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# Effective and Ineffective Clinical Teaching and Instruction in Dental Hygiene School

Vicki Gianopoulos Pizanis

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**EFFECTIVE AND INEFFECTIVE CLINICAL TEACHING AND INSTRUCTION IN  
DENTAL HYGIENE SCHOOL**

By

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B.S., Dental Hygiene, University of New Mexico, 2005  
M.S., Dental Hygiene, University of New Mexico, 2007

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Education  
Educational Leadership**

The University of New Mexico  
Albuquerque, New Mexico

**May, 2017**

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## **Dedication**

For my loving husband Charlie who continues to absolutely amaze me every day; and for our beautiful daughters Eleni and Vassi, who when I started this project were nothing more than a dream, but now are my reasons for everything that I do and that I want to be.

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## **ABSTRACT**

### **Introduction**

Educators who teach in a clinical setting, primarily in healthcare fields, while having knowledge of the subject, having skills in what is taught, and having experience in the field, often have little-to-no training in teaching. This results in instructional practices being based upon intuition and experience. Becoming aware of how qualities and characteristics of clinical instructors affect adult learners' educational experience through evidence-based research, and using its implications, would help promote more effective instruction and ultimately improve student learning.

### **Methodology**

A mixed methods study using Grounded Theory and Critical Incidence technique was conducted to study junior student, senior student and instructor perceptions of effective and ineffective qualities and characteristics of clinical instructors that influence learning. A triangulation method of data collection including a survey, a one-on-one interview and focus groups were utilized. Exercising Grounded Theory, in the electronic survey, participants had the opportunity to state and rank any or all qualities and characteristics of clinical instructors that are effective to their learning and that are ineffective to their learning. While many past studies provided participants with categories to rank, this study allowed participants to state any characteristic without parameters. Additionally, using Critical Incidence Technique, all participants had the opportunity, during a one-on-one interview, to describe a personal experience where effective and ineffective learning took place. This revealed additional qualities and characteristics, as well as specific scenarios or teaching practices that were



shown to be effective or ineffective. A third method of data collection was focus groups that further validated data revealed in the survey and in the interviews. The qualities and characteristics exposed were coded and combined and organized into categories and themes then tabulated by importance by cohort.

## Results

Twenty-four junior dental hygiene students, 22 senior dental hygiene students, and 9 clinical faculty participated in all components of the study. The surveys revealed 322 qualities and characteristics and the interviews revealed 162 qualities and characteristics that were then coded into 26 effective categories of qualities and characteristics and 23 ineffective categories, then further categorized into three major themes for interpretation purposes. Results display and rank in order of importance by each cohort individually and the cohorts combined for both effective and ineffective qualities and characteristics of clinical instructors that influence learning. Variances in the results from the three cohorts were found suggesting a difference in dental hygiene students as they progress from juniors to seniors. Also dissimilarities were found between the student cohorts and instructor cohort in terms of how ranking the importance of qualities and characteristics of clinical instructors that influence learning in an effective and ineffective way. In addition, specific effective teaching methods were uncovered through interviews.

## Conclusion

This contribution to the body of knowledge of effective and ineffective clinical instruction, particularly in the dental hygiene field, has implications for dental hygiene curriculum, instructor training and evaluation, and creates a foundation for future study.

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## **Chapter 1**

### **Introduction**

Students in healthcare fields receive education and training in both didactic and clinical settings. These two elements of curricula are important to achieve the goals of any given healthcare education program. Disciplines that employ a clinical learning experience as part of their training include Medicine, Nursing, Physical Therapy, Pharmacy and Dentistry among others. Typically a program within a healthcare discipline will begin its curriculum with instruction in the classroom setting. These courses will serve the student to provide a foundation of knowledge on subjects such as general anatomy, physiology, histology, embryology, and pathophysiology geared toward their particular subject of study. Education in this didactic environment will continue for numerous semesters and/or years depending on the program. As students continue with their curricula, courses become more and more practically focused. Specific topics discussed in a classroom setting are typically taught with the goal of the material being directly applied to a clinical setting. At a point in the curriculum, students will begin transferring their knowledge acquired in the classroom to be applied to patient care in a clinical environment. Often, classroom education will continue after students enter the clinical setting.

### **Clinical Education**

Learning in the clinical environment is the “heart” of professional education (McCabe, 1985). “It provides students with the opportunity for consolidating knowledge, socializing into the professional role, and acquiring professional values” (Wong & Wong, 1987, p. 505). Herein, students learn to assess medical histories, perform physical exams, formulate clinical decisions, and grow in their role as empathic professionals (Spencer,

2003). A transition occurs for students when entering this portion of their educational program. Trainees are expected to apply the theoretical knowledge acquired through classroom learning and self-study to then address patients' real-life healthcare problems.

This clinical learning environment involves a unique style of knowledge acquisition where learners gain knowledge through experience. Kolb first described this type of learning in his work, *Experiential Learning: Experience as the Source of Learning and Development*, stating, "Learning is the process whereby knowledge is created through the transformation of experience" (1984, p. 38). Through experiential learning, students are exposed to similar scenarios that they will face in their post-graduate careers. "Adults, both trainees and clinicians, are motivated to learn when they face real-life problems needing real-life solutions that are considered essential for progress or improvement" (Parsell & Bligh, 2001, p. 410). The relevance of the material and active participation provide this impetus for motivated learning (Spencer, 2003).

The clinical learning environment represents a complex stage with many dynamic interactions between patients, clinical instructors, and students. Learning that occurs is often contingent upon these interactions. The patients and their medical problems themselves form a platform for learning. They serve to emphasize the significance of earlier learning and help students contextualize previous knowledge within real-life experiences (Spencer et al., 2000) "Patients play a critical part in the development of clinical reasoning, communication skills and professional attitudes, and their relevance to real life" (Parsell & Bligh, 2001, p. 411).

In addition to the influence of the patient-student relationship, the interaction between a student and an instructor also constitutes a central feature of this learning experience. Clinical instructors are charged with encouraging students' transition from "being dependent



on their teachers to becoming collaborators, and finally towards being independent, self-directed learners and practitioners” (Parsell & Bligh, 2001, p. 410). They have the responsibility to help students acquire the values, mindset, and actions needed to become independent practitioners (Wright et al., 1998). Through their supervisory and instructional role, clinical instructors work intimately with students through every step of patient care. These instructors help students formulate thought processes, develop clinical and technical skills and evaluate progress (Prideaux et al., 2000). Due to this one-on-one interaction, the relationship formed between the student and instructor has a significant influence on learning.

### **Clinical Instruction**

Scholars point out that mastery of a subject matter alone does not adequately prepare one for teaching on that subject (Emery, 1984; Spencer, 2003). Instruction is independently its own skill. “In the past there has been an assumption that if a person simply knows a lot about their subject, they will be able to teach it. In reality, of course, although subject expertise is important, it is not sufficient. Effective clinical teachers use several distinct, if overlapping, forms of knowledge” (Spencer, 2003, pp. 591-592). The effectiveness of clinical instruction relies in part on an instructor’s educational expertise (Jolly, 1994). This includes an educator’s ability to balance patient care and education, to possess effective personal attributes, provide effective feedback and to serve as a positive role model for their students.

The role of a clinical educator is complex. There are many sources of potential conflict and competing interests that teachers must traverse to ensure appropriate patient care and student learning. Parsell and Bligh (2001, p. 410) have also noted this complexity and

further added that the clinical teacher's job is "multidimensional and includes clinical, supervisory, teaching, and supporting roles."

Clinical instructors must juggle the needs of patients with the goal of providing an effective educational experience for their students. "Knowledge of organizational and teaching strategies can help teachers to provide high quality patient care without eroding the quality of education" (Parsell & Bligh, 2001, p. 409). Overseeing safe and quality health care delivery is an essential component of clinical educators' work. Occasionally, this can impact the quality of the students' educational experience in a negative way (Parsell & Bligh, 2001). For instance, in situations of patient danger, patient safety takes precedence over student education and instructors must intervene. This situation could negatively impact students because their education is deferred while the instructor focuses on addressing a patient's acute healthcare requirements. Having these combined clinician and educator roles requires an ability to balance meeting these occasionally disparate needs.

A variety of strategies can be employed to attend to the combined roles of clinician and educator:

Effective clinical teachers must have wide-ranging clinical knowledge, and must know their patients and the environments in which they practise [sic] medicine. They need to know the educational background of the learners, have an understanding of the general principles of teaching and the ability to draw on the clinical knowledge they have built up through case studies involving many patients (Parsell & Bligh, 2001, p. 409).

Having a wealth of patient-care expertise and a solid understanding of general teaching principles can positively influence the clinical educational experience for students.

“Whatever strategies are selected, both the provision of high quality health care and the education needs of the learners have to be met. An effective use of time, both with and without patients, and the ability to recognise [sic] and seize ‘teaching moments’, are essential” (Parsell & Bligh, 2001, p. 411).

Personal attributes of clinical teachers can also impact student learning in the clinical setting. The ability to be an effective communicator is an example of a personal attribute and described by Spencer (2003, p. 592):

Effective teaching depends crucially on teacher’s communication skills. Two important areas of communication for effective teaching are questioning and giving explanations. Both are underpinned by attentive listening (including sensitivity to learners’ verbal and non-verbal cues). It is important to allow learners to articulate areas in which they are having difficulties or which they wish to know more about.

The skill of providing the student with the appropriate amount of autonomy is another instructor attribute that contributes to effective teaching. The supervisor’s role is to facilitate the student’s educational and personal growth while supporting the development of the student’s clinical independence (Butterworth, Faugier, & Burnard, 2001). It is a delicate balance to provide a student with quality teaching, while also encouraging autonomy as a healthcare provider. It is necessary to give students enough supervision to ensure the patient is receiving optimal care; however, students also need to learn how to make decisions for appropriate treatment on their own. Clinical teaching roles “change over time as learners move from being less passive to more independent, proficient and skilled” (Parsell & Bligh, 2001, p. 410).

Ultimately, clinical instructors have the responsibility to lead by example. The way instructors care for and communicate with patients through their overseeing of students is being observed and learned. “The example set by the physician as a clinical teacher is the most powerful way for learners to acquire the values, attitudes and behaviour needed for professional and ethical medical practice” (Parsell & Bligh, 2001, p. 411). “Professional thinking and behaviour [sic] and attitudes are ‘modelled’ [sic] by clinical teachers” (Spencer, 2003, p. 591).

### **Dental Hygiene Education**

Dental hygiene schools have an educational structure of a combination of didactic and clinical education. From the inception of the science and profession of dental hygiene, there has been a combination of classroom and clinical education in the dental hygiene curriculum. In 1913, Dr. Alfred Fones established the first dental hygiene school in Bridgeport, Connecticut. Initial didactic courses, including Tooth Anatomy and Histology, were learned in conjunction with Clinical Practice (University of Bridgeport School of Dental Hygiene, 2013).

Today, clinical education remains a critical and required component of dental hygiene education. The American Dental Association (ADA), which is the accrediting body for all dental programs in the United States, requires that as part of its national accreditation standards of dental hygiene schools, students receive between six to sixteen hours per week of clinical practice throughout the program. Students are also required to show competence in treating a variety of dental conditions and specific patient populations (Commission on Dental Accreditation, 2013).

The clinical education experience in dental hygiene school is quite different than the clinical component in other healthcare professions. In dental hygiene education, there is a high degree of standardization regarding the specific amount and types of disease, age, special needs, and dentition that students are required to experience. Students learn uniformly on patients with specific amounts of disease and bacterial deposit on their teeth.

There are different components to be learned in the clinical setting in dental hygiene school. There is a high level of technical skill in the practice of dental hygiene that needs to be mastered. Students must gain a high degree of precision in their utilization of sharp instruments in a highly sensitive area such as the mouth. Besides the precise physical technique of instrumentation, critical thinking is involved to diagnose what is presented with the patient and determining the correct method and order of treatment. Also involved is learning how to make patients feel comfortable when working within their personal space on a sensitive place on their body. In addition, educating patients is a major role of dental hygienists. Instructors within dental hygiene have the task of overseeing these and other educational components in seeing to the growth and development of their students.

### **Dental Hygiene Clinical Instruction**

Instructing in a dental hygiene clinical setting is inimitable, as the teaching revolves around a large variety of patients with individual needs. Clinical teaching is often variable, unpredictable, immediate, and lacks continuity (Parsell & Bligh, 2001). Beyond knowledge of dental hygiene and patient care, instructors must possess a balance of the knowledge of communication skills, the ability to manage emotions, evaluation curricula, and ethics for different circumstances. Instructors must be able to balance multiple students with their unique patients' situations and needs at any point in time. Often, instructors supervise up to

five students in accord with ADA Accreditation Standards. This necessitates an ability to multitask.

Clinical instructors must also become adept at issuing quality feedback. A uniqueness of dental hygiene clinic instruction is that students receive real-time critiques of their performance. This means that instructors assess the students' work in the presence of the patient whom the student is treating. Such a feedback process has the potential to create tension between instructors, students, and possibly, patients. This differs from other areas of clinical education where feedback is usually delayed, particularly away from the patient.

Often instructors have not received any special pedagogical preparation before assuming the role of a clinical instructor (Paulis, 2011). This is a trend seen across many clinical disciplines (Spencer, 2003). Instructors' teaching preparation and styles stem merely from their educational background in a science discipline, and from their past unique on-the-job experiences. Therefore, qualities and characteristics of dental hygiene clinical instructors, for example how the clinical instructor provides feedback, vary depending on their individual backgrounds and skills.

### **University of New Mexico Division of Dental Hygiene**

The Dental Hygiene Program at The University of New Mexico (UNM) is a division of the Department of Dental Medicine within the School of Medicine. It is a 4-year baccalaureate degree-granting program. Students undergo a minimum of two years of prerequisites and core courses before applying to dental hygiene school. The duration of the program itself is 2.5 years, which consists of one semester of didactic education followed by four subsequent semesters of combined didactic and clinical training.

Clinical instructors at UNM have a minimum of a baccalaureate degree in Dental Hygiene and often many years of related professional clinical dental hygiene and/or teaching experience. Instructors must also be licensed and registered as a dental hygienist in the State of New Mexico. Training and direction for these clinical instructors consists of a series of observation sessions of the clinic, which involves shadowing other instructors and observing of the teaching and evaluation process. At the beginning of each semester, there is also a half-day, in-service training facilitated by the clinic coordinators. Beyond this, the clinic coordinator, who oversees the clinical instructors, students and patients, serves as a liaison between students and instructors and provides ongoing feedback to instructors on any active student issues and complaints related to teaching performance. In addition, instructors also receive formal evaluations from students at the end of each academic term.

### **Purpose of the Study**

Effective clinical instructors enhance the learning process. Clinical instructor characteristics, behaviors, and skills are important and need to be a focus of clinical education in order to promote helpful, while minimizing hindering behaviors. It is important for students to receive instruction from a variety of teachers from different backgrounds to enrich their level of learning; however, with these different backgrounds comes a diversity of teaching styles. According to students, some teaching styles may be more favorable than others (Wlodkowski, 2008).

Collaboration between and consistency among the instructors is essential for effective student learning. Certain elements of clinical education delivery are easier to standardize than others. Factual information being taught in a clinical setting can be controlled by ensuring teachers are instructing according to current research and guidelines. The evaluation process

is also one that may be easily systematized. However, *how* information is optimally taught and mastery of the methods through which this occurs is more difficult to attain individually, as well as to standardize among instructors.

The goal for teachers is to promote student learning. Their aim is that the student learns and improves; however, how they reach their goal, through their individual methods of teaching, particularly in a clinical setting, is often based on trial and error. In addition to trial and error and improving as an instructor with experience, being trained from what has been shown empirically to be effective teaching may also be necessary for optimal learning experiences. It is important that instructors be informed of how their teaching styles are perceived by students. Furthermore, students' evaluations of their learning experiences can serve to improve the overall quality of clinical teaching (Zimmerman & Westfall, 1988). "Learners are aware of the differences between good and bad teaching and know how they want their teachers to behave" (Parsell & Bligh, 2001, p. 409). If there are characteristics in instructors that help learning, they should be exposed and brought to the attention of clinical instructors. Of equal importance is discovering which instructors' characteristics students perceive as barriers to their education. The purpose of this study is to identify those features that dental hygiene students and their instructors find effective and ineffective for student learning.

### **Statement of the Problem**

"Clear descriptions of effective clinical teacher behavior are needed so that faculty members can be helped to improve and can be better prepared for the teaching functions of academic life" (Irby, 1978, p. 808). There is limited literature on effective clinical education methods in dental hygiene school. Information, moreover, on student perceptions of effective



and ineffective instruction is very scarce. It is not well-known among instructors what students perceive as good instruction.

### **Research Questions**

1. How do dental hygiene students perceive those qualities and characteristics of a clinical instructor that positively and negatively influence their learning?
2. What are dental hygiene clinical instructors' perceptions of qualities and characteristics of a clinical instructor that influence students' learning?
3. What are the implications for clinical instruction training in dental hygiene schools based on perceptions of students and instructors?

### **Definition of Terms**

**Clinical education** is the patient care experiences required for all students in order to attain clinical competence (Commission on Dental Accreditation, 2013).

**Clinical teaching** is teaching that takes place in the setting of a patient in an individual or group environment (Stritter, Hain, & Crimes, 1975).

**Dental hygiene clinical instructor** is a registered dental hygienist employed by the university who has completed at least a baccalaureate in dental hygiene and teaches undergraduate dental hygiene student in the clinical setting.

**Dental hygiene** is the study of preventive oral healthcare, including the management of behaviors to prevent oral disease and to promote health (Darby & Walsh, 2010).

**Effective clinical teaching** are actions of a clinical instructor which promote student learning in the clinical setting (O'Shea & Parsons, 1979).

**Inductive analysis** “means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior data collection and analysis” (Patton, 1980, p. 306).

### **Significance of the Study**

The significance of this study is to disseminate information and contribute to literature to assist improvement of clinical teaching and in turn promote improved learning. The end goal is to improve learning for dental hygiene students through clinical education in hopes of improving patient care.

Dental hygiene students are educated to ultimately become healthcare providers. Oral health has been shown to play a major role in overall systemic health; and dental hygienists are critical components to the oral health care workforce. Quality training of these individuals is important for the future of oral healthcare provision, and clinical training remains an important part of that process. As adult learners, dental hygiene students are self-directed. Their learning experience, however, is highly influenced by their clinical instructors. This study unveils qualities and characteristics of dental hygiene instructors that are both effective and ineffective, which may help guide clinical instructors in improving their teaching methods. This will ultimately increase the training of the graduates and, in turn, the quality of future healthcare providers.

There are currently 390 dental hygiene schools in the United States, 55 of which are BS entry-level programs. There are approximately 6,700 dental hygienists that graduate from these programs annually (American Dental Hygienists' Association Division of Education, 2013). Revealing how clinical teaching can be improved could potentially improve curricula

and professional development for clinical education across the country (Brown, 1981; Irby, 1978; Jahangiri, McAndrew, Muzaffar, & Mucciolo, 2013; Morgan & Knox, 1983).

## **Chapter 2**

### **Literature Review**

#### **Introduction**

Healthcare disciplines that have researched effective clinical teaching include Nursing, Medicine, Allied Health, and Dentistry. The vast majority of published work in this topic has been in the area of Nursing. Very limited literature on this subject exists in the field of Dentistry, and related studies in the field of Dental Hygiene are almost non-existent. The disciplines that have conducted research have utilized various research strategies to identify effective clinical teaching.

#### **Nursing**

Investigations in the area of clinical education began in the nursing discipline in 1966 with Jacobsen's study titled, "Effective and ineffective behavior of teachers of nursing as determined by their students." Using Critical Incident Technique, Jacobsen found six major characteristics for an effective teacher of nursing. These were: 1) keeps self available to students; 2) demonstrates own ability as a nurse and teacher; 3) shows skill and interpersonal relationships; 4) demonstrates knowledgeable teaching practices; 5) possesses personal characteristics including honesty, warmth, patience and calmness; and 6) uses fair evaluation practices (Jacobsen, 1966, pp. 218-224). Following Jacobsen, other scholars investigated the topic of student views of clinical teaching. Wong (1978) found that students earlier in their education careers were more sensitive to how teachers made them feel, whereas students later in their education were more interested in teacher competency.

Seminal contributors who studied the comparison of both student and instructor perceptions of effective clinical teaching were Stuebbe (1980) and Brown (1981). Stuebbe

(1980) looked at the two groups' views on the topic and found that both saw the importance of a variety of clinical teacher characteristics differently. Brown (1981), working out of East Carolina University School of Nursing, also looked at student and faculty perceptions. She found that several major categories of effective clinical teaching emerged among responses. These included teaching skills, nursing competence, interpersonal skills, evaluation skills, and personality traits. Among the characteristics which surfaced, students recognized the following as most important: shows genuine interest in patients and their care, conveys confidence in and respect for the student, is well informed and able to communicate knowledge to students, encourages students to feel free to ask questions or ask for help, and is objective and fair in the evaluation of the student. Faculty recognized the following characteristics as most important: relates underlying theory to nursing practice; is well informed and able to communicate knowledge to students; and is objective and fair in the evaluation of the student. Brown concluded that nursing students valued their relationships with their teachers over their teachers' professional competence, whereas faculty regarded professional competence over all other attributes (Brown, 1981, pp. 4-14). Therefore, both of these contributors found discordance between instructor and student perceptions of effective clinical teaching.

There appeared to be a theme in these earlier studies wherein students seemed to place a greater importance on the value in their relationships with their instructors. Bergman and Gaitskill (1990) conducted a quantitative study using the questionnaire developed by Brown to assess the relative importance of clinical instructor characteristics also involving nursing students and nursing faculty participants. Bergman and Gaitskill (1990) found that both students and instructors agreed on the importance of instructors being articulate,

knowledgeable, objective and fair. Faculty rated instructor interest in patients higher; while students felt communication-related attributes were of greater importance. These findings echoed Stuebbe (1980) and Brown's (1981) results on the variation between the views of students and instructors.

It was not documented that Brown's questionnaire was utilized again until nine years later in the country of Jordan. Nahas, Nour, and al-Nobani (1999) administered this questionnaire to nursing students in that country and found that the most valued clinical teacher characteristics in order of importance were: shows genuine interest in patients, supervises and helps with new experiences, relates theory to practice, provides useful feedback, and is objective and fair in the evaluation of students. There were no significant differences in the responses of female and male students. It was noted, however, that differences in views existed between academic levels (Nahas, Nour, & al-Nobani, 1999).

In 2005, Tang, Chou, and Chiang also conducted a quantitative study using a modified version of Brown's (1981) instrument in two nursing schools in Taiwan. Their study was unique in that they assessed both effective and *ineffective* behaviors of clinical faculty in nursing schools. They found that the most important categories of characteristics for effective teaching behavior were, in order of importance, interpersonal relationships, professional competence, personality characteristics, and teaching ability. Their list of ineffective teaching behaviors was, again in order of importance, interpersonal relationships, teaching ability and professional competence. Interpersonal relationships, particularly the item "treats students sincerely and objectively" (Tang, Chou, & Chiang, 2005, pp. 190) was revealed to be the category that differed most between effective and ineffective clinical teaching behaviors. In line with Brown's results, the authors concluded that teachers'

attitudes toward students, rather than their professional abilities, are the crucial differences between effective and ineffective teachers (Tang, Chou, & Chiang, 2005).

As seen with other authors utilizing Brown's instrument, many studies within the nursing field have employed questionnaires repeated or derived from earlier researchers. Morgan and Knox (1983) at the University of British Columbia School of Nursing in Vancouver, British Columbia, performed a qualitative study assessing the perceptions of helpful versus hindering characteristics of clinical instructors in nursing school. They had 435 nursing students fill out evaluation forms for their instructors to identify positive and negative clinical teaching characteristics. In this study, five general categories emerged from the evaluations: 1) teaching ability (the process of transmission of knowledge, skills and attitudes, and the creation of an atmosphere in which this is done); 2) nursing competence (theoretical and clinical nursing knowledge and attitude toward the nursing profession); 3) ability to evaluate (the type and amount of feedback the student receives from the teacher regarding clinical performance and written clinical assignments); 4) interpersonal relationship (reciprocal interest or communication between two or more people excluding specific therapeutic communications between nurse and patient); and 5) personality (the totality of the individual's attitudes, emotional tendencies, and character traits which are not specifically related to teaching, nursing, or interpersonal relationships but may affect all three). The most frequently reported comments referred to instructor's teaching abilities. Students reported less frequently on the instructor's knowledge in nursing (Morgan & Knox, 1983, pp. 4-13). This latter finding was also similar to Brown's (1981).

The student teacher relationship and the interpersonal characteristics of instructors seem to be valued more in Taiwan than in Jordan or Canada. While it is not plausible to

deduce the exact reasons for this, it is possible that certain cultural elements influence these responses. For example, in East Asian countries including China and Taiwan, there is a certain respect for hierarchy and there is value placed on the senior and junior partner relationship (Hofstede, 2001). This cultural value imbedded in the student participants could potentially influence their responses, thus placing a higher value on the teacher relationships and interpersonal characteristics of instructors.

Stemming from their qualitative study in 1983, Knox and Morgan developed and piloted a quantitative research instrument that was also intended to identify the importance of clinical teaching characteristics in nursing. In their 1985 study, they used this 47-item instrument to survey nursing students at different levels of their education as well as recent nursing graduates. Each item described a clinical teaching characteristic that was uncovered in their qualitative study two years prior. Students and graduates were instructed to rank categories by their relative importance. With the exception of first-year students who rated personality as the most important, the highest rated category that emerged was evaluation, with the lowest rated category overall being personality. Recent graduates rated nursing competence as most important, whereas second-year students rated this category lowest (Knox & Morgan, 1985). These results displayed a variability of student perceptions according to their level of education.

Again, in 1987, Morgan and Knox used a finalized instrument that contained 48 clinical teacher characteristics grouped into five categories, which they titled Nursing Clinical Teacher Effectiveness Inventory (NCTEI). They distributed this to seven university schools of nursing in the western part of the United States and Canada. Nursing students and faculty were asked to rate their “best and worst” clinical teacher from previous observations



using the NCTEI. Students were given instruction to think of their best teacher and worst teacher. With each of these teachers they had in mind, they were then asked to score them based on a list of characteristics provided. Of characteristics most descriptive of their “best” teacher, students listed in order of frequency: “is a good role model,” “enjoys nursing,” “enjoys teaching,” and “is well prepared for teaching.” Faculty listed ‘best’ instructors in order of importance as: “enjoys teaching,” “good role model,” “demonstrates good clinical skill and judgment,” “enjoys nursing,” and “stimulates student interest in the subject.” The “worst” teachers scored lowest on the following in order of frequency: “is a good role model,” “uses self-criticism constructively,” “is open-minded and non-judgmental,” “demonstrates empathy,” and “corrects students’ mistakes without belittling them.” Faculty listed: “is a good role model,” “recognizes own limitations,” “uses self-criticism constructively,” “enjoys nursing,” and “encourages a climate of mutual respect.” The statistically significant differences between the two groups’ rankings of the general subscales of “best” clinical teachers were “interpersonal relationships,” “evaluation,” and “personal trait.” There were no statistically significant differences between the two groups’ rankings of the general subscales of “worst” clinical teacher (Morgan & Knox, 1987, pp. 331-337). This was the first study utilizing robust statistical analysis on the various clinical teaching characteristics and their relative importance among faculty and students.

