Comparison of Dental Hygiene Clinical Instructor and Student Opinions of Professional Preparation for Clinical Instruction

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Abstract

Purpose: The purpose of this study was to determine the degree of professional preparation among clinical instructors employed in baccalaureate dental hygiene programs in the U.S. and to examine clinical instructors' and students' perceived need for educational preparation. The data–generating sample consisted of 285 dental hygiene clinical students and 76 dental hygiene clinical instructors from the 48 dental hygiene programs in the U.S. that offered a baccalaureate or higher degree in dental hygiene.

Methods: Online survey instruments contained both qualitative and quantitative questions and were completed by 285 clinical dental hygiene students and 76 clinical dental hygiene instructors from dental hygiene programs in the U.S. Using descriptive statistics, Chi–square analysis and the Mann–Whitney U test, the data from clinical dental hygiene instructors and students were compared to determine if the preparation in educational methods being offered to dental hygiene clinical instructors was meeting the perceived needs of both clinical dental hygiene students and instructors.

Results: According to dental hygiene clinical students (n=285), 60% (n=171) indicated that 6 to 10 years of clinical dental hygiene experience was optimal, while 37% of clinical instructors (n=28) identified having less than 5 years of clinical experience prior to clinical teaching. Therefore, the majority of clinical instructors have less than optimal years of clinical dental hygiene experience prior to clinical instructing. Regarding methods of pre–employment preparation, more than half (n=40) of the dental hygiene clinical instructors (n=76) reported most professional preparation occurred through informal discussion with fellow clinical instructors. Significant differences were found between the clinical dental hygiene instructors' and clinical dental hygiene students' opinions of importance of clinical instructors being given formal guidance in educational methodologies (p=0.002), communication skills (p=0.027), grading and evaluation techniques (p=0.001) and use of technology (p=0.008). Although the majority of instructors and students rated training in teaching methods and communication skills as most important, the majority of clinical dental hygiene instructors (74%, n=53) identified grading and evaluation techniques as the most addressed subject of training.

Conclusion: Both dental hygiene clinical instructors and students identified areas of potential improvement in the professional educational guidance of dental hygiene clinical instructors. Dental hygiene clinical education may benefit from including formal clinical instructor pre–employment preparation programs.

Keywords: dental hygiene clinical instructor, clinical education, employment preparation, professional preparation

This study supports the NDHRA priority area, **Professional Education and Development:** Identify the factors that affect recruitment and retention of faculty.

Introduction

Clinical dental hygiene instructors serve as role models of professionalism, clinical expertise and ethical behavior.[1–3] Despite the crucial role filled by dental hygiene clinical instructors, they are often hired without a background in education.[4] Furthermore, dental hygiene clinical instructors are given less professional preparation in educational methodologies than many other allied health disciplines.[5]

The dental hygiene clinical instructor is responsible for teaching clinical students about instrumentation techniques, patient and self–assessment skills and technology–based dental hygiene procedures.[6] Dental hygiene students often spend more time with their clinical instructors than with their didactic instructors and are introduced to the importance of thorough clinical treatment by their clinical instructors.[4] In the allied health professions, there have been numerous studies evaluating the desired qualities of a clinical instructor as determined by fellow faculty, administrators and students.[4,7,8]

Studies strongly suggest that students deem it necessary for clinical instructors to consistently provide constructive feedback. Students describe competent clinical instructors in the professions of dental hygiene, radiology and physical therapy as approachable and as a reliable source of intellectual and emotional support.[4,7,9] Feedback may be presented in numerous forms, including reorganizing educational material to conform to student understanding, validating correct responses, offering alternatives for incorrect responses and proposing resources for additional study.[10]

Despite the importance of the clinical instructor's role in clinical teaching, the instructor is often hired based solely on clinical experience alone, and is not always provided with formal guidance in educational methodologies in the professions of dentistry and athletic training.[11,12] An individual with superior clinical skills is not necessarily proficient at teaching those skills.[4] It is vital that dental hygiene programs recognize the need to hire high–caliber clinical instructors, not only for the benefit of the students but also to foster the academic relationship between the dental hygiene program and the educational facility in which the dental hygiene program is located.[13]

