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A Decade in the Making: Examining the Evidence of SoTL Through Promotion and Tenure Artifacts

ABSTRACT

The Scholarship of Teaching and Learning (SoTL) aligns with many institutionally espoused values regarding the value of teaching and learning excellence. SoTL has increased in prestige and value in the past decade, but less information about the proliferation of SoTL within one institution is known. Through an examination of 10 years of curriculum vitae submitted for successful promotion and tenure, our study investigated faculty members' engagement in SoTL over time and differences in engagement by rank, race, gender, discipline, and type of SoTL artifact. Over the 10-year period, the percentage of faculty engaged in SoTL did not differ significantly. We did uncover differences by disciplinary type and race. Faculty were most likely to engage in grants and presentations related to SoTL and least likely to have a peer-reviewed journal artifact. Our findings suggest that although SoTL efforts continue to gain acceptance within the higher education milieu, institutional and disciplinary realities may be powerful determiners of SoTL participation.

KEYWORDS

landscape of practice, SoTL productivity, tenure, promotion, faculty

INTRODUCTION

In *Scholarship Reconsidered*, Boyer (1990) identified teaching-focused research as an important and necessary field of inquiry. Almost a decade later, Hutchings and Shulman (1999) clarified the role and purpose of this research, delineating the endeavor as distinct from scholarly teaching and arguing for a focus on student learning in addition to teaching. As president of the Carnegie Foundation for the Advancement of Teaching, Shulman (2000) called for an investment in the Scholarship of Teaching and Learning (SoTL) citing rationales of professionalism, pragmatism, and policy. This call appears to have been answered; in the past two decades SoTL has evolved into an established higher education field (Huber 2019; Kern et al. 2015; Vithal 2018).

Within the academy, teaching and research often are viewed as disparate activities; SoTL scholarship merges the two (Kern et al. 2015). Similar to other disciplinary research, SoTL work investigates an important topic or problem and through a systematic approach, uncovers new information that has implications beyond the initial inquiry. For SoTL scholars, effective teaching practice and student learning are the focus of their inquiry (Bishop-Clark and Dietz-Uhler 2012). SoTL work seeks to advance scholarly teaching efforts by "making public" the otherwise more insular and private work of teaching (Hutchings and Shulman 1999).

Within the broader higher education landscape, the legitimacy and value of SoTL is evidenced through the proliferation of organizations and publication outlets dedicated to SoTL. The International Scholarship of Teaching and Learning (ISSoTL) organization and journals such as *Teaching & Learning Inquiry* (TLI) and the *International Journal for the Scholarship of Teaching and Learning* (IJSoTL) demonstrate the dramatic growth of the SoTL field since the first seeds were planted in *Scholarship Reconsidered* (Boyer 1990).

At the institutional level, SoTL bridges institutional values of teaching excellence and research excellence and is a powerful way to enhance student learning and success (Hutchings, Huber, and Ciccone 2011). Given this alignment with institutional goals and its increased global recognition, it is plausible to assume that SoTL work is consistently viewed as a valuable line of inquiry. However, SoTL scholars still struggle to obtain legitimacy within their institutions and disciplines (Asarta et al. 2018; Webb 2020). As Kern et al. (2015) noted, the value of SoTL varies by institution and discipline, and these variations influence faculty engagement in the field.

Researchers have examined the experiences of SoTL scholars as they work to gain recognition (Kensington-Miller et al. 2021; Simmons et al. 2013) and have analyzed how SoTL work is supported, encouraged, and developed within institutions (see, for example, Simmons 2016; Timmermans and Ellis 2016). However, few studies provide direct evidence of these efforts. In other words, scholars have described individual and institutional actions and strategies that should increase and support SoTL work, but few studies include data that demonstrate if these efforts have been successful. Our study addresses this gap by analyzing promotion and tenure curriculum vitae for evidence of SoTL work. We examine 10 years of data at one institution, paying attention to differences by disciplines and demographics. Specifically, our work seeks to address the two research questions:

> RQ1: From 2010 to 2019, what percentage of tenure-track faculty had evidence of SoTL at one research intensive institution?
>
> RQ2: How does evidence of SoTL differ by category, discipline, academic rank, gender, and race/ethnicity?

Higher education institutions often emphasize the importance of learning and teaching, but these espoused values do not always translate to practices that are enacted. SoTL has continued to gain momentum as a valid and critical endeavor within higher education and as an activity valued as equal to disciplinary research. Our study seeks to understand the prevalence of SoTL work at one large Midwestern research focused institution.

THEORETICAL FRAMEWORK

Our study of SoTL is grounded in Etienne and Beverly Wenger-Trayner's (2015) framework of a "landscape of practice." They define landscape of practice as a "complex system of communities of practice and the boundaries between them" (Wenger-Trayner and Wenger-Trayner 2015, 13). This concept builds on Wenger's (1998) earlier work that defines communities of practice (CoPs) as groups of individuals who come together over a shared interest and through mutual learning to improve their work. In professional occupations, individuals may rely upon and participate in several CoPs; these interactions with and among these CoPs create a landscape of practice.

Landscapes of practice are flat, diverse, and political (Wenger-Trayner and Wenger-Trayner 2015). Landscapes of practice are flat in that it is possible for multiple CoPs to exist within one landscape. Everyone in the landscape can influence and be influenced by participating in the landscape.

