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A Multi-Institutional Study of Teaching Development Opportunities & Faculty Practice

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Abstract

Research on faculty teaching development is robust, with small-scale research studies on specific teaching development experiences or practices in particular fields. To contextualize the myriad of teaching development efforts available to faculty, this large-scale multi-institution study of nearly 4,500 faculty seeks to broaden our understandings of who participates in teaching development practices, how their participation relates to their institutional environments, and how their participation connects to use of effective teaching practices. Results show there are some notable trends by field, identity, the type of courses taught, and institutional characteristics. The overview of professional development participation in this study gives strength to positive findings from smaller-scale research studies and provides a solid base for more specific studies of these practices.

A Multi-Institutional Study of Teaching Development Opportunities & Faculty Practice

Research on faculty teaching development is robust. A Google Scholar search for "faculty teaching development" in the past 10 years returns over one million results. Much of this research centers on teaching development practices and effectiveness in particular fields, such as medical and health sciences (e.g., Thomas, Kern, Hughes, & Chen, 2016; Steinert, Mann, Centeno, Dolmans, Spencer, Gelula, & Prideaux, 2006; Steinert, Mann, Anderson, Barnett, Centeno, Naismith,…& Ward, 2016) or science, engineering, technology, and mathematics (STEM) fields (e.g., Derting, Ebert-May, Henkel, Middlemis Maher, Arnold, & Passmore, 2016; Smith, McGowan, Allen, Johnson, Dickson, Ali Najee-ullah, & Peters, 2008). Research on faculty teaching development also tends to focus on the implementation and effectiveness of specific practices, such as faculty learning communities (e.g., Cox, 2004; Sherer, Shea, & Kristensen, 2003). Regardless of the focus, this body of research often focuses on small-scale studies of individual teaching development practices, while large-scale research on faculty use of teaching development practices and its effects is limited (Chism, Holley, & Harris, 2012).

While literature reviews, such as Steinert et al. (2006), Chism et al. (2012), and Steinert et al. (2016), help to synthesize the diverse focuses and conclusions of smaller-scale research on particular faculty teaching development practices, research is needed to better contextualize the myriad of teaching development efforts available to faculty and their impacts. This large-scale study seeks to broaden our basic understandings of current faculty development patterns, so we approached the data in an exploratory fashion without prior assumptions or a particular framework in mind. As such, this paper seeks to answer the following research questions:

- Who are the faculty participating most in teaching development opportunities?

- What is the relationship between faculty and institutional characteristics with participation in teaching development opportunities?

- What is the relationship between partaking in those opportunities and faculty emphasis on educational classroom practices?

Literature

Faculty development encompasses a wide array of activities and practices which seek to help faculty improve in any aspect of their professional academic careers, including, but not limited to, their teaching and research, though Lacey's (1988) review of the then-burgeoning faculty development movement makes clear that teaching was an important early focus of such efforts, such as those studied in Centra's (1976) foundational study of faculty development practices. Teaching development practices are often formally organized in nature, with faculty developers often ensuring that faculty continue to develop their capacity in teaching, assessment, and administration (Bilal, Guaraya, & Chen, 2017). Steinert et al. (2006), in reviewing teaching development research in medical fields found most programs to be workshops, seminars, courses, or fellowship programs. Similarly, Chism et al.'s (2012) review of teaching development research across a variety of disciplinary areas found most efforts focused on workshops, courses, and communities of practice that were formally organized by faculty developers. Notably, while both Steinert et al. (2006) and Chism et al. (2012) identify some recurring teaching development practices (e.g., workshop series), there is no indication that any of the studies reviewed considered participation in multiple types of opportunities.

Steinert et al. (2016) acknowledge a broadening of this traditional view of formal teaching development put forth by Webster-Wright (2009) to include a broader variety of formats, approaches (formal vs. informal), and contexts (individual vs. group), however their

updated literature review still found a majority of teaching development efforts to be formal in nature. Despite its lack of representation in prominent literature reviews, informal teaching development has been studied, particularly informal mentoring of faculty. Sorcinelli (1994) notes that new faculty desire and find helpful informal mentoring from senior faculty, in addition to formal mentoring. Leslie, Lingard, and Whyte (2005) found that, for junior clinical faculty, while supportive, informal mentoring relationships did not fully qualify as mentoring and needed more formal organization to ensure equitable access to quality mentoring. Conversely, Goodwin, Stevens, and Bellamy (1998) found that informal mentoring experiences were valuable for faculty in education. Steinert et al. (2016) note the need for further study of informal development efforts as they often contain "key ingredients to effective faculty development" (p. 779) such as peer learning, modeling, and reflection.

