Running head: FACULTY DEVELOPMENT OPPORTUNITIES

Examining the Relationship between Faculty Development Opportunities and Teaching Practices

Paper submitted for the 2020 American Educational Association Annual Meeting

San Francisco, CA.

Abstract

Teaching is arguably the lifeblood of higher education as students enroll in higher education institutions to learn new information. Faculty often partake in developmental opportunities that seek to improve their pedagogical practices and the student experience. Seeing the importance in understanding teaching, this study uses a multi-institution data set to examine the relationship between development opportunities and faculty use of effective teaching practices and course goals. Findings indicate that informal practices including discussing teaching with colleagues, speaking with students beyond course evaluations about classroom practices, and reading pedagogy books increased use of effective teaching practices. These findings have implications for faculty developers coordinating teaching development opportunities, administrators investing funding in development, and faculty who are looking to change their practices.

Examining the Relationship between Faculty Development Opportunities and Teaching Practices

Centers for teaching and learning formed across the United States in the 1960s as a means to shift the focus of learning from instructors to students (Singer, 2002). Along with the creation of the new institutional resource, faculty developers emerged to provide oversight in assuring that faculty continued to develop their capacity in teaching, assessment, and administration (Bilal, Guaraya, & Chen, 2017; McKeachie & Svinicki, 2013). Most research on teaching development practices are small in nature (Spencer, 2014) or focus on medical field applications (Files, Blair, Mayer, Ko, 2008; Leslie, Lingard & Whyte, 2009; Skeff, et al., 1997; Sonnino et al., 2013; Steinert et al., 2016). This study aims to expand the conversation of faculty development by using a large multi-institutional dataset to examine how benefit faculty teaching. Assessing faculty is integral for sustaining and innovating teaching practices as well as for understanding the successes or challenges to faculty development (Braskamp & Ory, 1994; Paulsen, 2002).

Literature

Research indicates faculty yield confidence, enthusiasm, and leadership from partaking in formal development opportunities (Steinert et al., 2016), and research on informal relationships among faculty demonstrate positive relationships with career advancement (Leslie et al., 2009). It is less understood how formal and informal development opportunities influence faculty teaching skills (Chism, Holley, & Harris, 2012). Faculty frequently believe that teacher professional development is unrelated to teaching excellence, and institutional support for such opportunities can be limited (Skeff et al., 1997).

There is a bounty of research on the effectiveness of student evaluations informing faculty teaching (Centra & Gaubatz, 2000; Emery, Kramer, & Tian, 2003). However, often absent from the conversations are the perspectives of faculty members on their own teaching and their uses of teaching resources. Mentorship and orientation programs have been linked to positive benefits for new faculty, establishing community and promoting success (Savage, Karp, & Logue, 2004). Both informal and formal relationships have the capability of sustaining and developing faculty members' capacity as teachers.

Teaching development is important for all types of faculty. However, there is an imbalance of who is receiving or seeking training among disciplines and other faculty characteristics (Sutherland, 2018). Moreover, part-time faculty are seeking additional training in peer-review preparation, online teaching, and course planning (Meixner, Kruck, & Madden, 2010). With an increase in adjunct and part-time faculty it is important to consider their training and preparation for educating students. Stark differences have been found in the ways full and part faculty spend their time on effective teaching strategies at community colleges (Schuetz, 2002). Faculty developers should be aware of how to cater their services to varying populations of faculty.

Framework

Tenets from Faculty Learning Outcomes (FLO) Framework can be used to understand the ways in which faculty development opportunities meaningfully improve faculty practices (Hurney et al., 2016). It calls on practitioners to move beyond one-time program assessments and look at a myriad of development opportunities. The study embodies this notion by developing two latent constructs to measure the effects of development on faculty teaching practices and

course goals. Moreover, the model is comprised of three tiers that seek to assess indirect and

direct effects of faculty participation in development opportunities. It lends itself to structural

equation modelling to look at the collective effects of faculty developer's work on faculty

practices. As such, this study seeks to better understand formal and informal faculty development

opportunities as they relate to full and part-time faculty and their use of effective teaching

practices as well as planned course goals. The research questions are: Who are the faculty

members partaking in informal and formal professional development opportunities; and, how

does faculty participation in teaching professional development opportunities relate to their use

of effective teaching strategies and selection of course goals?