Diverse means that each CoP has its own set of guidelines and rules within the larger landscape. Political refers to power differentials with CoPs—although everyone can participate, not all practices and communities are equally legitimized and welcomed.

As it relates to our study, faculty members who engage in SoTL frequently draw upon a variety of CoPs. SoTL scholarship often involves two or more communities of practice (Kensington-Miller et al. 2021). Frequently it is combining one's disciplinary or content expertise with teaching and learning scholarship. It may include crossing methodological landscapes such as a science faculty member trained in experimental design incorporating qualitative research methods. These examples also demonstrate how the landscape of practice is flat and diverse—faculty can draw upon knowledge from different sets of CoPs. Within higher education institutions, CoPs exist within one's discipline, department, or institutional context. Faculty identities (e.g., gender and race/ethnicity) and positions within the university (e.g., tenure, non-tenured) may also shape and be shaped by CoPs. The political nature of the landscape of practice means that not all CoPs are equally valued—there are differences in power.

As Kensington-Miller et al. (2021) observed, "Being competent in one community may not guarantee that one is viewed as competent in another" (367). Engagement in SoTL may be recognized within the SoTL CoP but may not be valued or legitimized within their traditional disciplinary CoP (Chick 2013). Similarly, an institution may espouse the value of SoTL, but faculty may receive different messages within their disciplinary academic units. Kensington-Miller et al. (2021) applied this landscape of practice framework to describe scholars' experiences of working in SOTL. We expand this research by focusing on the institutional rather than the individual scholar level. The current work builds upon previous work by Marcketti and Freeman (2016) who examined patterns across all faculty and disciplines who successfully earned tenure and promotion in a five-year period at a large, land-grant Midwestern research university. By exploring the prevalence of SOTL scholarship over 10 years, we evaluate SOTL as a landscape of practice.

REVIEW OF LITERATURE

SoTL is more than excellent teaching; it involves a systematic, intentional process of examining teaching and learning and making those findings public (Bishop-Clark and Dietz-Uhler 2012; McKinney 2013). SoTL, as a field of inquiry, has evolved substantially in the past 30 years. A renewed focus on teaching and learning, the need to educate a more diverse student body, and new instructional pedagogies and technologies coupled with external pressures of accountability and student learning assessment have contributed to this evolution (McKinney 2013). The proliferation and understanding of SoTL, while significant, have differed across institutional contexts and faculty characteristics.

SoTL research and institutional contexts

SoTL first started gaining attention in the academy as a response to calls for improved teaching and learning. Hutchings, Huber, and Ciccone (2011) described SoTL as what "was once a sleepy pedagogical backwater [but] is now a buzzing hive of initiatives to improve the learning experience for college students, to increase their rate of completion, and to raise their level of achievement" (ix). Despite its global presence, Fanghanel et al. (2016) asserted that SoTL must garner more presence in the life of faculty and institutions of higher education, advising that doing so cannot be left to chance. According to scholars (Miller-Young et al. 2017; Miller-Young, Yeo, and Manarin 2018), intentional,

collaborative campus initiatives should be undertaken to ensure that SoTL is not considered a special project or overlooked because faculty are unfamiliar with its relationship to their disciplinary research.

SoTL by rank, discipline, gender, and race

Author rank, discipline, gender, and race have varying significance in a researcher's SoTL activity; however, they are important identifiers for faculty in higher education generally. Each will influence the overall positionality with which a person interacts with the academy and their scholarship, including SoTL. As the following paragraphs illustrate, the body of SoTL literature indicates little agreement as to whether these characteristics influence SoTL production for researchers.

Rank

By examining three disciplinary journals, Hamann, Pollock, and Wilson (2009) found that assistant professors in political science were most prolific in SoTL research, followed by associates and then professors. Conversely, an examination of 343 faculty cases at a Research I (R1) institution, authors found that close to half (48%, $n = 163$) had evidence of SoTL in their dossiers, with associate professors generally engaging in SoTL more frequently than their assistant professor colleagues (Marcketti and Freeman 2016). Departmental and institutional messaging on the importance and legitimacy of SoTL in the promotion and tenure process is a vital variable regarding SoTL activity by rank (Gurung et al. 2008). This is evidenced in Secret et al.'s (2011) study that found faculty disagree on the definition of SoTL. In the study, pre-tenured faculty held a broader understanding of what "counts" as SoTL compared to their tenured peers.

Discipline

The dialogue about which disciplines have a propensity to SoTL is well-represented in the literature. Disciplinary domains and their corresponding epistemological foundations influence teaching styles and thus, may suggest an inclination toward SoTL (Päuler-Kuppinger and Jucks 2017). This research indicated that disciplines in the hard sciences, such as physics, averaged a higher teacher-centered orientation than members of the "soft disciplines," such as history (73). Witman and Richlin (2007) reported that some clusters of disciplines have more enthusiastically embraced SoTL than others. They found that natural sciences and the professional areas "have most firmly adopted the SoTL" (14); the social sciences and the humanities "are somewhat less attached" (14). Others have posited that reliance on strict notions of empirical and data-driven scholarship "discourages scholars from the arts and humanities from engaging in SoTL" (Bloch-Shulman et al. 2016, 2). These studies suggest that there is growing agreement that research paradigms and approaches (Divan et al. 2017; Haigh and Withell 2020) influence SoTL's proliferation. Finally, some scholars have suggested that finding an entry point into SoTL may be challenging for some, partly because of the tensions among various research epistemologies (Miller-Young, Yeo, and Manarin 2018; Raffoul, Potter, and Andrews 2021).

