on teaching and learning actually motivated me to check some other research directions . . . so it becomes really a cross-disciplinary project and benefits my primary research agenda.”

Mega summary

While these participants refer to connections at the mega level, their lens of the benefit of the connections still relates primarily to implications at the personal (micro) level.

Summary

I have outlined the participants’ perceptions of encouragement, support, challenges, and impact at each of the micro, meso, macro, and mega levels. The overall themes at each of the levels are shown in Table 2.

Table 2. Overall themes at micro-, meso-, macro-, and mega- levels

	MICRO	MESO	MACRO	MEGA
Why engage in SoTL?	Teaching mastery	Engaged purpose	Connect with others	None identified
Supports for SoTL work	None identified	Colleagues, chair	Teaching center, funding, supportive leaders	None identified
Challenges to SoTL work	Lack of time and SoTL knowledge	Lack of value and community	Lack of funding	None identified
Benefits of SoTL work	New inquiry and people	Engages students	Expands horizons	Disciplinary and transdisciplinary ties
Impact of SoTL work	Networking, creates more work	Student engagement	Improves institutional culture around teaching	None identified

Presenting the findings according to the micro-meso-macro-mega framework focuses attention on what is happening at each level; while levels are not necessarily separate and should be seen as having semipermeable boundaries, this organization of the findings provides a sense of where there are opportunities to further support SoTL.

INSIGHTS ARISING

In this section, I outline insights arising and recommendations based on the findings at each of the micro, meso, macro, and mega levels, and then reflect on potential links to motivation theory that I think are worth exploring further.

Micro

At the micro level, these seven SoTL scholars see the beneficial impact on themselves and their own students though identify few personal attributes that support their SoTL. Building on Seligman and

Csikszentmihalyi's (2000) positive psychology, it would be interesting to consider the ways in which initiatives that help SoTL scholars consider their own attributes might further encourage engagement with SoTL and support its development. Providing new SoTL scholars with readings or workshops about their SoTL scholar identity development (Kelly et al., 2012; Kensington-Miller, Renc-Roe, & Morón-García 2015; Simmons et al., 2013; Tsang, 2010) could assist them in navigating the transition and discerning what preexisting skills may be applicable to their SoTL work.

Meso

At the meso level, the participants bemoaned the lack of departmental uptake of the work, which echoes warning signs in Simmons's (2016) synthesis of institutional case studies of SoTL. Similarly, Wuetherick, Yu, and Greer (2016) found that only 28 percent of their participants felt that their SoTL work was visible to their departmental colleagues.

Where departmental supports are mentioned, the focus is on connections to like-minded colleagues; it is clear that "reciprocal relationships" and collaborations with SoTL partners are key supports to their work, consistent with findings by Roxå and Mårtensson (2009) and Simmons, Abrahamson, Deschler, Kensington-Miller, Manarin, Morón-García, Oliver, and Renc-Roe (2013). Overall, the roles of departmental culture and recognition are highlighted as very important supports of or challenges to SoTL work. One of the questions that remains is how we get the message out about SoTL's positive impacts at the department level.

An ongoing concern that pertains to the meso level is seen in Eric's description of the way in which he is feeling less motivated over time as a result of the lack of department uptake of his work. Eric's comment should be a real concern for the SoTL field. Stress and anxiety can result from a lack of sense of purpose and not being valued in our work. Against a postsecondary climate of increased stress and workloads (Flaherty, 2014), to what extent will faculty members begin to employ *cognitive downshifting* (Hopson & Adams, 1976), in which they disengage as a self-protective measure and become *amotivated* (Ryan & Deci, 2000) from work that takes significant time and energy and that they feel does not contribute to a larger purpose?

Macro

At the macro level, the participants felt a strong sense of institutional supports. While these scholars were already supported by grants, they did express a desire for additional funding to hire help to complete their research work, particularly in relation to data analysis and presentation. Supports for integration of SoTL work into academic roles can also prevent the sense of a fractured focus (Huber, 2004) that can contribute to feelings of stress. In addition, and perhaps more importantly, participants expressed a strong desire to see that the work they were doing had value and impact beyond their own courses. This lack of institutional level impact is noted in other studies: for example, Poole and Simmons (2013) found that only 34 percent of those who engage in SoTL felt that their work influenced policy decisions.