Methods

Data

The data for the study comes from the Faculty Survey of Student Engagement (FSSE) an

instrument used to assess the instructional techniques and motivations of faculty at four-year

colleges and universities (FSSE, n.d.). To get a better look at the opportunities that institutions

provide faculty for self-improvement, items from the Teaching Professional Development

Module will be used in this study over the span of five years (2014-2018). In total, the data set

contains 4,457 responses from faculty; they come from baccalaureate (13.5%), masters (55%),

and doctoral (31.5%) institutions (Appendix A). The faculty in this study also have varying ranks

from lecturer (13.4%) to full professor (22.6%). Full-time faculty (79.9%) are the majority of the

sample; additional demographic data can be found in Appendix B. The items have between 12

(~.2%) and 489 (~10%) missing data; this was addressed through full information maximum

likelihood method for missing data, which often provides more accurate parameter estimates than historical methods (e.g., listwise deletion; Bollen, 1989).

Measures

Faculty were asked several items pertaining to their participation in teaching development opportunities, effective teaching practices, and course goals. They could respond to how often they participated in activities such as visiting an office or center supporting teaching, attending a workshop, or discussing teaching with other faculty (1=Never, 2=Sometimes, 3=Often, 4=Very Often; Table 1). Regarding their classroom practices, faculty responded to the extent they clearly explain class objectives, use examples or illustrations, and provide feedback to students on drafts (1=Very little, 2=Some, 3=Quite a bit, 4=Very much; Table 2). They could also express the extent they structure courses to emphasize writing clearly and effectively, collaboration with peers, and developing a sense of citizenship (1=Very little 2=Some, 3=Quite a bit, 4=Very much; Table 3).

Analysis

To answer the first research question, descriptive statistics, t-tests, and Cohen's d effect sizes were used to understand differences between full-time and part-time faculty. This difference in employment status was specifically examined because of known differences in support, resources, and expectations for these two groups. Means were compared between the teaching professional development items to understand the scope of faculty participation.

A structural equation model was used to answer the second research question about the relationship informal and formal development opportunities to effective teaching and course goals. Informal Teaching Development was defined by faculty partaking in activities outside of a

teaching center to better their teaching (Table 4). Formal Teaching Development pertains to when faculty members use a coordinated means to improve their teaching often associated with a teaching center. Effective Teaching Practices is a latent construct comprised of skills and methods faculty use in their classroom to enhance student learning (Table 3). Course Goals is a latent construct entailing the outcomes faculty hope their students will achieve from taking their course (Table 2). The full path diagram (Figure 1) depicts the relationship of the constructs on the observed variables where the informal and formal development opportunities promote course goals and effective teaching practices. Finally, a multigroup structural equation model tests to see if the constructs hold for both full and part time faculty. T-tests then examine the degree of difference between the two groups and the latent variables.

Limitations

While the findings are exciting, it is important to acknowledge there are several limitations to this study. Institutions self-select to participate in the Faculty Survey of Student Engagement thus the findings are not representative outside of the scope of the sample used in analyses. It is likely that different institutions and faculty members taking the survey could cause the model to produce different results. The data are self-reported by faculty members thus there could be issues of social desirability biasing the results, although psychometric testing suggests this is unlikely (Miller & Dumford, 2017). Lastly, structural equation modelling relies on sound theoretical underpinnings when developing models; it is always possible there are additional observed or latent variables not measured in the study that could influence the results (Bollen, 1989).

Results

Attending workshops ($p<.001$, d=.22), visiting centers for teaching ($p<.001$, d=.13), and working one on one with faculty ($p<.01$, d=.1) are more common among full-time faculty. However, part-time faculty members have formalized peer observations occur more frequently ($p<.001$, d=.17). Informally, discussing teaching issues with other faculty members is more common for full-time faculty ($p<.001$, d=.44). However, there appear to be no differences between their working with a specific group of faculty to improve their teaching or consulting online resources (Table 4).