Regardless of the format or approach of faculty teaching development practices, research broadly indicates that these programs are effective at improving faculty teaching. Centra's (1976) early study found a wide number of teaching development practices, such as grant and travel funding (e.g., to travel to a conference) and teaching assistance programs (e.g., course development assistance) to be rated as effective by institutions. Steinert et al. (2006) found across 53 studies broad positive impacts of faculty development practices on faculty attitudes toward teaching, teaching skills and knowledge, and self-perceived teaching behavior. Steinert et al. (2016), in reviewing 111 studies, further confirm these broad positive changes in attitudes, knowledge, and teaching behavior, as well as increased faculty confidence, enthusiasm and leadership from development opportunities. Chism et al.'s (2012) review of 149 studies similarly shows positive changes in faculty teaching attitudes and behaviors, as well as student learning

(e.g., from formal teaching courses or communities or practice) due to faculty teaching development practices.

<p style="text-align:center">**Methods**</p>

Data

The data for this study come from the Faculty Survey of Student Engagement (FSSE), a large-scale multi-institutional study focusing on the engagement practices of faculty at four-year baccalaureate-granting institutions. FSSE asks faculty about their use of educational practices that are empirically linked to student learning and development. The data are from the 2014-2018 administrations of FSSE at institutions that opted to include an additional item set measuring faculty involvement in teaching development practices resulting in 4,457 faculty respondents with a variety of background characteristics (see Table 1). Faculty in this study were employed at 33 institutions, representing a variety of sizes, selectivity, and Carnegie types (see Table 2). If an institution participated in FSSE in more than one administration in the given timeframe, we only used data from their most recent year of administration.

Measures

The study focuses on a series of items that ask faculty about their experiences in teaching development opportunities (participating in institution-wide instructor orientations, partaking in teaching and learning communities, visiting centers for teaching and learning, etc.) For a full list of the items, see Appendix A. Some items were dichotomous with a "yes" or "no" for participation, while others asked how often faculty participated on a four-point Likert scale of 1 "Never" participated to 4 "Very often." The four-point items were re-coded into dichotomous variables of not participated or participated then combined with the previous variables to form an index, which served as continuous dependent and independent variables in analyses. In some

analyses, faculty were grouped based on the count of their participation in different activities with faculty participating in 0-3 activities referred to as low participation, 4-7 as moderate participation, and 8 or more as high participation.

Analysis

Chi-square analyses informed the degree to which faculty members are over- or under-represented in participation in teaching professional development opportunities. We used adjusted standardized residuals to understand faculty patterns with values +/- 2 considered to be notable differences (Agresti & Finley, 2009). We used ordinary least squares regressions to understand the relationship between faculty use of various engagement strategies and participation in teaching professional development opportunities. We effect coded all covariates prior to entry into the models to allow results to be interpreted in comparison to the average score of faculty in the model (Mayhew & Simonoff, 2015). We standardized all continuous independent and dependent variables prior to analysis thus the unstandardized coefficients can be interpreted as effect sizes.

Selected Results

Faculty in the biological sciences, agriculture, and natural resources; physical sciences, mathematics, and computer science; and engineering are underrepresented in high participation of teaching development practices. Education faculty are overrepresented in high frequency of teaching development practices. Assistant professors are overrepresented in high frequency of participation in teaching development opportunities while professors are underrepresented. Faculty who are on the tenure track but not yet tenured are overrepresented in high frequency of participation in teaching development practices while those who are already tenured are underrepresented. Women are overrepresented in high participation and men are

underrepresented. In considering race/ethnicity of faculty, Asian and Black or African American faculty are overrepresented in high frequency of participation in teaching development opportunities while White faculty are underrepresented. There were no significant relationships with sexual orientation. See Table 3 for details.

Additionally, faculty who taught on-campus reported less participation while peers teaching combination-style courses partook in more teaching opportunities than the average faculty response. Lastly, faculty at Doctoral/Highest research, Doctoral/Higher research, and Master's/Large institutions reported using fewer teaching development opportunities while colleagues at other Carnegie types reported more than the average faculty response. See Table 4 for details.

When examining teaching professional development in relation to various engagement and teaching practices, results are positive overall. The more teaching development opportunities faculty participated in, the more emphasis they placed on higher-order learning, reflective and integrative learning, effective learning strategies, quantitative reasoning, collaborative learning, discussions with diverse others, student-faculty interactions, effective teaching practices, perceptions of students' quality of interactions, values for a students' supportive environment, and faculty course goals for student learning and development while controlling for associated covariates. See Table 5 for details.