Mega

At the mega level, in terms of connections to their disciplines or other organizations beyond the institution, the scholars identified no motivators, supports, or challenges and little impact. It is not clear whether there are few benefits at this level or whether participants are simply not positioned to consider

the institutional and disciplinary impact of their work. Miller-Young, Anderson, Kiceniuk, Mooney, Riddell, Hanbidge, Ward, Wideman, and Chick (2017) and Simmons (2016), for example, raise the question of whether there may be a developmental path to a scholar's readiness to see impact at higher levels. Those newer to SoTL were most aware of a personal impact; seeing the larger picture seemed to come in time. This may make assessing the institutional impact of SoTL that much more difficult. Some did comment on the positive impact of working with disciplinary and transdisciplinary colleagues beyond the institution. There is a potential role here for disciplinary and transdisciplinary teaching and learning organizations to encourage and sustain participation in SoTL and a need for more research in this area.

Motivation

The questions of why the participants engage in SoTL and what they see as supports and challenges to this work along with its benefits and impacts are really questions of motivation, sometimes in the face of seemingly significant impediments. Ryan and Deci (2000) outline the distinction between external and internal motivators. Knorr (2015) elaborates that external or extrinsic motivation is often "associated with compliance, resentment, disinterest, and resistance" (p. 14). Pink (2009) further develops internal motivation to delve into the particulars of intrinsic motivation and to unpack why people do things for which there is no obvious (external) reward. He argues that our intrinsic motivation is based on our sense of having *autonomy* over our choices, an opportunity to develop our capacity towards *mastery*, and a sense that there is value in our work, bringing us a sense of *purpose* in what we do. These, Pink argues, are far more effective motivators toward complex behaviors (such as taking on a SoTL project) than are any external motivators.

As Knorr (2015) outlines, motivation seems to be related to "people with whom instructors have a close connection (e.g., their students, colleagues, departmental chairs, Faculty deans)" (p. 91), or their *significant network* (Roxå & Mårtenson, 2009). The participants' own recommendations focused on connecting with like-minded others to build support. Any efforts that can be made to develop these networks, such as informal gatherings of scholars of teaching and learning, institutional collaborative writing ventures, or mini-conferences at which scholars can meet like-minded others are likely to have a positive impact on SoTL's growth.

All participants, despite identifying challenges to their ongoing engagement in SoTL, clearly also identified the value of this work and their sense of it contributing to the purpose of improving teaching and learning at the institution. As Eric advised, "we can't forget about the importance of teaching and learning. We need to be strategic [and] we need to be informed in terms of our teaching and student's learning." While these types of sentiments may be a case of justifying personal investment of time and energy, the participants continued to find *value* and a sense of *purpose* in doing SoTL. It is also possible that the *autonomy* they enjoy about whether and how to pursue SoTL, along with the opportunity to develop *mastery* in this area, contribute to the value they find. This is an important area for further study, the results of which might guide institutional SoTL programs. It is important for those supporting SoTL to notice the importance of developing this meaningful individual work by creating and sustaining communities that will support and enhance its impact.

FUTURE WORK

This study was designed to illustrate the use of the micro-meso-macro-mega framework through the perspectives of seven SoTL scholars and their perceptions of encouragement, supports, challenges, and impact of their SoTL work. It is hoped that the findings will be further tested in collaboration with more participants and other institutions to involve a larger and perhaps more diverse participant pool.

While I have mapped the interplay of supports, challenges, and motivational factors at various levels, further work is needed to more deeply explore how SoTL scholars develop and sustain their passion (McKinney & Jarvis, 2009) for this kind of work. What motivational factors are at play in choosing to engage in SoTL, and what are the implications at the meso, macro, and mega levels? While I have explored some preliminary themes in this article, the findings are limited by the small sample size and the fact that only those who were receiving funding for their SoTL were interviewed.

