

Assessing Faculty Development Needs among Florida's Allied Dental Faculty

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Abstract

Purpose: Professional schools rarely prepare prospective academic faculty for the responsibilities of college and university teaching. Without this training, faculty are often left to discover on their own and to varying degrees of success what is expected of them once they enter the academy. At the same time, universities and colleges recognize that retention of faculty depends on the successful transition of academics into the related roles and responsibilities of the professoriate. The purpose of this study was to assess the faculty development needs among allied dental faculty, specifically the state of Florida's dental hygiene and dental assisting faculty, by measuring the following: the relationship between their knowledge and priorities for further training, their level of satisfaction with current faculty development opportunities and mentoring, and their perceptions of what additional training and resources might advance their careers.

Methods: Two hundred and four full-time and part-time faculty were invited to participate in this survey research study. McNemar's test for paired binary data was used to analyze the level of agreement between knowledge and indicated priority. Responses to open ended questions were coded and categorized thematically.

Results: There were 115 responses (n=204, 74%). There were statistically significant differences between participants' ratings of knowledge and priorities for further training on many items related to teaching, scholarship and leadership skills. Participants also identified 5 categories of unmet needs.

Conclusion: The findings suggest that universities and colleges need to offer learning experiences aimed at strengthening the teaching, scholarship and leadership skill needs of their allied dental faculty. Additionally, professional schools might consider offering a program track that provides prospective allied dental faculty with the types of opportunities that develops teaching, scholarship and mentoring skills prior to graduation.

Keywords: allied dental faculty, continuing education, faculty development, quantitative analysis, survey research

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INTRODUCTION

Professional schools rarely prepare prospective academic faculty for the responsibilities of college and university teaching. Without this training, faculty are often left to discover job expectations on their own. At the same time, universities and colleges recognize that retention of faculty depends on the successful transition of academics into the related roles and responsibilities of the professoriate. This issue is further complicated by the observation that the landscape of teaching and learning has changed dramatically in the last 2 decades. Online learning, learning management systems and technology make it possible to teach and learn from any location, from a coffee shop to the comfort of one's home. Supplemented by technology, changes encompassing opportunities to teach from and learn in a variety of environments now require that university and college faculty assess the currency of their teaching skills. Taking time to assess what faculty know about teaching, educational research, and trying to discover what their teaching and learning needs are is crucial to

ensuring that faculty remain current in their pedagogical expertise. The purpose of this study was to assess the faculty development needs among allied dental faculty, specifically the dental hygiene and dental assisting faculty teaching in the state of Florida.

Previous research highlights the importance of addressing the needs of dental hygiene faculties regarding faculty development programs.¹ Such initiatives have been linked to faculty's decision to remain in academics. In a study of 167 baccalaureate dental hygiene faculty, 40% (n=35) of participants reported that they were somewhat or very dissatisfied with the amount of time allowed for keeping abreast of new and emergent knowledge in the field.² In the Collins et al study, the majority of the participants (96%, n=107) reported that advancement opportunities were somewhat or a very important factor in their decision to leave their current position and accept another position. A majority (85%, n=96) also indicated that having no pressure to publish

was somewhat or a very important factor in their decision to leave their current position and accept another position. Faculty reported that they had little time available for research/scholarship and professional growth activities, although these are often deciding factors in tenure decisions. When asked to rate the most important skills for future dental hygiene faculty, more than 90% of 592 participants in the Coplen et al study identified educational, technological and clinical skills.³

Faculty development programs have been reported to enhance participants' sense of belongingness. For example, a dental hygiene faculty development program enhanced faculty sense of community and satisfaction.⁴ Yet, the availability of faculty development opportunities for dental hygiene and dental assisting faculty or professional preparation in educational methodologies for these faculty are not readily discussed either in scholarship or reported in the literature.⁵

In a recent study, several authors sought to explore how the adoption of e-courses could be increased among dental and dental hygiene faculty members.⁶ Using focus group interviews, 27 dental and 23 dental hygiene faculty members from 6 institutions participated.⁶ This study identified 4 barriers to e-course adoption: low perceived relative advantage to faculty members, low compatibility with current curriculum, high perceived time commitment and complexity of e-course development. Compared to traditional courses, participants reported that e-courses increased accessibility and convenience for students, allowed faculty members to make additional materials such as websites, readings, and activities available, and offered a relatively easy way to assess student progress with the use of online quizzes.⁶

The purpose of this study was to assess the faculty development needs among allied dental faculty, specifically the state of Florida's dental hygiene and dental assisting faculty, by measuring the relationship between their knowledge and priorities for further training, their level of satisfaction with current faculty development opportunities and mentoring, and their perceptions of what additional training and resources might advance their careers.