Over the next two decades, other researchers across the world replicated Morgan and Knox’s (1987) work using the NCTEI. Nehring (1990) used the NCTEI instrument and studied baccalaureate nursing students and faculty in Dayton, Ohio. Students and faculty were again asked to think of their best teachers and their worst teachers and to give them scores across characteristics provided within the NCTEI. The best teachers were ranked high

in particular characteristics and the worst teachers were ranked low in particular characteristics. The characteristics most descriptive of the “best” teacher listed by students in order of frequency high to low were: “enjoys nursing,” “is a good role model,” “enjoys teaching,” and “well-prepared for teaching.” Faculty listed “best” instructors characteristics in order as: “enjoys nursing,” “is a good role model,” “enjoys teaching,” “takes responsibility for actions,” and “demonstrates communication skills.” The worst clinical teachers ranked the lowest in the following characteristics: “is a good role model,” “answers carefully and precisely,” “communicates clear expectations,” “encourages mutual respect,” and “stimulates student interest.” Faculty listed: “corrects students” mistakes without belittling,” “is a good role model,” “open-minded and non-judgmental,” “encourages mutual respect,” and “demonstrates empathy.” The statistically significant differences between the two groups' rankings of the general subscales of “best” clinical teachers were “teaching ability” and “personal traits.” The statistically significant differences between the two groups' rankings of the general subscales of “worst” clinical teachers were “teaching ability,” “interpersonal relationship,” “personal traits,” “nursing competence,” “evaluation” (Nehring, 1990). “Personality trait” was found to be statistically significant between students and faculty, with students placing higher value on this category than faculty in both this and the Morgan and Knox 1987 study. Nehring found responses on the five categories of “worst” clinical teachers to be statistically significant where Morgan and Knox did not find any.

Sieh and Bell (1994) also used the same quantitative instrument at Yavapai Community College in Prescott, Arizona and Arizona State University West College of Nursing in Phoenix, Arizona. Using the NCTEI, they studied associate degree nursing students and faculty; their results differed from previous studies. Of characteristics most

descriptive of the “best” teacher, students listed in order of frequency: “corrects students’ mistakes without belittling them,” “takes responsibility for own actions,” “does not criticize students in front of others” “demonstrates clinical skill and judgment,” and “explains clearly.” Faculty listed “best” instructors as: “encourages a climate of mutual respect,” “makes specific suggestions for improvement,” “provides constructive feedback on students’ performance,” “corrects students’ mistakes without belittling them,” and “provides support and encouragement to students.” There were no statistically significant differences between the two groups’ rankings of general subscales. The importance of faculty as a ‘role model’ was less important compared to other studies using the NCTEI (Sieh & Bell, 1994). The variation in their results as compared to previous studies using the NCTEI could have been due to the fact that this was the first study using the unique population of associate degree nursing students (Sieh & Bell, 1994).

There were three Morgan and Knox replication studies published in 1997: in Greece (Kotzabassaki, Panou, Dimou, Karabagli, Koutsopoulou, and Ikonomou, 1997), Hong Kong (Li, 1997), and Israel (Benor and Leviyof, 1997). Kotzabassaki et al. (1997) used the NCTEI in a nursing school in Athens, Greece. The characteristics most descriptive of the “best” teacher listed in order of frequency by students were: “enjoys nursing,” “is self-confident,” “is a dynamic energetic person,” “encourages a climate of mutual respect,” and “understands what students are asking or telling”. Faculty listed “best” instructor characteristics as: “listens attentively,” “is organized,” “encourages a climate of mutual respect,” “enjoys nursing,” and “observes students’ performance.” The “worst” teachers scored lowest on the following characteristics: “is a good role model,” “directs students to useful literature in nursing,” “uses self-criticism constructively,” “corrects students without belittling them,” and

“demonstrates empathy.” Faculty listed: “uses self-criticism constructively,” “is a good role model,” “is open-minded and nonjudgmental,” “has a good sense of humor,” and “questions to student to elicit underlying reasoning.” These results differed from previous studies in that the only statistically significant difference between the two groups' rankings of general subscales was in the significance of “interpersonal relationships” in characteristics of “worst” clinical teachers (Kotzabassaki et al., 1997).

Li (1997) researched nursing faculty and students at a 3-year, hospital-based general nurse-training program in Hong Kong. Nursing faculty found the five most important behaviors of clinical teachers to be: “does not criticize students in front of others,” “explains clearly,” “takes responsibility for own actions,” “is a good role model,” and “corrects students’ mistakes without belittling them.” The five least important behaviors, according to clinical teachers, were: “demonstrates clinical procedures and techniques,” “remains accessible to students,” “provides specific practice opportunity,” “shows a personal interest in students,” and “observes students’ performance frequently.” Nursing students found the five most important behaviors of clinical teachers to be: “explains clearly,” “corrects students’ mistakes without belittling them,” “does not criticize students in front of others,” “is open-minded and non-judgmental,” and “is well prepared for teaching.” The five least important behaviors, according to students, were: “encourages active participation in discussion,” “reveals broad reading in his/her area of interest,” “demonstrates enthusiasm,” “directs students to useful literature in nursing,” and “shows a personal interest in students” (Li, 1997, pp. 1252 – 1261).

In Israel, Benor and Leviyof (1997) modified the NCTEI by consolidating the 47 items in the instrument to five general categories to assess characteristics of the ideal, best,

and worst clinical instructors. Their study collected data from 123 nursing students from three Israeli nursing schools with different curricula. Differing from previous studies' results, Benor and Leviyof (1997) found that the category that had the most influence in determining ideal, best, and worst clinical teachers was "nursing competencies" while the category with the least influence in determining the ideal, best and worst clinical teacher was "personality." Also noted was that the highest importance placed on "nursing competencies" differed from previously published studies (Benor & Leviyof, 1997).

Later, in 2001, Gignac-Caille and Oermann also conducted a quantitative study of nursing students' and faculty's perceptions of effective clinical teacher characteristics using the NCTEI on five associate degree nursing programs in Michigan. They found that characteristics most descriptive of the "best" teacher by students were in order of frequency: "demonstrates clinical skill and judgment," "explains clearly," "is well prepared for teaching," "does not criticize students in front of others," and "is approachable." Faculty listed 'best' instructors as: "explains clearly," "is well prepared for teaching," "is approachable," "corrects students' mistakes without belittling them," and "communicates clearly expectations of students." The only statistically significant different categories found between students and faculty was "interpersonal traits" where faculty ranked this category higher than students (Gignac-Caille & Oermann, 2001).

Lee, Cholowski, and Williams, at a regional university in Australia, replicated Morgan and Knox's 1987 study using NCTEI on second- and third-year nursing students and clinical educators. Results showed that of characteristics most descriptive of the 'best' teacher, students listed in order of frequency: "is a good role model," "encourages a climate of mutual respect," "is self-confident," "demonstrates clinical skill judgment," "demonstrates

clinical procedures and techniques,” and “provides support and encouragement to students.” Faculty listed “best” instructors as: “enjoys teaching,” “demonstrates communication skills,” “takes responsibility for own actions,” “is a good role model,” “enjoys teaching,” “is organized,” “demonstrates clinical skill and judgment,” “communicates clearly expectations to students,” and “corrects students' mistakes without belittling them.” The worst teachers were ranked the lowest by students on these characteristics: “uses self-criticism constructively,” “directs students to useful literature in nursing,” “questions students to elicit underlying reason,” “gears instruction to students' level of readiness,” and “reveals broad reading in his/her area of interest.” Faculty listed: “uses self-criticism constructively,” “directs students to useful literature in nursing,” “recognizes own limitations,” “questions students to elicit underlying reason,” “identifies students' strengths and limitations objectively,” and “gears instruction to students' level of readiness.” There were no statistically significant differences between the two groups (Lee, Cholowski, & Williams, 2002). As was the case with the 1987 Morgan and Knox study, instructors being a good role model was the top-rated characteristic by students (Lee, Cholowski, & Williams, 2002).

In 2004, Allison-Jones and Hirt used the NCTEI for a purpose different from ranking important characteristics of clinical faculty. In their study of students and part-time and full-time clinical nursing faculty in seven associate degree nursing programs located in a mid-Atlantic state, their goal was to compare the teaching effectiveness of part-time and full-time clinical nursing faculty. Allison-Jones and Hirt (2004) found that nursing students ranked part-time faculty as significantly less effective than full-time faculty on each of five categories measured by the NCTEI and on the overall scale. The finding that there is no

significant difference between student ratings of teacher effectiveness and the self-ratings of the teachers themselves supports these results (Allison-Jones & Hirt, 2004).

In 2005, Beitz, and Weiland studied different levels of nursing students including Bachelor of Science in nursing (BSN), licensed practitioner of nursing (LPN)-BSN, and registered nurse (RN)-BSN students. They performed a mixed-methods study to assess the rating of effective clinical teaching behaviors using the NCTEI and ECTB (Effective Clinical Teaching Behaviors). In order of frequency, the NCTEI categories of “Ability” followed by “Nursing Competence,” “Evaluation,” “Personal Traits,” and “Interpersonal Skill” correlated with clinical teacher effectiveness. There were no statistically significant differences in rating of effective teaching behaviors among the different student groups with the exception of personality traits aspect of the NCTEI (Beitz & Weiland, 2005).

The ECTB, developed and tested in 1988 by Zimmerman, and Westfall, was designed as a 53-item questionnaire to assess effective clinical teaching behaviors. Surveying a nursing student population in a large university, three-year diploma program in the U.S., the ECTB was found to be a valid and reliable tool for evaluation (Zimmerman & Westfall, 1988).

Kanitsaki and Sellick (1989, 1991) performed two quantitative studies in Australia to assess clinical teacher behaviors and their relative importance. The earlier study, involved only student perceptions, whereas the 1991 study included the clinical instructors as well as the students. In both studies, students reported that “teaching behaviours” were most important with lesser importance placed on “evaluation behaviours” and others. Faculty similarly rated teaching behaviors highly in their relative importance in teacher roles (Sellick & Kanitsaki, 1989, 1991).

Haag and Schoeps (1993) researched the U.S Army Academy of Health Sciences/State University of New York at Buffalo Anesthesia for Army Nurse Corps Officers Program to develop and test a standardized instrument for clinical nurse anesthesia faculty evaluation. Twenty-eight nurse anesthesia students participated in the study. They reported that the clinical instructor evaluation instrument (CIEI) they developed was found to be a reliable tool to assess clinical instructors in a nurse anesthetist program. The factor which most correlated with overall teacher effectiveness as determined by the CIEI was “personal characteristics” whereas the factor that correlated least was “professional competence.” The authors further stated that they could not conclude if their findings could be generalized to civilian nurse anesthetist programs (Haag & Schoeps, 1993).

Krichbaum (1994) conducted a quantitative study used to assess the relationships between nurse preceptors' teaching behaviors and clinical learning outcomes by their students. The study population was 36 junior bachelor-nursing students and their nurse preceptors in critical care units in 14 hospitals in a large Midwestern metropolitan area. She performed a pre- and post-experience test to assess knowledge and critical care in consort with a survey on observed teacher behaviors. Krichbaum found that preceptors who used objectives, provided the opportunities for practice, asked effective questions, provided effective specific and timely feedback, provided students with evidence as a basis for feedback and displayed enthusiasm for teaching and concern for the learner's progress all correlated with higher student performance. “There exists a need for effective and efficient use of the available resources and includes knowledge of what constitutes sound educational practice” (Krichbaum, 1994, p. 314).



Also in 1994 at San Jose State University in San Jose, California, Reeve (1994) used quantitative methods to study perceptions of students, faculty and graduates of effective clinical instructors. The goal was to develop a standardized instrument. A 27-item instrument was developed, which assessed clinical teacher effectiveness. Through this study, Reeve (1994) identified faculty to function as role model as an important element for the students. In addition, younger students described the importance of faculty availability and assistance, while this was less important among more senior students.

In 2001, at the University of Gävle, in Sweden, Lofmark and Wikblad performed a qualitative study to provide information on what the student nurses found facilitative and obstructive of their learning during clinical practice. Data were extracted from nursing students' weekly diaries during their final period of clinical practice. Using a content analysis, the researchers revealed the following: students emphasized responsibility and independence, opportunities to practice different tasks and receiving feedback, collaborating and supervision, and overview and control as facilitating factors for learning. Characteristics that obstructed learning were lack of student-supervisor relationship, organizational shortcomings and supervision, and students' experience of their own shortcomings. Authors noted that their results indicated students' experience both facilitating and obstructing factors and felt that continuing and addressing these factors, respectively, will improve the ease of transition from students to professionals (Lofmark & Wikblad, 2001).

At the Thompson Rivers University Nursing Department in Kamloops, Canada, Kelly (2007) conducted a qualitative study using three open-ended questions asking to describe an effective clinical teacher, define qualities, and rank them. With second- and third-year nursing students, "teacher knowledge" was ranked the most important characteristic,

followed by “feedback” and then “communication skills.” How well students perceived that they were accepted by staff, student-teacher ratios, and peer support impacted students’ views of effective clinical teacher (Kelly, 2007).

Okoronkwo, Onyia-pat, Agbo, Okpala, and Ndu (2013) conducted a quantitative study of clinical teaching effectiveness at the Department of Nursing Sciences of the University of Nigeria. Students indicated that the five most important teacher behaviors should include honesty, motivation to teach, listening and good communication skills, good supervision, and being a good role model, in that order. These findings could be used in hiring efforts (Okoronkwo et al., 2013).

Appendix A presents a summary of articles related to Nursing.

## **Dentistry**

There exists limited research on clinical teaching effectiveness in the field of dentistry. The few studies that have been conducted in this discipline date back to the late 1960s. One early study to examine dental student perceptions of effective and ineffective clinical faculty was conducted in 1967 at the University of Washington, Department of Prosthodontics. Bolender and Guild (1967) administered an open-ended questionnaire to a total of 120 third- and fourth-year dental students in an effort to increase their institution’s use of student evaluations in faculty assessment. In addition to this study revealing a long list of faculty behaviors and characteristics, the researchers found that, overall, the positive comments students recorded about their faculty outnumbered negative comments. The ratio of positive to negative comments, moreover, was higher for full-time than for part-time faculty. Student assessment of faculty was a positive experience for both students and faculty alike (Bolender & Guild, 1967).

Myers (1977), at The Ohio State University College of Dentistry, performed a study on dental faculty and junior and senior dental students' responses to several open-ended questions identifying dimensions of clinical teaching that were deemed to be important. After content analysis of the responses, participants were asked to rank each characteristic in terms of importance. The characteristic rated the highest by both students and faculty was "is available in the clinic during scheduled hours." Seven factors emerged from the responses, five of which were discussed by the researchers as most important. These were: "evaluating student performance," "maintaining conditions for clinical learning," "consideration for student's application of knowledge of dentistry," and "a concern for teaching." The two factors identified as possibly less important were "knowledge of dentistry" and "liking to teach" (Myers, 1977).

Emling and Fritz (1978) followed Myers' study with an investigation of 545 dental students and 114 clinical and basic science faculty of all levels of appointment at two dental schools. An open-ended question was asked of these participants to list and rank in order of importance characteristics a teacher should possess based on their opinions. In contrast to Myers' study, in general the students and faculty in the two dental schools had "only modest agreement" in terms of the important characteristics of a good teacher. Clinical level students considered the ability to communicate to be more important than the knowledge of the subject matter. Clinical faculty ranked "knowledge" to be the most important quality of a teacher and ranked "fairness" as the least important. Basic science faculty, with the exception of assistant professors, ranked "communication skills" as the most important characteristic. "Fairness" was also ranked as their lowest quality. Student perceptions were more in line with basic science faculty views compared to those of the clinical faculty (Emling & Fritz,

1978). These findings are similar to the results from the field of nursing. There is a general theme that students tend to find communication as a more important characteristic than instructor knowledge, whereas clinical instructors seem to hold knowledge in higher esteem than communication skills.

Romberg (1984) performed a study on 226 students' ratings of faculty instructors at University of Maryland, Baltimore College of Dental Surgery. Using factor analytic methods on the 1,796 faculty ratings, four factors students found basic to effective clinical instruction were: 1) an instructor meeting teaching responsibilities, 2) an instructor acting in a manner conducive to clinical learning, 3) an instructor being technically competent, and 4) an instructor enjoying his/her job. Romberg (1984) found that "meeting teaching responsibilities" was ranked as most important to students.

Following Romberg's study, there was a long hiatus in the literature on clinical teaching in the field of dentistry. It was not until 20 years later that Chambers, Geisberger, and Lednui (2004) conducted a quantitative study at the University of Pacific School of Dentistry in San Francisco, California. These researchers developed a 20-item survey of good clinical teaching characteristics. The study was conducted over the course of two years where 86% of full-time and 64% of part-time dental school faculty members as well as approximately 150 students in dental school participated. Clinical teachers and students were asked to distribute 100 points to 20 characteristics of clinical teaching relative to their importance. The most highly rated characteristics of importance were: "good clinical and laboratory skills," "motivating and energizing students," and "basic communication skills." These were compared to students' perceptions. Students rated characteristics of clinical teaching as follows: "motivating and energizing to students," "displaying interest in the

subject matter,” and “distributing time fairly amongst students.” An interesting note is that those faculty members who assigned importance to the qualities “good clinical and lab skills” or “current information and procedures” received poorer ratings by students in the evaluations (Chambers, Geisberger, & Lednuis, 2004).

Three different studies were conducted in 2005 on dental student perceptions of clinical teachers in Hong Kong (McGrath, Wai Kit Yeung, Comfort, & McMillan, 2005), Australia (Gerzina, McLean, & Fairley, 2005), and Wales (Fugill, 2005). At the University of Hong Kong, McGrath et al. (2005) performed a quantitative study to assess the validity and reliability of a revised questionnaire titled “Effective Clinical Dental Teaching” (ECDT) designed by the researchers to evaluate clinical dental teachers at their University. One hundred forty-eight dental students used the ECDT to assess its validity and reliability by comparing this instrument to global ratings (i.e., overall teacher effectiveness). Several categories of student responses emerged. These included: learning climate, control of clinics, communication of goals, promoting understanding and retention, evaluation, feedback, and promoted self-directed learning. The category that most correlated with higher global teacher ratings was “learning climate,” which included the items “listen to me,” “encouraged me to participate actively in discussion,” “showed me respect,” “encouraged me to bring up problems.” Similarly, the category “learning climate” correlated most with being a “very poor” teacher. Although the category “learning climate” was found to be an influential part of effective or ineffective clinical teaching, these researchers’ primary conclusion was that the ECDT proved to be both valid and reliable (McGrath et al., 2005).

At the University of Sidney, Gerzina et al. (2005) conducted a study using focus groups of dental students to create a survey on the relative importance of various

characteristics of teachers and educational theory in clinical teaching in dental school. This survey was then prepared and distributed to both students and instructors to determine how similar instructor and student responses were on the subject. They found that students and teachers gave similar responses across the majority of questions asked. Three item responses were different between the two groups. These were the importance of: 1) the link between the theory and clinical practice of dentistry; 2) the notion that a student record of completed patient care assists student preparation for independent practice; and 3) the critical appreciation for evidence-based practice. The authors concluded that there was a high degree of similarity in student and teacher perspectives on clinical teacher characteristics and the utilization of educational theory in dental school (Gerzina, McLean, & Fairley, 2005).

Fugill (2005) conducted a qualitative study at Cardiff Dental School in the University of Wales College of Medicine on dental student perceptions of features of the student/teacher interaction. Using group interviews followed by questionnaire-based survey, researchers sought out student perspectives on this relationship and its importance in their clinical education. Though there was no description of the questions posed to participants, several themes were revealed in the content analysis of the responses. These themes were: the importance of feedback, demonstration, the integration of knowledge and skill, and student autonomy. Students often reported that their instructors were deficient in these elements (Fugill, 2005).

There were also three studies conducted in 2006, all in North America. Victoroff and Hogan (2006) conducted a qualitative study using Critical Incident Technique of effective and ineffective classroom and clinical teaching in Case Western Reserve University School of Dental Medicine in Cleveland, Ohio. Studying 53 third- and fourth-year dental students,

they found significant themes that emerged from the descriptions of the effective learning experiences. These focused on 1) instructor characteristics (personal qualities, “checking in with students,” an interactive style); 2) characteristics of the learning process (focus on the big picture, modeling and demonstrations, opportunities to apply new knowledge, high quality feedback, focus, specificity and relevance, and peer interactions); and 3) learning environment (culture, learning environment and technology). Students’ descriptions of ineffective learning experiences revolved around sub-optimal communication between instructor and student and/or problems with the presentation or organization of course material. Researchers wrote that their findings echoed experiential learning theory described in 1984 by Kolb (Victoroff & Hogan, 2006).

In twenty-one North American dental schools, Henzi, Davis, Jasinevicius, and Hendricson (2006), distributed quantitative questionnaires to 655 dental students with two open-ended questions to evaluate the effectiveness of clinical instruction in dental school. Significant findings that emerged from their results was that, overwhelmingly, students provided favorable reports about their clinical instructors. Some elements received less favorable reports including consistency of instruction and feedback, and the creation of an environment where students felt comfortable accepting challenges without fear of being put down. Students found their clinical education to be positive but that a major area for improvement was in providing quality feedback (Henzi et al., 2006).

At the University of Manitoba Faculty of Dentistry and School of Dental Hygiene in Canada, Schwönwetter, Lavigne, Mazurat, and Nazarko (2006) studied students' descriptions of instructors nominated for classroom and clinical teaching awards. One hundred twenty-five dental students participated. Seven categories of effective teaching were

identified: individual rapport, organization, enthusiasm, learning, group interaction, exams and assignments, and breadth. Dental students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, enthusiasm, learning, exams and assessments, group interaction and breadth. Individual rapport constituted fifty-five percent of all responses for instructors of dental students. This was reported more frequently in clinical teaching than classroom teaching, where in classroom teaching individual rapport was mentioned by 28% of dental students (Schwönwetter et al., 2006).

In 2013, Subramanian, Anderson, Morgaine, and Thomson published a qualitative study using Critical Incidents Technique assessing perceptions of effective and ineffective learning experiences of dental student and recent graduates in a clinical setting. At the University of Otago in Dunedin, New Zealand, 29 final-year dental students and graduates participated in the study. Effective learning experiences included situations with approachable and supportive supervisors and explanations of techniques. Ineffective learning experiences involved conditions of minimal guidance of supervisors and aggressive discriminatory or culturally insensitive approaches of supervisors (Subramanian et al., 2013).

Utilizing qualitative methods, Jahangiri, McAndrew, Muzaffar, and Mucciolo (2013) studied 157 third- and fourth-year dental students at New York University College of Dentistry. Nine hundred ninety-five written comments were received from a total of 157 respondents. Descriptive words were coded, grouped into key words, and assembled into 17 defined categories and then organized into themes. The three major core themes isolated among these categories and the relative frequencies with which they were reported are as follows: character (59.1%), competence (29.2%), and communication (11.7%). Character



consisted of the following categories: caring, motivation, empathy, patience, professionalism, available, fairness, happiness and patient-centered. Competence was defined by the following categories: knowledgeable, expertise, efficient, skillful and effective. Communication was defined by the following categories: feedback, approachable, and interpersonal communication. The instructors most valued by students were those who were caring, motivated, and empathetic (Jahangiri et al., 2013).

Appendix B presents a list of studies related to clinical teaching in dental programs.

### **Dental Hygiene**

There is very limited research on clinical education in the field of dental hygiene. Only two such studies (Paulis, 2011 and Schwönwetter et al. 2006) have looked into clinical education. One of these, which focused more on pre-employment preparation for clinical instructors rather than qualities and characteristics of clinical teaching, was a study performed by Paulis, a faculty member at Fones School of Dental Hygiene at the University of Bridgeport, Connecticut, the first-ever dental hygiene school. This study aimed to examine dental hygiene school students' and clinical instructors' perceptions of the adequacy of educational preparation of dental hygiene clinical instructors. Paulis disseminated an online survey to 48 dental hygiene schools in the United States. Sixty percent of students indicated that 6-10 years of clinical dental hygiene experience was optimal. Thirty-seven percent of the instructors at the time of the study, however, had less than 5 years of experience prior to teaching. More than half of dental hygiene clinical instructors 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

of educational methodologies, communication skills, grading and evaluation techniques and the use of technology. These results suggested a need for greater pre-employment experience and formalized training prior to assuming the clinical educator role (Paulis, 2011).

Schwönwetter et al. (2006) also included dental hygiene students in their study. Those students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, learning, enthusiasm, exams and assignments, breadth, and group interaction. Sixty-two percent of dental hygiene students' descriptions of instructors focused on individual rapport. This was reported more frequently in clinical teaching than classroom teaching, where in classroom teaching individual rapport was described 23% of dental hygiene student responses (Schwönwetter et al., 2006). This is another example of when students studying in a clinical field reported the importance of instructor interaction.

Appendix C for provides a list of dental hygiene studies related to clinical teaching.

#### Adult Learning Theories

Taken together, the findings from the studies I presented in this chapter illustrate a fundamental notion that these adult learners are appropriate stewards of their own learning and are, as such, able to contribute to the list of qualities and characteristics that influence the effectiveness of clinical instruction. "Being self-directing also means that adult students can participate in the diagnosis of their learning needs, the planning and implementation of the learning experiences, and the evaluation of those experiences" (Merriam & Cafferella, 1999, p. 273).

This notion of self-directed learning is salient to current literature describing adult learning theory. In the earlier literature, the primary focus of educational theory was on

younger learners (Merriam & Caffarella, 1999). In the late twentieth century, there was interest in exploring education and learning in adult populations. A seminal contributor was Malcolm Knowles who described the assumptions of adult learners. These assumptions are that, as individuals mature, 1) their self-concept moves from one of being a dependent personality toward being a self-directed human being; 2) they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; 3) their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles; and 4) their time perspectives change from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness (1980, p. 44 – 45).

In contrast to childhood education where the learners are more dependent on the teacher, adult learners play a more active role in their learning process (Garrison, 1997). Instructors of adults assume a more facilitative role in their teaching. Part of the facilitative role of an adult educator is to provide differentiated instruction; which is a method of varying instruction to meet the individual needs of all students (Tomlinson, 1999). As students in a professional program progress and develop into professionals, an evolution takes place from the students being dependent on the instructor for guidance and feedback to needing space from their instructor and liberation for making their own decisions. Students respond well to clinical instructors that can gauge and nurture a learning environment providing the appropriate level of autonomy a student requires. The importance of granting professional students autonomy in their perspective fields of study has been well-supported in literature. “Research suggests that when educators are more supportive of student autonomy, students not only display a more humanistic orientation toward patients but also show greater

conceptual understanding and better psychological adjustment.” (Williams & Deci, 1998 pp. 303).