In addition, one's discipline may make a difference in how SoTL is viewed, as noted by Alice and Daphne. At the same time, raising awareness about SoTL work may have a positive impact, regardless of discipline. The participants' perspectives suggest that promotion of the value of SoTL would be a further support to its growth; that promotion will be dependent on being able to point to strong evidence of its impact.

It would also be interesting to examine data on diverse ways of making SoTL public within each of the micro-meso-macro-mega spheres to identify gaps in getting out messages about the value of SoTL to those who can make decisions about implementing them. Moving SoTL work through and past the department level remains a significant area for future exploration.

FINAL THOUGHTS

The use of the micro-meso-macro-meta framework is not intended to suggest that any level is preferred over another. For example, Poole and Chick (2018) discuss the ways in which important work begins and focuses on the micro level. Nor is it intended to suggest that each level operates as a discrete sphere. While others (see, for example, Becher & Trowler, 2001) have noted that the departmental (or meso) level is the primary focus for academics, SoTL seems to enable permeability in the borders of the levels, something that can positively contribute to a positive shift in the overall institutional and even disciplinary culture around valuing teaching and learning. As Palmer (1998) outlines in his four-stage model, movement from one level to the next can and must occur if organizational change is to result:

Stage 1: "Isolated individuals make an inward decision."

Stage 2: "Individuals begin to discover one another and form *communities of congruence*."

Stage 3: "Communities start *going public*."

Stage 4: "System of *alternative rewards* emerges to sustain the movement's vision and to put pressure . . . on the standard institutional reward system." (p. 166)

At the same time, however, there seems to be a tendency for SoTL to stall beyond the individual level. For example, at the university studied, SoTL seems to be stuck between Palmer's stages 1 and 2.

While Palmer's (1998) process embodies the micro-meso-macro-mega framework, I urge caution about whether, and if so how, institutional rewards are implemented. Motivation theory suggests that extrinsic rewards have the potential not to strengthen SoTL and its impact, but rather to weaken it, potentially causing it to become no more than lines on a CV. This is difficult to reconcile with the sage advice of noted SoTL experts such as Huber (2004), who argues that "in the long run, the work of the academy will be balanced only when work that matters also becomes work that counts" (p. 3). While I

recognize the need to highlight the importance of SoTL and demonstrate the ways in which the institution values it, based on this research that might best be achieved through supportive communities of like-minded scholars rather than through extrinsic rewards.

In addition, on a cautionary note, these academics who engaged in SoTL are pragmatic in their advice to others, noting the challenge of time constraints, the importance of connecting with others, and advising that standards be high for SoTL research. These are, however, real concerns for those who wish to engage in SoTL, especially early career scholars.

Each of the academics in this study works in a different academic discipline; they represent diverse backgrounds. And yet there are similarities in their accounts of becoming SoTL scholars of teaching and learning and in the supports from which they have benefited and the challenges they have encountered at each of the 4M levels, especially as they relate to motivation theory (Pink, 2009; Ryan & Deci, 2000), the importance of being part of a community of scholars (Palmer, 1998), and the value of networks of like-minded colleagues at all levels (Roxå & Mårtensson, 2009; Verwoord & Poole, 2016). I hope that the mapping of the participants' experiences onto the 4M framework will help determine ways of increasing support for scholars who are doing SoTL work and will serve as a model for others who are exploring the institutional impact of SoTL programs.

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APPENDIX: INITIAL INTERVIEW QUESTIONS

1. How long have you been conducting research about teaching and learning?
2. What drew you to this type of research?
3. What has supported you in doing this work? (people, grants, academic recognition, other resources or supports)
4. What challenges have you faced? (lack of any of above, other?)
5. Do you have recommendations for how this work could be further supported at the university?
6. What have been the outcomes of your work in this area? (for you or others)
7. What else would you like to tell me about your involvement in this work?
8. What advice would you have for others considering this work?



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