Gender and race

Literature about faculty experiences in higher education has pointed to the gendered biases that create a chilly climate for women academics (for example, Hanasono et al. 2019; Misra et al. 2021; O'Meara 2015). Yet, literature suggests SoTL is a gendered form of scholarship. McKinney and Chick (2010) explored 25 various SoTL activities and found that among many activities, women's

participation was close to twice that of men. Conversely, Lueddeke (2003) found insufficient evidence of a significant relationship between SoTL and gender. Additionally, Hamann, Pollock, and Wilson (2009), reviewed SoTL studies from three political science journals and found men (55.2%) outnumbered women (44.8%) in single-authored SoTL studies. When examining collaborative SoTL authorship, all-male teams (42.4%) were most frequent, followed by female-male collaborations (39.4%) and all-female collaborations (18.2%).

There is limited data on SoTL productivity by race or ethnicity. Lueddeke's (2003) research found insufficient evidence of a significant relationship between SoTL and race. However, his study was conducted at two institutions in the U.K., and racial contexts vary across the globe. Antonio (2002) argued that faculty of color are disadvantaged by a narrow definition of scholarship. Given differences in SoTL prevalence by race and gender, we included these variables in our study.

Institutionalizing the value of SoTL

Scholars have called for the institutionalizing of SoTL as a means for innovating the academy (Cruz 2014) and generally broadening its visibility and impact (Asarta et al. 2018; Bernstein 2018; Hutchings, Huber, and Ciccone 2011; Marcketti and Freeman 2016). Other scholars agree and caution that doing so will not be easy (Fukuzawa, Ashbourne, and Rawle 2020; Miller-Young et al. 2017). For successful integration of SoTL at the institutional level, SoTL's value also needs to be integrated within the reward structure (Forrest 2013; Kern et al. 2015). As Gurung et al. (2008) stated, faculty can receive mixed messages about SoTL's legitimacy in promotion and tenure. Whereas departments or faculty may state they see SoTL as equally valuable as disciplinary research, that may not translate to researchers actually engaging in SoTL (Secret et al. 2011), nor does it mean the same value is seen by those in higher positions within the academic system. By identifying the number of SoTL artifacts over 10 years and examining how this activity differs by faculty rank, gender, race/ethnicity, and discipline, we can gain insight into the value and evolution of SoTL.

METHOD

Our quantitative study examined the curriculum vitae (CVs) of successful cases of promotion from assistant to associate (ASSIST) and associate to professor (ASSOC) from 2010 to 2019 at a large, public, AAU institution with a Carnegie classification of R1: Doctoral University—high research activity (N=703). We limited our study to tenured/tenure-eligible faculty who had position responsibility statements that included teaching and research. The names of tenured faculty members are public, and due to the political and confidential consequences of not obtaining promotion, we limited our review to successfully promoted faculty. We received Institutional Review Board approval for this research.

Data sources

Data came from two sources: CVs obtained from the university's provost's office for faculty who had successfully received promotion in that year and demographic data from the university's Institutional Research Office (IR). For their promotion and tenure review, each faculty is required to submit a CV that includes all relevant artifacts related to teaching, research, and service. There are no restrictions in terms of scope or number of pages; therefore, every faculty would be encouraged to include disciplinary and SoTL work. We reviewed each CV counting the total number of peer-reviewed journals, other publications, presentations, and grants that occurred since employment at the institution.

We then examined the titles of each manuscript journal title, conference organization, and granting agency, and indicated those related to SoTL. For example, if a manuscript was published in a journal that focused on SoTL work such as *Teaching & Learning Inquiry* or a disciplinary journal such as *Journal of Engineering Education*, we counted the manuscript as evidence of SoTL. Additionally, we reviewed the titles of the manuscripts and counted titles that suggested a topic related to SoTL work (e.g., peer teaching, problem-based learning, assessing pedagogy). Because we were focused on SoTL work that occurred external to the institution, we did not include presentations conducted as a part of one's coursework or service responsibilities. We employed two strategies to ensure validity and reliability (Landis and Koch 1977; Mertens and Wilson 2012): a) We used Kern et al.'s (2015) taxonomy to define categories of SoTL; b) We randomly selected a sample of CVs that all reviewers read. We compared our responses for consistencies, made adjustments, and then reviewed to the point that we rated CVs similarly. After reviewing the CVs, we obtained race and gender information from IR. Of the 703 faculty members, we had race/gender information for 580 (81%). Table 1 includes a description of variables.