Motivation is another important concept in the teaching process of adult learners. Motivation can be divided into two types, extrinsic and intrinsic motivation. “Extrinsic motivation exists when the source of motivation lies outside of the individual and the task being performed. In contrast, intrinsic motivation exists when the source of motivation lies within the individual and task: The individual finds the task enjoyable or worthwhile in and of itself” (Ormrod, 2004, p. 427). Theorists Edward Deci and Richard Ryan as well as others have written about extrinsic and intrinsic motivation and have proposed that intrinsic motivation occurs when two conditions exist: one must have a sense of competence and one must have a sense of self-determination. Competence or self-efficacy is the belief that one is capable of executing behaviors or performing a task successfully, which influences one’s self-determination. Conversely, feelings of incompetence lead to a decreased interest and motivation (Ormrod, 2004).

The way a teacher or a clinical instructor is received by a student can be influenced by the motivation level and motivation type of the learner. For example, if a learner is motivated extrinsically by receiving the credentials of his or her degree without an interest in mastering the subject, he or she may favor instructors who grade easily or who have lower expectations. An intrinsically motivated individual may have a genuine interest in gaining a deep understanding of the material and gaining skills to be an effective professional. Such a student may, therefore, hold in higher regard an instructor who helps his or her learning of a

subject, with the actual grade received being of lesser importance. Learners who are motivated extrinsically initially may evolve to become intrinsically motivated as they become more invested in the subject matter. Moreover, learners often are motivated intrinsically and extrinsically, concurrently. Due to the unique characteristics that adult learners possess, being self-directed learners and often intrinsically motivated, they can serve as a reliable study population for identifying effective and ineffective instruction.

## **Chapter 3**

### **Methods**

#### **Introduction**

There is limited information on the perceptions of students and instructors of adequate clinical teaching in dental hygiene schools. Although there have been a variety of studies on effective clinical teaching in various other disciplines, it is unclear how these findings apply to the field of dental hygiene. The extant research is mostly published within other disciplines and data were primarily collected using quantitative approaches. One might be able to relate the existing literature on characteristics of an effective educator to clinical dental hygiene instructors; however, the traits described in the previous studies are broad and may not take into account unique aspects of dental hygiene clinical instruction. To ascertain student perceptions of qualities and characteristics of a clinical instructor in a dental hygiene school specifically, I believe that research on dental hygiene students would be advantageous.

A qualitative study method, specifically Critical Incidence Technique (Victoroff & Hogan, 2006) and Grounded Theory (Glaser & Strauss, 1967), was utilized to identify the qualities and characteristics of dental hygiene instructors that both encourage and inhibit learning in a clinical setting. The specific research questions addressed in this study were:

1. How do dental hygiene students perceive the qualities and characteristics of clinical instructors who positively and negatively influence their learning?
2. What are dental hygiene clinical instructors' perceptions of qualities and characteristics of a clinical instructor that influence students' learning?

3. What are the implications for clinical instruction training in dental hygiene schools based on perceptions of students and instructors?

### **Research Methodology**

Qualitative and quantitative research methods have distinct and complementary strengths. With quantitative research, one has the ability to conduct investigations on larger populations. Quantitative research relies on preconceived hypotheses to elicit data. In areas where these preconceived hypotheses have not been developed, a qualitative approach can serve to help formulate them. An important aspect of qualitative research is that it yields data that provide depth and detail to create understanding of phenomena and lived experiences. Its intent is not to generalize conclusions reached (Creswell, 2007). In addition, a qualitative approach is appropriate in research focused on exploring social and human problems (Creswell, 1994).

The topic and the goals of the research should dictate the methodology. It is important that investigators are knowledgeable about different research approaches in order to be able to choose the method that best meets their research needs. For the purposes of this study, I determined that a qualitative methodological approach was most appropriate and I employed it to gain a deeper understanding of an area that has only been superficially studied. Furthermore, a qualitative method of research allowed me to investigate effective and ineffective qualities and characteristics of a clinical instructor without approaching the study with preconceived concepts as to which qualities and characteristics are specific to dental hygiene clinical instruction. This study gave respondents the opportunity to share their own stories of both positive and negative experiences, from both teaching and learning perspectives, in a dental hygiene school clinical setting. I encouraged participants to identify

the qualities and characteristics of clinical instructors and to describe, from their perspective, how these influence learning.

### **Grounded Theory**

In the 1960s, sociologists Glaser and Strauss proposed that systematic qualitative analysis had its own logic and could generate theory. Grounded Theory was the first introduction of a systematic, methodological approach to research (Trochim, 2006). The principles of Grounded Theory were first developed in 1965 by these researchers in their sociological work on dying patients within California hospitals. In 1967, Glaser and Strauss went on to write their treatise on Grounded Theory, *The Discovery of Grounded Theory*, as a long-overlooked important way of generating theory from data as opposed to verifying existing theory (Glaser & Strauss, 1967). At that time, qualitative methodology was not viewed as highly as quantitative methodologies; thus, when Grounded Theory was formulated, Glaser and Strauss intended for it to live up to the standards of a quantitative paradigm (Kennedy & Lingard, 2006). The defining components of Grounded Theory practice included: simultaneous involvement in data collection and analysis; constructing analytic codes and categories from data, not from preconceived logically-deduced hypotheses; using the constant comparative method, which involves making comparisons during each stage of the analysis; advancing theory development during each step of data collection and analysis; memo writing to elaborate categories, specify their properties define relationships between categories, and identify gaps; sampling aimed toward theory construction, not for population representativeness; and conducting the literature review after developing the independent analysis (Charmaz, 2006). Glaser and Strauss aimed to move



qualitative inquiry beyond descriptive studies into the realm of explanatory theoretical frameworks (Charmaz, 2006).

As Grounded Theory was studied and practiced by Glaser and Strauss, as well as other researchers, the definition and interpretation of the theory evolved. Strauss later collaborated with Corbin (1990) and together they stressed in Grounded Theory the foundational role in any qualitative research of the participants' own understandings of their social environment, and the importance of flexibility. They also emphasized the need for researchers to be creative and tailor the approach to their own research settings and interests.

Grounded Theory is used to explain a process, action, or interaction (Creswell, 2012). The interaction I investigated in this research study was between the dental hygiene students and their instructors in a clinical setting. As suggested by Creswell (1994), I conducted the data analysis as an activity simultaneously with data collection, data interpretation, and narrative reporting writing. I collected data using a survey instrument and audio recordings of one-on-one interviews and focus group sessions. For the analysis of the data from the survey and the interview and focus group transcripts, I utilized an inductive approach geared towards identifying patterns in the data by means of thematic codes.

**Critical Incident Technique.** Critical Incident Technique was developed in the 1940s by John Flanagan, an American researcher in the field of Occupational Psychology. Its original emphasis on human behavior reflected the prevailing positivist research paradigm. Flanagan devised it as a means to gather and analyze objective, reliable information about specific activities. His goal was that his findings would underpin practical problem solving in areas such as employee appraisal and performance enhancement (Hughes, 2007). When using the Critical Incident Technique, participants were asked to recall a specific incident and

to recount the incident to the interviewer, focusing on providing 1) a detailed description of the incident, 2) a description of the actions/behaviors of the involved in the incident, and 3) the results or outcome of the incident (Victoroff & Hogan, 2006, pp. 124-132).

This research study explored information on student and instructor views of effective and ineffective qualities and characteristics of a clinical instructor. I felt Critical Incident Technique was an appropriate method of collecting information from participants through inquiring about a particular situation to help me gain insight on this issue.

### **Participants**

Qualitative research emphasizes investigation in detail of a small number of participants to reach study objectives. The first step is to identify a homogeneous sample of individuals that have participated in a process and have been exposed to a central phenomenon. This study had two study groups, a cohort of dental hygiene students and their current clinical instructors.

**Student participants.** In The University of New Mexico Division of Dental Hygiene Program, cohorts are composed of 24 students. I asked all students in both the junior and senior cohorts to participate in the study. Student demographics varied by age, gender, ethnicity, and previous clinical instruction prior to beginning dental hygiene school. Student participants in each cohort shared the following characteristics:

- Were currently enrolled dental hygiene students in the junior or senior year within the University of New Mexico Dental Hygiene Program;
- Had received instruction in the program by the same clinical instructors; and
- Had treated a similar number of patients with similar amount of oral disease (controlled by their clinical requirement expectations).

**Instructor participants.** I asked all instructors for the junior and senior dental hygiene students to participate in the study. Instructor participants shared the following characteristics:

- Were current clinical instructors of junior or senior students within the University of New Mexico Dental Hygiene Program;
- Had a minimum of a bachelor degree in dental hygiene;
- Were licensed and registered dental hygienists in New Mexico.

**The researcher.** When applying Grounded Theory methodology, the researcher should have a high level of theoretical sensitivity (Strauss & Corbin, 1990). It is advantageous if the researcher is knowledgeable about the learning environment, the culture of the school, and stress of the curriculum. Having a high level of theoretical sensitivity “enables the analyst to see the research situation and associated data in new ways, and explore the data’s potential for developing theory” (Strauss & Corbin, 1990, p. 44). As clinic coordinator, I oversee all the clinical instructors, students, and patients and am, therefore, very knowledgeable about the learning environment, making me the ideal candidate to be the researcher.

**Recruitment process.** I identified as potential candidates the 24 senior dental hygiene students, the 24 junior dental hygiene students, and their current clinical instructors. I notified these candidates of this study by electronic mail and in person. I invited candidates to participate in the study via an explanation of the study (both verbally and written), its intent and overall design. Students who participated in all three elements of the study received a new dental hygiene instrument. Instructors who participated in all three elements received a \$50 Visa gift card. Participation in this study was voluntary. Participants had the

opportunity to review and sign an informed consent form (See Appendices D and E). I assigned each participant a study identity number to preserve anonymity.

### **Data Collection Methods**

The data collection process included four elements: 1) a simple demographic survey; 2) an electronic questionnaire; 3) one-on-one interviews with each participant; and 4) a series of focus groups involving several participants. Upon inclusion in the study, I emailed participants a survey that included both elements 1 and 2 (Appendix F). Participants were assigned study numbers for tracking purposes.

**Element 1 – Demographic survey.** The survey included questions on the following items for all participants: age, gender, ethnicity and academic background. Student surveys additionally included a question on previous clinical instruction prior to beginning dental hygiene school. Instructor surveys additionally included questions on descriptions and durations of each previous teaching experience and duration of current teaching position.

**Element 2 – Electronic questionnaire.** Utilizing Grounded Theory, the second element of the study consisted of a two-question, electronic questionnaire hosted by Survey Monkey. These were:

1. What are qualities and characteristics of instructors that influence learning in an *effective* way?
2. What are qualities and characteristics of instructors that influence learning in an *ineffective* way?

Participants were instructed to determine the extent to which each of these qualities and characteristics was important where 1 = Not significant, 2 = Slightly significant, 3 = Significant, 4 = Very significant, and 5 = Critical. There was no limit to how many qualities

and characteristics could be listed. The survey responses were collected electronically on Survey Monkey for analysis.

**Element 3 – Interview.** Utilizing the Critical Incidence Technique, the third element of data collection involved my conducting a one-on-one interview with each participant. The interview focused on two learning interactions a participant was involved in between a student and instructor. This portion employed a modification of questions used in a study aimed at improving curriculum performed at Case Western Reserve University School of Dental Medicine in 2006 (Victoroff & Hogan, 2006).

The questions I asked the student participants were:

Q1: Think of a specific, particularly *effective* learning incident between you and an instructor in any clinic session, and describe the experience in detail, including your role in the incident, what you were thinking and feeling during the incident, and the outcome of the incident.

Q2: Think of a specific, particularly *ineffective* learning incident between you and an instructor in any clinic session, and describe the experience in detail, including your role in the incident, what you were thinking and feeling during the incident, and the outcome of the incident.

The two questions I asked the instructor participants were:

Q1: Think of a specific, particularly *effective* learning incident between you and a student in any clinic session, and describe experience in detail, including your role in the incident, what you were thinking and feeling during the incident, and the outcome of the incident.

Q2: Think of a specific, particularly *ineffective* learning incident between you and a student in any clinic session, and describe the experience in detail, including your role in the incident, what you were thinking and feeling during the incident, and the outcome of the incident.

Beyond these questions, I asked the participant to elaborate on a given response or statement, and attempt to identify qualities or characteristics to describe the instructor in these scenarios that contributed to the effectiveness or ineffectiveness of the learning experience. The interviews were recorded and reviewed for analysis purposes.

**Element 4 – Focus Group.** The fourth and final element of data collection involved a series of focus groups consisting of five to eight participants. Students of each cohort were divided into three groups of seven or eight. Students indicated their availability through a sign-up sheet. Instructors were all together in one focus group consisting of nine participants. During the focus group sessions, I asked the participants, seated in a circle, the same two questions from the second data collection element and I encouraged them to discuss their responses with each other. Participants, however, were not asked to rank their responses. I facilitated the discussion and encouraged the group to reveal further qualities and characteristics of effective and ineffective clinical instructors. The focus group sessions were included as part of data collection for the group members to stimulate one another to further generate ideas from different perspectives (van der Hem-Stokroos, Daelmans, van der Vleuten, Haarman, & Scherpbier, 2003). They were intended to enrich and to verify the data previously collected in elements 2 and 3. These focus group sessions were limited to one hour and I audio recorded them for analysis.

## **Data Analysis**

Grounded Theory conceptualizes data by coding. Typically, data are interpreted through a “zig-zag” approach. The process of this qualitative data analysis occurs through data “reduction” and “interpretation.” The analysis process involves examining the descriptive key words to identify meaningful patterns or repetitive combinations. Words used several times in similar contexts across multiple responses are considered more common and are categorized as specific positive or negative key words. From these key words, defined categories emerge using inductive analysis and continual refinement. This process includes a constant comparison method of coding, and categorizing the primary patterns in the data leading to defined categories and eventually themes.

**Element 1.** I entered the demographic information from Element 1 into IBM SPSS Statistics for Windows v 21. These data were linked to the study participant number and each data point obtained from Elements 2 and 3.

**Element 2.** The data collected with Element 2 were specific descriptive terms that were identified and then ranked from 1-5 in terms of significance by the participant. To quantify the data, I utilized a procedure of identifying key code words from the descriptive terms, grouping them into categories, and ultimately extracting them into themes. The process of coding and categorizing occurred jointly between two analysts. Analyst 1 (the researcher) and Analyst 2 evaluated the data from this Element through inputting the responses from the questionnaires into the qualitative software, MAXQDA. I began a process of open coding key words/phrases contained within the responses. I then grouped these coded key words/phrases into categories by their similarity. As an example of this process, the key words/phrases “cares for patient,” “puts patients first,” and “respectful of

patients” would be categorized under “Patient Centered” (Jahangiri, McAndrew, Muzaffar, & Mucciolo, 2013).

**Elements 3 and 4.** The analysis of Elements 3 and 4 occurred in similar fashion. The audiotaped interviews and focus group discussions were first transcribed through Rev transcription services, and then imported into MAXQDA. I followed a similar process of open coding with the creation of categories.

**Combined analysis.** After completion of the coding and categorizing process of data Elements 2-4, I conducted a process of theme identification by taking the categories and then grouping them into broader themes. For example, the categories of “patient centered,” “empathy,” and “professionalism” were grouped into a theme called “character” (Jahangiri, et al., 2013).

I completed another combined analysis using SPSS. Using the demographic data from Element 1 and the categories and themes from the combined Elements 2, 3, and 4, I calculated the descriptive statistics using cross tabulation and frequencies to display demographics of the participants and to show the frequencies of a common category or theme and its relationship with the participants of the study. Grounded Theory is intended to discover new theory without a prediction; therefore, the goal was not to use the data to “predict” a particular outcome.

### **Standards of Quality**

Individuals view the world differently and according to their own paradigms. Individuals’ perceptions are their reality; therefore, multiple realities may exist in any given situation. Within research, these perceptions of reality are those of the researcher, individuals being investigated and the reader or audience interpreting a study (Creswell, 1994). Because



of this, it was important to give participants opportunity to convey their thoughts, feelings, and experiences that were then quantified by researchers. Within this study, the structure of the interviews was intended to be flexible enough to allow exploration of responses and to encourage the participants to express their thoughts and opinions without the constraint of rigid questioning or time limitation.

To facilitate these ends, the study incorporated a triangulated method of the three elements of the data collection: the surveys, one-on-one interviews, and focus group discussions. Triangulation was used as an "attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint" (Cohen, Manion, & Morrison, 2000, p. 254). Having an opportunity to respond through these three different methods permitted participants to fully reflect and freely express their thoughts and opinions. I analyzed the data from the three methods to ensure convergence among sources. Additionally, Analyst 2 and I interpreted the data, further validating the conclusions reached. Coding and categorizing of the data was performed through discussion between the analysts in an attempt to remove potential bias from the data interpretation.

### **Limitations of the Study**

**The sample.** The groups of participants were relatively small. The number of students was 22 senior dental hygiene students and 24 junior dental hygiene students. The number of instructors was nine. Another limitation is that there are unique characteristics of the participants. The uniqueness of the participants may influence their responses, thus decreasing the generalizability of the conclusions reached. The students are all at the same level of education, therefore may have similar perceptions of qualities and characteristics of

their clinical instructors. The needs of a clinical instructor that pertain to a second-year dental hygiene student may not pertain to the needs of a first-year dental hygiene student.

While adult learners are largely able to accurately assess their learning needs, occasionally students in general are unable to objectively identify those elements that are conducive to their educational progress. This is particularly true immediately after a stressful and seemingly negative learning experience. After a longer period of time and reflection, a learner may be able to realize the positive effects of that experience (Subramanian et al., 2012). The student participants in this study were half way through their educational program, thus responding to recent experiences; what was not assessed are the long-term effects of their experiences.

**The study design.** The relationship between the researcher and participants is a potential source of bias in all qualitative research, and must be acknowledged (Creswell, 2012). In this study, I knew the participants, which then may have influenced the participants' responses, particularly in the interview setting. For example, a student may have hesitated to reveal information about an instructor in apprehension of revealing who the instructor is to me as the clinic coordinator/researcher. Instructors similarly may not have divulged accurate information when I asked them to describe a scenario between them and a student for fear of my judgment as the researcher and as their coordinator. My being the clinic coordinator and thus knowing both the student and instructor participants well did not allow the participants to be anonymous throughout data collection.

I interviewed the participants and two people coded the data. Having two people code the data should help to eliminate most of the bias. This can be perceived as a strength or as a possible weakness in the study.

While this study assesses student perceptions of teaching effectiveness, I addressed the results of only one form of evaluation. According to the ‘triangulation model’ advocated in literature, in addition to being evaluated by students (Jahangiri, Mucciolo, Choi, & Spielman, 2008), teachers should have additional evaluative measures by peers and themselves as the optimal approach for assessing teaching effectiveness. This study looked deeply into the perceptions of students towards their clinical faculty but, without being used in conjunction with peer and self-evaluation, it cannot provide comprehensive suggestions to improve teaching performance.

### **Coding**

Other limitations to this study include participant factors at the time of study and how categories were defined. Qualities and characteristics revealed could be based on the traits of the clinical instructors employed at the time of the study. For the questionnaire portion of the study, participants most likely shared qualities and characteristics of instructors that they have personally found to be effective and ineffective. If different instructors at the time of study had different effective and ineffective traits, these could have influenced the qualities mentioned as well as the relative importance of these qualities. For example, less emphasis may be mentioned by dental hygiene students on knowledge perhaps because all instructors at the time of the study were or appeared knowledgeable, so it was not an issue for the students. For ineffective qualities, specific negative characteristics such as instructor professionalism was possibly brought up frequently because lack of professionalism may have been present with particular instructors at the time of study. A longitudinal study would likely be needed to validate many findings within this study.

The researcher determined the coding process. During the interviews, participants described scenarios. I developed and assigned categories based on the qualities and characteristics the participants identified. Then I organized the qualities and characteristics.

### Conclusion

Clinical education is used to apply didactic information in a hands-on environment, with the goal of integrating theory and practice in a controlled setting. There is a need for a qualitative research not focused on particular instructors or their qualities. The beauty of Grounded Theory is the possibility of the emergence of any number of themes.

What emerged from this research could be valuable for a clinic coordinator to present to the clinical instructors in a dental hygiene school. After qualities and characteristics in teaching that are effective or ineffective are identified, these can be shared to educate instructors on specific ways to improve their teaching.

## **Chapter 4**

### **Results**

The clinical portion of the dental hygiene curriculum provides a unique experience for students to receive hands-on learning to prepare themselves for patient care. This arena of learning utilizes integration of theories and practice in a controlled patient care setting. Within this environment, students work closely with clinical faculty for instruction and guidance. In the field of dental hygiene as well as other disciplines, there is little formal training for clinical educators. Additionally, there is limited literature within the field of dental hygiene about optimal aspects and practices of clinical teaching. Therefore, investigating what constitutes effective and ineffective instructor qualities and characteristics would be advantageous.

To this end, I collected data from three different cohorts within the University of New Mexico Dental Hygiene Program - junior dental hygiene students, senior dental hygiene students, and clinical instructors. Utilizing Grounded Theory and Critical Incident Technique, I collected data in an attempt to answer the following three research questions:

1. How do dental hygiene students perceive qualities and characteristics of clinical instructors who influence their learning?
2. What are dental hygiene clinical instructors' perceptions of qualities and characteristics of clinical instructors who influence students' learning?
3. What are the implications for clinical instruction training and evaluation in dental hygiene schools based on perceptions of students and instructors?

## **Participants**

**Junior students.** The group of junior students in the study constituted twenty-four individuals with ages ranging between 22 and 53 years. The mean age for this group was 29.3. Twenty-two out of 24 (91.7%) were females. Looking at ethnicity, in descending order there were 11 (45.8%) Hispanic or Latino junior students, 9 (37.5%) White or Caucasian, 3 (12.5%) Asian, 1 (4.2%) was American Indian or Alaskan Native, and 0 were Black or African Americans.

**Senior students.** Twenty-two senior students participated in the study with ages ranging between 23 and 48. The mean age of this group was slightly higher than for the junior students at 30 years. Nineteen out of 22 (86.4%) were females. The ethnicities of senior students were the following: 15 (68.2%) Hispanic or Latino senior students, 6 (27.3%) White or Caucasian, 1 (4.5%) Black or African American, 0 Asian, and 0 American Indian or Alaskan Native. See Figure 1.

**Instructors.** Nine instructors participated ranging in ages from 24 to 60 with a mean age of 39.2. Seven out of nine (77.8%) were females. In descending order, there were six (66.7%) Hispanic or Latino instructors, three (33.3%) White or Caucasian, and zero Black or African Americans, zero Asians, and zero American Indian or Alaskan Natives. The duration of teaching in the clinical setting at UNM's Dental Hygiene Program ranged from less than 1 year to at least 26 years (category: 26 to 30 years of experience). Five out of nine participants have been instructing for two or more years.

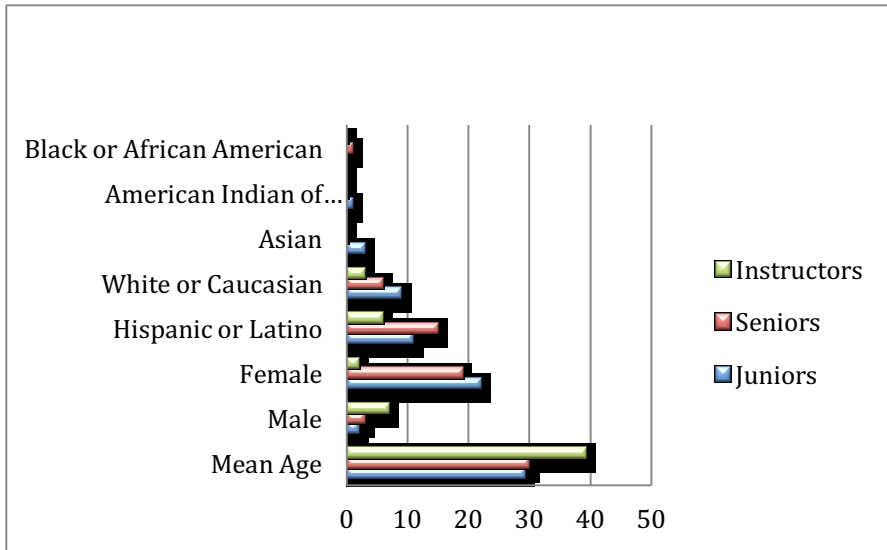


Figure 1. Participants' demographic data.

### Context for the Study

Junior and senior dental hygiene students participate in clinic as a major portion of their curriculum. A significant amount of learning occurs in this clinical setting. Students have variable learning experiences and often the quality of these experiences is shaped by their instructors. In the following sections, I report the characteristics of instructors that influence student learning in effective and ineffective ways.

### Effective Qualities and Characteristics of Clinical Instructors

In this section, I document the categories of effective qualities and characteristics of clinical instructors as identified by junior students, senior students, and clinical instructors. Categories are reported in decreasing order of importance as mentioned by students on the combined survey and interview portions of the study. These sections begin by first identifying how categories were defined. Next, I report the response rate from all cohorts for surveys and interviews, followed by comparisons and contrasts of the responses from the

different cohorts. Independent reports of the findings from the surveys and interviews are presented in Appendix G.

Within the survey section, participants ranked the importance of their responses on a 5-point Likert-type scale (1= Not Significant, 2 = Slightly Significant, 3 = Significant, 4 = Very Significant, 5 = Critical). I report average ranks for all those who described a given characteristic as well as an adjusted rank that takes into account all participants within the group (e.g. junior students), including those who did not report a given characteristic. The adjusted rank was then calculated to correct for the relative weight of importance assigned to a given characteristic within a cohort. Given that the three cohorts (senior students, junior students and instructors) had a different number of individuals in them, the importance of each category was adjusted for group size. For example, 11 seniors mentioned at least one quality or characteristic that was categorized as “invested in students’ success.” The total times mentioned by this group was 17 (meaning that students mentioned this more than once). The average rank of importance from these responses (on a 1-5 Likert-scale) was 4.4. To calculate the adjusted rank, the number of times a quality or characteristic within this category was mentioned by a cohort (17) was multiplied by the average rank of importance of the quality or characteristics coded within the category “invested in students’ success” (4.4) divided by the number of participants within a cohort (22) (i.e.  $(17 \times 4.4) / 22 = 3.4$ ). Therefore, the adjusted rank, to account for all respondents and none respondents of all senior respondents and non-respondents for the on-line survey for this category was 3.4. Figures 2 through 6 display the number of responses by category in descending order for students only, followed by the responses from the clinical instructors, and finally for all participants.