Discussion

Although different types of faculty and faculty in different fields all participate in different amounts of professional development, there are some notable trends. Faculty from STEM fields participated in fewer teaching development opportunities, and faculty in Education participate in more. This finding is unlikely to be surprising but is an important reminder for

faculty developers and academic departments to continue reflecting on the values of improving teaching practice and the norms of disciplinary areas. Additionally, faculty who do not have tenure and full rank are participating in more teaching development opportunities. It is likely these faculty are attempting to build a teaching portfolio for the promotion process.

Surprisingly, one might expect faculty who teach on campus to report using teaching development opportunities more as they are closer to teaching resources, yet this was not the case. It's possible that faculty are more confident in traditional classroom settings and don't feel the need to seek out support. Faculty teaching in hybrid courses, however, may be less confident in their skills in this relatively newer teaching environment and so may participate in development opportunities more frequently. It may also be that faculty developers are creating more content for faculty teaching in hybrid course situations allowing for them to have more resources available to them. This leads to questions about the availability of teaching resources and how to make opportunities available for faculty in all teaching situations.

Looking at institutional differences also opens a conversation about faculty teaching practices. Faculty at larger institutions, doctoral-granting and Master's-granting institutions, employ faculty that participate in fewer developmental activities, but these are the types of institutions that tend to have more resources such as funding for innovating teaching and resources for centers of teaching and learning. One might expect that more resourced institutions would provide an environment that fosters more participation in developmental activities, but this doesn't appear to be the case. It's possible the values and goals of these institutions do not encourage a culture that promotes participation in teaching development and improvement.

Future research may want to consider looking at the quality of teaching development opportunities. The learning obtained from passively attending a session on teaching practices

may be different than a faculty who is actively partaking in a reading group. It is also possible that faculty in specific disciplines may derive greater benefits from certain forms of faculty development so this intersection should also be explored. We hope that the general findings and overview of the landscape of professional development participation in this study gives strength to positive findings from smaller-scale research studies and provides a solid base for more specific studies of these practices.

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Tables

Table 1. Faculty characteristics

	N	%
Rank		
Professor	1051	22.6
Associate Professor	1011	21.8
Assistant Professor	1061	22.8
Instructor	582	12.5
Lecturer	620	13.4
Other	319	6.9
Tenure Status		
No tenure system at this	458	9.9
Not on tenure track, but this institution has a tenure system	1525	33.1
On tenure track but not tenured	885	19.2
Tenured	1744	37.8
Disciplinary Area		
Arts & Humanities	1042	20.8
Biological Sciences,	401	8.0
Physical Sciences,	588	11.7
Social Sciences	565	11.3
Business	487	9.7
Communications, Media, &	159	3.2
Education	429	8.6
Engineering	353	7.1
Health Professions	501	10.0
Social Service Professions	183	3.7
Other disciplines (not	299	6.0
Gender Identity		
Man	2130	46.4
Woman	2204	48.0
Another gender identity	11	0.2
I prefer not to respond	247	5.4
Sexual Orientation		
Straight (heterosexual)	3114	0.8
Bisexual	66	0.0
Gay	57	0.0
Lesbian	43	0.0
Queer	25	0.0
Questioning or unsure	3	0.0
Another sexual orientation	10	0.0
I prefer not to respond	420	0.1
Race/Ethnicity		
American Indian or Alaska	16	0.4
Asian	281	6.4
Black or African American	262	5.9
Hispanic or Latino	123	2.8
Native Hawaiian or Other	6	0.1
White	3084	69.8
Other	100	2.3
Multiracial	119	2.7
I prefer not to respond	430	9.7

Table 2. Institution characteristics by faculty

	N	%
Carnegie Classification		
Doctoral Universities	1446	28.9
Master's Colleges and Universities	2838	56.7
Baccalaureate Colleges	679	13.6
Other	40	0.8
Control		
Public	3680	73.6
Private-not-for-Profit	1323	26.4
Barrons Selectivity		
Noncompetitive	99	2.0
Less competitive	794	16.2
Competitive and competitive plus	3043	62.3
Very competitive and very competitive plus	687	14.1
Highly competitive and highly competitive plus	157	3.2
Most competitive	108	2.2
Institution Size		
Very Small (fewer than 1,000)	69	1.4
Small (1,000-2,499)	986	19.7
Medium (2,500-4,999)	860	17.2
Large (5,000-9,999)	1044	20.9
Very Large (10,000 or more)	2044	40.9