The parameters were estimated by scaling the latent variable variance to one. The structural model results in Figure 2 demonstrate the relationship between the exogenous latent variables of informal (IP) and formal (FP) teaching professional development and the endogenous latent variables of effective teaching and course goals. These findings help answer the research question at-hand. There is a statistically signification positive effect of informal professional development on effective teaching (.11, $p<.001$), but there is no significant relationship between formal development and effective teaching. Next, there is a positive statistically significant effect of informal teaching development on course goals (.12, $p<.001$), and, again, no significance between formal development and course goals. The model fit indices (CFI > .95, TLI > .95, RMSEA < .08, χ^2 (282, N= 4,456) = 7782.9, p < .05) demonstrate a good fitting model with the exception of the chi-square test, which is likely due to the large sample size. Descriptives and measures of unidemensionality for the scales show acceptable results or are backed by theory (Table 5; Bacon, Sauer, & Young, 1995)

Finally, *t*-tests were conducted, indicating there are differences in informal and formal development as well as effective teaching practices and course goals based on faculty type

(Table 6). Next, a multigroup structural equation model tested for measurement invariance to see if the four latent constructs functioned the same for both populations. Configural invariance demonstrates the constructs were similar (CFI>.95, TLI> .95, RMSEA <.08, χ^2 (564, N= 4,456) = 7998.2, p < .05). The strength of the relationships for both part and full-time faculty are in Figure 3. Metric and scalar invariance did not hold, which are more concerned about individual items and means of the observed variables being consistent across group (Hong, Malik, & Lee, 2003), which we know not to be true given previous analyses (see Tables 4 & 6).

Implications & Future Research

The findings from the study have many applications, clarifying the relationship between faculty development opportunities and their perceived effects on faculty as well as who is partaking in them. Formalized development opportunities were not statistically related while informal ones were related to the outcomes.

Leveraging the Faculty Learning Outcome framework, the study demonstrates how to use multiple faculty teaching development opportunities to measure outcomes or latent constructs (Hurney et al., 2016). It is important to view formal and informal teaching development from multiple perspectives to understand their perceived effects on faculty. The results appear to indicate that formalized development such as, having someone observe one's teaching, working one on one with a staff member, or working in a faculty group, have no effect on faculty using effective teaching practices or tailoring specific course goals, providing an alternative to previous studies (re Steinert et al., 2016). This could be useful for faculty developers, provosts, and department chairs who are seeking to better hone formalized development opportunities. On the other hand, informal development opportunities do lend themselves to positive outcomes thus

it begs the question of how faculty can be encouraged or possibly rewarded and recognized for partaking in development that often does not help them in the tenure/promotion process. The findings confirm and extend previous research that informal teaching professional development opportunities such as mentorship relationships are important for faculty, and cultures of mentorship should be promoted for both full and part time faculty (Files et al., 2008).

Future research may consider conducting multigroup structural equation analyses to see if there are differences in the constructs studied between gender or race. This is critically important as research indicated there are differences in teaching development practices that faculty use to teach when looking at demographics (Vargas, 2002). Moreover, the need to examine indicators of quality should be a priority (Spencer, 2014) as faculty teaching development opportunities often require time, resources, and relationships.

References

Bacon, D. R., Sauer, P. L., & Young, M. (1995). Composite reliability in structural equations modeling. *Educational and Psychological Measurement, 55*(3), 394–406. https://doi.org/10.1177/0013164495055003003

Bilal, Guraya, S. Y., & Chen, S. (2017). The impact and effectiveness of faculty development program in fostering the faculty's knowledge, skills, and professional competence: A systematic review and meta-analysis. *Saudi Journal of Biological Sciences*, (2017), 1-10.

Bollen, K. A. (1989). *Structural equation modelling with latent variables.* New York: Wiley.

Braskamp, L. A., & Ory, J. C. (1994). *Assessing faculty work: Enhancing individual and institutional performance.* San Francisco, CA: Jossey-Bass.

Centra, J. A., & Gaubatz, N. B. (2000). Is there gender bias in student evaluations of teaching? *Journal of Higher Education, 71*(1), 17-33.

Chism, N. V. N., Holley, M., & Harris, C. J. (2012). Researching the impact of educational development: basis for informed practice. *To Improve the Academy, 31*(1), 129-145.

Emery, C. R., Kramer, T. R., & Tian, R. G. (2003). Return to academic standards: A critique of student evaluations of teaching effectiveness. *Quality Assurance in Education, 11*(1), 37-46.

Files, J. A., Blair, J. E., Mayer, A. P., & Ko, M. G. (2008). Facilitated peer mentorship: A pilot program for academic advancement of female medical faculty. *Journal of Women's Health*, *17*(6), 1009-1015.