Table 1: List and description of variables

Variable Name	Description
Rank	ASSIST– Faculty member seeking promotion from assistant to associate professor ASSOC– Faculty member seeking promotion from associate to professor
Year	Year that faculty member was reviewed for promotion (2010–2019)
College (COLL)	AG = College of Agriculture and Life Sciences BUS – College of Business DSN – College of Design ENG – College of Engineering HS – College of Human Sciences LAS – College of Liberal Arts and Sciences VET – College of Veterinary Medicine
Gender (GNDR)	Male Female
Race/Ethnicity (ETHN)	White Asian Black Hispanic
SoTL_Work	1 = At least one SoTL artifact 0 – No SoTL artifacts
SoTL Journals	Number of peer reviewed journal articles related to SoTL research
All Journal	Number of peer reviewed journal articles.
SoTL Presentation	Number of presentations at a conference, professional meeting, or symposium related to SoTL.
All Presentations	Number of presentations at a conference, professional meeting, or symposium
SoTL Other Publications	Number of SoTL research/activity other than a peer-reviewed journal publications (e.g., books, book chapters)

All Other Publications	Number of publications other than peer-reviewed journal publications
SoTL Grant	Number of grants received related to SoTL activity
All Grants	Number of grants received
Total Publications	Total number of scholarship artifacts
SoTL Total Publications	Total number of SoTL related artifacts
SoTL Percentage	Percentage of artifacts related to SoTL = SoTL Total Publication / Total Publications

Data analysis

We calculated frequencies and percentages of the types of SoTL artifacts (e.g., journals, presentations, and grants), examined the percentage of faculty who had at least one SoTL artifact, and calculated the total number of SoTL artifacts and the percentage of overall artifacts focused on SoTL. Whereas total SoTL artifacts provided an opportunity to see overall SoTL production, the percentage dedicated to SoTL was an indicator of the proportion of all scholarly activity focused on SoTL. This variable was calculated by dividing SoTL artifacts by total scholarly artifacts. We conducted a cross-tabulation examining SoTL artifacts by rank, gender, race, and year. We also analyzed differences in these latter variables by year, rank, college, gender, and race/ethnicity using tests of significance that were appropriate for data. For example, we used chi-square tests when examining differences between the variables and SoTL evidence, a dichotomous dependent variable, and t-tests when comparing gender and total SoTL publications (a continuous dependent variable). We conducted a one-way Analysis of Variance (ANOVA) to analyze significant differences between race/ethnicity and college and the number of publications (Oehlert 2000). When results from these tests were significant, we conducted a Tukey-Kramer post hoc comparison to determine the occurrence of variance between groups (Mertler and Vanatta 2010).

Limitations

We were interested in examining the occurrence of SoTL scholarship for tenured/tenure-eligible faculty over 10 years. Our results provide insights into the prevalence of this activity, but we acknowledge several limitations. We focused on one research-intensive institution where faculty promotion is based on research productivity; disciplinary research often is encouraged over SoTL scholarship. Examining the occurrence of SoTL at other institutional types where faculty spend a greater proportion of their time teaching could add insights into the proliferation of SoTL.

Our study also focused on tenured/tenure-eligible faculty who were successfully promoted. Focusing on those who were not promoted could provide insights into the value of SoTL for all tenure-track faculty members especially if those not successfully promoted were significantly involved in SoTL activities. Our study did not include any SoTL activities of faculty who had already earned the rank of professor. Senior faculty may be more engaged in SoTL work as they continue to gain flexibility in their scholarly pursuits without the constraints of working towards another promotion review. Future studies should consider adding post-tenure review CVs as an additional data source. Our study also excluded term faculty who are more likely to have higher teaching loads and fewer expectations to conduct research. Examining this population of faculty members could provide a more comprehensive picture of SoTL activity within the institution and highlight potential differences in the perceived value and focus

of SoTL for tenured, tenure-eligible, and term faculty members. Lastly, our quantitative study primarily employed descriptive statistics to address our research questions. Gathering more data related to faculty members' motivation, courses, teaching, support, etc., and engaging in more complex statistical methods or utilizing qualitative methods such as interviews, would provide a more nuanced understanding of SoTL activity.

FINDINGS

RQ1: From 2010 to 2019, what percentage of tenure-track faculty had evidence of SoTL?

The number of faculty CVs reviewed each year ranged from 52 in 2016 to 99 in 2019 (see Table 2). Due to the low number of Black/Hispanic faculty, we combined Black/Hispanic faculty into one category. On average, almost half of the faculty members considered for promotion between 2010–2019 had at least one SoTL artifact. The percentage of faculty who had evidence of at least one SoTL activity ranged from 39% in 2018 to 55% in 2017. There was no consistent pattern of increases or decreases in artifacts over the 10 years. For example, in 2010, 50% of the faculty had evidence of SoTL; this percentage decreased to 48% and 46% in 2011 and 2012, respectively, increased to 51% in 2013, and then declined to 42% in 2015. However, when comparing the first half of the decade (2010–2014) with the second half of the decade (2015–2019), a higher percentage of faculty members had evidence of SoTL in the second half (49.5% vs. 47.5% in the first half).

The trends also were not consistent for the specific groups. For example, for assistant professors, the highest percentage of SoTL evidence occurred in 2016, and the lowest percentage was in 2018. For associate professors, it was 2010 and 2014, respectively. The range between the highest and lower percentage of faculty over the decade also varies by subgroup. For assistant professors it was 20% (i.e., 35% vs. 55%) associate (33%), White faculty (29%), Asian (26%), Black/Hispanic (66%), male (24%), and female (33%). The differences by year were especially dramatic within some disciplines. In 2010, all business faculty had evidence of SoTL; the following year, no faculty had evidence of SoTL.