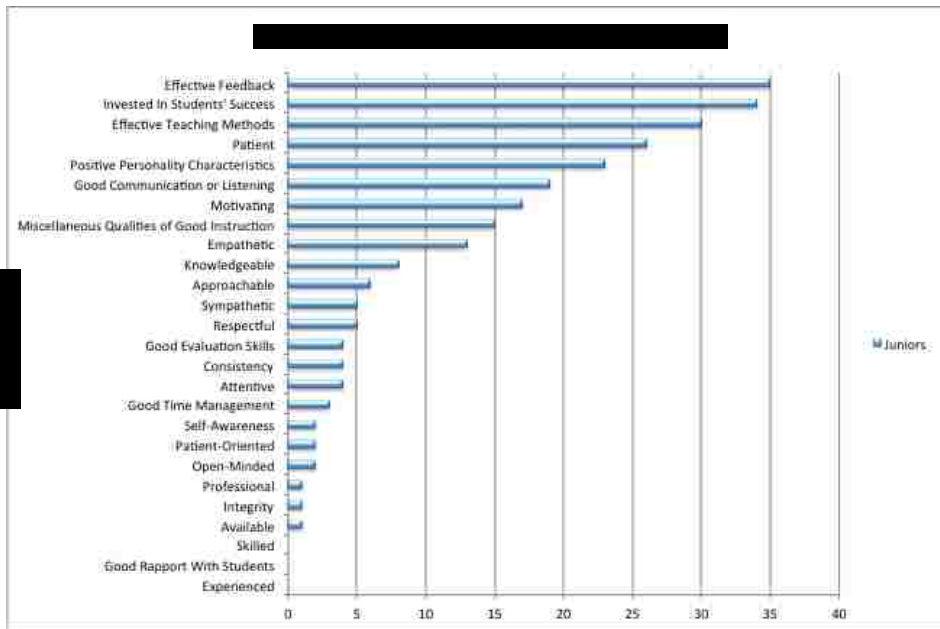


Figure 2. Categories of effective qualities and characteristics of clinical instructors as identified by juniors in the program.

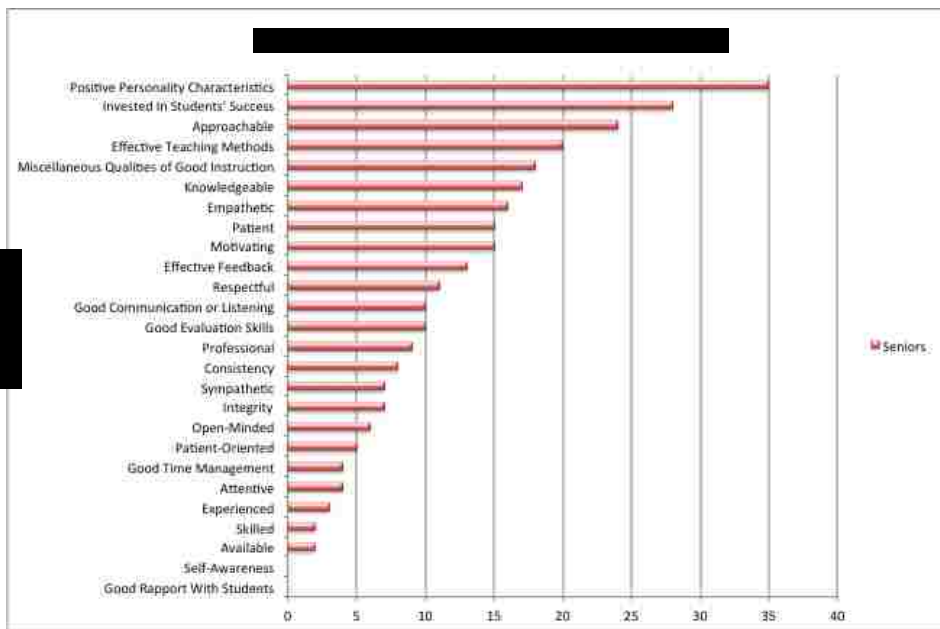


Figure 3. Categories of effective qualities and characteristics of clinical instructors as identified by seniors in the program.

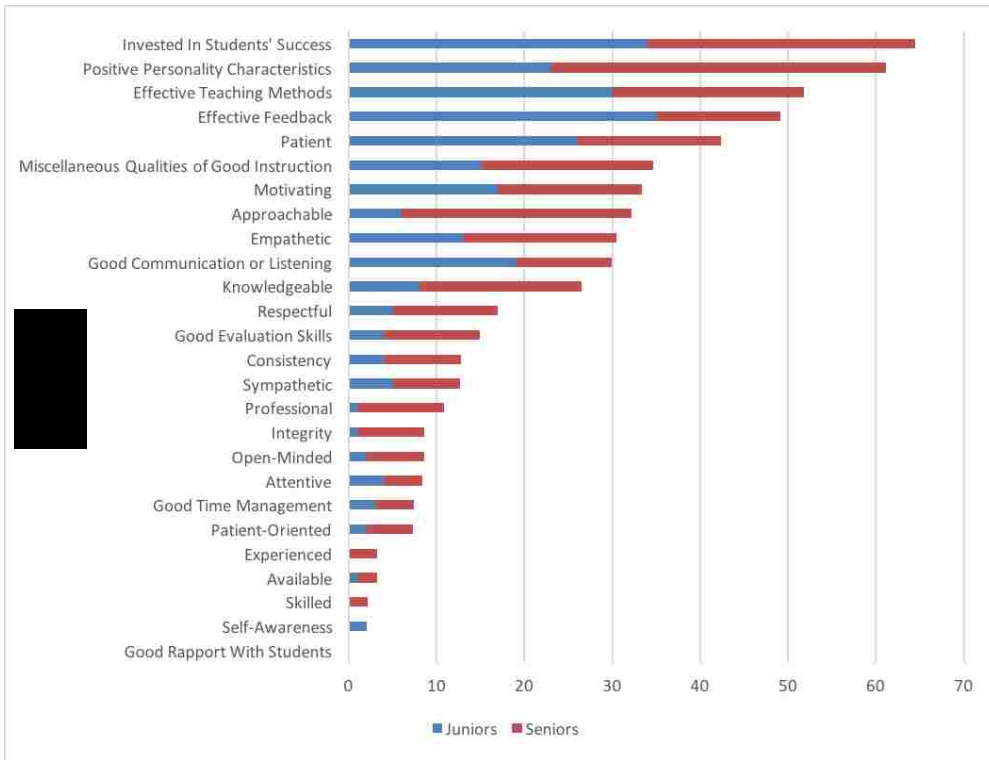


Figure 4. Categories of effective qualities and characteristics of clinical instructors as identified by juniors and seniors in the program (adjusted for group size).

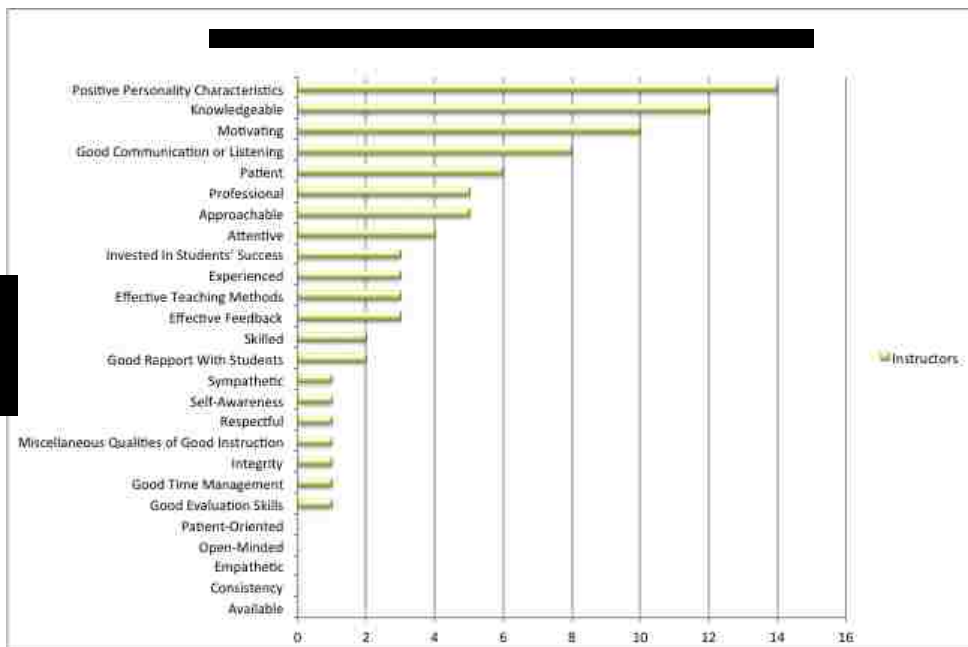


Figure 5. Categories of effective qualities and characteristics of clinical instructors as identified by the instructors in the program.

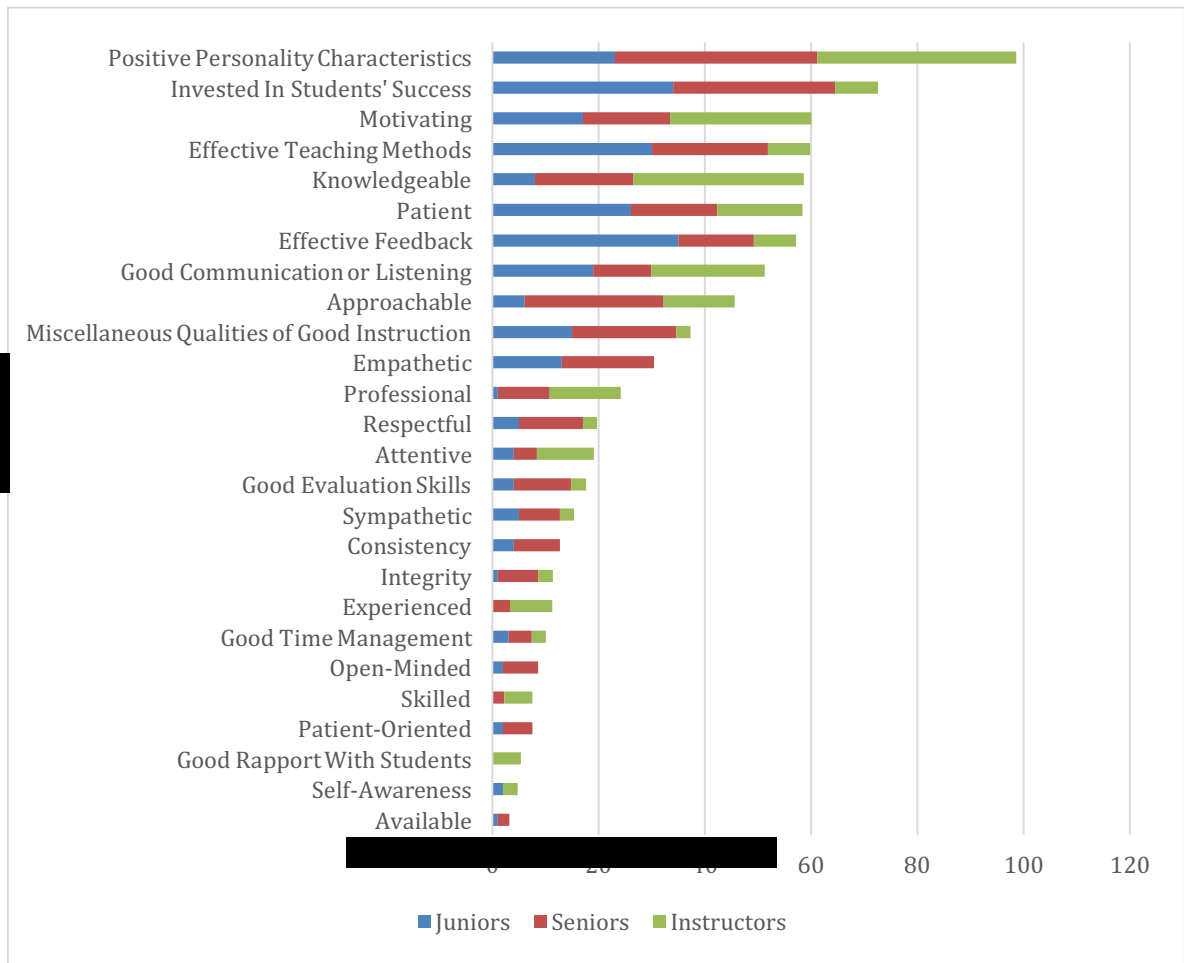


Figure 6. Categories of effective qualities and characteristics of clinical instructors as identified by all groups in the program (Adjusted for group size).

**Invested in student success.** The foremost characteristic of effective instructors as defined by students was “invested in students’ success.” Above all others, this quality was described as positively influencing students’ learning experiences. This category incorporates coded qualities and characteristics such as having a vested interest and wanting students to learn, interested in students’ success, passionate about teaching, caring, willing to spend time teaching, helpful, takes time to demonstrate or instruct, helpful with students not assigned to that instructor, and the instructor helps students reach high standards.

The results from the electronic instrument revealed that 13 of the 24 juniors mentioned at least one quality or characteristic that was categorized as “invested in students’ success.” With some students mentioning it more than once, the total number of times the group mentioned this characteristic was 16. The average rank of importance from these responses was 4.94 on the 5-point Likert-type scale. The adjusted rank of all junior respondents and non-respondents for the on-line survey for this category was 3.29. The results from the interview revealed that 12 juniors mentioned at least 1 quality or characteristic that was categorized as “invested in students’ success.” The total times mentioned by this group was 18.

The results from the electronic instrument revealed that 11 seniors mentioned at least one quality or characteristic that was categorized as “invested in students’ success.” The total times mentioned by this group was 17. The average rank of importance from these responses was 4.4. The adjusted rank of all senior respondents and non-respondents for the on-line survey for this category was 3.4. The results from the interview revealed that nine seniors mentioned at least one quality or characteristic that was categorized as “invested in students’ success.” The total times mentioned by this group was 11.

Among instructors, only two mentioned one quality or characteristic that was categorized as “invested in students’ success” within the electronic instrument portion of the study. The average rank of importance from these responses was 4.0. The adjusted rank of all instructor respondents and non-respondents for this category was 0.89. The results from the interview revealed that one instructor mentioned one quality or characteristic that was categorized as “invested in students’ success”.

Dental hygiene students first and foremost desire instructors who are invested in their success. This category was ranked above all others for effective learning when combining data for junior and senior students. This was mentioned at a greater frequency than other more traditional aspects of instructor characteristics of effective learning experiences such as knowledge, fairness, and kindness. It is evident that when students perceive that an instructor genuinely cares about their learning and being successful, that this contributes to effective learning. Dental hygiene students in the clinical setting are learning new skills and becoming acquainted with patient care. Clinical instructors who are invested in the development and growth of their students contribute to an effective learning experience by virtue of their investment. It is the instructors’ commitment and involvement in their students’ success that students believe are most associated with creation of an effective learning environment.

Part of what is defined by invested in students’ success is “taking the time.” During a clinic session at University of New Mexico Dental Hygiene Program, an instructor is usually assigned to four or five students who are treating patients. Minimum expectations of an instructor are to evaluate students’ work and record grades. If a given student is not grasping a technique or skill, the instructor has the autonomy to decide how much instruction to give. In addition, it is also the responsibility of the instructor to balance this time with the other

students to which they are assigned. When an instructor takes the time to sit with a student and instruct during his or her busy time, this is valued by students greatly and is seen as one of the ways that the clinical instructor cares about their learning and truly desires their success. One junior student recalled, “She took the time. I know in clinic it is difficult to find time to spend on each student, especially longer periods of time but that was just what I needed. It was great to have the one-on-one experience.” Another junior mentioned, “I feel she really wants us to be successful. I feel that with her. I feel she wants me to succeed. I never once felt she wanted me to fail or would do anything ... I just feel she really works hard on making me feel accepted. She teaches you in a positive way.” When students sense that instructors take their time and utilize interaction as moments of instruction as opposed to rushing and focusing on minimal evaluation, it is valued highly.

The definition of “invested in students’ success” extends past graduation for senior students. Senior dental hygiene students have grasped the basic components of patient care, and they evolve to start focusing on the clinical board exams after graduation. Senior students value instructors when they sense that they truly care about various successes after graduation such as whether or not they pass their clinical boards, get licensed and become quality healthcare professionals. When describing what effective teaching is for them, one senior student stated, “Instructors actually care about the quality of the student. It’s not just, ‘I’m at work, I’m doing my job.’ They really do care that there is some type of quality where we go. It’s our time to shine when we go take boards. That’s kind of where they get to see their work.” Seniors have an appreciation for instructors who emphasize success beyond the learning experience itself.

“Invested in students’ success” was rated notably lower by clinical instructors as a quality contributing to effective learning. It can only be speculated as to why there was a lesser emphasis placed on this than other categories by clinical instructors. It may be that clinical instructors do not realize that this characteristic is one that students notice. Instructors more frequently cited effective instruction as being accurate and involving kindness. Instructors seemed not to recognize the importance of students’ perceptions of instructors’ investment in their growth; and that effective learning experiences go beyond just knowledgeable and accurate information-sharing and an amicable learning environment. This may be in part due to previous learning experience of instructors, temporal distance since being a student, as well as a true difference of involvement of some instructors in student development. These findings coincide with Brown’s (1981) study in regards to a discrepancy between instructor and student views. In Brown’s study, faculty regarded “professional competence” over all other attributes.

**Positive personality characteristics.** The second most frequently reported characteristic of instructors contributing to effective learning by students was “positive personality characteristics.” This category includes coded qualities and characteristics such as not moody, gentle, calm, fun, polite, well-rounded, smiles, sense of humor, positive, personable, friendly, enthusiastic, kind, not intimidating, nice, humble, motivated, and confident.

The results from the electronic survey revealed that 11 of the 24 juniors mentioned at least one quality or characteristic that was categorized as “positive personality characteristics.” The total times mentioned by this group was 16. The average rank of importance from these responses was 4.13 on a 5-point Likert-type scale. The adjusted rank

of all junior respondents and non-respondents for the on-line survey for this category was 2.75. For the one-on-one interview, six juniors mentioned at least one quality or characteristic that was categorized as “positive personality characteristics.” The total times mentioned by this group was seven.

More seniors than juniors reported on this category. Sixteen seniors mentioned at least one quality or characteristic that was categorized as “positive personality characteristics.” The total times mentioned by this group was 28. The average rank of importance from these responses was 4.3, and the adjusted rank of all senior respondents and non-respondents was 3.1. For the one-on-one interview, seven seniors mentioned one quality or characteristic that was categorized as “positive personality characteristics.”

Among instructors, six mentioned at least one quality or characteristic that was categorized as “positive personality characteristics.” The total times mentioned by this group was 11. The average rank of importance from these responses was 3.4. The adjusted rank of all instructor respondents and non-respondents for the on-line survey for this category was 4.1. Within the interviews, two instructors mentioned at least one quality or characteristic that was categorized as “positive personality characteristics.” The total times mentioned by this group was three.

Based on these findings it is evident that the importance of an instructor’s positive personality characteristics cannot be underestimated in terms of students’ perceptions of their learning. A clinical instructor could be extremely knowledgeable with excellent communication skills when instructing; but if they do not come across as kind, positive, enthusiastic, and with a smile, the effectiveness of their teaching may be at an extreme disadvantage.



Given the unique social aspects of the job of a dental hygienist, positive personality traits are highly valued within the field of dental hygiene. Dental hygienists have the role of intimately interacting with patients in close proximity for approximately an hour at a time, numerous times a year. Patients often have a choice between two or more dental hygienists who will treat them. Similar to other health care providers, if patients do not feel comfortable with their dental hygienists, they can decide to switch to different ones. Dental hygiene students are aware of this and thus strive to provide the best oral health care they can while also being as pleasant as they can to patients. This value placed on positive personality characteristics within the field in general perhaps translates to what they value in their clinical instructors. This is further validated by the fact that instructors share in the emphasis placed on personality characteristics. Clinical instructors who are viewed as having a positive attitude and who are enthusiastic and kind contribute to a more effective learning environment. In line with previously published research, “positive personality characteristics” is an undeniably important quality of a clinical instructor (Haag & Schoeps, 1993; Nehring, 1990; Tang, Chou, & Chiang, 2005). In Nehring’s (1990) and Morgan and Knox’s (1987) research, “personality trait” was valued highly by students; additionally, however, in their research, the faculty rated this significantly lower in importance (Morgan & Knox 1987; Nehring, 1990). The importance of “personality characteristics” conflicts with Benor and Leviyof’s (1997) research, which found that the least important trait to discriminate between best and worst clinical teachers was “personality characteristics.” This may be due to a cultural difference as previously addressed.

**Effective teaching methods.** The third most frequently reported category of effective learning was “effective teaching methods.” This category was coded by the following

qualities and characteristics: helps me remember certain things, shares personal stories or experiences, demonstrates, gives at home practices, sets goals for students, teaching by repetition, uses different visual aids for teaching, gives helpful hints, individualizes their teaching method, creative, and teaches appropriate to student's level. The high importance placed on effective teaching methods in this study coincides with Kanitsaki's (1989) and Sellick's (1991) reports, which revealed that "teaching behaviours" were the most important instructor traits.

On the electronic instrument, 10 juniors mentioned at least one quality or characteristic that was categorized as "effective teaching methods." The total times mentioned by this group was 14. The average rank of importance from these responses was 4.36. The adjusted rank of all junior respondents and non-respondents for this category was 2.54. Fourteen juniors mentioned at least one quality or characteristic that was categorized as "effective teaching methods" during their interview with the total times mentioned by this group as 16.

Slightly fewer seniors reported on this category. Seven mentioned at least one quality or characteristic that was categorized as "effective teaching methods." The total times mentioned by this group was nine. The average rank of importance from these responses was 4.11. The adjusted rank of all senior respondents and non-respondents for this category was 1.68. Ten seniors mentioned at least one quality or characteristic that was categorized as "effective teaching methods." The total times mentioned by this group was 11.

For the instructors, only two mentioned a quality or characteristic that was categorized as "effective teaching methods." The average rank of importance from these responses was 4.0. The adjusted rank of all instructor respondents and non-respondents for

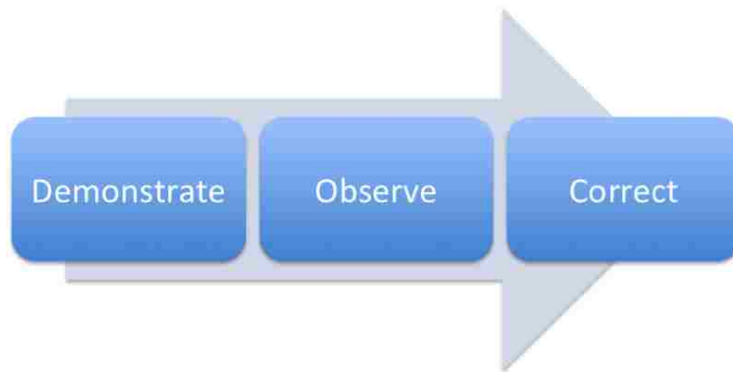
the on-line survey for this category was 0.89. From the interview, one instructor mentioned one quality or characteristic that I categorized as “effective teaching methods.”

Although rated highly by both cohorts of students, junior students reported that they value effective teaching methods more than senior students. Juniors need and appreciate effective instruction in their early clinical development. They benefit from straightforward and clear instruction in this challenging clinical setting. One student, reflecting on his first experience during the junior year in treating a patient with heavy calculus build up, described that his instructor,

used clear words, and she was very involved. She really made sure that I knew how to use [my instrument]. She was there to see that I was using it correctly... and she used really good words to emphasize, ‘This is what I want you to do and this is how I want you to do it.’ Also she was there, standing right next to me, watching really carefully to make sure that I was doing it correctly and that made me feel very confident... I was able to get in there and I did exactly what she had demonstrated to me and I was able to remove the calculus at this point. I remember removing the calculus, and I remember feeling excited... that the instructor was there to demonstrate, and she was also there by me to make sure that I was doing exactly as she had demonstrated.

During interviews, when describing their most effective learning experience, it is important to note that 13 students (33% of all students) mentioned a very similar situational encounter. Six seniors and nine juniors described a scenario where an instructor first demonstrated a technique, then observed the student attempt what was demonstrated, then went back and corrected the student on his or her technique as necessary. Due to the number

of occurrences of this phenomenon, this was coded with a unique code – “DOC (demonstrate, observe, correct).”



The following is direct quote from a senior student explaining the DOC technique:

An example of an effective learning incident would be at the beginning of my senior semester on final checkout, the instructor found a piece of calculus. The instructor had me feel the end of the explorer when she was exploring the calculus. She then traded places with me and watched me find the piece of calculus. Once I found it, she stayed and watched me remove it. I explored the area to make sure it was smooth. The instructor checked the area one final time.

This systematic process of the instructor demonstrating a technique to the learner, observing the learner perform the technique, and correcting the learner on the technique was frequently reported as an effective teaching method. It is evident that when teaching a specific hands-on skill, students find it greatly effective when the instructor goes beyond just explaining a technique but also demonstrates the clinical method, watches the student attempt it, then provides immediate feedback. Students likely favor this teaching technique and find it effective because they have a fresh visual and an explanation of what is expected of them

through the demonstration, followed by the support of being observed during the attempt, and then the immediate feedback to help them improve.

**Effective feedback.** The fourth most frequently cited category by students was “effective feedback.” This category incorporates codes such as gives positive feedback in front of patients, gives feedback, balanced feedback with positives and negatives, gives positive reinforcement, gives correction in private, saying the student is incorrect with explanation, instant feedback, not harsh or negative criticism, gives praise, corrects students without humiliating them, and takes time to go over grade.

Junior students rated and valued this higher than senior dental hygiene students. Sixteen juniors mentioned at least one quality or characteristic that was categorized as “effective feedback.” The total times mentioned by this group was 24. The average rank of importance from these responses was 4.6. The adjusted rank of all junior respondents and non-respondents for the on-line survey for this category was 4.6. Based on the interview, 11 juniors mentioned one quality or characteristic that was categorized as “effective feedback.”

Nine seniors mentioned on the electronic questionnaire at least one quality or characteristic that was categorized as “effective feedback.” The total times mentioned by this group was 10. The average rank of importance from these responses was 4.6. The adjusted rank of all senior respondents and non-respondents for this category was 2.1. In the interview, three seniors mentioned one quality or characteristic that was categorized as “effective feedback.”

One instructor mentioned one quality or characteristic that was categorized as “effective feedback.” The rank of importance of this response was 5. The adjusted rank of all instructor respondents and non-respondents for the on-line survey for this category was 0.6.

During the interviews, two instructors mentioned one quality or characteristic that was categorized as “effective feedback.”

“Effective feedback” was the junior students’ most frequently mentioned quality and characteristic of a clinical instructor that promotes effective learning. Junior students are hard workers who strive for perfection and want to please their instructors. They also are fairly unaware of their strengths and weaknesses in the unique dental clinical environment and are, therefore, very dependent on the feedback received from instructors. Junior students are open to criticism if it creates the opportunity to learn but tend to thrive on positive reinforcement. They appreciate instructors who deliver feedback thoroughly, clearly, and kindly. When describing a scenario of good feedback, another junior student stated,

She makes you feel really good and she tells you what you do right, but she’s not a pushover. She’ll look at your grade sheet and those things that she told you in a positive fashion, she’s still grading you. You’re still learning from her and you’re still being held accountable for what you’re doing wrong and what you need to correct and work on. She does it in such a loving and accepting, generous fashion. It’s really neat the way she can go about that.

The way a clinical instructor presents his or her criticism is significant to a junior dental hygiene student. While caring about their grades, juniors in a clinical setting are primarily focused on learning and improving. One junior student, recalling an incident where she made a significant error, reported her instructor’s feedback as “very positive... she made me realize that I should not do this again, but it was so positively explained to me... she was not really humiliating... it was so good and... somehow she made me remember it always for my lifetime that I should not do that.”