METHODS AND MATERIALS

The university's institutional review board approved the study (IRB# U-989-2013). An Office of Educational Affairs' committee at the University of Florida's Jacksonville College of Medicine originally developed the survey in response to a request that they create a needs assessment to help plan a new faculty development curriculum. Since no database was available of all dental hygiene and dental assisting faculty in the state of Florida, the researchers compiled a list of all of the institutions that have a dental hygiene and dental assisting program in the state. Each of the identified 31 program direc-

tors were contacted via email and asked to provide a list of full-time and part-time faculty with their first and last name and corresponding email address. Two hundred and four full and part-time faculty teaching faculty were invited to participate in the faculty development needs assessment via a 37-item questionnaire. The questionnaire was developed to measure participants' knowledge of and priorities in teaching, scholarship and leadership skills. Participants were asked to indicate and rate of satisfaction with their institution's faculty development opportunities, the frequency of their participation and level of satisfaction with the mentoring they received. Next, they were asked to rate their knowledge of items related to teaching, scholarship and leadership using a Likert response scale where: 1=none, 2=very little, 3=some, 4=approaching mastery and 5=mastery/could teach others. They were also asked to indicate their priority for each item in their personal development using a Likert response scale where: 1=low, 2=medium and 3=high. Finally, they were asked to list 3 needs that they believed that, if fulfilled, would advance their career.

The survey was sent to participants using the professional and encrypted version of Survey Monkey. Reminder messages were sent to participants several times to enhance the response rate. The rate of return was 74%, or 115 of 204. The sample included almost an equal amount of full and part time faculty, 73 (48.3) and 78 (51.6), respectively, from dental hygiene and dental assisting schools across Florida. All data were de-identified prior to the analysis.

Statistical Analysis

Summary statistics were computed for all items in the survey. The authors dichotomized scores (lower: knowledge=1, 2, 3 versus high: knowledge=4, 5) and priority scores (lower: priority=1, 2 versus high: priority=3) for the knowledge and priority items. Using McNemar's test for paired binary data, the level of agreement between knowledge and indicated priority was tested. A significant p-value from McNemar's statistical test provided evidence that there was disconnect between knowledge and priority, either evidence that there was a lack of knowledge in an area and that it was not prioritized for future training or that there was not a lack of knowledge but it was given higher priority.

Hypothesis testing was set at a level of 0.05 to ascertain statistical significance. SAS version 9.3 (Cary, NC) was used for all data analysis. A reliability analysis was run to compute Cronbach's alphas for each of the 3 subscales for both knowledge and priority. The internal estimates of reliability

were strong for all subscales ranging from 0.78 to 0.89. Cronbach's alpha for knowledge and priority by subscale is shown in Table I. The respondents listed up to 3 current needs. Overall, 413 current needs were listed. The items were open coded and categorized by the authors independently. The most frequent categories coalesced into 5 themes (professional development and skills, need for a position/job, continuous education, completing a degree, and financial needs and other resources). Operational definitions were created from the free responses by paying special attention to the way that responses overlapped or conflicted and the overarching concept they illustrated. Data was extracted to exemplify each of the themes.

RESULTS

Faculty's Rating of and Level of Participation in Faculty Development Programs

With regard to program quality of faculty development opportunities, participants (34.71%) rated them as poor or fair 33.53% rated good and 31.76% indicated they were very good to excellent. Of those who frequently participated in a faculty development program (5 to 7 times per year), 11.86% indicated a poor/fair rating, 21% selected a good rating and 44.44%, a very good to excellent rating. Rates of participation across 3 levels (never to 1 or 2 per year, some, 3 to 4 per year, and often and frequently) were comparable at 32.94%, 30% and 37.05%, respectively (Table II). No statistical differences were found between ratings of and level of participation in faculty development opportunities.

Faculty's Perceptions of Mentoring

About one-third of the respondents rated the quality of the mentoring they received as poor (11.18%) or fair (23.53%). Of those who rated mentoring quality positively, 33.53% reported a good rating, 23.53% reported a very good rating and 8.24% reported a rating of excellent.