FSSE. (n.d.). Faculty survey of student engagement. Retrieved from http://fsse.indiana.edu/

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hong, S., Malik, M. L., & Lee, M. K. (2003). Testing configural, metric, scalar, and latent mean invariance across genders in sociotropy and autonomy using a non-Western sample. *Educational and psychological measurement*, *63*(4), 636-654.

Hurney, C. A., Brantmeier, E. J., Good, M. R., Harrison, D., & Meixner, C. (2016). The faculty learning outcome assessment framework. *The Journal of Faculty Development, 30*(2), 69-77.

Kline, R. B. (2015). *Principles and practice of structural equation modelling (4th ed.).* New York: Guilford Publications.

McKeachie, W., & Svinicki, M. (2013). *McKeachie's teaching tips: Strategies, research and theory for college and university teachers*. Cengage Learning.

Meixner, C., Kruck, S. E., & Madden, L. T. (2010). Inclusion of part-time faculty for the benefit of faculty and students. *College Teaching, 58*(4), 141-147.

Leslie, K. Lingard, L., & Whyte, S. (2009). Junior faculty experiences with informal mentoring. *Medical Teacher, 27*(8), 693-698.

Miller, A. & Dumford, A. (2017). Social desirability bias. *FSSE Psychometric Portfolio*. Retrieved from fsse.indiana.edu.

Paulsen, M. B. (2002). Evaluating teaching performance. In C. L. Colbeck (Ed.), *Evaluating faculty performance* (pp. 5-18). San Francisco, CA: Jossey-Bass.

Savage, H. E., Karp, R. S., & Logue, R. (2004). Faculty mentorship at colleges and universities. *College Teaching*, *52*(1), 21-24.

Schuetz, P. (2002). Instructional practices of part-time and full-time faculty. *New directions for community colleges*, *2002*(118), 39-46.

Singer, S. R. (2002). Learning and teaching centers: Hubs of educational reform. *New Directions for Higher Education*, *2002*(119), 59–64.

Skeff, K. M., Stratos, G. A., Mygdal, W., DeWitt, T.A., Manfred, L., Quirk, M. Roberts, K., Greenberg, L., & Bland, C. J. Faculty development: A Resource for clinical teachers. *Journal of General Internal Medicine*, 2(12), 56-63.

Sonnino, R. E., Reznik, V., Thorndyke, L. A., Chatterjee, A., Ríos-Bedoya, C. F., Mylona, E., ... & Wadland, W. C. (2013). Evolution of faculty affairs and faculty development offices in US medical schools: a 10-year follow-up survey. *Academic Medicine, 88*(9), 1368-1375.

Spencer, J. (2014). Faculty development research: The 'state of the art' and future trends. In Y. Steinert (ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 353-374), Innovation and Change in Professional Education. Springer.

Steinert, Y., Mann, K., Anderson, B., Barnett, B. M., Centeno, A., Naismith, L., ... & Ward, H. (2016). A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide No. 40. *Medical Teacher, 38*(8), 769-786.

Sutherland, K. A. (2018). Holistic academic development: Is it time to think more broadly about the academic development project? *International Journal for Academic Development, 23*(4), 261-273.

Vargas, L. (2002). *Women faculty of color in the White classroom: Narratives on the pedagogical implications of teacher diversity.* New York: Peter Lang.