Several seniors did report on the importance of effective feedback for their learning; however, they reported a lesser reliance for effective learning on instructor feedback when compared to junior students. This is perhaps because they have more self-awareness with respect to their clinical skills and abilities. Given seniors' existing knowledge base and past experiences, they benefit from more specific feedback as they go on to refine their existing skill set.

Both groups of students emphasized the importance of positive reinforcement. Clinical learners in dental hygiene school often feel insecure in their abilities and try hard to perform well. Positive reinforcement was reported to be “encouraging” to multiple students and promoting of self-confidence. This is particularly important to learners in a clinical environment performing an advanced task. The significance of positive reinforcement may transfer to learners of all ages and disciplines. Learners do not benefit as well from being criticized as they do from receiving positive feedback. Additionally, a sense of competence is a necessary component to intrinsic motivation. If students are criticized, they may lose a sense of self-efficacy, which will impede on their motivation to improve (Ormrod, 2004).

**Patience.** The fifth most frequently mentioned effective category was “patience.” This category included coded qualities or characteristics such as patient and does not exhibit frustration. While patient or being patient could be grouped under the category “other positive personality characteristics” due to the occurrence of times mentioned by participants, I thought that grouping it under another category would not only hide the prevalence of “patience” but also over inflate the other category, “positive personality characteristics.”

Based on responses to the electronic survey, 14 juniors mentioned one quality or characteristic that was categorized as “patient.” The average rank of importance from these

responses was 4.8. The adjusted rank of all junior respondents for the on-line survey for this category was 2.8. For the one-on-one interview, 11 juniors mentioned at least one quality or characteristic that was categorized as “patient.” The total times mentioned by this group was 12. This category was rated higher by junior students than senior students. This parallels Wong’s (1978) finding that students earlier in their education careers are more sensitive to how teachers make them feel. Instructors who show patience and/or that do not show frustration make students feel better which positively influences their learning.

Nine seniors mentioned one quality or characteristic that was categorized as “patient” in the survey. The average rank of importance from these responses was 4.6. The adjusted rank of all senior respondents for this category was 1.9. For the interview, six seniors mentioned one quality or characteristic that was categorized as “patient.”

Among instructors, four mentioned one quality or characteristic that was categorized as “patient.” The average rank of importance from these responses was 4.3. The adjusted rank of all instructor respondents for the on-line survey for this category was 1.9. During the interviews, two instructors mentioned one quality or characteristic that was categorized as “patient.”

Similar to positive reinforcement in the “effective feedback” category, “patience” is a quality of an instructor to which learners respond well primarily because it builds up their confidence. Below are quotes from junior students explaining why patience is so important to them:

A characteristic [of effective learning], I would say, is patience. We're still learning, we don't know everything, of course, and for an instructor to be impatient or



frustrated puts us off a little bit, so it's hard to approach them as well. Just giving praise to us as well, I think gives us a little bit of confidence. [Student Number 31]

I think to be an instructor, you need patience... patience is huge and positive motivation is good. We feel really stupid ourselves, like when we're trying to do something and we can't do it, it's really frustrating for us and [instructors]. Then when we see [instructors] frustrated too, then we feel worse. But when [instructors] are calm and confident in us, it instills in us. [Student Number 52]

In addition to contributing to confidence, “patience” as an attribute of an instructor also creates a non-rushed environment where learners can take their time in the process of their learning. One senior said, “patience is effective because it calms the mood and makes you slow down and think about what you are doing and it also leads to more thorough practice.” This characteristic facilitates independent thought processes and development of skills. Clinical instructors tend to share in the realization of this trait as important for effective learning.

**Other categories of effective learning.** Many additional categories of effective learning were reported by students but with less frequency than the five categories I presented earlier in this section. For full descriptions of the codes that made up the categories, see Appendix H, as well as the frequencies of report (Appendix I). In decreasing order of frequency of report by students for combined surveys and interviews, the additional characteristics of effective instructors were: “miscellaneous qualities of good instruction,” “motivating,” “approachable,” “empathetic,” “good communication or listening,” “knowledgeable,” “respectful,” “good evaluation skills,” “consistency,” “sympathetic,” “professional,” “integrity,” “open-minded,” “attentive,” “patient-oriented,” “good time

management,” “experienced,” “available,” “skilled” and “self-awareness.” Students were able to identify several additional characteristics for effective learning.

### **Ineffective Qualities and Characteristics of Clinical Instructors**

In this section, I report the categories of ineffective qualities and characteristics of clinical instructors as identified by junior students, senior students, and clinical instructors. Categories for the combined survey and interview portions of the study are listed in decreasing frequency of reporting as stated by students. Similar to the previous section, I begin each category sub-section by listing the included coded qualities and characteristics constituting the category. Next, I report the response rate from all cohorts for surveys and interviews, followed by comparisons and contrasts of the responses from the different cohorts. Within the survey section, participants ranked the importance of their responses on a 5-point Likert-type scale (1= Not Significant, 2 = Slightly Significant, 3 = Significant, 4 = Very Significant, 5 = Critical). Average ranks are reported for all those who described a given characteristic as well as among all participants including those who did not report it (i.e. the adjusted rank). Figures 7 through 11 display the number of responses by category in descending order for students only, followed by the responses from the clinical instructors, and finally for all participants.

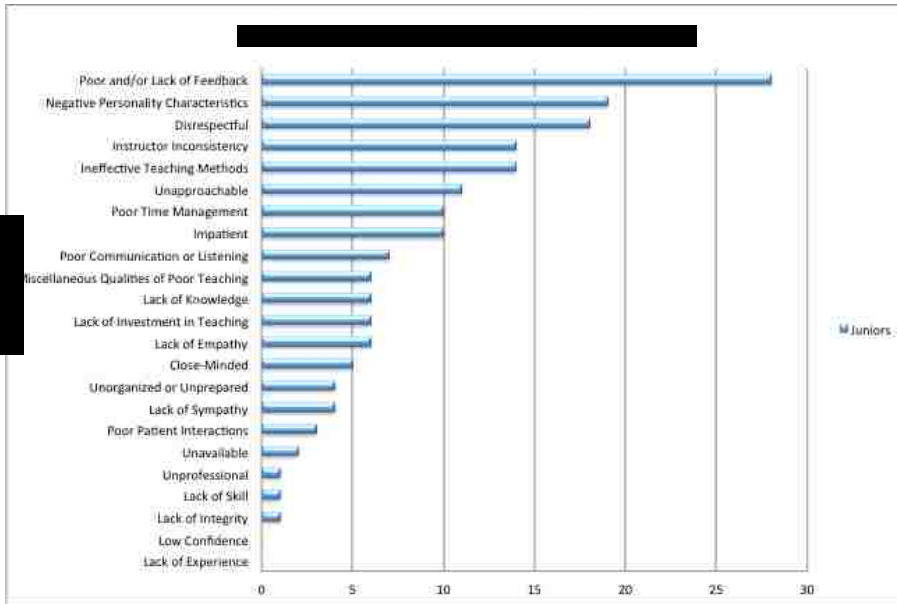


Figure 7. Categories of ineffective qualities and characteristics of clinical instructors as identified by juniors in the program.

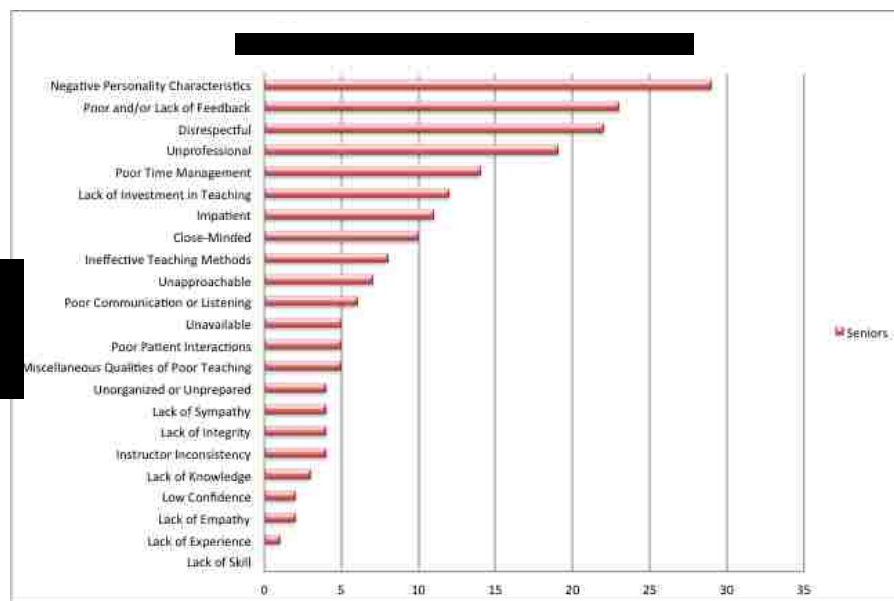


Figure 8. Categories of ineffective qualities and characteristics of clinical instructors as identified by seniors in the program.

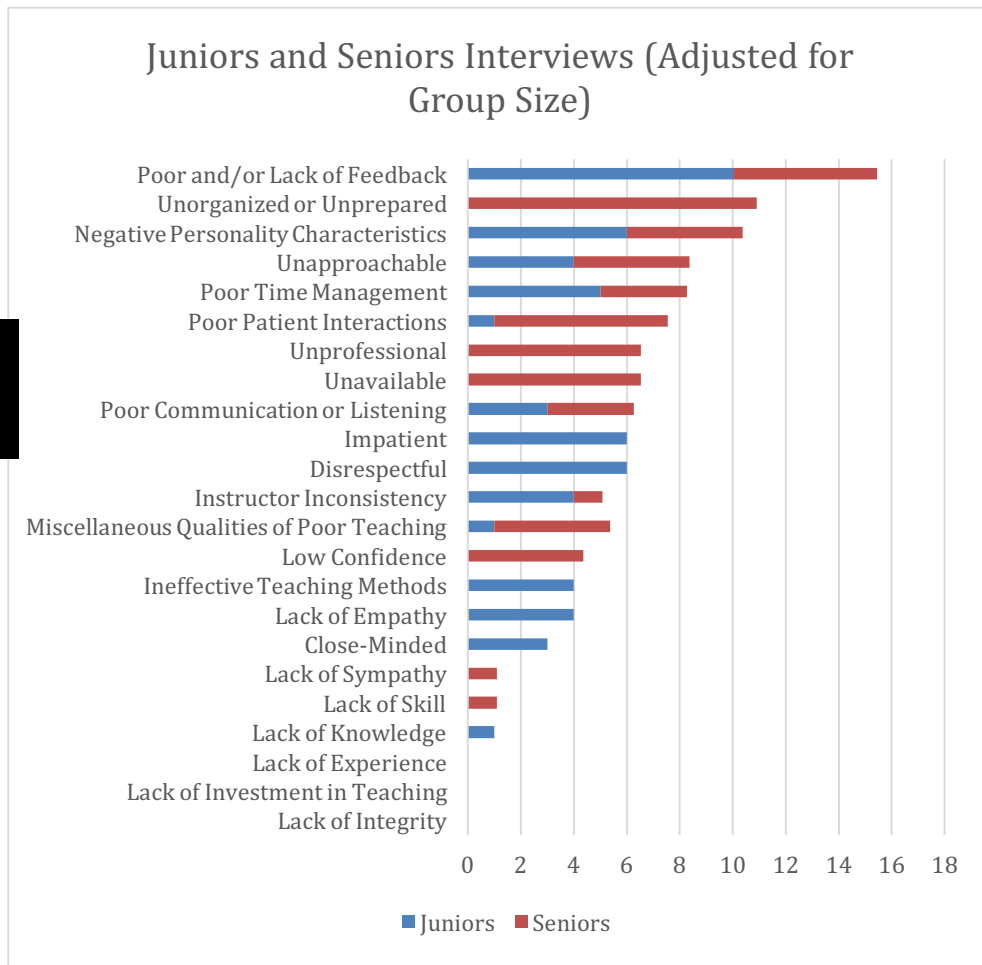


Figure 9. Categories of ineffective qualities and characteristics of clinical instructors as identified by juniors and seniors in the program (adjusted for group size).

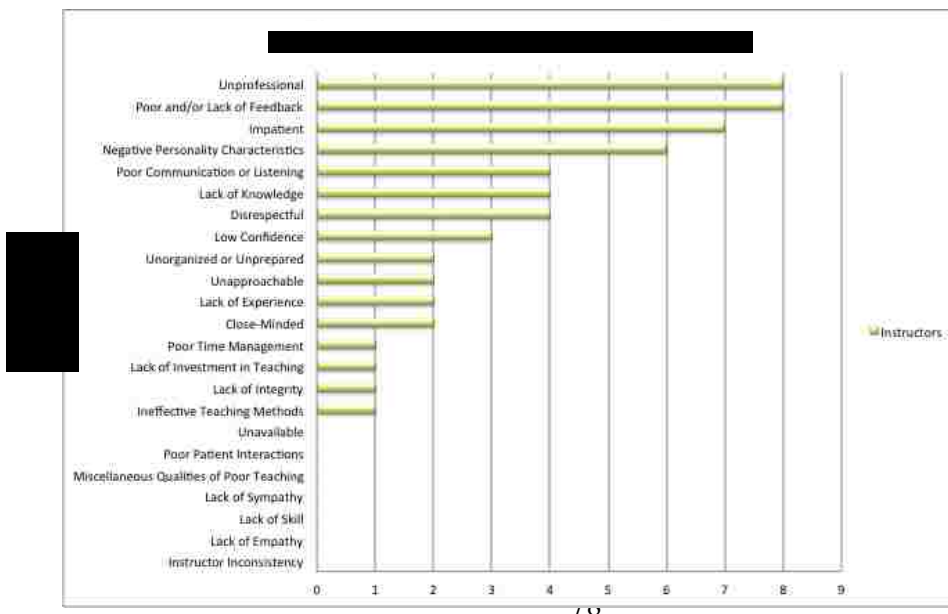


Figure 10. Categories of ineffective qualities and characteristics of clinical instructors as identified by instructors in the program.

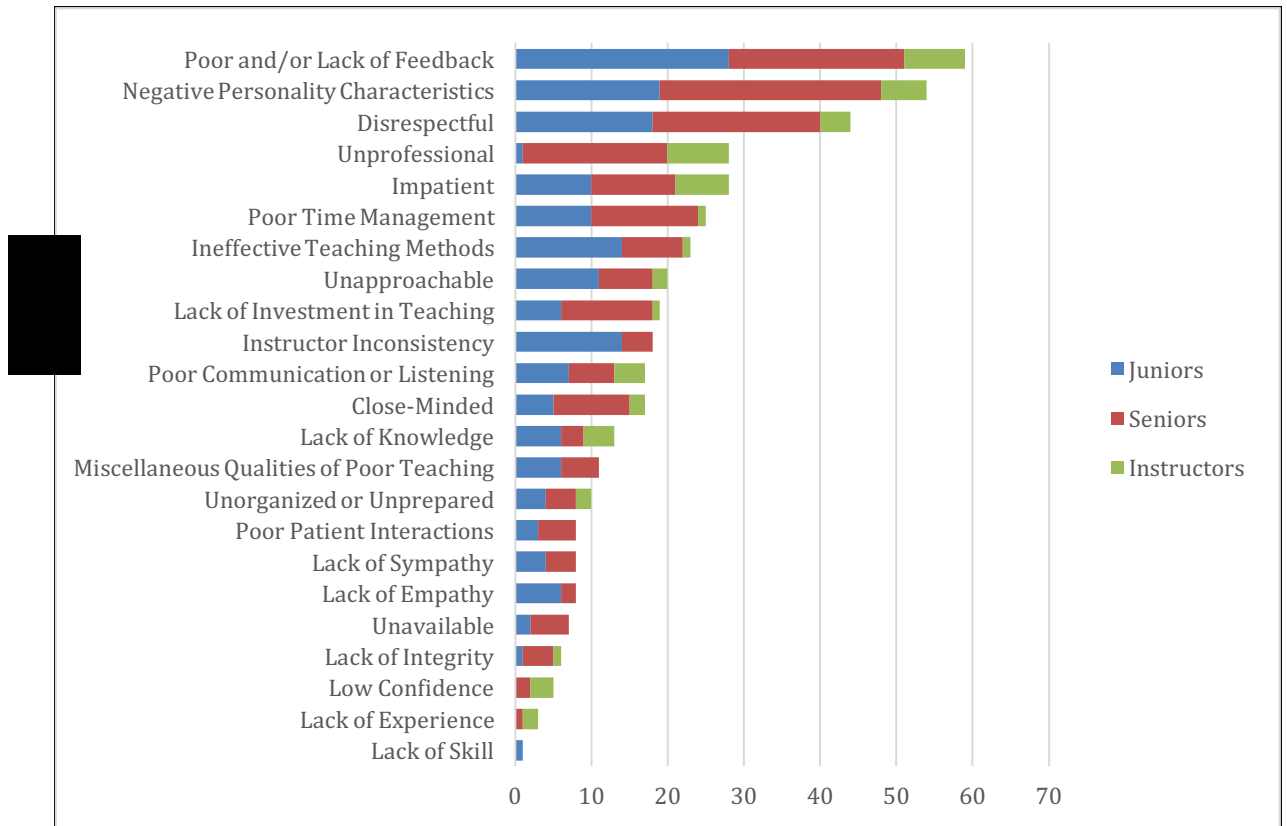


Figure 11. Categories of ineffective qualities and characteristics of clinical instructors as identified by all groups in the program (adjusted for group size).

**Poor and/or lack of feedback.** The quality or characteristic of instructors contributing to an ineffective learning experience most frequently reported by students was “poor and/or lack of feedback.” This category was made up of the coded qualities and characteristics of overly critical or nit-picky, only pointing out negative, harsh or negative

criticism, saying student is incorrect without explanation, lack of feedback or silent, harsh grading, too easy grading, not grading thoroughly, subjective, unfair, discouraging because of lack of feedback, non-constructive criticism, poor feedback, does not explain well when incorrect, never praises strengths, does not provide reinforcement when correct, use of negative reinforcement, lack of positive feedback, correcting student without explanation, subjective grading, lack of communication skills and feedback, taking off points without explanation, just pointing out negatives while a student does a technique, and being nit-picky during grading.

“Poor and/or lack of feedback” was rated the highest for junior and senior students and was also ranked equally between the two cohorts. Based on the electronic instrument, 13 juniors mentioned at least one quality or characteristic that was categorized as “poor and/or lack of feedback.” The total times mentioned by this group was 18. The average rank of importance from these responses was 4.4 out of 5. The adjusted rank of all junior respondents for the on-line survey for this category was 3.3. During the interview, seven juniors mentioned at least one quality or characteristic that was categorized as “poor and/or lack of feedback.” The total times mentioned by this group was ten.

Based on their responses to the survey, 12 seniors mentioned at least one quality or characteristic that was categorized as “poor and/or lack of feedback.” The total times mentioned by this group was 16. The average rank of importance from these responses was 4.1. The adjusted rank of all senior respondents for the on-line survey for this category was 2.9. During the interview, seven seniors mentioned one quality or characteristic that was categorized as “poor and/or lack of feedback.”

“Poor and/or lack of feedback” was also recognized by clinical instructors, with three instructors mentioning at least one quality or characteristic within this category. The total times mentioned for this group was six. The average rank of importance from these responses was 4.0. The adjusted rank of all instructor respondents for the on-line survey for this category was 2.7. In the interview, two instructors mentioned one quality or characteristic that was categorized as “poor and/or lack of feedback.”

A large part of how “poor and/or lack of feedback” is coded is with the occurrence of lack of positive reinforcement from instructors during evaluation. As noted in “effective feedback,” during evaluation, a balance between positive and critiquing comments is necessary. The absence of positive reinforcement during evaluation was consistently reported among students. Below is a quote from a junior student explaining how when instructor feedback is lacking, this imbalance influences the learning experience:

I think from a patient's point of view it's a little uneasy when an instructor just goes through everything that you've missed and doesn't say you've done anything right, and then just turns you loose with your patient. I think it might make the patients a little uncomfortable.

Students rely on feedback for development and improvement. They learn by being assessed and by receiving an explanation as to what they did well and where they can improve. They respond well to positive reinforcement and do not respond well to poor feedback, regardless of the grade received. “It’s frustrating, when an instructor removes points and doesn’t explain,” a junior student stated. Learning is impeded when a student is evaluated and constructive feedback is not provided. Adult learners in a professional program

in particular expect this from their instructors. They are enrolled for a particular purpose and have high expectations from their instructors when it comes to feedback necessary to learn and improve. Not receiving adequate feedback is very frustrating to students. The importance of feedback is well-documented in the literature for adult learners, particularly in a clinical setting Nahas, Nour, & al-Nobani, (1999); Morgan & Knox, (1983); Sieh & Bell, (1994); Kelly (2007); Victoroff & Hogan, (2006); and Henzi et al., (2006).

From a clinical instructor's perspective, it is difficult to ascertain the amount and type of feedback to offer a student. This particularly applies to clinical instructors who work in both the junior and the senior clinics in any given semester. They feel they have to differentiate their teaching, including evaluation and feedback, to the individual student, a process that has the potential to pose significant challenges. Students may want and expect different amounts of feedback. It is a responsibility of the instructor to gauge for each student the amount, type, and method of delivery of feedback to be provided.

**Negative personality characteristics.** The second most frequently reported category of instructor traits contributing to ineffective learning was “negative personality characteristics.” This category includes qualities or characteristics such as emotional or moody, personal attacks, rough, ill-tempered, rude, negativity, intimidating, mean, cattiness, unfriendly, unhappy, cynical, poor people skills, sarcastic, unkind, judgmental, pushing, stoic, and does not show emotion.

Based on the junior cohort's online survey, 10 juniors mentioned at least one quality or characteristic that was categorized as “negative personality characteristics.” The total times mentioned by this group was 13. The average rank of importance from these responses



was 4.6. The adjusted rank of all junior respondents for the on-line survey for this category was 2.5. Within the interview, 5 juniors mentioned one quality or characteristic that was categorized as “negative personality characteristics.” The total times mentioned by this group was 6.

Seniors mentioned this category more frequently than juniors. Based on the senior student cohort’s online survey, 16 seniors mentioned at least one quality or characteristic that was categorized as “negative personality characteristics.” The total times mentioned by this group was 27. The average rank of importance from these responses was 4.2. The adjusted rank of all senior respondents for the on-line survey for this category was 3.0. In the interview, two seniors mentioned one quality or characteristic that was categorized as “negative personality characteristics.”

Instructors mentioned this category frequently as well. Results from the online survey revealed that five instructors mentioned at least one quality or characteristic that was categorized as “negative personality characteristics.” The total times mentioned by this group was 6. The average rank of importance from these responses was 4.5, and the adjusted rank of all instructor respondents to the on-line survey for this category was 3.0. During the interviews, no instructors mentioned any qualities or characteristics that were categorized as “negative personality characteristics.”

Being ranked as the second most frequently reported category, the implications of negative personality characteristics cannot be underestimated. In addition to these being undesirable in an instructor, students feel that negative personality characteristics impact their learning experience in a negative way. One might surmise that adult learners would relatively easily put aside the negative aspects to an instructor’s persona and be able to learn

unabatedly. The students' responses, however, would suggest that the opposite is true and that the undesirable vagaries of an instructor can in fact impede their learning.

There are likely several reasons why negative personality characteristics adversely impact students' perceptions of their learning environment. For one, these characteristics shape the experience between the student and the patient. Several students expressed scenarios wherein an instructor who came across as being in a bad mood or who was unkind to a student affected their subsequent experience with a patient. The patient care setting is one with heightened professional standards and when negative personalities among care providers become evident, this has the potential to be deleterious to the patient experience Haag & Schoeps, (1993); Nehring, (1990); Tang, Chou, & Chiang, (2005).

The sensitivity of the learner is also a potential reason for the impact. This perhaps explains the difference in perceived importance of this when comparing students' and instructors' ranking of this category. These are adult learners in an undergraduate educational program. For most of the students, dental hygiene school is their first clinical education learning experience. This newness has the potential to leave students feeling vulnerable and heightens their sensitivity as to how they are treated by instructors.

Students recognize negative personality characteristic such as moodiness, rudeness, and unfriendliness in their instructors and perceive that these negative expressed emotions have an adverse impact their learning. This is more apparent in learners who are earlier in their training (Wong, 1978). Instructors should be self-aware and make efforts to understand how they come across as well as the implications on the learning environment they are creating.

**Disrespectful.** The third highest category ranked by student participants in terms of ineffective qualities and characteristics of clinical instructors was “disrespectful.” This category included codes such as disrespectful, embarrassing the student in front of patients, embarrassing the student in front of students, condescending, belittling/demeaning, makes student feel stupid by tone in voice, acts superior, smug, narcissistic, arrogant, superiority, does not treat student like an equal, makes student feel incompetent in front of patient, and being made to feel low from not grasping concept of mistakes.

From the junior cohort, ten students mentioned at least one quality or characteristic that was categorized as “disrespectful.” The total times mentioned by this group was 12. The average rank of importance from these responses was 3.9. The adjusted rank of all junior respondents for the on-line survey for this category was 2.0. During the interview, six juniors mentioned one quality or characteristic that was categorized as “disrespectful.”

Mentioned slightly more than the junior cohort, 12 seniors mentioned at least one quality or characteristic that was categorized as “disrespectful.” The total times mentioned by this group was 18. The average rank of importance from these responses was 4.4. The adjusted rank of all senior respondents for the on-line survey for this category was 3.6. Four seniors mentioned one quality or characteristic that was categorized as “disrespectful” during the interview.

When responding to the electronic instrument, three instructors mentioned a least one quality or characteristic that was categorized as “disrespectful.” This was mentioned a total of four times by this group. The average rank of importance from these responses was 4.0. The adjusted rank of all instructor for the on-line survey for this category was 1.8. For the

interview, no instructors mentioned any qualities or characteristics that were categorized as “disrespectful.”

Junior students are new to the clinical setting and are sensitive to their clinical instructors’ affect. Junior students respond well to positivity, kindness and encouragement. They do not respond well to instructors that come across as disrespectful, unapproachable or impatient. It was reported by this cohort that those characteristics impede their learning. Being treated this way, whether intentionally or unintentionally, hurts their self-esteem and serves as a distraction to their learning.

Senior students cited this quality as ineffective for their learning slightly more than juniors. It is possible that seniors expect their instructors to respect them, particularly as they become more skilled and approach the status of becoming a peer with their instructors. A respectful environment allows these students to develop and refine their clinical skills as they become professional health care providers. When they experience disrespect from their instructors, however, they become dispirited and discouraged, which then negatively impacts their learning.

**Poor time management.** The fourth most frequently reported category was “poor time management,” which included qualities or characteristics such as slow in teaching, making students wait, untimeliness/poor time-management, wastes student time, hurrying students, overwhelmed, overworked/stretched thin, rushed, working with students not assigned to, too busy, not using student time effectively, and poor time management with process evaluations.