In a study conducted by Mason, clinical radiology students described detrimental stressors, such as the instructor belittling, discrediting and condemning students and giving negative responses to student questions.[14] In contrast, the students identified positive clinical instructor traits as giving positive feedback, supporting them through mistakes and accepting errors as part of the learning process. Clinical instructors who are trained to provide quality, student–centered education are likely to avoid these stressors and provide a quality, respectful learning environment.[14]

Dental hygiene clinical instructors are generally experienced dental and dental hygiene clinicians.[4] However, learning to be an effective clinical instructor requires time, instruction and guidance.[15] With little to no proper pre–employment preparation, many clinical instructors base their teaching skills on their own educational experiences, despite the fact they may have been negative.[16] Studies by Giordano and Hand in the professions of radiology and dentistry, respectively, demonstrated that intervention, such as formal continuing education in instructional strategies for the clinical instructor, may be necessary in order to facilitate a positive clinical learning environment.[9,11] Additionally, there may be substantial changes in both technology and teaching methods between the time the clinical instructor graduated as a dental hygienist and began teaching as a clinical instructor. The Commission on Dental Accreditation (CODA) mandates that dental hygiene clinical instructors have a minimum of a bachelor's degree, which includes coursework in educational methods. In addition, accredited dental hygiene programs must provide teaching methodology instruction for clinical instructors as mandated by CODA.[17] Still, according to Kacerik et al, experienced clinical instructors utilize appropriate clinical teaching methodologies with more frequency than novice clinical instructors.[8]

Qualified dental hygiene clinical instructors must include evidence–based research theories within their clinical instruction and guide students to do the same.[5] A study conducted by Collins et al evaluated full–time dental hygiene faculty employed in a bachelor's degree program and their inclination for conducting research.[18] The study revealed that only 19% of 114 faculty surveyed from 26 different accredited dental hygiene programs in the U.S. were engaged in basic research. The respondents, on average, presented at 26 professional conferences over the duration of their careers and published an average of 6.8 articles in refereed professional journals.[18]

One method of professional preparation for dental hygiene clinical instructors is mentoring.[19] Key components taught through mentoring are modeling expertise, coaching, providing conceptual scaffolding, fading, articulation, reflection and exploration.[20] According to Swann, continuing education programs can be designed to teach important concepts such as interpersonal communication skills and how to provide skillful feedback. These skills will maximize communication between the clinical instructor and student, as well as the clinical instructor and patient. Some clinical instructors inherently possess effective communication skills, whereas others need to be taught how to provide positive and constructive feedback to their students.[21]

The provision of clinical instructor guidance in educational methods has proven to be beneficial. Instructors who have completed continuing education programs related to instructional methods in the physical therapy profession have identified feeling more confident because of the organizational skills, conflict resolution strategies and goal setting methods learned.[22] In a 2008 study at a state university in Illinois, 124 clinical supervisors from varied allied health specialties were surveyed, and more than 50% of respondents indicated they would benefit from a clinical educator's workshop. Specific areas of interest to the clinical instructors included learning to assist students who required remediation and addressing students with distinct learning styles. Two–thirds of those surveyed specified that a teaching preparation website would be beneficial, and could offer resources such as educational standards, program specific policies, clinic manuals, grading protocols and links to outside resources. Additionally, electronic resources would ensure that all clinical instructors have access to the same information.[23]

The Department of Dental Hygiene at the University of Texas Health Science Center at San Antonio began offering clinical teaching workshops in 2000. The yearly workshops are presented in 2 or 3 days and include topics such as developing critical thinking skills, producing appropriate feedback, team

building, conflict resolution and promotion of clinical competence. After presenting workshops for 4 years, 142 participants from 38 dental hygiene programs were sent qualitative surveys to determine the efficacy of the workshops. Participants indicated the workshops improved their clinical instruction abilities, made them more aware of the type and content of feedback they provided to students and stated that they benefited greatly from networking with clinical instructors from programs across the U.S. and Canada.[6] Platt reported that the more workshops attended, the greater the perceived benefit.[8]