Figures

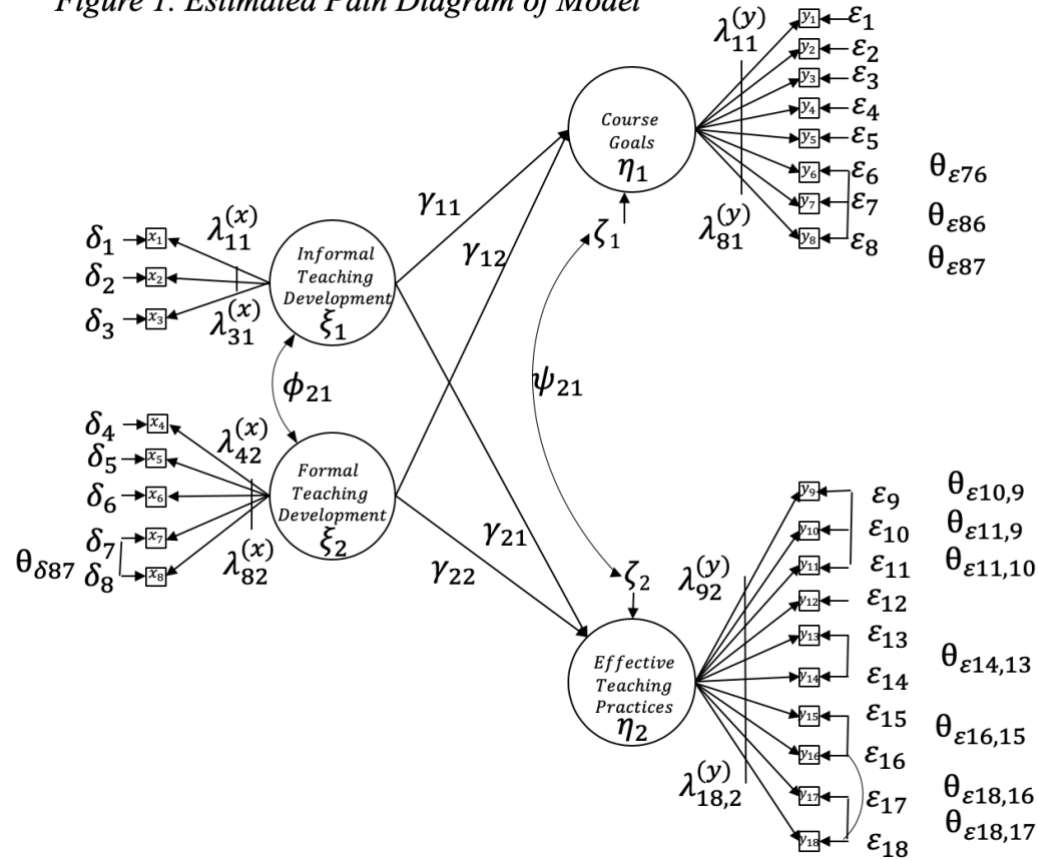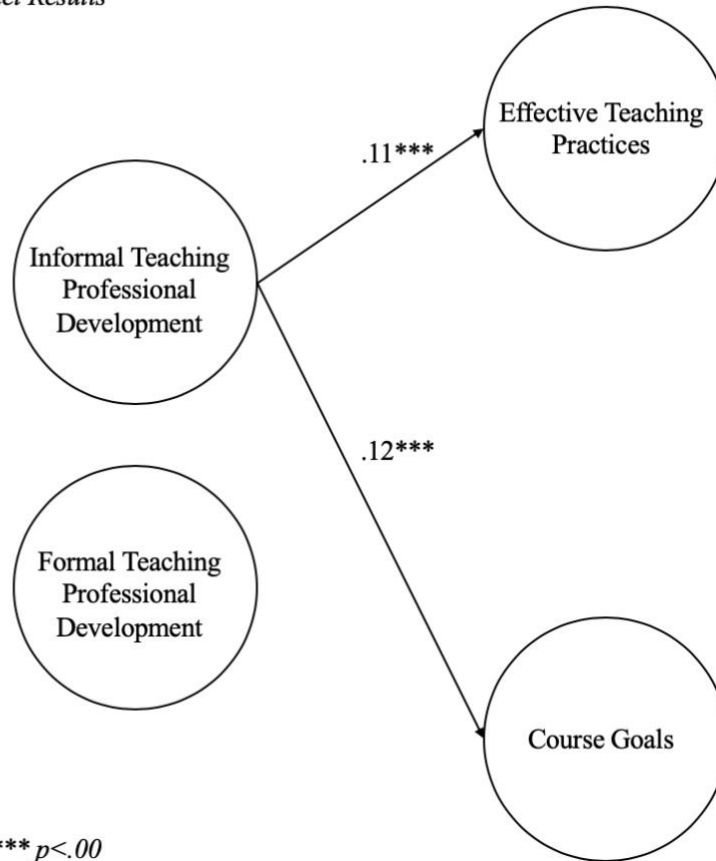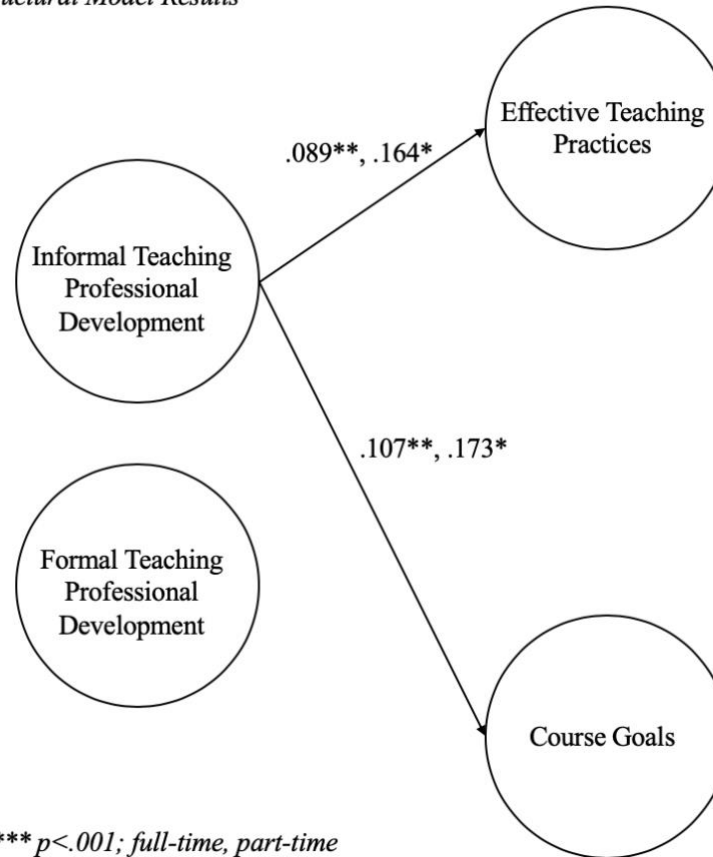Figure 1. Estimated Path Diagram of Model