From the responses to the electronic survey, four juniors mentioned at least one quality or characteristic that was categorized as “poor time management.” The total times

mentioned by this group was 5. The average rank of importance from these responses was 4.8. The adjusted rank of all junior respondents for the on-line survey for this category was 1.0. Five juniors mentioned one quality or characteristic that was categorized as “poor time management.”

Eight seniors mentioned on the electronic instrument at least one quality or characteristic that was categorized as “poor time management,” with the total times mentioned by this group being 13. The average rank of importance from these responses was 3.5. The adjusted rank of all senior respondents for the on-line survey for this category was 2.1. During the interview, one senior mentioned one quality or characteristic that was categorized as “poor time management.”

On the electronic survey instrument, one instructor mentioned one quality or characteristic that was categorized as “poor time management.” The rank of importance of this response was 3.0. The adjusted rank of all instructor respondents for the on-line survey for this category was 0.3. No instructors mentioned any qualities or characteristics that were categorized as “poor time management” during the interview.

Clinical time is valuable. Students are given a set number of requirements that must be completed within an allotted time in the clinic. Most students are very rushed to complete all the requirements by the end of a semester. Many of their requirements necessitate instructor evaluation within a clinic session, and students are not allowed to proceed until these evaluations occur. Students, therefore, depend on their instructors to be efficient in their management of time across the multiple students to which they are assigned. When students find themselves having to wait on their instructors to provide their checks, they perceive their instructors to have poor time management. As students cannot proceed or

complete the assigned tasks, this “wasted time” is described as being ineffective to their learning experience. In essence, students are not “capitalizing” on their learning time when they are delayed by an instructor.

Additionally, teaching and feedback, which are provided when an instructor is rushed or hurried, are considered less valuable and of lower quality to students. When an instructor is pressed for time, he or she is less able to provide more thorough teaching and evaluation. Students associate this with poor time management. Within the interviews, this quality was noted to be more common among newer hires and those who were less familiar with the clinic set up.

**Ineffective teaching methods.** The fifth ranked category for ineffective qualities or characteristics of clinical instructors is “ineffective teaching methods,” which included codes such as does not demonstrate, poorly demonstrates, not setting clear expectations, sets unrealistic goals for students, teaching too fast, domineering situations from student, not individualizing teaching, being too picky during instruction, underestimating student, overestimating student, and sold the student short.

On the electronic survey, six juniors mentioned at least one quality or characteristic that was categorized as “ineffective teaching methods.” The total times mentioned by this group was 10. The average rank of importance from these responses was 4.1. The adjusted rank of all junior respondents for the on-line survey for this category was 1.7. During the interviews, three juniors mentioned at least one quality or characteristic that was categorized as “ineffective teaching methods.” The total times mentioned by this group was four.

Three seniors mentioned one quality or characteristic that was categorized as “ineffective teaching methods.” The average rank of importance from these responses was

4.3. The adjusted rank of all senior respondents for the on-line survey for this category was

0.6. During the interview, five seniors mentioned one quality or characteristic that was categorized as “ineffective teaching methods.”

On the online survey, one instructor mentioned one quality or characteristic that was categorized as “ineffective teaching methods.” The rank of importance of this response was

5.0. The adjusted rank of all instructor respondents for the on-line survey for this category was 0.6. No instructors mentioned any qualities or characteristics that were categorized as “ineffective teaching methods” during the interview.

While this category was a medley of qualities and characteristics, some unique themes of teaching are evident. Within this category, the concept of individualizing instruction was discussed. In particular, students perceive that a lack of individualized instruction from their instructors adversely influences their learning. During the interviews, this was described with scenarios involving failure of instructors to provide specific feedback about deficit or missed areas as well as instructors not grading thoroughly enough to point out possible areas of improvement. Students expressed desires to have instructors focus their grading and feedback on true areas of improvement and as objectively as possible.

Among instructors, the concept of autonomy was discussed; particularly that providing too much or too little autonomy to a student can negatively impact a student’s growth. This is a constant adjustment that instructors need to make as students develop their skills and knowledge (Williams & Deci, 1998). This may be a particular issue for instructors who teach at both the junior and senior levels where significant differences in the dependency of student cohorts exist. Instructors have the responsibility to gauge the needs of the student to provide the adequate amount of attention or space.

**Impatient/Frustrated.** The sixth most frequently mentioned category was “impatient/frustrated.” This category included qualities or characteristics coded as impatient, exhibits frustration, easy frustrated/shows frustration, intolerant, not patient, exhibits disappointment in student, and gives up on student.

In their responses to the online survey, 14 juniors mentioned at least one quality or characteristic that was categorized as “impatient.” The total times mentioned by this group was 16. The average rank of importance from these responses was 4.6. The adjusted rank of all junior respondents for the on-line survey for this category was 3. For the interview, six juniors mentioned at least one quality or characteristic that was categorized as “impatient.” The total times mentioned by this group was ten.

For the senior cohort, five mentioned one quality or characteristic that was categorized as “impatient” on the survey. The average rank of importance from these responses was 3.6. The adjusted rank of all senior respondents for the on-line survey for this category was 0.8. During the interview, five seniors mentioned at least one quality or characteristic that was categorized as “impatient.” The total times mentioned by this group was six.

Two instructors mentioned one quality or characteristic that was categorized as “impatient” for the survey. The average rank of importance from these responses was 4.0. The adjusted rank of all instructor respondents for the on-line survey for this category was 0.9. From the interviews, three instructors mentioned at least one quality or characteristic that was categorized as “impatient.” The total times mentioned by this group was five.

Within the survey data, there was a significant difference from junior to senior student responses in regards to “impatient.” Juniors reported being more sensitive to



instructors' impatience. When first learning in a clinical setting, students are vulnerable and self-doubting. They are often frustrated with themselves and are continuously aware of their inadequacies. Because they try hard to be their best and are frustrated with not being as efficient in their clinical skills, perceived frustration and impatience in their instructors affects students negatively. A junior student mentioned, "When the instructor is frustrated, it makes us 'standbackish' to even talk to them or approach them with questions or concerns that we have." If a student does not feel comfortable approaching his or her instructor, this hinders effective learning (Brown 1981).

**Unprofessional.** The next most frequently mentioned category of ineffective qualities was "unprofessional." This included qualities or characteristics coded as unprofessional, unprofessional appearance, using words such as trauma in front of patient, works disagreeably and unprofessionally with others, not on time, constant illness or absence, irresponsible, favoritism, biased, poor judgment, gossipy, bad teeth, and tactless.

Results from the survey data revealed that one junior mentioned one quality or characteristic that was categorized as "unprofessional." The rank of importance of this response was 4.0. The average ranking of all junior respondents for the on-line survey for this category was 0.2. During the interviews, no juniors mentioned any qualities or characteristics that were categorized as "unprofessional."

In contrast with the junior cohort, 12 seniors mentioned on the survey at least one quality or characteristic that was categorized as "unprofessional." The total times mentioned by this group was 18. The average rank of importance from these responses was 4.6. The adjusted rank of all senior respondents for the on-line survey for this category was 3.8. For the interview, one senior mentioned one quality or characteristic that was categorized as

“unprofessional.” Other studies have noted differences in student cohort responses; however unprofessional was not a category or characteristic previously documented.

Among the instructors, three mentioned on the electronic instrument at least one quality or characteristic that was categorized as “unprofessional.” The total times mentioned by this group was eight. The average rank of importance from these responses was 3.3. The adjusted rank of all instructor respondents for the on-line survey for this category was 2.9. During the interview, no instructors mentioned any qualities or characteristics that were categorized as “unprofessional.”

Unprofessional was ranked 7th out of 23 categories for qualities and characteristics of ineffective teaching. Interestingly, this category was almost solely noted by senior dental hygiene students. This could be that during the semester data was collected, there were more episodes of unprofessionalism by instructors in senior clinic than in junior clinic; but more likely, senior students have a better idea of what to expect from their clinical instructors and therefore have higher expectations. Many of the situations described by seniors involved scenarios when inappropriate words or descriptions of student work were used by instructors in front of patients. Tardiness of instructors was also frequently mentioned and felt by students to be ineffective, touching on the fact that students feel their time is valuable and that time is analogous to learning.

**Other categories of ineffective learning.** Beyond the previously described ineffective characteristics, students mentioned several additional categories. For full descriptions of the categories see Appendix H, and for their frequency of report, go to Appendix I. In decreasing order of frequency, students mentioned the following characteristics of ineffective instructors: “lack of investment in teaching,” “unapproachable,”

“instructor inconsistency,” “close-minded,” “poor communication or listening,”  
“miscellaneous qualities of poor teaching,” “lack of knowledge,” “poor patient interactions,”  
“unorganized or unprepared,” “lack of sympathy,” “lack of empathy,” “unavailable,” “lack of  
integrity,” “low confidence,” “lack of experience” and “lack of skill.”

## Summary of Results

In this section, I present a summary of the findings in response to each of the research questions. Table 1 presents the core themes from participants' responses that address the first research question: How do dental hygiene students perceive qualities and characteristics of clinical instructors who influence their learning?

Table 1

### *The Three Core Themes of Participant Responses*

<b>Affect</b>		<b>Expertise</b>		<b>Pedagogical</b>	
<b>Effective</b>	<b>Ineffective</b>	<b>Effective</b>	<b>Ineffective</b>	<b>Effective</b>	<b>Ineffective</b>
Approachable	Disrespectful	Experienced	Lack of experience	Available	Close-minded
Attentive	Impatient	Integrity	Lack of integrity	Consistent	Ineffective teaching methods
Empathetic	Lack of empathy	Knowledgeable	Lack of knowledge	Effective feedback	Instructor inconsistency
Good rapport with students	Lack of investment in teaching	Patient-oriented	Lack of skill	Effective teaching methods	Miscellaneous qualities of poor teaching
Invested in student success	Lack of sympathy	Professional	Low confidence	Good evaluation skills	Poor and/or lack of feedback
Motivating	Negative personality characteristics	Self-aware	Poor patient interactions	Good communication or listening	Poor communication or listening
Patient	Unapproachable	Skilled	Unprofessional	Good time management	Poor time management
Positive personality characteristics				Miscellaneous qualities of good instruction	Unavailable
Respectful				Open-minded	Unorganized or unprepared
Sympathetic					

In the summary of students' responses presented in Table 1, the five most important categories of qualities or characteristics of effective clinical instruction in descending order are: "invested in student's success," "positive personality characteristics," "effective teaching methods," and "patient." The five most important categories of qualities or characteristics of ineffective clinical instruction mentioned by all student participants in descending order are: "poor and/or lack of feedback," "negative personality characteristics," "disrespectful," "poor time management," and "ineffective teaching methods."

Among the categories that emerged from participant responses, three main themes were evident. These encompassed three core categories related to general aspects of instructors. These were "affective traits," "expertise traits," and "pedagogical traits."

A notable finding from this study is the level of importance students placed on instructors' affective traits. Among students' responses, three of the top five categories of effective characteristics – "invested in student's success," "positive personality characteristics," and "patient;" and two of the top five categories of ineffective characteristics – "negative personality characteristics" and "disrespectful" – had to do with such qualities. Affective traits of their instructors play the most significant role in these students' learning, more than instructors' expertise or pedagogical skills. Both positive and negative aspects of an instructor's personality significantly shape how students perceive their learning experiences. An instructor who demonstrates a positive demeanor, is kind, and is approachable is likely to be viewed as more effective for student learning than an instructor who does not demonstrate these traits. These findings are congruent with Wong (1978), Stuebbe (1980), Brown (1981), and Tang, Chou, & Chiang, (2005).

The degree to which these affective traits influence student perceptions of their learning was notable in the interviews. Through many of these sessions, scenarios of positive affective traits led to perceptions of a safer learning environment, self-confidence, and ability to approach their instructors. Consequently, these aspects positively influenced the students' learning experience. In contrast, instructors who portrayed negative affective traits were less approachable, discouraged individual growth, and increased the self-doubt of the learners. Students overwhelmingly emphasized the importance of their instructors being overall positive people who actively demonstrated interest in their growth and development as dental hygienists.

Instructors' pedagogical skills also played a significant role in student learning as mentioned by students (see Table 1). Two of the top five categories of effective qualities – “effective teaching methods” and “miscellaneous qualities of good instruction” – and three of the top five ineffective categories – “poor and/or lack of feedback”, “poor time management” and “ineffective teaching methods” – related to instructors' teaching skills. During the interviews, the positive pedagogical qualities were associated with improved understanding of topics, increased acquisition and retention of technical skills, and higher levels of confidence in patient care. Negative pedagogical skills, however, led to missed learning opportunities, promotion of development of poor techniques, and lower quality of patient care. An instructor's pedagogical skills have major ramifications on students' development, particularly with knowledge and skill acquisition, Wong (1978), Stuebbe (1980), Brown (1981), and Tang, Chou, & Chiang, (2005).

Notably absent among the top five categories of effective and ineffective categories were those that fit under the core category of “expertise skills.” An instructor's knowledge

and skill sets were noted to be important for students' learning, though students placed a lower level of importance on these compared to affective and pedagogical traits. While students do value instructors who demonstrate expertise, they perceive this as less essential for their learning. This stands in definite contrast to the importance placed on expertise by instructors. This notion of instructors ranking expertise higher than students is repeated in literature (Brown, 1981), (Tang, Chou, & Chiang, 2005), (Morgan & Knox, 1983).

Students have strong opinions and great awareness about characteristics of their instructors that influence their learning. This is in accord with Adult Learning Theory, which posits that adult learners can define what they need for their learning (Knowles, 1980). The ultimate conclusions as to what constitutes an effective or an ineffective clinical instructor should rest on students' responses. Students experience the ideal clinical learning encounters when instructors demonstrate a variety of positive affective traits and have a refined set of pedagogical skills. Students need to feel that their instructors are invested in them and care about their success as clinicians. A strong ability to provide effective feedback and to show patience with learners significantly promotes an effective learning environment. In contrast, instructors who convey negative affective traits and who lack certain pedagogical skills are hindrances to student growth and development. Additionally, unprofessionalism is not tolerated by students and, also promotes ineffective learning experiences. It would be beneficial for clinical instructors to be informed about, trained on, and evaluated by these findings. I discuss these implications in Chapter 5.

The second research question that guided this study was: What are dental hygiene clinical instructors' perceptions of qualities and characteristics of clinical instructors who influence students' learning? To help me answer this question, I collected data from the

instructors to ascertain their awareness of junior and senior dental hygiene students' needs in a clinical setting. Given that adult learning theory posits that adult learners can define what they need for their learning (Knowles, 1980), it seems to me that the ultimate conclusions as to what constitutes an effective or an ineffective clinical instructor should rest on students' responses.

The similarities between some of the students' and instructors' responses highlight instructors' understanding of students' learning needs; whereas the differences emphasize gaps of awareness. Instructors have good knowledge of the importance of affective traits in shaping students' learning experiences. Three of the top five effective categories – “positive personality characteristics”, “motivating”, and “patient” – and two of the top five ineffective categories – “impatient” and “negative personality characteristics” – encompassed affective traits. Instructors sense the importance of an instructor's persona on promoting or hindering student growth. In particular, students and instructors shared in the recognition of “positive personality characteristics” and “patient” as significant qualities of effective instructors; and “poor and/or lack of feedback,” “negative personality characteristics,” and “disrespectful” as qualities of ineffective instructors.

Where there was notable difference between the responses of students and instructors was in the relative importance instructors placed on expertise-related traits. One of the top five effective categories – “knowledgeable” – and one of the top five ineffective categories – “unprofessional” (categorized as expertise) – were mentioned by instructors; while categories classified as “expertise traits” were absent within the top effective and ineffective student responses. Clinical instructors appear to underestimate the importance of affective traits while clearly overestimating the importance expertise traits have on dental hygiene students'



learning. Instructors may not be aware of how much students weigh the importance of affective qualities and characteristics of instructors in influencing learning ineffectively. While expertise is also mentioned by students as being important for their learning, it would be beneficial to educate instructors to reprioritize what is actually identified by students as having an influence on their learning.

A third question guided this study: What are the implications for clinical instruction training and evaluation in dental hygiene schools based on perceptions of students and instructors? The findings revealed how dental hygiene students perceive qualities and characteristics of clinical instructors that influence effective and ineffective learning. Also assessed were instructors' perceptions of these qualities and characteristics. While there are similarities in what students and instructors reported, there are also differences. It would be beneficial for these results to be shared with clinical instructors as part of instructor education and training efforts. In addition, these results could shape instructor evaluations in attempts to improve the quality of clinical instruction and assist with retention efforts.

## **Chapter 5**

### **Conclusion**

This study provides evidence-based knowledge of how students and clinical instructors at an accredited baccalaureate dental hygiene program identify effective and ineffective clinical instructor qualities and characteristics that influence their learning. The study findings have multiple implications for clinical instruction in a variety of different settings, including the UNM Dental Hygiene Program, as well as other dental hygiene schools across the nation. Additionally, this study adds to the existing knowledge base of the topic of clinical instruction in healthcare fields.

### **Instructor Training**

An important implication of this study is the education of clinical instructors. Many of the results indicate best practices with regard to the education of dental hygiene students within the clinical setting. A proposed forum to share these would be a continuing education offering for dental hygiene instructors. The training session would consist of three parts as shown in Table 2: 1) What Does the Literature Say, 2) Discussion Items, and 3) Activities and Exercises.

**Table 2**

**Clinical Teaching Education Curriculum**

Clinical Teaching Education Curriculum	Topics Covered		
	Part 1: What Does the Literature Say?	Part 2: Discussion Items	Part 3: Activities and Exercises
<b>Best Practices in Clinical Instruction</b>	Motivation - intrinsic and extrinsic and how it relates to instruction	Instruction vs. evaluation – which is more important?	DOC exercise and role playing
	Top effective and ineffective qualities in clinical instructors	Importance of consistency and standardized approaches for instruction	Calibration exercises
	Affective, Pedagogical. Expertise – what is important?	Importance of professionalism	Self-reflection exercises

Part one of the session would focus on a review of the literature on practices in clinical instruction. Until now, research on optimal instruction within dental hygiene clinical education has been limited. As such, summarizing the findings contained in this study as well as relating them to extant literature in other disciplines would be a prominent component of this program. Topics in this part of the session would include: motivation and how it relates to instruction, top effective and ineffective qualities of clinical instructors, and the importance of affective traits versus pedagogical skills versus expertise in instruction.

While the literature topics may initiate conversation, other topics would be discussed to encourage more discussion and brainstorming on how participants can improve their performance. Part two of the session will involve forum discussions of clinical instructor participants led by the session leader. A major element of this session would be a review of cases of ineffective instruction identified by students. Based upon literature findings discussed in the first portion of the clinical training program, these scenarios could be reviewed by the group, followed by brainstorming on solutions and different approaches to the scenario. Tied to these cases would be discussions on instructor consistency, standardization of instruction, as well as professionalism expectations. The goal of part two of this session would be to refine participants' understanding of literature findings of clinical instruction through use of real-world scenarios.

The session would conclude with an activities and exercises portion where participants would be prompted to incorporate the conclusions of the first two sections into their own personal experiences. To facilitate this, a main focus of this portion of the session would be on self-reflection activities. Different exercises would be incorporated into this part to provide participants an opportunity to ponder their own practices and to practice how they can improve their instruction. This portion is where the demonstrate-observe-correct (DOC) technique could be exercised in detail with different instructors demonstrating examples of how this is practiced. Calibration exercises would also occur in an effort to improve instructor consistency and standardization. These calibration exercises could be with methods of instruction or with methods of evaluation and communication. Finally, self-reflection activities would help instructors reflect on their strengths and means to improve.

UNM Division of Dental Hygiene would also benefit from a formal orientation for new clinical instructors that would include new hires and graduate students assigned to teach in the clinic as part of their course work. As mentioned in Chapter 4, when instructors are rushed or hurried, the quality of teaching and feedback they provide to students is of lower quality and less value. Additionally, newer faculty have been identified by students as having poorer time management. Efforts to improve instructor efficiency are likely to have a positive effect on teaching quality. Given the many nuances of the clinical environment, training sessions focused on orienting new clinical instructors would likely be beneficial.

The following is a proposed orientation for new hires and graduate students new to clinical instruction. The orientation is comprised of three major sections shown in Table 3: 1) Clinic Function and Organization, 2) Student and Faculty Expectations, and 3) Shadow Experience.

**Table 3**

**Clinical Instructor Orientation**

New Clinical Instructor Orientation Sections	Topics Covered		
<b>Clinic Function and Organization</b>	Organizational structure of the Department of Dental Medicine	Electronic patient health record system	Electronic grading system
<b>Student and Faculty Expectations</b>	Clinical requirements specific to junior and senior clinic	Grading forms specific to junior and senior clinic	General flow and management of clinical teaching session
<b>Shadow Experience</b>	Shadowing of clinic coordinator and another clinical instructor during a clinical session	Debrief of shadowing experience	Self-reflection of shadowing experience

The first section would involve an overview of the organization of the Department of Dental Medicine. The organizational structure of the Department of Dental Medicine will be reviewed, including information about the dental residency program, all UNM Department of Dental Medicine clinics, and the referral system. The electronic patient record system and electronic grading system would also be part of this training so that instructors could be informed and exposed to the software prior to shadowing in the clinic. It is likely that graduate students who have graduated from UNM Dental Hygiene Program will be familiar with the program structure and software and, therefore, would most likely be able to bypass this training. An applicable learning resource for this section of training would be the UNM

Division of Dental Hygiene Clinic Manual, which includes flow charts of the Department of Dental Medicine's organizational structure and information on charting and learning software.

The next section of training, Student and Faculty Expectations, would concentrate specifically on either the junior or the senior clinic in which the instructors will be teaching. The clinic coordinators from the respective clinics would lead this portion of the training session as they have the most knowledge about their clinics. Clinic coordinators can inform the newer instructors about the professionalism and requirement expectations for the dental hygiene students. They would also discuss expectations of instructors including grading procedures and general clinic flow. The UNM Dental Hygiene Clinic Manual would also be a resource for this component of instructor training as it includes information about student requirements and professionalism expectations.

The final session of the new instructor orientation involves a shadow experience. This would give new instructors the opportunity to attend student clinic sessions and follow clinical instructors and the clinic coordinator during instruction and evaluation. As the new instructors become acclimated to the clinic, they would be invited to instruct under the supervision of the clinic coordinator or another clinical instructor. Following the session, there will be a debriefing of the events focusing on how the new hires felt the session went.

### **Student Evaluations of Instructors**

This study identifies a variety of instructor characteristics that influence learning in both positive and negative ways. It is only the second within the field of dental hygiene to identify such a list. These results have the potential to lead to improved quality of instruction as well as to calibrate effective teaching within clinical dental hygiene instruction. As such,

the characteristics identified in this study may be used to evaluate clinical instructor performance for the purposes of both instructor teaching improvement and instructor retention.

A mixed-methods instrument using the content from the results of this study could be developed as an evaluation tool for clinical instructors. This evaluation tool would incorporate prominent concepts revealed in this study such as ranking effective and ineffective qualities and characteristics of their clinical instructors and would also include an opportunity for students to disclose how instructors interact with them and their patients. An example of an instructor evaluation instrument is shown in Figure 12.



Instructor Name \_\_\_\_\_

Please circle qualities or characteristics applicable to your clinical instructor

<b>Affect</b>		<b>Expertise</b>		<b>Pedagogical</b>	
<b>Effective</b>	<b>Ineffective</b>	<b>Effective</b>	<b>Ineffective</b>	<b>Effective</b>	<b>Ineffective</b>
Approachable	Disrespectful	Experienced	Lack of experience	Available	Close-minded
Attentive	Impatient	Has integrity	Lack of integrity	Consistent	Ineffective teaching methods
Empathetic	Lack of empathy	Knowledgeable	Lack of knowledge	Effective feedback	Inconsistent
Good rapport with students	Lack of investment in teaching	Patient-oriented	Lack of skill	Effective teaching methods	Poor teacher
Invested in student success	Lack of sympathy	Professional	Low confidence	Good evaluation skills	Poor and/or lack of feedback
Motivating	Negative personality characteristics	Self-aware	Poor patient interactions	Good communication or listening	Poor communication or listening
Patient	Unapproachable	Skilled	Unprofessional	Good time management	Poor time management
Positive personality characteristics				Good time management	Unavailable
Respectful				Open-minded	Unorganized or unprepared
Sympathetic					

Please elaborate on any quality categories identified above.

Please add other qualities or characteristics that describe your instructor not fitting in a category above.

Describe your instructor's strengths.

Describe your instructor's weaknesses.

**Figure 12. Instructor Evaluation Instrument**

### **Instructor Evaluation by Peers**

In addition to improving instruction by means of student evaluations, clinical instructors would likely also benefit from peer observation of other clinical instructors. Such an offering would give instructors the opportunity to shadow their peers and reflect on what methods of instruction and student evaluation were effective and ineffective and how methods can be improved. The goal of this effort would be to increase instructor awareness of self-performance and improve the quality of instruction. A proposed format would involve a paired instructor observation during a clinical session involving the complete of a standardized observation form. The clinic coordinators would collect the peer-review forms and facilitate the focus group session possibly mid-semester. Themes and comments from the peer-review forms could be utilized to enliven the discussion. This discussion is intended to be positive and encouraging for clinical instructors. The clinic coordinator should be conscientious as to not single-out any instructor that could use improvement. Figure 13 shows an example of the Peer Evaluation Form.

## **Instructor Peer Observation Evaluation**

Instructor being observed \_\_\_\_\_

Instructor observing \_\_\_\_\_

**What were effective methods of communication you observed today between the instructor and student?**

**What were effective methods of teaching you observed today?**

**What were effective methods of student evaluation you observed today?**

**Please describe instructor/student interactions that facilitated effective learning.**

**Please describe any suggestions for the instructor as observed with their teaching.**

**General comments**

**Figure 13. Peer Evaluation Form**

### **Daily Morning Instructor Pre-Clinic Meetings**

Instructor inconsistency was frequently identified as an ineffective aspect of both the junior and senior dental hygiene students' learning experience. Additionally, intentional, personalized teaching was shown to have an indispensable impact on effective learning. One potential way to address this would be brief instructor meetings immediately before morning clinic sessions. The format would include a 10-minute session to occur before every clinic session. Attendees would include clinic coordinator and all clinical instructors for the clinic session. The content for meetings would include clinic coordinator updates on learning or software items, billing issues, or process changes. In addition to these announcements, instructor-student assignments would be given and an educational handoff would occur involving instructors overseeing new students. Pre-clinic collaboration meetings currently exist at UNM in the first semester of junior clinic, which consist of information sharing regarding new processes, but structured meetings do not exist at other clinic levels with a standard format or inclusion of an educational handoff.

### **Educational Handoff**

One way to help facilitate individualized instruction would be through an educational handoff. When clinical instructors work with students they become aware of students' strengths and overall skill development. Moreover, instructors also become attuned to students' knowledge gaps and areas for improvement. When it is time for the student to work with a different instructor the next clinic session, it would be beneficial to have structured handoff to facilitate a transition between instructors. Such a handoff would involve a brief discussion about a student's strengths, weaknesses, and learning areas to focus on during the coming day of instruction. For example, if a student is struggling with a particular

instrument, the instructor can inform the next instructor so that they may be mindful and may continue to help that student with that particular instrument. Equally, if the student has had recent improvement in a particular skill or process, the next instructor noticing and commenting can continue to bring the student confidence and motivation. This would also show the student that the instructor cares, notices, and is invested in their success.