Clinical instructors from many health disciplines have benefited professionally and personally from attending relevant professional preparation workshops.[2,24,25] Many clinical instructors guide students based on their personal educational experiences and not on current instructional methodologies.[9,11] Clinical instructor guidance in educational methods may occur in many forms, including formal faculty development workshops, supplemental hard copy materials, Internet–based materials and modeling by experienced clinical instructors.[1,2]

The purpose of this study was to determine the degree of professional preparation among clinical instructors employed in baccalaureate dental hygiene programs in the U.S. and to examine clinical instructors' and students' perceived need for educational preparation. The data–generating sample consisted of 285 dental hygiene clinical students and 76 dental hygiene clinical instructors from the 48 dental hygiene programs in the U.S. that offered a baccalaureate or higher degree in dental hygiene.

Methods and Materials

A list of entry–level baccalaureate degree dental hygiene programs was obtained from the American Dental Hygienists' Association website. In March 2009, when the surveys were distributed, there were 48 dental hygiene degree programs fitting the study criteria of offering an entry–level baccalaureate or higher degree in dental hygiene. Survey questions were piloted and tested for reliability using a convenience sample of 5 clinical dental hygiene instructors and 5 clinical dental hygiene students. The final clinical instructor survey contained 13 questions and the final student survey contained 10 questions. Both surveys utilized multiple choice, Likert scale and open–ended questions. Study approval was obtained through the University of Bridgeport's Institutional Review Board.

The electronic surveys were distributed by email to 48 dental hygiene program directors or deans with the request that the email be forwarded to all clinical instructors and students within their programs. The directors or deans were informed that, in order to maintain anonymity, their program's survey results would be compiled with results from the other participating dental hygiene programs and would not be identified as originating from their program. A second email requesting participation was sent to the same 48 dental hygiene program deans or directors 2 weeks after the initial contact. The survey took approximately 10 minutes to complete and remained available online for 3 months.

The statistical analyses included descriptive statistics, Chi–square analysis and the Mann–Whitney U test. Qualitative responses were grouped and categorized for like responses, and the significance level of statistical tests was $p < 0.05$.

Results

The potential total study population was difficult to determine, since the number of dental hygiene students and clinical faculty is static and the author was unable to find statistics regarding total numbers of clinical faculty and dental hygiene students in the U.S. The survey was completed by 285 dental hygiene clinical students and 76 dental hygiene clinical instructors. After searching web sites of the 48 dental hygiene programs, it was estimated that the potential return for clinical instructors could have been approximately 161 clinical instructors. Therefore, the rate of return was approximately 47%.

Ninety–eight percent (n=280) of the dental hygiene clinical students and 100% (n=76) of the instructors were female. Of the clinical students, 3.9% had completed less than 1 semester of clinical instruction, 15.4% had completed 1 semester, 22.1% completed 2 semesters, 23.9% completed 3 semesters and 34.7% completed 4 semesters of clinical instruction. Most of the clinical student respondents (64%, n=182) were under 24 years of age. More than half of the clinical instructors (n=42) were between 40 and 60 years of age (Table I).

Ninety–two percent (n=262) of clinical student respondents were earning their bachelor's degree at the time of survey completion. The clinical instructors' responses indicated that the majority (n=41) had earned a master's degree (Table II).

When clinical dental hygiene students were asked how many years of clinical dental hygiene experience clinical instructors should have prior to clinical teaching, 60% indicated that 6 to 10 years of clinical dental hygiene experience was optimal, while 37% identified having less than 5 years of clinical experience

prior to clinical teaching was optimal. A Chi–square test of independence was performed, revealing statistically significant differences ($p<0.05$) between student perception of clinical experience necessary prior to clinical teaching and actual years of experience reported by clinical instructors (Table III).