Table 3. Chi-Square Statistics for Differences in Faculty Demographics by Teaching Development Opportunities

	Low (0-3)	Mid (4-7)	High (8+)	n	df	χ^2 sig
Disciplinary Area						
Arts & Humanities	-1.6	1.7	-0.1			
Biological Sciences, Agriculture, & Natural Resources	0.7	1.2	-2.5			
Physical Sciences, Mathematics, & Computer Science	3.9	-1.9	-2.5			
Social Sciences	2.0	-1.4	-0.7			
Business	0.1	-0.8	0.9	4,130	20	103.769***
Communications, Media, & Public Relations	-0.4	0.4	0.0			
Education	-5.8	1.4	5.7			
Engineering	4.4	-2.3	-2.6			
Health Professions	-3.1	1.8	1.6			
Social Service Professions	-0.6	1.3	-0.9			
Other disciplines	0.7	-1.7	1.2			
Rank						
Professor	2.8	0.1	-3.8			
Associate Professor	2.3	-1.6	-0.8			
Assistant Professor	-7.0	2.8	5.2	4,136	10	64.836***
Instructor	1.3	-1.5	0.3			
Lecturer	0.4	-0.4	0.0			
Rank Other	0.9	0.3	-1.4			
Tenure Status						
No tenure system at this institution	-1.0	-0.8	2.3			
Not on tenure track, but this institution has a tenure system	0.4	0.1	-0.7	4,111	6	69.489***
On tenure track but not tenured	-6.4	2.3	5.1			
Tenured	5.4	-1.5	-4.9			
Gender Identity						
Man	5.7	-2.6	-3.9			
Women	-5.9	2.6	4.1	4,106	6	40.871***
Another Gender Identity	0.4	-1.1	0.8			
PNR	0.3	0.1	-0.5			
Race/Ethnicity						
American Indian or Alaska Native	-0.4	0.5	-0.1			
Asian	-1.7	-1.5	4.1			
Black or African American	-3.4	0.4	3.7			
Hispanic or Latino	-2.3	0.8	2.0	3,962	16	63.878***
Native Hawaiian or Other Pacific Islander	-1.1	-0.5	2.0			
White	3.2	1.4	-5.8			
Another race or ethnicity	0.6	-2.3	2.1			
Multiracial	-0.3	1.0	-0.9			
I prefer not to respond	0.5	-1.1	0.7			
Sexual Orientation						
Straight	1.5	0.1	-2.0			
Bisexual	-0.8	0.5	0.4			
Gay	-0.1	-0.1	0.3			
Lesbian	0.5	0.4	-1.1			
Queer	-1.4	0.9	0.7			
Questioning/Unsure	1.0	-1.5	0.6			
Another Sexual Orientation	0.8	-0.2	-0.7			
PNR	-1.4	-0.5	2.4			

Notes: Adjusted standardized residuals; *p < .05. **p < .01, ***p < .001

Table 4. Relationship between faculty characteristics and participation in teaching development opportunities

	B	Std. Error	Beta	Sig
(Constant)	0.286	0.204		
Disciplinary Area				
Arts & Humanities	0.055	0.048	0.028	
Biological Sciences, Agriculture, & Natural	0.055	0.066	0.022	
Physical Sciences, Mathematics, & Computer	-0.123	0.059	-0.053	*
Social Sciences	-0.047	0.062	-0.019	
Business	-0.036	0.071	-0.013	
Communications, Media, & Public Relations	0.088	0.099	0.027	
Education	0.284	0.069	0.107	***
Engineering	-0.133	0.082	-0.045	
Health Professions	0.029	0.068	0.011	
Social Service Professions	-0.051	0.112	-0.015	
Other disciplines	-0.122	0.085	-0.062	
Rank				
Professor	0.056	0.064	0.029	
Associate Professor	0.073	0.062	0.038	
Assistant Professor	0.093	0.065	0.049	
Instructor	-0.168	0.068	-0.069	*
Lecturer	-0.008	0.062	-0.004	
Rank Other	-0.046	0.073	-0.024	
Tenure Status				
No tenure system at this	0.036	0.093	0.021	
Not on tenure track, but this	-0.074	0.052	-0.066	
On tenure track but not	0.220	0.067	0.167	**
Tenured	-0.181	0.066	-0.104	**
Gender Identity				
Man	-0.108	0.142	-0.063	
Women	0.015	0.142	0.009	
Another Gender Identity	0.279	0.407	0.060	
I prefer not to respond	-0.187	0.162	-0.110	
Race/Ethnicity				
American Indian or Alaska Native	-0.643	0.353	-0.179	
Asian	0.247	0.110	0.096	*
Black or African American	0.177	0.113	0.066	
Hispanic or Latino	0.107	0.144	0.034	
Middle Eastern or North African	0.170	0.490	0.047	
White	-0.082	0.085	-0.051	
Another race or ethnicity	0.213	0.157	0.066	
Multiracial	-0.036	0.140	-0.012	
Prefer not to respond	-0.152	0.118	-0.042	
Sexual Orientation				
Straight	0.121	0.111	0.077	
Bisexual	0.254	0.171	0.085	
Gay	0.088	0.169	0.030	
Lesbian	-0.042	0.190	-0.014	
Queer	0.006	0.320	0.002	
Another sexual orientation	-0.449	0.498	-0.137	
Questioning	-0.242	0.306	-0.075	
Prefer not to respond	0.264	0.131	0.167	*
Additional				
Doctorate Obtainment	-0.140	0.059	-0.066	*
US Citizen	-0.038	0.120	-0.007	