Figure 2. Structural Model Results

Note: *p<.05, **p<.01,*** p<.00

Figure 3. Multigroup Structural Model Results

Note: *p<.05, **p<.01, *** p<.001; full-time, part-time

Tables

Table 1. Teaching Professional Development Items

Text	N	Min.	Max.	Mean	SD
Visited an office or center that supports faculty (Center for Teaching and Learning, Center for Teaching Excellence, etc.)	4397	1	4	1.68	0.847
Attended a workshop or training session to enhance your teaching	4403	1	4	2.02	0.882
Had a faculty or staff member observe your teaching and provide feedback	4403	1	4	1.68	0.823
Worked one-on-one with a faculty or staff member to help improve your teaching	4384	1	4	1.60	0.786
Worked with a group of faculty or staff to help improve your teaching	4361	1	4	1.55	0.780
Discussed teaching issues with other faculty or staff	4386	1	4	2.90	0.881
Consulted books, articles, or online resources to enhance your teaching	4376	1	4	2.76	0.946
Solicited feedback from students about your teaching beyond institution-provided end-of-course evaluations	4404	1	4	2.66	0.983

Table 2. Course Goal Items Descriptive Statistics

Text	N	Min.	Max.	Mean	SD
Writing clearly and effectively	4020	1	4	2.84	1.046
Speaking clearly and effectively	4001	1	4	2.62	1.066
Thinking critically and analytically	4013	1	4	3.58	0.636
Analyzing numerical and statistical information	3998	1	4	2.39	1.152
Acquiring job- or work-related knowledge and skills	4006	1	4	2.86	1.031
Working effectively with others	4000	1	4	2.98	0.965
Developing or clarifying a personal code of values and ethics	4003	1	4	2.55	1.082
Understanding people of other backgrounds (economic, racial/ethnic, political, religious, nationality, etc.)	3997	1	4	2.59	1.136
Solving complex real-world problems	4000	1	4	2.88	0.987
Being an informed and active citizen	3968	1	4	2.70	1.079

Table 3. Effective Teaching Items Descriptive Statistics

Text	N	Min.	Max.	Mean	SD
Clearly explain course goals and requirements	4056	1	4	3.63	0.566
Teach course sessions in an organized way	4029	1	4	3.71	0.508
Use examples or illustrations to explain difficult points	4030	1	4	3.78	0.463
Use a variety of teaching techniques to accommodate diversity in student learning styles	4048	1	4	3.31	0.777
Review and summarize material for students	4038	1	4	3.31	0.748
Provide standards for satisfactory completion of assignments (rubrics, detailed outlines, etc.)	4043	1	4	3.29	0.802
Provide feedback to students on drafts or works in progress	4035	1	4	3.09	0.921
Provide prompt and detailed feedback on tests or completed assignments	4005	1	4	3.47	0.687