In addition to helping the student learn in an attentive environment, this handoff would aid in promoting instructor consistency. As instructors communicate about a student, they would naturally share how they assisted a student with a process of care, or how they evaluated the student. The next instructor will then be more informed of the student's status and continue where the other instructor left off. This will make the learning experience more consistent, which has shown to be very valuable to students. Naturally, information about the patient being cared for will also be included in those conversations; therefore, the communication during the handoff can help the patient experience as well.

Discussions like these currently occur organically during lunch sessions at UNM but in a passive, conversational way. Structured opportunities would improve what currently exists in a more professional manner. The institution of pre-clinic meeting sessions would assist in standardizing instruction and optimizing student learning.

### **Hiring/Retention Efforts**

Given the new evidence-based understanding of what dental hygiene students identify as effective and ineffective qualities and characteristics of clinical instruction, another implication of this study may be improvement of the hiring and retention efforts of clinical instructors in the UNM Dental Hygiene Program. Regarding the hiring process, inclusion of questions on views of effective and ineffective clinical teaching could be incorporated during

interviews. This would not only give the interviewer a sense of what the applicant instructor believes are important qualities and characteristics of a clinical instructor, but it may also give the interviewer a sense of the affective traits of the interviewee.

Regarding retention, the enhanced instructor evaluation forms shown in Figure 11 can give the clinic coordinators and clinic director useful information regarding how instructors are received by their students in clinic and how they influence the efficacy of their students' learning. Results from their student and peer evaluations may aid in decisions to invite instructors to teach in future semesters.

### **Implications of the Study to Other Dental Hygiene Programs**

It can be theorized that the results of this study are applicable to other dental hygiene programs. Reason 1: curriculum design for all accredited dental hygiene programs are standardized. Whether the program is at an associate's or a baccalaureate level, all programs in the United States must meet the same accreditation standards, which requires that they share similar educational content and clinical competencies. In addition, there are similar ratios of instructors and students in the clinical setting and similar patient encounter requirements also mandated by accreditation standards. Similarly, all programs strive to prepare their graduates for the same national board examination that must be passed in order to receive a dental hygiene license in any state.

Reason 2: Student populations have somewhat similar demographics, including age and gender. There may be a small difference in the age of students between populations of students attending an associate level or baccalaureate level program, but in both instances they are undergraduate programs. Due to these similarities, the findings in this study are likely generalizable to other programs.

### **Applicability to other disciplines**

UNM Dental Hygiene Program is a professional undergraduate program that is practical-based with the clinical component being a large portion of the educational curriculum. This is similar to many other healthcare disciplines that have clinical programs including, but not limited to, nursing, occupational therapy, physical therapy, and medicine. As shown in the literature, the dental hygiene discipline is also similar to other healthcare disciplines with regards to the educators of these programs while being experts in their fields, may not necessarily having training in teaching. This results of this study show clearly that the effectiveness of a clinical instructor goes far beyond the knowledge of the individual instructing, when in fact the knowledge is not even one of the top qualities or characteristics. Therefore, instructor training and evaluation programs proposed in this chapter, specifically the Clinical Teaching Education Curriculum outlined in Table 2, and the student and peer evaluations in figures 12 and 13 may be applicable and beneficial to educators in the other disciplines.

### **Recommendations for Future Research**

This study exercised grounded theory and Critical Incidence Technique in order to identify qualities and characteristics of clinical instructors that influence effective and ineffective learning (Creswell 2007). Hundreds of qualities and characteristics were identified that were organized into 26 categories of effective qualities and characteristics and 23 categories of ineffective qualities and characteristics. Now that the major categories have been identified, a quantitative instrument could be developed to better understand the relative importance of each characteristic. Instead of identifying qualities and characteristics that influence their learning, future participants can now simply rank the importance of qualities

and characteristics that have been revealed in this study in relation to each other. This would likely aid in discerning the true relative importance of one characteristic versus another. This performed annually could facilitate the development of a longitudinal study for UNM DH program. A longitudinal study would better validate data by mitigating class bias and expanding the study population. The definitive goal would be for this to serve as a tool to tailor education of instructors on optimal instruction methods.

In this study, I researched effective and ineffective qualities and characteristics of dental hygiene school clinical instructors. Another goal would be to translate this research to other disciplines that employ clinical education. Applying this or a similar study to other clinical training programs outside of the subject of dental hygiene and then compare and contrast would disclose how translatability and generalizability across disciplines of the various effective and ineffective qualities and characteristics of clinical educators that influence learning.

## **Conclusion**

Educators that teach in a clinical setting, primarily in healthcare fields, while having knowledge of the subject, having skills in what is taught, and having experience in the field, often have little-to-no training in teaching. This results in instructional practices being based upon intuition and experience. Becoming aware of how qualities and characteristics of clinical instructors affect adult learners' educational experience through evidence-based research; and using its implications, would help promote more effective instruction and ultimately improve student learning. I conducted a mixed methods study using Grounded Theory and Critical Incidence technique to study junior student, senior student and instructor



perceptions of effective and ineffective qualities and characteristics of clinical instructors that influence learning.

Exercising Grounded Theory, participants had the opportunity to state and rank any or all qualities and characteristics of clinical instructors that are effective to their learning and that are ineffective to their learning. While many past studies provided participants with categories to rank, this study allowed participants to state any characteristic without parameters. Additionally, using Critical Incidence Technique, all participants had the opportunity to describe a personal experience where effective and ineffective learning took place. This revealed additional qualities and characteristics, as well as specific scenarios or teaching practices that were shown to be effective or ineffective. A third method of data collection was focus groups that further validated data revealed in the survey and in the interviews. The qualities and characteristics revealed were combined and organized into categories then tabulated by importance by cohort.

This contribution to the body of knowledge of effective and ineffective clinical instruction, particularly in the dental hygiene field, has implications for dental hygiene curriculum, instructor training and evaluation, and creates a foundation for future study.

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## Appendix A – Nursing Articles

Date of Conducted Study	Author(s)	Where the Study was conducted	The purpose of the study	Study population	Results of the study	Citation
1981	Brown, S. T.	East Carolina University School of Nursing, North Carolina	Quantitative study of twenty characteristics of effective clinical instructors and their relative importance	Nursing faculty and students	Students rated the following characteristics as most important: shows genuine interest in patients and their care, conveys confidence in and respect for the student, is well informed and able to communicate knowledge to students, encourages students to feel free to ask questions or ask for help, and is objective and fair in the evaluation of the student. Faculty rated the following characteristics as most important: relates underlying theory to nursing practice, is well informed and able to communicate knowledge to students, and is objective and fair in the evaluation of the student.	Brown, S.T. (1981). Faculty and student perceptions of effective clinical teachers. <i>Nursing Education</i> , 30, 4-15.
1990	Bergman, K. and Gaitskill, T.		Quantitative using a questionnaire developed by ST Brown to assess the relative importance of clinical instructor characteristics	Nursing Students and Nursing Faculty	Both students and instructors agreed on the importance of instructors to be articulate, knowledgeable, and objective and fair. Faculty rated instructor interest in patients higher, while students felt communication-related attributes were of greater importance	Bergman, K and Gaitskill, T. (1990). Faculty and student perceptions of effective clinical teachers: an extension study. <i>Journal of Professional Nursing</i> , 6(1):33-44.
1999	Nahas, V. L., Nour, V., and al-Nobani, M.	Jordan	Quantitative study of twenty characteristics developed by ST Brown of effective clinical instructors and their relative importance	Nursing Students	The most important characteristics were in order of importance: shows genuine interest in patients, supervises and helps with new experiences, relates theory to practice, provides useful feedback, and is objective and fair in the evaluation of students. There were no significant differences between female and male students. There were, however, differences between academic levels.	Nahas, VL, Nour, V, and al-Nobani, M. (1999). Jordanian undergraduate nursing students' perceptions of effective clinical teachers. <i>Nursing Education Today</i> , 19:639-648.
2005	Tang, FI and Chou, SM, Chiang, MM	Two nursing schools in Taiwan	A quantitative study using a modified version of ST Brown's instrument of access effective and ineffective behaviors of clinical faculty in nursing schools	Nursing Students	The most important categories of characteristics for effective teaching behavior were in order of importance: interpersonal relationships, professional competence, personality characteristics, and teaching ability. For ineffective teaching behaviors in order of importance: interpersonal relationships, teaching ability and professional competence. Interpersonal relationships, particularly the item 'beats students sincerely and objectively' was revealed to be the category that was most different between effective and ineffective clinical teaching behaviors. From these results, teachers' attitudes toward students, rather than their professional abilities, are the crucial differences between effective and ineffective teachers was most different between effective and ineffective clinical teaching behaviors. From these results, teachers' attitudes toward students, rather than their professional abilities, are the crucial difference between effective and ineffective teachers.	Tang, FI and Chou, SM, Chiang, MM. (2005). Students' perceptions of effective and ineffective clinical instructors. <i>Journal of Nursing Education</i> , 44(4):187-92.
1985	Knox, J.E. and Mogan, J.	Vancouver, British Columbia	Quantitative survey to identify the importance of clinical teaching characteristics	Nursing faculty, students and recent graduates	The highest rated category was evaluation (except by first year students) with the lowest rated category overall was personality. Personality was, however, listed as most important by first-year students. Recent graduates rated nursing competence as most important, whereas second-year students rated this category lowest.	Knox, J.E. and Mogan, J. (1985). Important clinical teacher behaviors as perceived by university nursing faculty, students and graduates. <i>Journal of Advanced Nursing</i> , 10:25-30.
1987	Mogan, J. and Knox, J.E.	Seven University Schools of Nursing in the Western part of the US and Canada	Quantitative study using the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) assessing characteristics of best and worse clinical teachers	Nursing Faculty and Students	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency is a good role model, 'enjoys nursing', 'enjoys teaching', 'is well prepared for teaching'. Faculty listed 'best' instructors as 'enjoys teaching', 'good role model', 'demonstrates good clinical skill and judgment', 'enjoys nursing', and 'stimulates student interest in the subject.' Of characteristics most descriptive of the 'worst' teacher, students listed in order of frequency is a good role model, 'uses self-criticism constructively', 'is open-minded and non-judgmental', 'demonstrates empathy', 'corrects students' mistakes without belittling them'. Faculty listed is a good role model, 'recognizes own limitations', 'uses self-criticism constructively', 'enjoys nursing', 'encourages a climate of mutual respect'. The statistically significant differences between the two groups' rankings of the significance of general subscales of 'best' clinical teachers were 'interpersonal relationships', 'evaluation', and 'personal trait'. There were no statistically significant differences between the two groups' rankings of the significance of general subscales of 'worst' clinical teacher.	Mogan, J. and Knox, J.E. (1987). Characteristics of best and 'worst' clinical teachers as perceived by university nursing faculty and students. <i>Journal of Advanced Nursing</i> , 12:331-337.

Date of Conducted Study	Author(s)	Where the Study was conducted	The purpose of the study	Study population	Results of the study	Citation
1990	Nehring, V.	Dayton, Ohio USA	Replication study of Mogan and Knox 1987	Baccalaureate nursing students and faculty	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency 'enjoys nursing', 'is a good role model', 'enjoys teaching', and 'well-prepared for teaching'. Faculty listed 'best instructors as: 'enjoys nursing', 'is a good role model', 'enjoys teaching', 'takes responsibility for actions', and 'demonstrates communication skills'. Of characteristics most descriptive of the 'worst' teacher, students listed in order of frequency is a good role model, 'answers carefully and precisely', 'communicates clear expectations', 'encourages mutual respect', and 'stimulates student interest'. Faculty listed 'corrects students' mistakes without belittling', 'is a good role model', 'open-minded and non-judgmental', 'encourages mutual respect', and 'demonstrates empathy'. The statistically significant differences between the two groups' rankings of the significance of general subscales of 'best clinical teachers were 'teaching ability' and 'personal traits'. The statistically significant differences between the two groups' rankings of the significance of general subscales of 'worst clinical teachers were 'teaching ability', 'interpersonal relationship', 'personal traits', 'nursing competence', 'evaluation'.	Nehring, V. (1990). Nursing Clinical Teacher Effectiveness Inventory: Replication study of the characteristics of 'best' and 'worst' clinical teachers as perceived by nursing faculty and students. <i>Journal of Advanced Nursing</i> , 15:934-940.
1994	Sieh, S. and Bell, S.K.	Yavapai Community College, Prescott, Arizona and Arizona State University West College of Nursing, Phoenix, Arizona	Quantitative study of nursing student and faculty perceptions of effective clinical teacher characteristics using the NCTEI	Associate degree nursing student and faculty	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency, 'corrects students' mistakes without belittling them', 'takes responsibility for own actions', 'does not criticize students in front of others', 'demonstrates clinical skill and judgment', and 'explains clearly'. Faculty listed 'best instructors as 'encourages a climate of mutual respect', 'makes specific suggestions for improvement', 'provides constructive feedback on students' performance', 'corrects students' mistakes without belittling them', and 'provides support and encouragement to students'. There were no statistically significant differences between the two groups' rankings of general subscales. Authors found the importance of faculty as role model to be less important compared to other studies using the NCTEI.	Sieh, S. and Bell, S.K. (1994). Perceptions of effective clinical teachers in associate degree programs. <i>Journal of Nursing Education</i> , 33:389-394.
1997	Kotzabasaki, et al.	Athens, Greece	Replication study of Mogan and Knox 1987	Nursing Students and Clinical Teachers	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency, 'enjoys nursing', 'is self-confident', 'is a dynamic energetic person', 'encourages a climate of mutual respect', 'understands what students are asking or telling'. Faculty listed 'best instructors as 'listens attentively', 'is organized', 'encourages a climate of mutual respect', 'enjoys nursing', and 'observes students' performance'. Of characteristics most descriptive of the 'worst' teacher, students listed in order of frequency 'is a good role model', 'directs students to useful literature in nursing', 'uses self-criticism constructively', 'corrects students without belittling them', and 'demonstrates empathy'. Faculty listed 'uses self-criticism constructively' is a good role model, 'is open-minded and nonjudgmental', 'has a good sense of humor', 'questions to student to elicit underlying reasoning'. The only statistically significant difference between the two groups' rankings of general subscales was in the significance of 'interpersonal relationships' in characteristics of 'worst clinical teachers'.	Kotzabasaki, S.; Panou, M.; Dimou, F.; Karabaghi, A.; Koutsopoulou, B.; Ikononou, U. (1997). Nursing students' and faculty's perceptions of the characteristics of 'best' and 'worst' clinical teachers: a replication study. <i>Journal of Advanced Nursing</i> , 26:817-824.
1997	Li, MK	A three year hospital-based general nurse training programme in Hong Kong	Quantitative survey (adopted from Knox & Mogan, 1985) to identify the importance of clinical teaching characteristics	Nursing Faculty and Students	Nursing faculty found the 5 most important behaviors of clinical teachers to be: Does not criticize students in front of others, Explains clearly, Takes responsibility for own actions, Is a good role model, Corrects students' mistakes without belittling them. The 5 least important behaviors according to clinical teachers were: Demonstrates clinical procedures and techniques, Remains accessible to students, Provides specific practice opportunity, Shows a personal interest in students, Observes students' performance frequently. Nursing students found the 5 most important behaviors of clinical teachers to be: Explains clearly, Corrects students' mistakes without belittling them, Does not criticize students in front of others, Is open-minded and non-judgmental, Is well prepared for teaching. The 5 least important behaviors according to students were: Encourages active participation in discussion, Reveals broad reading in his/her area of interest, Demonstrates enthusiasm, Directs students to useful literature in nursing, Shows a personal interest in students.	Li, MK. (1997). Perceptions of effective clinical teaching behaviours in a hospital-based nurse training programme. <i>Journal of Advanced Nursing</i> , 26(6):612-61.

Date of Conducted Study	Author(s)	Where the study was conducted	The purpose of the study	Study population	Results of the study	Citation
1997	Benor, D.E and Levyof, I.	123 nursing students from 3 Israeli nursing schools with different curricula.	Quantitative study using a modified NCTEI instrument by consolidating the 47 items in the instrument to 5 general categories to assess characteristics of the ideal, best and worst clinical instructors.	Nursing Students	The category that had the most influence in determining ideal, best, and worst clinical teachers was 'nursing competencies' while the category with the least influence in determining the ideal, best and worst clinical teacher was on 'personality'	Benor, D.E. and Levyof, I. (1997). The development of students' perceptions of effective teaching: the ideal, best and poorest clinical teacher in nursing. <i>Journal of Nursing Education</i> . 36(5):206-11.
2001	Gignac-Caille, A.M and Cermann, M.H.	5 associate degree nursing programs in Michigan	Quantitative study of nursing student and faculty perceptions of effective clinical teacher characteristics using the NCTEI	Nursing faculty and associate degree nursing students	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency, 'demonstrates clinical skill and judgment', 'explains clearly', 'is well prepared for teaching', 'does not criticize students in front of others', and 'is approachable'. Faculty listed best instructors as 'explains clearly', 'is well prepared for teaching', 'is approachable', 'corrects students' mistakes without belittling them', and 'communicates clearly expectations of students'. The only statistically significant difference categories found between students and faculty was 'interpersonal traits' where faculty ranked this category higher than students	Gignac-Caille, A.M. and Cermann, M.H. (2001). Student and faculty perceptions of effective clinical instructors in a AD programs. <i>Journal of Nursing Education</i> . 40: 347-353.
2002	Lee, W.S., Cholowski, K., and Williams, A.K.	A regional university in Australia	Replication study of Mogan and Knox 1987	Second- and third-year nursing students and clinical educators	Of characteristics most descriptive of the 'best' teacher, students listed in order of frequency is a good role model, 'encourages a climate of mutual respect', 'is self confident', 'demonstrates clinical skill judgment', 'demonstrates clinical procedures and techniques' and 'provides support and encouragement to students'. Faculty listed 'best' instructors as 'enjoys teaching', 'demonstrates communication skills', 'takes responsibility for own actions', 'is a good role model', 'enjoys teaching', 'is organized', 'demonstrates clinical skill and judgment', 'communicates clearly expectations to students', and 'corrects students' mistakes without belittling them'. Of characteristics most descriptive of the 'worst' teacher, students listed in order of frequency uses self-criticism constructively, 'directs students to useful literature in nursing', 'questions students to elicit underlying reason', 'gears instruction to students' level of readiness, and 'reveals broad reading in his/her area of interest'. Faculty listed 'uses self-criticism constructively', 'directs students to useful literature in nursing', 'recognizes own limitations', 'questions students to elicit underlying reason', 'identifies students' strengths and limitations objectively, and 'gears instruction to students' level of readiness.	Lee, W.S., Cholowski, K., and Williams, A.K. (2002). Nursing students' and clinical educators' perceptions of characteristics of effective clinical educators in an Australian university school of nursing. <i>Journal of Advanced Nursing</i> . 39:412-420.
2004	Allison-Jones, L.L. and Hirt, J. B.	Seven ADN programs located in a mid-Atlantic state.	The purpose of this study was to compare the teaching effectiveness of part-time and full-time clinical nursing faculty using the NCTEI	Students, part-time and full-time clinical nursing faculty in associate degree nursing programs	Results indicate that students rank part-time faculty as significantly less effective than full-time faculty on each of five categories measured by the Nursing Clinical Teacher Effectiveness Inventory and on the overall scale. These results are supported by the finding that there is no significant difference between student ratings of teacher effectiveness and the self-ratings of the teachers themselves.	Allison-Jones, L.L. and Hirt, J.B. (2004). Comparing the Teaching Effectiveness of Part-time & Full-time Clinical Nurse Faculty. <i>Nursing Education Perspectives</i> . 25:238-243.
2005	Beitz, J.M. and Weiland, D.	A university based school of nursing located in a major metropolitan area in the North Eastern part of the US	Quantitative and qualitative study to assess the rating of effective clinical teaching behaviors using the NCTEI and ECTE (Effective Clinical Teaching Behaviors).	BSN, LPN-BSN, RN-BSN students	In order of frequency, the NCTEI categories of 'Ability' followed by 'Nursing Competence', 'Evaluation', 'Personal Traits', and 'Interpersonal Skill' correlated with clinical teacher effectiveness. There were no statistically significant differences in rating of effective teaching behaviors among the different student groups with the exception of personality traits aspect of the NCTEI.	Beitz, J.M. and Weiland, D. (2005). Analyzing the teaching effectiveness of clinical nursing faculty of full- and part-time generic BSN, LPN-BSN, and RN-BSN nursing students. <i>Journal of Professional Nursing</i> . 1:32-45.
1988	Zimmerman, L. and Westfall, J.	Nursing programs in a large university, a state college, three-year diploma program in a midwestern US state	Quantitative study to assess the validity and reliability of an instrument to assess nursing students' perceptions of clinical nursing faculty characteristics using factor analysis	Nursing students	A 53-item questionnaire of instructor characteristics (Effective Clinical Teaching Behaviors [ECTE]) was developed using existent literature on effective clinical instructors. This was tested to assess its validity and reliability in assessing effective clinical teachers using a nursing student population and was found to exhibit such.	Zimmerman, L. and Westfall, J. (1988). The development and validation of a scale measuring effective clinical teaching behaviors. <i>Journal of Nursing Education</i> . 27:274-277.
1989	Kanitsaki, O. and Sellick, Y.	Three Tertiary centers in Melbourne, Australia	Quantitative survey of clinical teacher behaviors to assess their relative importance	402 Nursing Students	Greatest importance placed on the role of a clinical instructor as a teacher, followed by guidance, demonstration the nursing role, applying theory, and evaluation. Year of study, age, and gender were found to be significant factors in response.	Kanitsaki, O. and Sellick, Y. (1989). Clinical nurse teaching: an investigation of student perceptions of clinical nurse teacher behaviors. <i>Australian Journal of Advanced Nursing</i> . 6(4):18-24.

Date of Conducted Study	Author(s)	Where the study was conducted	The purpose of the study	Study population	Results of the study	Citation
1991	Sellick, Y. and Kanitsaki, O.	Three Tertiary centers in Melbourne, Australia	Quantitative survey of clinical teacher behaviors to assess their relative importance comparing teachers and students	Nursing Students and Teachers	<b>Abstract</b> This study investigated the importance of clinical teaching behaviours from the perspective of the clinical nurse teacher and examined the influence of teacher characteristics. Forty-two clinical teachers from three Melbourne nursing programs rated the importance of 20 clinical teaching behaviours using a 7-point Likert scale. Results showed all 20 behaviours were deemed important in facilitating student learning with teacher behaviours rated most important and evaluation behaviours least important. Comparative analyses of data from this and a previous study identified significant differences between clinical teacher subgroups and close agreement by teachers and students on the importance of teacher behaviours. Findings are discussed and directions for future research identified.	Sellick, Y and Kanitsaki, O. (1991). A comparison of faculty and student perceptions of clinical nurse teacher behaviours. <i>Australian Journal of Advanced Nursing</i> , 9(1):3-7.
1993	Haag, G. and Schoeps, N.	U.S Army Academy of Health Sciences/State University of New York at Buffalo Anesthesia for Army Nurse Corps Officers Program	The purpose of this study was to develop and test a standardized instrument for clinical nurse anesthesia faculty evaluation	28 U.S. Airforce Anesthesia Students	The clinical instructor evaluation instrument (CIEI) developed was found to be reliable tool to assess clinical instructors in a nurse anesthetist program. The factor which most correlated with overall teacher effectiveness as determined by the CIEI was 'personal characteristics' whereas the factor which correlated least was 'professional competence'.	Haag, G and Schoeps, N. (1993). Development of a reliable nurse anesthesia clinical instructor evaluation instrument. <i>Journal of the American Association of Nurse Anesthetists</i> . 61:158-164.
1994	Krichbaum, K.	Critical care units in 14 hospitals in a large midwestern metropolitan area	Quantitative study used to assess the relationships between nurse preceptors' teaching behaviors and clinical learning outcomes by their students.	36 junior bachelor nursing students and critical care nurse preceptors	Preceptors who used objectives, provided the opportunities for practice, asked effective questions, provided effective specific and timely feedback, provided students with evidence as a basis for feedback and displayed enthusiasm for teaching and concern for the learner's progress all correlated with higher student performance.	Krichbaum, K. (1994). Clinical teaching effectiveness described in relation to learning outcomes of baccalaureate nursing students. <i>Journal of Nursing Education</i> . 33:306-316.
1994	Reeve, M.M.	San Jose State University, San Jose, California	Quantitative study of perceptions of students, faculty and graduates of effective clinical instructors to develop a standardized instrument	Nursing students, faculty and recent graduates	A 27-item instrument was developed which assessed clinical teacher effectiveness. Significant items found to be important for faculty to function as role model. Younger students described the importance of faculty availability and assistance, while this was less important among more senior students.	Reeve, M.M. (1994). Development of an instrument to measure effectiveness of clinical instructors. <i>Journal of Nursing Education</i> . 33:15-19.
2001	Lofmark, A. and Wikblad, K.	University of Gävle, Gävle, Sweden	Qualitative study to provide information on what the student nurse found facilitating and obstructing for their learning during clinical practice	Degree nursing students	Data extracted from nursing students weekly diaries during their final period of clinical practice using a content analysis revealed the following: students emphasized responsibility and independence, opportunities to practice different tasks and receiving feedback, collaborating and supervision, and overview and control as facilitating factors for learning. Obstructing characteristics to learning were lack in student-supervisor relationship, organizational shortcomings and supervision, and students' experience of their own shortcomings.	Lofmark, A. and Wikblad, K. (2001). Facilitating and obstructing factors for development of learning in clinical practice: a student perspective. <i>Journal of Advanced Nursing</i> . 34:43-50.
2007	Kelly, C.	Thompson Rivers University Nursing Department, Kamloops, Canada	Qualitative studies using three open-ended questions asking to describe an effective clinical teacher, define qualities, and rank them.	Second- and third-year nursing students	Teacher knowledge was ranked the most important characteristics, followed by feedback and communication skills. How well students perceived that they were accepted by staff, student-teacher ratios, and peer support impacted students views of effective clinical teacher.	Kelly, C. (2007). Student's perceptions of effective clinical teaching revisited. <i>Nurse Education Today</i> . 27:885-892.
2013	Okoronkwo, et al.	Department Nursing Sciences of the University of Nigeria	Quantitative study was to explore teaching skills considered by undergraduate student nurses as effective in the clinical setting as well as qualities that make a clinical teacher effective.	Nursing Students	Students were of the view that the five most important teacher behaviours should include honesty, motivation to teach, listening and good communication skills, good supervision and good role model in that order.	Okoronkwo, I.L.; Onyiah-pat, J.; Agbo, M.E.; Okpala, P.U.; and Ndu, A.C. (2013). Students' perception of effective clinical teaching and teacher behaviour. <i>Open Journal of Nursing</i> . 3:63-70.