To gain a more nuanced picture of faculty subgroups who had at least one SoTL artifact, we examined faculty by rank and demographics (see Table 3). For example, of the total number of faculty in the sample, 218 (31%) were assistant professors who identified as White. Of this group, 50% had at least one SoTL artifact. In comparing these subgroups by rank, all associate professors had higher percentages of SoTL artifacts than assistant professors except Asian associate professors and associate professors in the College of Design. Assistant male professors had higher percentages of SoTL work than their female peers (47% vs. 43%), but female associate professors had a higher percentage of SoTL work than male peers (56% vs. 52%). Asian faculty members were least likely to demonstrate evidence of SoTL. In the College of Human Science, each category of faculty member had at least 87% of their faculty demonstrating evidence of SoTL. In the College of Business, fewer than half of the faculty in each category show SoTL evidence.

Table 2: Percentage of faculty who had at least one artifact related to SoTL, by rank, ethnicity, gender, and college

Year	Total	ASSIST	ASSOC	White	Asian	Black/ Hispanic	Male	Female	AG	BUS	DSN	ENGR	HS	LAS	VET
2010															
%	50%	39%	**65%**	56%	25%	**60%**	57%	*39%*	64%	*	**57%**	45%	*57%*	42%	29%
N	72	41	31	42	12	5	37	*23*	14		7	11	7	24	7
2011															
%	48%	45%	52%	59%	*24%*	*	45%	53%	43%	*0%*	*	57%	**100%**	46%	33%
N	69	38	31	37	*17*		38	19	7	*6*		14	6	26	6
2012															
%	46%	43%	52%	59%	46%	*	**64%**	48%	56%	*	80%	45%	**100%**	*26%*	50%
N	56	35	21	29	13		22	21	9		5	11	2	*19*	6
2013															
%	51%	47%	57%	58%	29%	**60%**	51%	**62%**	*21%*	*	*	47%	**100%**	**50%**	60%
N	75	45	30	52	7	5	43	21	*14*			15	8	28	5
2014															
%	42%	49%	*32%*	*38%*	38%	*	*40%*	44%	36%	**60%**	*	50%	89%	29%	*14%*
N	69	41	*28*	*39*	16		*40*	18	14	5		6	9	24	7
2015															
%	47%	36%	58%	57%	29%	*33%*	46%	50%	63%	22%	80%	*22%*	**100%**	46%	33%
N	59	28	31	30	7	6	28	16	9	8	5	9	6	13	9
2016															
%	50%	**55%**	43%	46%	29%	*	41%	38%	55%	*	*	*	80%	42%	33%
N	52	29	23	26	14		27	13	11				10	19	6
2017															
%	**55%**	54%	57%	**67%**	33%	43%	55%	55%	**75%**	*0%*	**86%**	53%	**100%**	41%	*
N	82	54	28	42	18	7	49	20	12	*6*	7	19	6	29	
2018															
%	*40%*	*35%*	45%	48%	25%	*	41%	44%	38%	*	67%	**100%**	90%	30%	*14%*
N	70	37	33	44	16		37	25	13		6	10	10	20	7
2019															
%	54%	47%	63%	55%	**50%**	50%	55%	50%	67%	29%	60%	35%	85%	44%	70%
N	99	59	40	55	20	8	49	34	15	7	5	17	13	32	10
Average	49%	45%	53%	54%	34%	49%	49%	49%	50%	32%	67%	41%	88%	40%	40%
Total	703	407	296	397	140	41	370	210	117	47	46	115	77	234	65

Note: Bolded number indicates the year with the highest percentage of SoTL evidence within the column, italics indicates the year with the lowest percentage.
*Indicates N < 5.

Table 3: Cross tabulation of faculty demographics and percentage of each category who have evidence of SoTL