Table 4. Teaching Professional Development Items: Means and Statistics by Full-time and Part-time Faculty

Development Opportunity	Item	Full-time		Part-time		t	sig	d
		Mean	SD	Mean	SD			
Formal	Visited an office or center that supports faculty (Center for Teaching and Learning, Center for Teaching Excellence, etc.)	1.70	0.85	1.59	0.79	-3.41	**	0.13
	Attended a workshop or training session to enhance your teaching	2.05	0.88	1.86	0.88	-5.70	***	0.22
	Had a faculty or staff member observe your teaching and provide feedback	1.65	0.81	1.79	0.86	4.53	***	0.17
	Worked one-on-one with a faculty or staff member to help improve your teaching	1.58	0.78	1.66	0.81	2.85	**	0.1
	Worked with a group of faculty or staff to help improve your teaching	1.55	0.77	1.55	0.80	-0.10		
Informal	Discussed teaching issues with other faculty or staff	2.98	0.86	2.59	0.91	-11.88	***	0.44
	Consulted books, articles, or online resources to enhance your teaching	2.76	0.94	2.76	0.97	0.20		
	Solicited feedback from students about your teaching beyond institution-provided end-of-course evaluations	2.68	0.97	2.59	1.03	-2.49	*	0.09

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

Table 5. Scale Descriptives

	n	mean	sd	min	max	se	alpha	omega
Informal Teaching Development	4456	0	0.84	-2.07	2.19	0.01	0.64	0.65
Formal Teaching Development	4456	0	0.88	-1.46	3.23	0.01	0.78	0.74
Effective Teaching Practices	4456	0	1	-3.24	0.46	0.02	0.99	0.99
Course Goals	4456	0	1.01	-3.24	0.59	0.02	0.99	0.99

Table 6. Structural Equation Model Result Comparison between Full and Part Time Faculty

	Full-Time Faculty		Part-Time Faculty		
	Mean	SD	Mean	SD	p
Informal Teaching Professional Development	0.025	0.835	-0.110	0.868	***
Formal Teaching Professional Development	0.012	0.874	-0.066	0.879	*
Effective Teaching Practices	0.024	0.968	-0.086	1.118	**
Course Goals	0.023	0.971	-0.084	0.121	**

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

Appendix

Appendix A. 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
Graduate Teaching Assistant	5	0.1
Other	314	6.8
Employment		
Part-time	931	20.1
Full-Time	3705	79.9
Race		
American Indian or Alaska Native	16	0.4
Asian	281	6.4
Black or African American	262	5.9
Hispanic or Latino	123	2.8
Native Hawaiian or Other Pacific Islander	6	0.1
White	3084	69.8
Other	100	2.3
Multiracial	119	2.7
Prefer not to respond	430	9.7
Gender		
Man	2130	46.4
Woman	2204	48.0
Another gender identity	11	0.2
Prefer not to respond	247	5.4
Sexual Orientation		
Straight	3233	83.0
Bisexual	69	1.8
Gay	60	1.5
Lesbian	46	1.2
Queer	25	0.6
Questioning or unsure	3	0.1
Another sexual orientation	10	0.3
Prefer not to respond	450	11.6

Appendix B. Institutional characteristics by faculty

	N	%
Carnegie Classification (2015)		
Doctoral Universities - Highest research activity	827	16.5
Doctoral Universities - Medium research activity	619	12.4
Doctoral Universities - Smaller research activity	0	0.0
Master's Colleges and Universities - Larger	2092	41.8
Master's Colleges and Universities - Medium	265	5.3
Master's Colleges and Universities - Smaller	481	9.6
Baccalaureate Colleges: Arts & Sciences Focus	310	6.2
Baccalaureate Colleges: Diverse Fields	369	7.4
Other	40	0.8
Barrons Selectivity		
Non-competitive	99	2.0
Less competitive	794	16.2
Competitive	2098	42.9
Very competitive	687	14.1
Highly competitive	157	3.2
Most competitive	108	2.2
Control		
Public	3680	73.6
Private	1323	26.4
For-profit	0	0.0
Institutional Size		
Fewer than 1,000	69	1.4
1,000-2,499	986	19.7
2,500-4,999	860	17.2
5,000-9,999	1044	20.9%
10,000+	2044	40.9%