Table III. Difference between student perception of ideal years of clinical experience prior to clinical teaching and instructor reported years of clinical experience

Regarding the years of clinical experience a clinical instructor should have prior to clinical teaching, clinical student respondents provided 84 open–ended comments, from which 3 main categories were identified. The 3 categories included:

1. The value of being exposed to both clinical instructors with teaching experience and those who were new to clinical teaching
2. The importance of clinical instructors having clinical employment experience in diversified settings
3. The benefit of clinical instructors being able to relate to the role of the clinical student

Table I: Age and gender of clinical instructor and clinical student respondents

Demographics	Clinical Dental Hygiene Instructors (n=76)		Clinical Dental Hygiene Students (n=285)	
Variable	n	%	n	%
Gender				
Female	75	98.7	280	98.2
Male	1	1.3	5	1.8
Age				
<24	1	1.3	182	63.9
25–29	5	6.6	60	21.1
30–39	18	23.7	30	10.5
40–49	20	26.3	11	3.9
50–59	22	28.9	1	0.4
>60	10	13.2	1	0.4

Table II: Degree being earned by clinical students and degree completed by instructors

Degree Earned	Clinical Dental Hygiene Instructors' Degree Level Completed (n=76)		Clinical Dental Hygiene Students' Degree Being Earned (n=285)	
Variable	n	%	n	%
Associate	1	1.3	23	8.1
Bachelors	30	39.5	262	91.9
Master's	41	53.9	0	0
PhD	4	5.3	0	0

Table III: Difference between student perception of ideal years of clinical experience prior to clinical teaching and instructor reported years of clinical experience

Years of Clinical Experience Prior to Clinical Teaching		
	Student perception	Instructor reported
Chi–square	391.439*	15.447**
df	4	4
Asymp. Sig.	.000	.004

*Zero cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 57.0.
**Zero cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.2.

Both dental hygiene clinical instructors and clinical students were asked to rate the importance of 5 pre–employment instruction topics on a Likert scale of 1 to 5, with 1 being the most important and 5 being the least important. The topics included professional preparation in teaching methodologies, communication skills, grading and evaluation techniques, policies and procedures of the program and new technology relevant to dental hygienists. Clinical students rated educational guidance for clinical instructors in teaching clinical skills as most important, with 44% rating it as their first choice. Forty–one percent of clinical instructor respondents rated communication skills as most important (Figure 1).

The Mann–Whitney U test results showed that there is a significant difference ($p<0.05$) between whether one is a clinical instructor or clinical student and one's rating of the importance of pre–employment preparation in educational methodologies ($p=0.002$), communication skills ($p=0.027$), grading and evaluation techniques ($p=0.001$) and use of technology ($p=0.008$). However, a significant difference was not noted ($p=0.755$) when referring to the importance of educational guidance in program specific policies and procedures (Table IV).

Although clinical students and clinical instructors rated professional preparation in teaching methods

and communication skills as most important, 74% of clinical instructors reported the most addressed pre–employment training topics as grading and evaluation techniques. Sixty–six percent of the clinical instructors rated program specific policies and procedures as the second most addressed topic of educational preparation.

Of the clinical dental hygiene instructor respondents, 43% indicated being provided with a formal background in teaching methodologies and communication skills. Therefore, pre–employment preparation included the topics identified by clinical students and instructors as being most important less than 50% of the time.

In response to the question about which topics were addressed, 18% of clinical instructors responded with open–ended responses, with 13% indicating they did not receive any pre–employment educational guidance. Of the remaining 4 clinical instructors offering open–ended responses, 1 indicated being trained by a teaching internship, 1 indicated all topics were covered in an informal manner, 1 stated "calibration" and 1 indicated being offered educational support regarding problem–based learning and generational differences.

When asked to indicate all methods of pre–employment professional guidance they received when hired as a clinical instructor, more than half (n=40) indicated professional preparation by informal discussion with coworkers. The provision of a paper manual or document was chosen by 47% of clinical instructors as the second most popular form of pre–employment instruction. Twenty–two percent identified a college degree in education as contributing to their clinical instructing career. Eighteen clinical instructors indicated having professional educational preparation in the form of a workshop, with 12% stating the workshops were less than 4 hours in length, and 12% indicating they attended a workshop of 4 to 8 hours in length. None of the clinical instructors indicated receiving formal instructional guidance in the form of web–based methods.