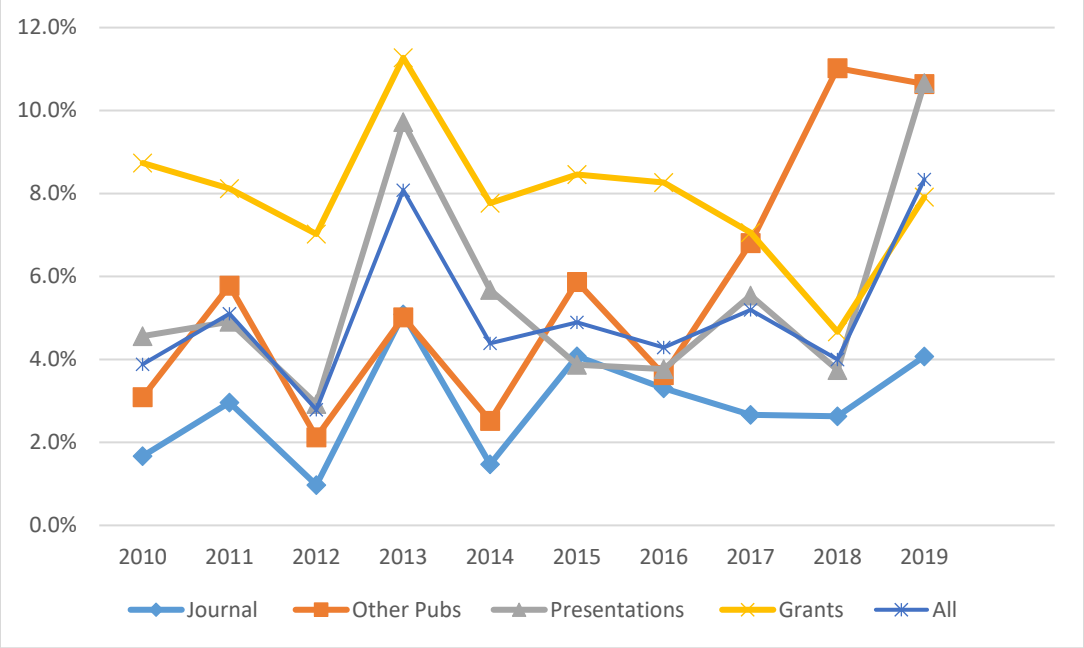
		Total	White	Asian	Black/ Hispanic	Male	Female	AG	BUS	DSN	ENGR	HS	LAS	VET
Assistant	N	406	218	86	23	203	122	61	36	27	64	47	131	40
	% with SoTL		50%	35%	43%	47%	43%	48%	28%	70%	34%	87%	37%	38%
Associate	N	295	178	54	18	167	88	56	11	19	51	30	103	25
	% with SoTL		60%	31%	56%	52%	56%	55%	45%	63%	49%	90%	45%	44
White	N	396				241	153	67	23	28	57	40	140	41
	% with SoTL					56%	52%	54%	44%	64%	56%	88%	48%	41%
Asian	N	140				100	38	17	8	*	34	17	49	11
	% with SoTL					33%	37%	59%	13%	*	21%	88%	20%	9%
Black/ Hispanic	N	41				24	17	9	*	*	*	*	13	*
	% with SoTL					50%	47%	44%	*	*	*	*	46%	*
Male	N	370						58	19	15	64	34	140	40
	% with SoTL							52%	37%	80%	45%	91%	41%	40%
Female	N	208						37	15	19	32	25	64	16
	% with SoTL							57%	27%	58%	38%	88%	41%	31%

*Indicates N < 5.

RQ2: How does evidence of SoTL differ by academic rank, race, gender, discipline, and type of SoTL artifact?

We examined differences in SoTL activity by category, academic rank, ethnicity, gender, and college to address the second research question. To calculate SoTL categories, we divided the number of SoTL artifacts in the category by the total number of artifacts. Figure 1 illustrates the percentages of journal articles, other publications, presentations, and grants related to SoTL. This figure provides an overview of the outlets where SoTL work was disseminated between 2010–2019. SoTL evidence across all categories ranged from 4% to over 8%; SoTL activity averaged above 5%. Of all categories, evidence of SoTL occurred the least in journals; grants were most frequent between 2010–2017, with other publications and presentations the most frequent in 2018 and 2019.

Figure 1: SoTL percentages by category: 2010–2019



On average, associate professors were more likely to have participated in at least one SoTL activity than assistant professors (53% vs. 45%); although in 2016, a higher percentage of assistant professors had evidence of SoTL. White and Black/Hispanic faculty members were more likely than Asian faculty to participate in SoTL. Over the 10 years, male and female participation in SoTL was similar (49% vs. 48%), although some years, such as 2010 and 2012, a higher percentage of males had SoTL scholarship. Participation in SoTL by academic college varied significantly: human sciences (88%), design (67%), agriculture and life sciences (50%), engineering (41%), liberal arts and sciences (40%), veterinary medicine (40%), and business (32%).

We then ran tests of significance to determine if there were significant differences in percentage of individuals with evidence of SoTL work and total SoTL publications by group (see Table 4). There were significant differences in evidence of SoTL by rank (χ^2 (1) = 3.95, p = .045), race/ethnicity (χ^2 (2) = 17.98, p = .00), and college (χ^2 (6) = 72.01, p = .00). White faculty had statistically significant higher percentages of SoTL scholarship than Asian faculty members (see Table 4). College of Human Sciences faculty had statistically higher percentages of SoTL evidence than faculty from the Colleges of

Table 4: Summary results of comparisons between and among groups

		SoTL Work (1/0)		Total SoTL Artifacts				% of Artifacts dedicated to SoTL			
Variable	n	%	X2	M	SD	t	df	M	SD	t	df
Rank						-0.73[2]	340			2.37[2**]	340
Assistant	407	45.5	3.95[1*]	10.56	20.8	p=.76		15.1	21.0	p=.009	
Associate	296	53		12.17	19.9			10.2	7.8		
Gender			0.04[1]			-0.36[2]	283			-0.18[2]	283
Male	370	49.5		11.5	22.5	p=.64		13.1	20.2	p=.56	
Female	210	48.6		12.5	18.9			13.5	19.4		
						F				F	
Race/ Ethnicity			17.98***[1]			0.14[3]	282			0.67	282
Black/ Hispanic	41	48.8		10.0	16.7	p=.86		8.2	11.7	p=.51	
Asian	140	33.6		10.8	15.0			13.1	18.4		
White	397	54.4		12.1	22. 8			13.5	20.2		
College			72.01**[1]			4.14***[3]	340			6.04***	340
AG	117	51.3		9.1	13.6	p=00		8.3	15.6	p=.00	
BUS	47	31.9		3.9	4.1			6.1	5.7		
DSN	46	67.4		13.1	14.4			23.6	22.8		
ENGR	115	40.9		5.0	9.1			3.5	5.8		
HS	77	88.3		19.7	24.4			18.4	18.4		
LAS	234	40.2		8.5	14.9			13.7	20.4		
VET	65	40		18.0	44.8			12.1	25.3		