Faculty Priorities in Teaching, Scholarship and Leadership

There was a statistically significant difference in 4 of the 9 teaching items. As shown in Table III, 36.18% of the participating faculty rated their teaching knowledge as low on providing constructive feedback to learners. More than a third (35.57%) rated their knowledge as low on designing courses. Faculty who identified these activities as high priority needs ranged from 71.81 to 80.92%, respectively. The findings showed that faculty have a need for these skills. More than half

Table I: Internal Estimates of Reliability by Subscale

Subscale	Knowledge	Priority
Teaching	0.889	0.779
Scholarship	0.857	0.826
Leadership	0.866	0.851

Table II: Perceptions of Faculty Development by Level of Participation

Level of Participation	Current State of Faculty Development Program			
	Poor/Fair	Good	Very Good/Excellent	Overall Percent
Never to 1 or 2 per Year	40.68	38.60	18.52	32.94
Some (3 to 4 per year)	42.37	31.58	14.81	30.00
Often (5 to 7 per year)	11.86	21.05	44.44	25.29
Frequently (8 or more per year)	5.08	8.77	22.22	11.76
Overall Percent	34.71	33.53	31.76	–

(59.73%) reported having a low knowledge on the items of teaching effectively, and 73.97% reported low knowledge on developing an educational portfolio. More than a third (35.57%) reported a high priority for training on teaching effectively, and 25.34% indicated that they had a need for training in developing an educational portfolio. Of the remaining 5 items, no statistically significant differences were observed between their level of knowledge levels and priority for additional training.

With respect to scholarship there was a statistically significant difference ($p < 0.05$) between ratings of knowledge and priority on all 5 items. Almost two-thirds to nearly all of the faculty (63.16% to 97.37%) rated their knowledge as low on the following related items: grant proposal writing in discipline research, conducting literature searches, developing research designs, documenting education outcomes and writing an education manuscript. However, only 15.65% and 34.21% identified these activities as a high priority need. The discrepancy between the participant's identification of these items as areas of low knowledge and the low percentage that identified these behaviors as areas of high priority signify a lack of awareness among the participants in prioritizing these needs for personal development.

Table III: Relationship between Participants' Knowledge and Priority for Training

Item	Percent Lower Knowledge	Percent High Priority	p-value [#]
Teaching			
Teaching Effectively	59.73%	35.57%	0.0004*
Providing Constructive Feedback to Learners	36.18%	80.92%	<0.0001*
Using Effective Assessments	59.87%	53.95%	0.371
Enhancing Small Group Teaching	60.14%	55.41%	0.453
Using Emerging Technology in the Classroom	53.33%	55.33%	0.742
Selecting Appropriate Teaching Methods	50.67%	58.67%	0.190
Enhancing My Classroom Teaching	61.49%	49.32%	0.075
Designing Courses	35.57%	71.81%	<0.0001*
Developing an Educational Portfolio	73.97%	25.34%	<0.0001*
Scholarship			
Grant Proposal Writing in Discipline Research	63.16%	25.00%	<0.0001*
Conducting Literature Searches	74.34%	34.21%	<0.0001*
Developing Research Designs	97.37%	16.45%	<0.0001*
Documenting Education Outcomes	94.08%	15.13%	<0.0001*
Writing an Education Manuscript	93.20%	15.65%	<0.0001*
Leadership			
Balancing Work and Personal Responsibilities	69.33%	30.67%	<0.0001*
Managing Stress	33.33%	59.33%	<0.0001*
Managing Time	76.67%	32.00%	<0.0001*
Demonstrating Leadership Skills	41.33%	58.00%	0.0095*
Sustaining Passion for Teaching	53.33%	56.67%	0.574
Managing Conflict	42.67%	58.67%	0.005*
Utilizing Negotiation Skills	30.26%	64.47%	<0.0001*
Preparing for Promotion and/or Tenure Review	56.67%	39.33%	0.008*
Creating a Teaching Portfolio	70.39%	35.53%	<0.0001*
Mentoring Peers	77.48%	31.13%	<0.0001*
Peer Observation of Teaching with Feedback	28.08%	67.81%	<0.0001*

#p-value from McNemar's test

*Denotes statistically significant difference between level of knowledge and priority given

With respect to acquiring leadership skills that might fulfill career advancement there was a statistically significant difference ($p < 0.05$) between ratings of knowledge and priority on 8 of the 11 items. Of the participants, 73.8 to 91.8% rated their knowledge as low on items related to: balancing work and personal responsibilities, man-

aging stress, managing time, managing conflict, preparing for promotion and/or tenure review, creating a teaching portfolio, mentoring peers, and peer observation of teaching with feedback. However, 55.7% rated these activities as a high priority.