Figure 1: Clinical student and faculty rating of importance of professional preparation topics (%)

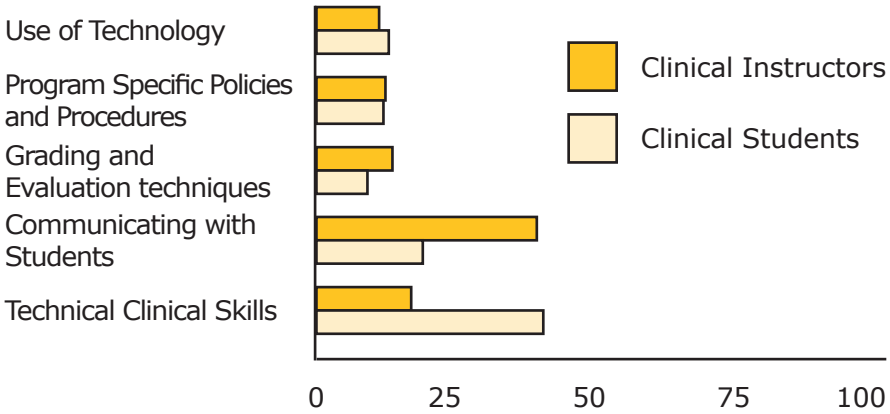


Table IV: Mann–Whitney U test analyzing differences between clinical student and clinical instructor rating of importance of professional preparation topics

Hypothesis Test Summary	
Null Hypothesis	Sig.
The distribution of instructor rating of importance of training in educational methodology is the same across categories of clinical instructor or student dental hygienists.	0.002
The distribution of instructor rating of importance of training in communicating with students is the same across categories of clinical instructor or student dental hygienists.	0.027
The distribution of instructor rating of importance of training in grading and evaluation techniques is the same across categories of clinical instructor or student dental hygienists.	0.001
The distribution of instructor rating of importance of training in program specific policies and procedures is the same across categories of clinical instructor or student dental hygienists.	0.755
The distribution of instructor rating of importance of training in use of technological equipment is the same across categories of clinical instructor or student dental hygienists.	0.008

The significance level is 0.05

Thirty–two percent supplied open–ended responses under the other category. From this qualitative data, 4 additional methods of professional educational instruction for clinical dental hygiene instructors were identified:

1. Shadowing other clinical instructors (n=8)
2. Student teaching in a clinical setting (n=8)
3. Mentorship by other clinical instructors (n=3)
4. Attendance of a clinical teaching workshop of longer than 8 hours (n=3)

The remaining 2 responses that did not correspond with the identified categories were on the job training and faculty meeting.

As identified in Figure 2, when clinical dental hygiene instructors were asked who provided the most professional preparation or support to them in the beginning of their teaching career, 66% indicated fellow clinical instructors.

Fifty–nine percent of clinical instructors agreed or strongly agreed that they would have been more effective in their interactions with students if they had been provided with more professional preparation. Furthermore, of the 10 clinical instructors who indicated they were not provided with any pre–employment clinical instructor educational support, 90% agreed or strongly agreed that pre–employment professional guidance in educational methodologies would have made them more effective in their student interactions.

On the clinical student survey, 59% (n=169) noticed a difference in the teaching skills between recently hired clinical instructors and more experienced clinical instructors. The student's qualitative responses (n=148) regarding the differences noticed between experienced and inexperienced clinical instructors were coded by positive comments about new and experienced instructors, negative comments about new and experienced instructors and neutral observations (Figure 3). The majority of comments (n=41) were coded as positive for experienced instructors and negative (n=55) for new instructors. For example, a positive comment about a new instructor was: "I find that the newer faculty have newer ideas and ways of teaching; keeps everything current and up to date."Another student stated: "The more experienced instructors promptly answer your questions with confidence, [are] more knowledgeable; know how to handle difficult situations better; know how to teach, aid and motivate students." One comment coded as neutral stated: "I think it did not make a difference if they were newly hired or old. Some are effective and some are not as effective."