1 – Results using chi-square analysis
2 – Results using t-tests
3 – Results using ANOVA

*p. < .05
**p. <.01
***p. < .001

Agriculture and Life Sciences, Business, Design, Engineering, Liberal Arts and Sciences, or Veterinary Medicine. The College of Design had statistically higher percentages of SoTL evidence than the Colleges of Business, Engineering, Liberal Arts and Sciences, or Veterinary Medicine. There were no significant differences by gender (χ^2 (1) = .04, p = .83).

We then limited our sample to those with at least one SoTL artifact (N=342), calculated the average number of artifacts over the 10-year period, and then the percentage of artifacts related to SoTL (see Table 5). The number of SoTL artifacts ranged from 1 to 210. We then examined differences by demographics. We found no significant differences by rank, gender, or race by average number of artifacts; each group had, on average, between 10 and 13 artifacts. We found statistically significant differences by college (F (6, 333) = 4.14, p = .00.); faculty members in the Colleges of Human Sciences, Design, and Veterinary Medicine had higher numbers of artifacts. Of those who had at least one SoTL artifact, the percentage of artifacts dedicated to SoTL ranged from less than 1% to 95%. Similar to the previous analysis, we found differences by college (F (6, 333) = 6.04, p = .00.) and no differences by gender or race. However, we did find significant differences by rank t (339) = 2.37, p.=.01, with assistant professors having a higher percentage of artifacts dedicated to SoTL than associate professors.

Table 5: Post hoc comparisons of SoTL work and SoTL totals by race/ethnicity and college – significant differences

Variables		Mean difference	TK-test
SoTL_Work by Race			
White	Asian	.21	6.22
SoTL_Work by College			
HS	AG	.39	7.67
HS	BUS	.56	9.05
HS	ENGR	.47	9.57
HS	LAS	.48	8.52
DSN	BUS	.35	5.08
DSN	ENGR	.27	4.52
DSN	LAS	.27	5.02
Total SoTL Works by College			
HS	AG	12.78	6.19
HS	BUS	16.18	6.21
HS	ENGR	15.35	7.41
HS	LAS	14.00	7.58

DISCUSSION

To evolve as a landscape of practice, SoTL work must be valued at the institutional level and within disciplines (Fukuzawa, Ashbourne, and Rawle 2020; Kern et al. 2015). Almost half of all faculty members and more than half of all associate professors had some indication of SoTL activity. It is difficult to make an evaluative judgment based on this one number. At research institutions that expect faculty members to engage in disciplinary research, this number may seem high, specifically when almost half of all assistant professors have some evidence of SoTL work.

The lack of significant change in SoTL efforts over the 10-year period suggests that increasing SoTL work will require commitment from the university and individual disciplines and demonstrates that institutional and disciplinary priorities may not always align. This finding is not surprising given the complex nature of institutions but provides additional insights into strategies required for organizational change (Kezar 2013). The percentage of faculty participating in SoTL varies greatly by academic college, reiterating Kern et al.'s (2015) claim that the proliferation of SoTL work will increase if valued by both the institution and one's discipline. For example, the College of Human Sciences includes education and human development and family studies, disciplines that may foster a stronger alignment between the institutional and disciplinary values of teaching and learning (Päuler-Kuppinger and Jucks 2017). Therefore, it is not surprising that over 80% of faculty members engage in SoTL. Some colleges had relatively consistent percentages of SoTL artifacts over time whereas colleges such as business and engineering saw great variation. Differences by discipline and over time suggest that increasing SoTL productivity may require both a top down and bottom up approach. Although an institution can promote the value of SoTL, the support also needs to be evident at the departmental and discipline level (Simmons 2016). Influential faculty who mentor, support, and encourage their colleagues' SoTL efforts will be necessary in increasing SoTL activity. Because colleges often experience significant turnover in faculty, leadership, and the personnel committees that review promotion and tenure, future research examining the influence of these individuals or groups of individuals on SoTL productivity may shed light on variations of SoTL work by department and over time.

Focusing on one institution afforded the opportunity to examine how the proliferation of SoTL may vary by rank, gender, and race. The findings by academic rank offer insights worth considering. As a group, a significantly higher percentage of associate professors had at least one artifact dedicated to SoTL. This finding is not surprising—associate professors have already been granted tenure and may feel more freedom to deviate from their traditional disciplinary research (Shapiro 2006). Yet, when we limit our analysis to those with at least one SoTL artifact, assistant professors have a higher percentage of their overall publications dedicated to SoTL. For our associate professors, our data collection did not include identifying when the SoTL activity happened; therefore, it is difficult to ascertain if associate professors with SoTL work were more or less likely to have evidence of SoTL before or after tenure. Although overall SoTL participation has remained consistent over the 10-year period, the increased percentage of artifacts related to SoTL for assistant professors may suggest that SoTL work increasingly is seen as a valuable and valid form of scholarship. As Secret et al. (2011) suggest, assistant professors may also have a broader definition of what constitutes as SoTL work and may be more willing to engage in this type of activity.