*$p < .05$. **$p < .01$, ***$p < .001$

Table 4 cont. Relationship between course and institution characteristics and participation in teaching development opportunities

	B	Std. Error	Beta	Sig
Course Division				
Lower	0.013	0.035	0.008	
Upper	-0.029	0.035	-0.018	
Other	0.015	0.052	0.009	
Course Size				
Small	-0.044	0.032	-0.037	
Medium	0.012	0.030	0.010	
Large	0.032	0.031	0.027	
Class Format				
On-Campus	-0.128	0.062	-0.080	*
Remote-Location	-0.039	0.156	-0.012	
Online	0.007	0.091	0.003	
Combination	0.160	0.075	0.101	*
Private Institution	0.089	0.066	0.038	
Carnegie Classification				
Doctoral Highest	-0.345	0.067	-0.133	***
Doctoral Higher	-0.161	0.063	-0.068	*
Masters Large	-0.160	0.048	-0.085	**
Masters Medium	-0.090	0.090	-0.023	
Masters Small	0.116	0.091	0.029	
Baccalaureate A & S	0.119	0.084	0.035	
Baccalaureate Diverse	0.029	0.094	0.007	
Other Carnegie	0.492	0.185	0.190	**

*$p < .05$. **$p < .01$, ***$p < .001$

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Table 5. FSSE Scale Statistics Increase by Teaching Professional Development Opportunities

	B	SE	Beta	Sig.
Higher-Order Learning	0.222	0.023	0.215	***
Reflective & Integrative Learning	0.161	0.020	0.158	***
Learning Strategies	0.157	0.023	0.153	***
Quantitative Reasoning	0.162	0.021	0.157	***
Collaborative Learning	0.227	0.023	0.221	***
Discussions with Diverse Others	0.172	0.022	0.165	***
Student-Faculty Interaction	0.265	0.022	0.262	***
Effective Teaching Practices	0.207	0.022	0.201	***
Quality of Interactions	0.154	0.022	0.153	***
Supportive Environment	0.176	0.022	0.172	***
Course Goals	0.276	0.020	0.272	***

Key: *** $p < .001$; variables standardized before model run; controls include: disciplinary area, rank, tenure status, gender identity, race/ethnicity, sexual orientation, doctorate obtainment, US citizenship, course division, course size, class format, public/private, Carnegie Classification

Appendix

Appendix A. Teaching Professional Development Items

Text	N	Min.	Max.	Mean	SD
Participated in an institution-wide instructor orientation	4403	0	1	0.35	0.48
Participated in an instructor orientation specific to your department	4394	0	1	0.30	0.46
Participated in a faculty learning community devoted to teaching	4396	0	1	0.40	0.49
Been mentored by a faculty member with regard to teaching	4386	0	1	0.26	0.44
Mentored a faculty member with regard to teaching	4393	0	1	0.43	0.49
Attended or presented at a professional conference focused on teaching	4385	0	1	0.35	0.48
Visited an office or center that supports faculty (Center for Teaching and Learning, Center for Teaching Excellence, etc.)	4397	1	4	1.68	0.85
Attended a workshop or training session to enhance your teaching	4403	1	4	2.02	0.88
Had a faculty or staff member observe your teaching and provide feedback	4403	1	4	1.68	0.82
Worked one-on-one with a faculty or staff member to help improve your teaching	4384	1	4	1.60	0.79
Worked with a group of faculty or staff to help improve your teaching	4361	1	4	1.55	0.78