Discussion

The intent of this study was to add to the existing body of knowledge about dental hygiene clinical education. It is proposed that, based on the results of this study, dental hygiene program administrators and clinical instructors will realize the benefits of and understand the justification for implementing faculty development for its clinical instructors. Given the advancements in technology, learning strategies and teaching methods, studies have recognized the many benefits of clinical instructor educational guidance across the health disciplines.[11,12,25] There was a paucity of information regarding the ideal dental hygiene instructor pre–employment professional preparation methods and topics as identified by clinical students and instructors, which is what this study sought to address.

The majority of the dental hygiene clinical instructors surveyed in this study had earned their master's degree, with the next highest majority having earned a baccalaureate degree. Furthermore, over 20% of the study population was working on completing a subsequent degree at the time of survey completion. These results demonstrated that the majority of clinical instructors surveyed were higher credentialed than the most common minimum degree requirements for clinical instructors, which are an associate or baccalaureate degree.[13] Higgs et al noted the importance of continuing educational development for clinical instructors: "Becoming and being a clinical educator is a developmental process, mirroring in some ways the developmental process clinical educators strive for their students. This journey of growth and development as a clinical educator requires active learning approaches coupled with reflection on one's practice as a clinical educator."[15]

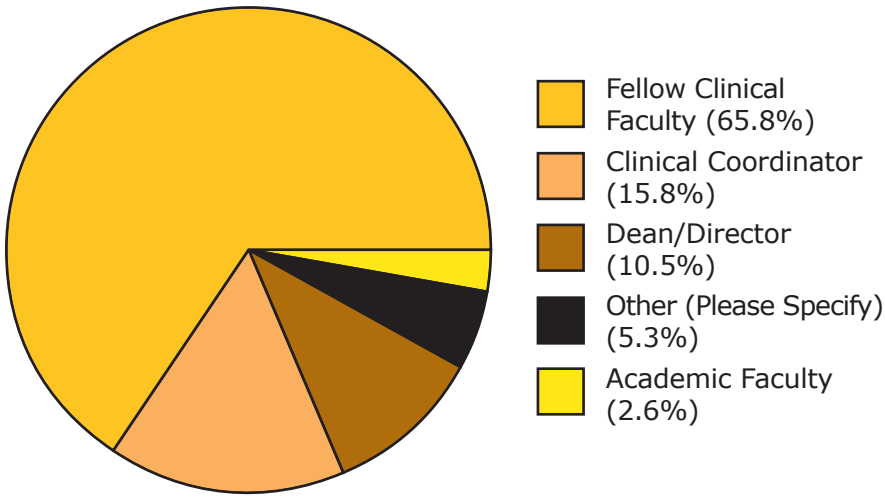
This research indicated that pre–employment clinical instructor professional preparation topics identified as most important by clinical dental hygiene instructors differ from the pre–employment educational topics identified as most important by clinical dental hygiene students. These findings were supported by Giordano's 2008 study, which noted differences between the opinions of clinical instructors and students about necessary behaviors of clinical instructors.[9]

Through open–ended responses in this study, clinical students identified the importance of being exposed to different clinical instructors with varying degrees of experience in diversified clinical settings. Additionally, the clinical students identified the importance of instructors being able to empathize with the difficulties of being a clinical student. These categories correlated with Hand's report of the top–rated clinical competencies of clinical teaching.[11] Hand defined competencies as: "The knowledge, skills, behaviors and values identified as necessary for successful functioning as a dental faculty member."[11]

In order to improve dental hygiene clinical education, clinical education programs must first identify areas in need of improvement. Not every clinical instructor will meet or exceed every competency,