Unlike other SoTL research (see, for example, McKinney and Chick 2010), we did not find significant differences in SoTL artifacts by gender, but similar to some researchers (see, for example, Lueddeke 2003; Päuler-Kuppinger and Jucks 2017; Witman and Richlin 2007) we noticed differences by academic areas. Females in the College of Business are three times more likely to engage in SoTL than males; in the College of Liberal Arts and Sciences and the College of Engineering, males are more likely to engage in SoTL. We did find that White faculty are more likely to engage in SoTL than Asian faculty. However, these findings need to be interpreted with caution. Due to the small sample size, we did not compare these differences by discipline. In other words, examining these variables within disciplines may uncover additional insights. For example, White faculty are more likely to engage in SoTL work than Asian faculty. Still, disciplines may highly influence this difference as the highest

percentage of Asian faculty were in disciplines with the lowest percentage of SoTL. Similar to the above, these findings point to the power of one's discipline as a strong influencer of SoTL participation.

Faculty engage in SoTL in various ways; SoTL artifacts can take the form of peer reviewed journal publications, book chapters, presentations, and grants. Each of these also is assigned varying levels of prestige. For example, at research institutions, publication in a peer-reviewed journal is often viewed as a more valid indicator of scholarly work than a conference presentation. Examining differences among types of artifacts provides insights into the SoTL scholar productivity and impact.

It is not surprising that peer-reviewed journal articles were the lowest percentage of SoTL artifacts. These activities require a significant amount of time, and many academic departments place a higher value on disciplinary-based empirical research (Webb 2020); thus, faculty may focus their time and energy on writing discipline-based manuscripts. Consequently, institutions wanting to increase SoTL activity may wish to promote other opportunities such as presentations at conferences or teaching grants. These activities may require less time but can also be a first step toward a peer-reviewed publication.

A lack of training or knowledge of research methods used in SoTL may also contribute to differences in level of participation and type of participation. Unlike the experimental methods often used in sciences, SoTL inquiry draws from a broader set of methodological approaches. SoTL research is interested in student learning; therefore, the traditional control vs. experimental group approach can be neither feasible nor ethical. Other quasi-experimental or qualitative methodologies are often needed to address the questions posed by SoTL research. Because SoTL research can be vastly different from disciplinary research, professional development opportunities and trainings are essential. Creating and supporting collaborative research within and among disciplines affords the opportunity to teach and learn new methodological approaches. These collaborations can also shape the institutional landscape of practice. Additionally, the future of SoTL rests in the future professoriate. Socializing graduate students to SoTL may increase the likelihood of their engagement as faculty members, which can significantly influence the prominence of SoTL within academic disciplines (Chick 2013, 2018).

CONCLUSION

From 2010 to 2019, SoTL as a field has seen dramatic increases in attention and espoused value within higher education (Huber 2019; Vithal 2018). Conversely, over this same 10-year period, our study did not find a consistent or significant change in SoTL engagement at the institutional level. It may be that the institution studied has consistently embraced the value of SoTL or that the additional focus on SoTL within the promotion and tenure process did not influence the outcome. Regardless, the discrepancy between national trends and the reality within an institution is noteworthy. SoTL is described as a landscape of practice; our study highlights that landscapes of practice also occur at the institutional level, particularly within colleges. These more local landscapes exert a significant amount of power. Additionally, the landscape of practice that is experienced within the expectations of a research institution may also exert messages to faculty that affect their perceptions of the value of SoTL.

Excellence in teaching and learning is an espoused value for higher education institutions and an expectation of internal and external stakeholders. Our study provides an example of how institutions can document the enactment of this value. Analyzing 10 years of institutional data, we provide an overview of SoTL activities and differences by rank, gender, race, and discipline. This data can demonstrate faculty's engagement with teaching and learning and promote and support future work. It also offers

insights into potential differences in trends and proliferation between SoTL work writ large and the reality of the value of SoTL work within one's institution.

Institutions that want to promote the value of SoTL must be aware of how this work is valued at all levels and across disciplines. For faculty members wishing to achieve promotion, the messages they receive within their academic disciplines may be more powerful and exert more pressure than messages from the broader SoTL field or institutional foci. Although SoTL work is encouraged and applauded across the field, faculty members interested in SoTL work must also understand their own disciplinary and institutional context. Similarly, academic leaders who want to increase the institution's participation in SoTL work more broadly must promote this activity to disciplinary faculty mentors and members or promotion and tenure committees.

The primary purpose of SoTL is to advance and improve teaching and learning. Whereas this study examined the occurrence of SoTL artifacts, it did not investigate the relationship between SoTL activity and teaching and learning effectiveness. Engaging in SoTL is an important signal of the value of teaching and learning but future research should go beyond simply artifacts to investigate how this work ultimately enhances student learning.

Since the 1990s, SoTL has evolved into a recognized and valued landscape of practice; our study illustrates that these SoTL landscapes may look differently between and within institutions. Our study focused on one large, public research institution in the United States. To continue its momentum and growth as a field, we recommend continued exploration into the proliferation of SoTL within different institutional types and national contexts. Examining where SoTL may be lacking or flourishing can not only document its current relevance but can serve to help promote and support the future efforts of SoTL scholarship.

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