Relationships among Faculty's Level of Knowledge and Priorities for Additional Training on Teaching, Scholarship and Leadership Skills

Any item in the Knowledge and Priority columns with a percentage of more than 40% was rated as a high need and high priority (Table IV). Faculty identified 8 items that were both high needs and a high priority. Five teaching and 3 leadership skills items were identified, although this did not apply to scholarship items. The teaching items included: using effective assessments, enhancing small group teaching, using emerging technology in the classroom, selecting appropriate teaching methods and enhancing my classroom teaching. The leadership items included: demonstrating leadership skills, sustaining passion for teaching and managing conflict.

Unmet Faculty Needs

Participants were asked to list up to 3 items that they believed would advance their career. Four hundred and thirteen participants' responses were reported. Participants most frequently reported items pertaining to: professional development and skills, need for a position/job, continuous education, completing a degree, and financial needs and other resources. Overall, these accounted for 60.53% of the responses (Table V).

Responses in the professional development and skills category included classroom management training, training on large and small group interactions, course development, learning better student-teacher dialogue, teaching methodology and skills, and updating technology skills, outcomes assessment and assessment methods, teaching organization and design, peer presentations, educational theory, evaluating critical thinking, interdisciplinary teaching, current trends in education, cooperative learning, publishing, and enhancing student retention of information. Those in the position need/job opportunity category were described as a desire for full time job opening or an open position, the opportunity to attain full professorship or promotion, a desire to eventually teach full time, and participate in other didactic teaching opportunities. The continuing education category included acquiring education based continuing education units. Others cited the need to learn more about educational methodologies for accreditation, finish continuing education credits for an upcoming certified dental assistant renewal and access to continuing education units on education. Some participants identified completing a degree would advance their career including obtaining bachelor of science, master's, postgraduate or doctoral degree, or a higher level

Table IV: Summary of Items that Participants Indirectly Identify as High Need and Priority

Item	Percent Lower Knowledge	Percent High Priority	p-value
Teaching			
Using effective assessments	59.87%	53.95%	0.3705
Enhancing small group teaching	60.14%	55.41%	0.453
Using emerging technology in the classroom	53.33%	55.33%	0.7419
Selecting appropriate teaching methods	50.67%	58.67%	0.1904
Enhancing my classroom teaching	61.49%	49.32%	0.0747
Leadership			
Demonstrating leadership skills	41.33%	58.00%	0.0095*
Sustaining passion for teaching	53.33%	56.67%	0.5737
Managing conflict	42.67%	58.67%	0.0053*

Table V: Most Frequently Reported Unmet Faculty Needs (n=413)

Type of Need	Frequency
Professional Development and Skills	108
Need for a Position/Job	39
Continuous Education	36
Completing a Degree	34
Financial Needs and Other Resources	33

of education. Finally, financial or other resources were indicated by participants as needed for career advancement. This included paid time to plan courses and attend meetings, as well as additional resources such as books and office space, funding, increased pay, pay for time spent grading assignments, and corporate investments.

DISCUSSION

The need for effective faculty development in the health sciences in general and for dental hygiene and assisting faculty specifically is driven by significant changes in the health care environment in the U.S.⁷ Previous research indicates that dental faculty development programs are significantly important for faculties, students and community. The ways in which faculty development programs foster academic careers in the health science has been stud-

ied in medical, pharmacy, nursing, dentistry and dental hygiene.⁸⁻¹³

The findings of the current study showed that there were differences in the knowledge, needs, and priorities among Florida dental hygiene and dental assisting faculty who teach full-time and part-time. This study was aimed at the institutional offerings for faculty development provided at each participant's respective college/university. As might be expected, at times faculty judged their knowledge to be low and their priority of these items to be low. At other times, faculty judged their knowledge to be high and their priority for additional training among items to be high. Also when their knowledge and priority were both greater than 40% on an item, it was determined that particular item was a priority. Overall participants indicated low knowledge and high priority needs among 17 of 25 faculty development assessment items.