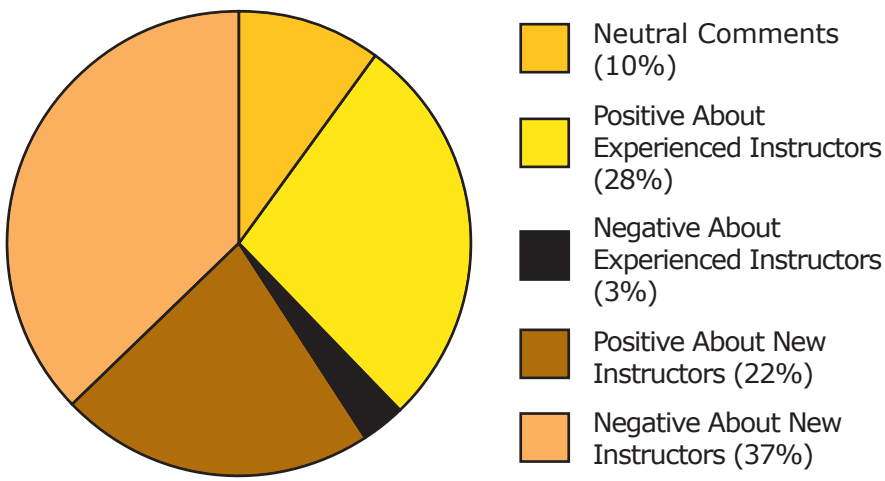
which is why it is important to employ clinical instructors with varying backgrounds and expertise. Additionally, the identification of clinical instructor strengths and weaknesses within a dental hygiene program serves to guide the administration in their faculty development decisions.[11]

Figure 2: Individual responsible for clinical instructor professional educational guidance



Although this study demonstrated that clinical dental hygiene instructors and students identified potential areas of improvement in clinical instructor pre–employment support, changing existing methods of professional preparation may prove difficult. Clinical instructors' opinions of what teaching concepts are most important may differ from those presented in formal clinical instructor continuing education courses, and this may cause resistance to change on the part of the clinical instructors. Therefore, organizational support is critical when implementing any modifications or additions to existing clinical instructor pre–employment instruction methods.6 Previous studies have shown extensive benefits from even a brief clinical instructor educational support session, which would not require a great deal of financial and personnel resources on the part of the dental hygiene facility or surrounding educational institution.[8,11,26]

Figure 3: Categories of student qualitative comments regarding differences between experienced and inexperienced clinical instructors



As a result of this study, the dental hygiene program where the author is employed implemented a more detailed faculty–to–faculty mentoring program to enhance the clinical teaching skills of clinical faculty. The fact that the dental hygiene program's clinical instructors were provided professional preparation could be advertised as an employment benefit to attract clinical instructors and as a positive feature for prospective students. Therefore, the provision of pre–employment educational guidance for dental hygiene clinical instructors will benefit both the dental hygiene program and the educational facility with which it is associated.

At the time of this research, minimal information was found in the literature specific to the profession of dental hygiene and the professional preparation in educational methodologies of its clinical instructors. In order for the profession of dental hygiene to continue to grow as an allied health discipline, it must remain current in its educational methodologies regarding clinical practice. Dental hygiene clinical instructors play an important role in the clinical education of dental hygiene students, as the observation and application of clinical concepts is crucial to their development as effective dental hygiene clinicians.[4]

While the results of this study have provided useful information about clinical dental hygiene education, numerous possibilities exist for future research of this subject. This study could be replicated with a larger sample population, including pre–clinical and associate degree level programs. Additionally, a study could be conducted of dental hygiene programs to identify program–specific areas of clinical instructor proficiency and deficiency. Future studies could identify the specific negative

and positive financial implications of the provision of dental hygiene clinical instructor professional preparation. A longitudinal study could be conducted to evaluate clinical dental hygiene student and instructor perceptions of professional educational support both before and after the continuing education in teaching methodologies is provided. Furthermore, future studies could evaluate the opinions of dental hygiene program administrators and college administrators on providing formal training in educational methodologies to its clinical educators, or could evaluate the potential benefits and disadvantages of implementing a clinical dental hygiene instructor–mentoring program.

Conclusion

In the opinion of the dental hygiene clinical students, clinical dental hygiene instructors should have more clinical experience prior to teaching and should be given professional preparation in teaching methodologies. Clinical instructors cited a need for guidance in educational methods to improve communication skills. Before clinical instructors are placed in a situation of teaching students, training should occur to increase teaching effectiveness.

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