Compared to previous research on faculty development needs among dental faculty participants, these findings are similar in some aspects, although dissimilar in others. One study of faculty development needs among University of Tennessee (UT) Health Science Center faculty found that one teaching item, assistance with instructional design, was rated highest which is in agreement with the current study, "designing courses."⁷ The authors of the UT study suggested that improved teaching skills is particularly important because "much of the curriculum is mandated by the professional health care organizations that oversee and accredit professional schools," and because faculty do not often receive training in pedagogy in their professional programs of study.⁷

The findings in the current study are comparable to another study conducted of dental faculty.¹⁴ For example, participants in the current study participated more frequently in annual faculty development opportunities of 3 to more than 5 times per year (67.1%) compared to dental faculty (49.3%). An infrequent rate of participation among dental faculty (0 to 2 times per year) was considerably higher than a similar rate of participation reported by dental hygiene and dental assisting faculty suggesting that dental hygiene and dental assisting faculty tend to take greater advantage of faculty development opportunities.¹⁴

In the current study there were 5 teaching items (using effective assessments, enhancing small group teaching, using emerging technology in the classroom, selecting appropriate teaching methods and enhancing my classroom teaching) in which ratings of knowledge and priority were not statistically significant. However, these items were rated as statistically significant by dental school faculty.¹⁴

It may be that dental hygiene and dental assisting faculty feel more prepared for teaching than dental faculty. Dental hygiene and dental assisting faculty rated the knowledge and priority among several items (teaching effectively, conducting literature searches, managing stress and demonstrating leadership skills) as statistically significant. However, they were not rated as statistically significant by dental school faculty participants.¹⁴ This findings may be due to stricter requirements in colleges of dentistry at academic institutions compared to the requirements for promotion that dental hygiene and dental assisting faculty need to attain.

Although entry level programs are designed to prepare clinicians for professional careers in dentistry and not for preparing academicians, promotion requirements continue to increase at all levels of education including community colleges where many dental hygiene educational programs are located, as well at universities. As these requirements change, more faculty in post secondary institutions are being asked to show evidence of scholarly activities such as teaching portfolios, increased use of active teaching strategies, information supporting the use of learning activities that promote cultural competence, evidence-based assessment and critical thinking. With increasing opportunities for online programs that provide access to more individuals, many options to enroll in post-graduate programs are now available for allied dental health educators. There are degree completion and master's degree programs. Individuals who seek academic careers are typically the groups that take these programs of study but there is no requirement that they include courses in education.

Research has shown the benefits of faculty development opportunities using varied formats such as workshops, seminars and courses. Studies of medical school faculty development programs indicate the urgency of improving teaching skills, strengthening colleague relationships and improving the overall academic advancement of health care faculties.^{15,16} Wallace et al reported that faculty development focused on the reinforcement of clinical teaching practices and methods, leading to increased knowledge in competency-based teaching and positive changes to communication skills with students.¹ Clinical teachers demonstrated improved teaching skills following their participation in faculty development.¹⁷

One limitation of the study is that the researchers did not differentiate responses based on institutional type, full or part-time employment, position type (such as faculty or chair), and whether the participant was a dental hygienist or dental assistant. The reason was that the researchers were looking to obtain a "snapshot in time" view of participation and

satisfaction with faculty development opportunities, mentoring, and identification of the teaching, scholarship and administrative and leadership skills/career advancement needs among a population of faculty participants in allied health programs across the state of Florida.

Overall, the findings in this study showed that participants overwhelmingly reported the need for professional development opportunities. In response to that need, following the completion of a related study conducted with dental faculty that demonstrated similar outcomes, the authors have developed 3 online accredited courses in the university's continuing dental education program.⁸ Future research should include ways to provide professional opportunities to faculty at all levels of their career in formats which are easily accessible and cost effective for all faculty.

CONCLUSION

Findings from this study support previous research which reports that faculty development is particularly important in dental education for improving faculty skills, for ensuring the effectiveness of future academic dentists and for recruiting dental hygiene faculty.^{18,19} Taking time to assess faculty knowledge about teaching, educational research, and identifying their teaching and learning needs is crucial to ensuring that faculty remain current in their pedagogical expertise. Such initiatives may ultimately ensure that future faculty are prepared to enter the

academy, and for others such initiatives may ensure their retention.

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DISCLOSURE

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