## Appendix B – Dental Articles

DATE	AUTHORS	SITE OF STUDY	DESCRIPTION OF STUDY	STUDY POPULATION	SIGNIFICANT FINDINGS	CITATION
1967	Bolender, C.L. and Guild, R.E.	University of Washington Department of Prosthodontics	Qualitative study wherein students were asked to give comments on effective and ineffective teaching when evaluating their instructors over two years	Approximately 120 third- and fourth-year dental students	The positive comments outnumbered negative comments. The ratio of positive to negative comments was higher for full-time than for part-time faculty.	Bolender, C.L. and Guild, R.E. (1967). Student Evaluation of clinical faculty: and experient with encouraging results. <i>Journal of Dental Education</i> . 31: 304-312.
1977	Myers, B	Ohio State University College of Dentistry	Qualitative study, content analysis including 2 open-ended questions: 1) What clinical instructor behaviors contribute to learning in the clinic? 2) What clinical instructor behaviors inhibit learning? The goal of the researchers was to identify faculty and student beliefs about what clinical instructors should do to be effective and efficient. Responses were coded. In a 2nd part of the study these dimensions were ranked by importance.	87 dental faculty and 95 junior and senior dental students	The "characteristic" rated the highest by both students and faculty was 'Is available in the clinic during scheduled hours.' 7 factors emerged from the responses, five of which were discussed by the researchers as most important. These were 'Evaluating student performance, maintaining conditions for clinical learning, consideration for students application of knowledge of dentistry, and a concern for teaching. The two factors identified as possibly less importance were 'knowledge of dentistry and liking to teach.'	Myers, B. (1977). Beliefs of dental faculty and students about effective clinical teaching behaviors. <i>Journal of Dental Education</i> . 41:68-76.
1978	Emling R.C. and Fritz L.S.	2 Dental schools, one 3 year and one 4 year program	Dental student and faculty perceptions of teacher characteristics. An open-ended question asking to list and rank in order of importance characteristics a teacher should possess	A total of 114 faculty and 545 dental students.	In general the students and faculty in the two dental schools had 'only modest agreement in the important characteristics of a good teacher. Clinical level students considered the ability to communicate to be more important than the knowledge of the subject matter. Clinical faculty ranked 'knowledge' to be the most important quality of a teacher and ranked 'fairness' as the least important. Basic science faculty ranked 'communication skills' as the most important characteristic with the exception of assistant basic science professors. 'Fairness' was also ranked as their lowest quality. Student perceptions were more in line with basic science faculty views compared to the clinical faculty.	Emling R.C. and Fritz L.S. (1978). Dental student and faculty perceptions of teacher characteristics. <i>Journal of Dental Education</i> . 42:78-82.
1984	Romberg E.	University of Maryland, Baltimore College of Dental Surgery	Factor analytic methods based on student ratings of clinical instruction 1,796 ratings by 226 students on 104 faculty members	Dental Students	Four factors students found basic to effective clinical instruction were: 1) an instructor meeting teaching responsibilities, 2) an Instructor acting in a manner conducive to clinical learning, 3) an instructor being technically competent, and 4) an instructor enjoying his/her job. Researchers found that meeting teaching responsibilities accounted for the most important to students.	Romberg E. (1984). A factor analysis of student' ratings of clinical teaching. <i>Journal of Dental Education</i> . 48:258-262
2004	Chambers, DW, Geisberger, M and Lednui, C	University of Pacific (San Francisco, California)	Quantitative 20 item survey they developed of good clinical teaching characteristics. The study was conducted over the course of 2 years.	86% of Full time and 64% of part time dental school faculty members and approximately 150 students in dental school	Clinical teachers were asked to distribute 100 points to 20 characteristics of clinical teaching relative to their importance. The most highly rated characteristics of importance were "good clinical and laboratory skills", "motivating and energizing students", "basic communication skills" These were compared to student perceptions. Students rated them as follows "motivating and energizing to students, "displaying interest in the subject matter", and "distributing time fairly amongst students" Faculty members that see their jobs in possessing "good clinical and lab skills" or "current information and procedures" received poor ratings by students	Chambers, DW, Geisberger, M and Lednui, C. (2004.) Association amongst factors thought to be important by instructors in dental education and perceived effectiveness of these instructors by students. <i>European Journal of Dental Education</i> . 8:147 - 151



DATE	AUTHORS	SITE OF STUDY	DESCRIPTION OF STUDY	STUDY POPULATION	SIGNIFICANT FINDINGS	CITATION
2005	McGrath, C et al	The University of Hong Kong	Quantitative study to assess the validity and reliability of a revised questionnaire designed by the researchers to evaluate clinical dental teachers at University of Hong Kong	148 dental students	Several categories of student responses emerged. These included: learning climate, control of clinics, communication of goals, promoting understanding and retention, evaluation, feedback, and promoted self-directed learning. Used the questionnaire to assess its validity and reliability by comparing the questionnaire to global ratings. The category which most correlated with higher global teacher ratings was 'learning climate' which included the items 'listen to me', 'encouraged me to participate actively in discussion', 'showed me respect', 'encouraged me to bring up problems'. Similarly, the category 'learning climate' correlated most with being a "very poor" teacher.	McGrath, C, Wai Kit Yeung, R; Comfort, MB; McMillan, AS. (2005) Development and evaluation of a questionnaire to evaluate clinical dental teachers (ECDT). <i>British Dental Journal</i> . 198:45-48
2005	Gerzina, TM; McLean, T; and Fairley, J	The University of Sydney	Qualitative study using focus groups with dental students to create a survey on important aspects of clinical teaching in dental school followed by quantitative survey to determine how similar instructor and student responses on the subject	45 Dental students and 21 teachers	Similar responses were elicited by students and teachers across the majority of questions asked - 3 things were different 1 - link between theory and clinical practice 2 - student record of completed patient care assists student preparation for independent practice 3 - appreciation for evidence-based practice	Gerzina, T.M; McLean, T; Fairley, J. (2005). Dental clinical teaching: perceptions of students and teachers. <i>Journal of Dental Education</i> . 69:1377-1384.
2005	Fugill, M	Dental School, Wales College of Medicine, Biology, Life and Health Sciences, Cardiff University, Cardiff, Wales, UK	Qualitative study of student perceptions of features of the student/teacher interaction that students finds significant, and which their learning using group interviews followed by questionnaires. In Cardiff Dental School, University of Wales College of Medicine	All students from the third and fourth years of the Bachelor of Dental Surgery programme	Using group interviews followed by questionnaire-based survey, researchers sought out student perspectives on this relationship and its importance in their clinical education. Though there was no description of the questions posed to participants, several themes were revealed in the content analysis of the responses. These themes were: the importance of feedback, demonstration, the integration of knowledge and skill, and student autonomy. Students often reported that their instructors were deficient in these elements.	Fugill, M. (2005). Teaching and learning in dental student clinical practice. <i>European Journal of Dental Education</i> . 9: 131-136.
2006	Henzi, D et al	21 North American Dental Schools	Quantitative study with two open-ended questions to evaluate the effectiveness of clinical instruction in dental school	655 Dental students	Significant findings included -(84%) Assesses students needs and communicates clear expectations (86%) Teachers instructed at their level of knowledge (72%) teachers made every patient encounter a positive learning experience, (93%) reported instructors gave specific and practical information to improve skills - Students rarely mentioned efforts by their clinical teachers to stimulate self-assessment or reflection as an effective instructor quality	Henzi, D; Davis, E; Jasineviciu, S; Hendricson, W. (2006). North American dental students' perspectives about their clinical education. <i>Journal of Dental Education</i> . 70:361-377.
2006	Victoroff, K.Z. and Hogan, S	Case Western Reserve University School of Dental Medicine in Cleveland OH.	Qualitative using Critical Incidence Technique of effective and ineffective Incidence in classroom and clinical teaching in dental school	53 3rd and 4th year dental students	Significant themes which emerged from the descriptions of the effective learning experiences focused on 1) instructor characteristics (personal qualities, "checking in with students", an interactive style); 2) characteristics of the learning process (focus on the big picture, modeling and demonstrations, opportunities to apply new knowledge, high quality feedback, focus, specificity and relevance, and peer interactions); and 3) learning environment (culture, learning environment and technology). Students' descriptions of ineffective learning experiences revolved around sub-optimal communication between instructor and student and/or problems with the presentation or organization of course material	Victoroff, K.Z. and Hogan, S. (2006). Students' perceptions of effective learning in dental school: a qualitative study using a Critical Incident technique. <i>Journal of Dental Education</i> . 70:124-132.

DATE	AUTHORS	SITE OF STUDY	DESCRIPTION OF STUDY	STUDY POPULATION	SIGNIFICANT FINDINGS	CITATION
2006	Schönwetter, D.J. et al.	University of Manitoba Faculty of Dentistry and School of Dental Hygiene, Winnipeg, Manitoba, Canada	Qualitative study of students' description of instructors nominated for classroom and clinical teaching awards	50 dental hygiene students and 125 dentistry students	Seven categories of effective teaching were identified: Individual rapport, organization, enthusiasm, learning, group interaction, exams and assignments, and breadth. Dental students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, enthusiasm, learning, exams and assessments, group interaction and breadth. Dental Hygiene students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, learning, enthusiasm, exams and assignments, breadth, and group interaction. Greater than 50% of all descriptions for instructors for both dental and dental hygiene students was on individual rapport and 55% among dental students 62% for dental hygiene students. This was reported significantly more in clinical teaching than classroom teaching, where in classroom teaching individual rapport was described in 28% in dental students and 23% in dental hygiene.	Schönwetter, D.J., Lavigne, S., Muzarat, R., and Nazarko, O. (2006). Students' perceptions of effective classroom and clinical teaching in dental and dental hygiene education. <i>Journal of Dental Education</i> . 70:624-635.
2013	Subramanian, J et al.	University of Otago in Dunedin, New Zealand	Qualitative study using Critical Incidents Technique assessing perceptions of effective and ineffective learning experiences of dental student and recent graduates in a clinical setting	29 final-year dental students and graduates in New Zealand	Effective learning experiences involved situations of approachable and supportive supervisors and explanations of techniques. Ineffective learning experiences involved conditions of minimal guidance of supervisors and aggressive discriminatory or culturally insensitive approaches of supervisors	Subramanian, J; Anderson, V.R.; Morgaine, K.C.; Thomson, W.M. (2013). Effective and ineffective supervision in post-graduate dental education: a qualitative study. <i>European Journal of Dental Education</i> . 17:142-150.
2013	Jahangiri, L et al	New York University College of Dentistry	Qualitative study investigating perceptions of positive and negative characteristics of clinical instructors. 2 Quesiton open-ended survey asking what qualities students like most and least in their clinical instructors.	157 3rd and 4th year dental students	Nine hundred ninety five written comments were received from a total of 157 respondents. Descriptive words were coded, grouped into key words, and assembled into 17 defined categories and then organized into themes. The three major core themes isolated among these categories and the relative frequencies with which they were reported are as follows: character (59.1%), competence (29.2%), and communication (11.7%). Character consisted of the following categories: caring, motivation, empathy, patience, professionalism, available, fairness, happiness and patient-centered. Competence was defined by the following categories: knowledgeable, expertise, efficient, skillful and effective. Communication was defined by the following categories: feedback, approachable, and interpersonal communication.	Jahangiri, L; McAndrew, M; Muzaffir, A; Mucciolo, T.W. (2013). Characteristics of effective clinical teachers identified by dental students: a qualitative study. <i>European Journal of Dental Education</i> . 17:10-18.

## Appendix C – Dental Hygiene Articles

DATE	AUTHORS	SITE OF STUDY	DESCRIPTION OF STUDY	STUDY POPULATION	SIGNIFICANT FINDINGS	CITATION
2006	Schönwetter, D.J. et al.	University of Manitoba Faculty of Dentistry and School of Dental Hygiene, Winnipeg, Manitoba, Canada	Qualitative study of students' description of instructors nominated for classroom and clinical teaching awards	50 dental hygiene students and 125 dentistry students	Seven categories of effective teaching were identified: Individual rapport, organization, enthusiasm, learning, group interaction, exams and assignments, and breadth. Dental students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, enthusiasm, learning, exams and assessments, group interaction and breadth. Dental Hygiene students reported categories describing effective clinical teaching faculty in the following order of decreasing frequency: individual rapport, organization, learning, enthusiasm, exams and assignments, breadth, and group interaction. Greater than 50% of all descriptions for instructors for both dental and dental hygiene students was on individual rapport and 55% among dental students 62% for dental hygiene students. This was reported significantly more in clinical teaching than classroom teaching, where in classroom teaching individual rapport was described in 28% in dental students and 23% in dental hygiene.	Schwönwetter, D.J., Lavigne, S., Muzarat, R., and Nazarko, O. (2006). Students' perceptions of effective classroom and clinical teaching in dental and dental hygiene education. <i>Journal of Dental Education</i> . 70:624-635.
2011	Paulis, M.R.	Fones School of Dental Hygiene University of Bridgeport, Connecticut	Qualitative and Quantitative online survey to examine instructors' and students at Fones School of Dental Hygiene University of Bridgeport, Connecticut perceived need for educational preparation	Dental Hygiene students and clinical instructors	60% of dental hygiene students indicated that 6-10 years of clinical dental hygiene experience was optimal, 37% had less than 5 years prior to teaching. More than half of dental hygiene clinical instructors 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 of educational methodologies, communication skills, grading and evaluation techniques and the use of technology.	Paulis, M.R. (2011) Comparison of dental hygiene clinical instructor and student opinions of professional preparation for clinical instruction. <i>Journal of Dental Hygiene</i> . 85:297-305

## Appendix D –Instructor and Student Participant Information and Consent Forms



THE UNIVERSITY *of* NEW MEXICO

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### Education Leadership Program Ed.D.

#### 1. EXPLANATION OF THE RESEARCH and WHAT YOU WILL DO:

You are being asked to participate in a research project studying effective and ineffective clinical instruction in a dental hygiene school. Participation will include 4 parts 1) completion of a simple demographic survey attached to this form; 2) completion of a written questionnaire attached to this form; 3) a one-on-one interview between you and the researcher; and 4) a focus groups involving several participants and the same researcher.

#### 2. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW:

Participation in this research project is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no affect on your grade or evaluation.

#### 3. COSTS AND COMPENSATION FOR BEING IN THE STUDY:

You will be compensated with a \$50 Visa Gift Card for participating in all three parts of the study

#### 4. CONTACT INFORMATION FOR QUESTIONS AND CONCERNS:

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the principle investigator of this study Vicki Gianopoulos Pizanis at [vgianopoulos@salud.unm.edu](mailto:vgianopoulos@salud.unm.edu).

If you have questions regarding your rights as a research participant, you may call the UNMHSC HRPO at (505) 272-1129. The HRPO is a group of people from UNM and the community who provide independent oversight of safety and ethical issues related to research involving human participants. For more information, you may also access the IRB website at <http://hsc.unm.edu/som/research/hrrc/irbhome.shtml>.

HRPO # 13-628

## 5. DOCUMENTATION OF INFORMED CONSENT.

You indicate your voluntary agreement to participate by completing and returning this survey.



Education Leadership Program Ed.D.

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You are being asked to participate in a research project studying effective and ineffective clinical instruction in a dental hygiene school. Participation will include 4 parts 1) completion of a simple demographic survey attached to this form; 2) completion of a written questionnaire attached to this form; 3) a one-on-one interview between you and the researcher; and 4) a focus groups involving several participants and the same researcher.

2. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW:

Participation in this research project is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no effect on your grade or evaluation.

3. COSTS AND COMPENSATION FOR BEING IN THE STUDY:

You will be compensated with a new dental hygiene instrument for participating in all three parts of the study.

4. CONTACT INFORMATION FOR QUESTIONS AND CONCERNS:

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the principle investigator of this study Vicki Gianopoulos Pizanis at [vgianopoulos@salud.unm.edu](mailto:vgianopoulos@salud.unm.edu).


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HRPO # 13-628

5. DOCUMENTATION OF INFORMED CONSENT.

You indicate your voluntary agreement to participate by completing and returning this survey.

## Appendix E – Approval Letter from Institutional Review Board



*Human Research Review Committee  
Human Research Protections Office*

February 25, 2014  
Vicki Pizanis  
VGianopoulos@salud.unm.edu

Dear Dr. Pizanis:

On 2/25/2014, the HRRC reviewed the following submission:

Type of Review: Initial Study  
Title of Study: Clinical Teaching and Instruction in a Dental Hygiene School  
Investigator: Vicki Pizanis  
Study ID: 13-628  
Funding: None  
Grant ID: None  
IND, IDE, or HDE: None

Submission Summary: New Study  
Documents Reviewed: • Consent and Research Participation Information submitted: 02/24/2014  
• 13-628 protocol ver 02.20.14  
• Recruitment email to participants submitted: 12/17/2013  
Review Category: EXEMPTION: Categories (1) Educational settings(2) Tests, surveys, interviews, or observation  
Determinations/Waivers: Waiver of consent signature  
HIPAA does not apply

The HRRC approved the study from 2/25/2014.

Because it has been granted exemption, this research is not subject to continuing review.



This determination applies only to the activities described in the submission and does not apply should any changes be made to these documents. If changes are being considered and there are questions about whether HRRC review is required, please submit a study modification to the HRRC for a determination. A change in the research may disqualify this research from the current review category. You can create a modification by clicking [Create Modification / CR](#) within the study.

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HRRC021

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## Appendix F – Demographic Survey and Questionnaire



Clinical Teaching and Instruction in a Dental Hygiene School

1. DEMOGRAPHIC INFORMATION

\* What is your study number?

- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| <input type="radio"/> 1  | <input type="radio"/> 24 | <input type="radio"/> 52 |
| <input type="radio"/> 2  | <input type="radio"/> 30 | <input type="radio"/> 53 |
| <input type="radio"/> 3  | <input type="radio"/> 31 | <input type="radio"/> 54 |
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| <input type="radio"/> 14 | <input type="radio"/> 42 | <input type="radio"/> 70 |
| <input type="radio"/> 15 | <input type="radio"/> 43 | <input type="radio"/> 71 |
| <input type="radio"/> 16 | <input type="radio"/> 44 | <input type="radio"/> 72 |
| <input type="radio"/> 17 | <input type="radio"/> 45 | <input type="radio"/> 73 |
| <input type="radio"/>    | <input type="radio"/>    | <input type="radio"/>    |



- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| <input type="radio"/> 18 | <input type="radio"/> 46 | <input type="radio"/> 74 |
| <input type="radio"/> 19 | <input type="radio"/> 47 | <input type="radio"/> 75 |
| <input type="radio"/> 20 | <input type="radio"/> 48 | <input type="radio"/> 76 |
| <input type="radio"/> 21 | <input type="radio"/> 49 | <input type="radio"/> 77 |
| <input type="radio"/> 22 | <input type="radio"/> 50 | <input type="radio"/> 78 |
| <input type="radio"/> 23 | <input type="radio"/> 51 | <input type="radio"/> 79 |

**\* Which of the following describes your status?**

- Dental hygiene student, class of 2014
- Dental hygiene student, class of 2015
- Dental hygiene clinical instructor

**\* What is your gender?**

- Male
- Female

**\* Which of the following best describes your ethnicity?**

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White or Caucasian

**\* In what year were you born? (enter 4-digit birth year; for example, 1976)**

**\* Please list all degrees earned or in progress**

**For clinical instructors only - Please choose the duration of teaching in the dental hygiene clinic at UNM (in years):**

- 1
- 2
- 3
- 4
- 5-10
- 11-15
- 16-20
- 21-25
- 26-30

**For clinical instructors only - Please describe and state the duration of previous teaching experience at a different institution (if applicable):**

Not applicable

Other (please specify)

Next

Powered by





# THE UNIVERSITY of NEW MEXICO

## Clinical Teaching and Instruction in a Dental Hygiene School

### 2. EFFECTIVE TEACHING

Respond to as many of the below questions as you would like. When finished with this section, please scroll and click "next" to continue onto the next section.

**\* In the response box, write a quality and/or characteristic of clinical instructors that influence learning in an effective way. Then rank this quality and/or characteristic in terms of importance.**

Not important      Slightly important      Important      Very important      Critically important

Response

**In the response box, write a quality and/or characteristic of clinical instructors that influence learning in an effective way. Then rank this quality and/or characteristic in terms of importance.**

Not important      Slightly important      Important      Very important      Critically important

Response

**In the response box, write a quality and/or characteristic of clinical instructors that influence learning in an effective way. Then rank this quality and/or characteristic in terms of importance.**

Not important      Slightly important      Important      Very important      Critically important

Response

**In the response box, write a quality and/or characteristic of clinical instructors that influence learning in an effective way. Then rank this quality and/or characteristic in terms of importance.**

Not important      Slightly important      Important      Very important      Critically important

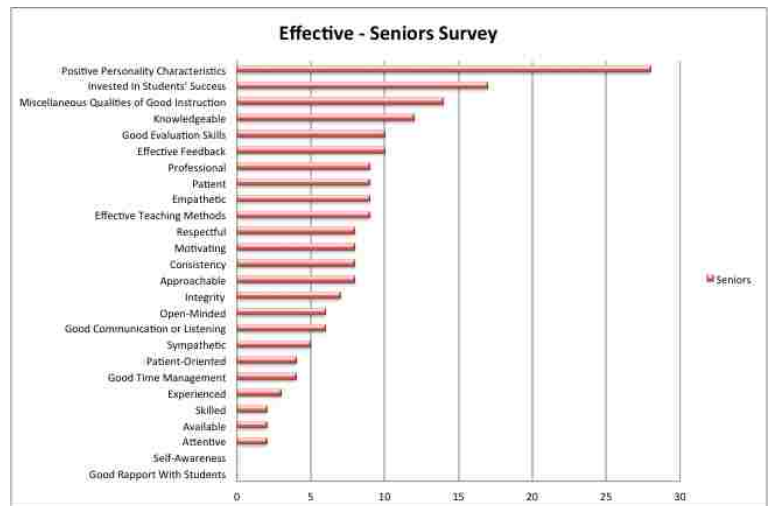
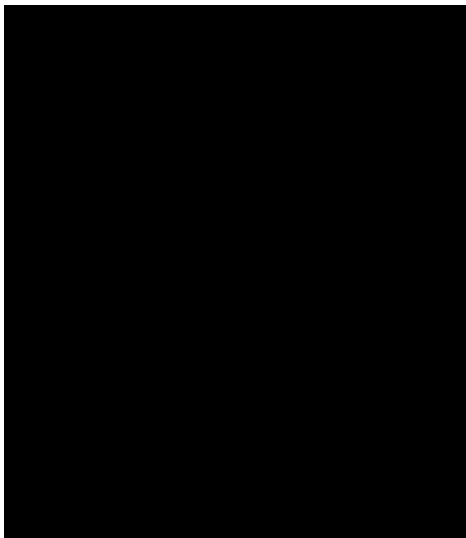
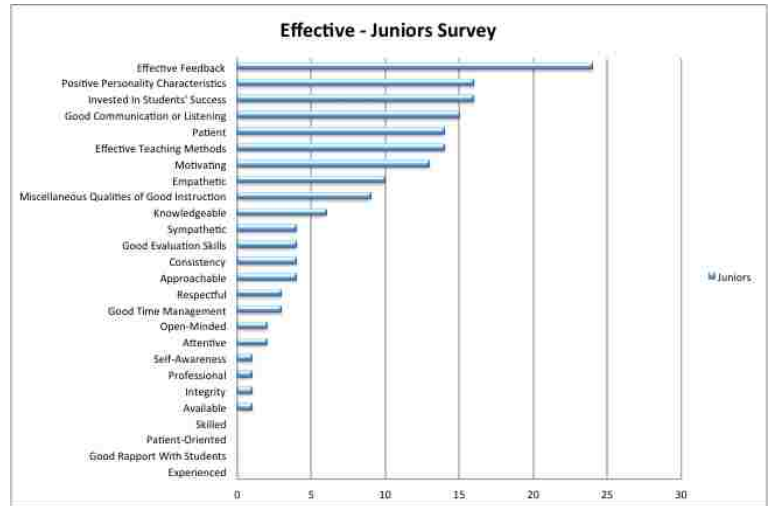
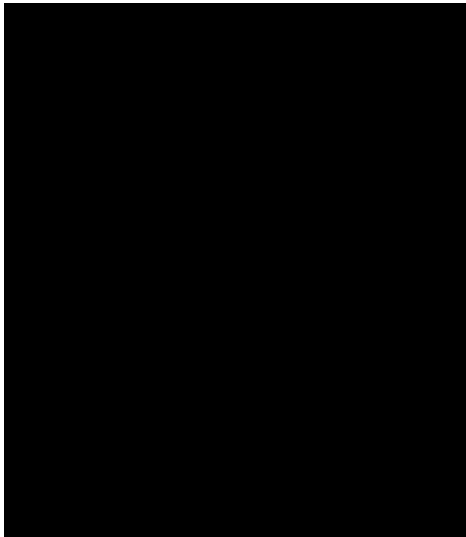
Response

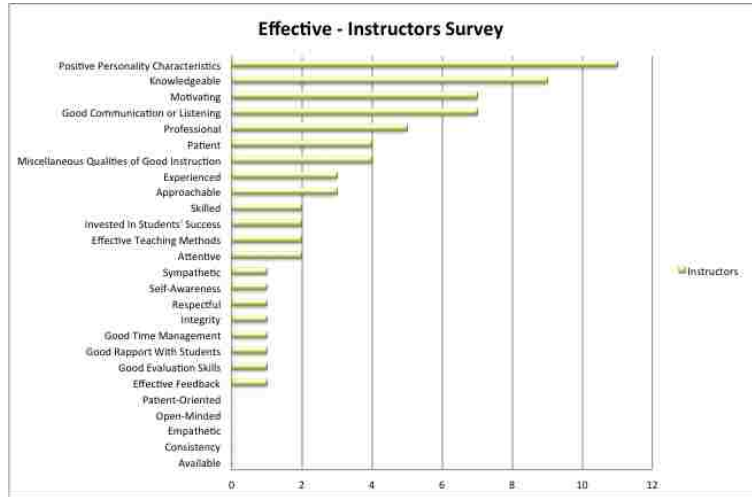
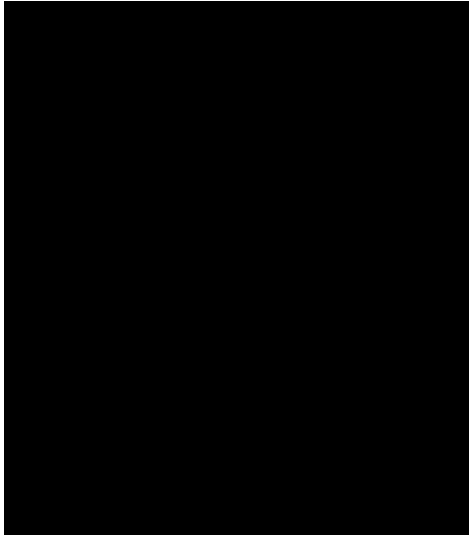
**In the response box, write a quality and/or characteristic of clinical instructors that influence learning in an effective way. Then rank this quality and/or characteristic in terms of importance.**

## Appendix G – Charts for Survey and Interview Results by Cohort

### Effective

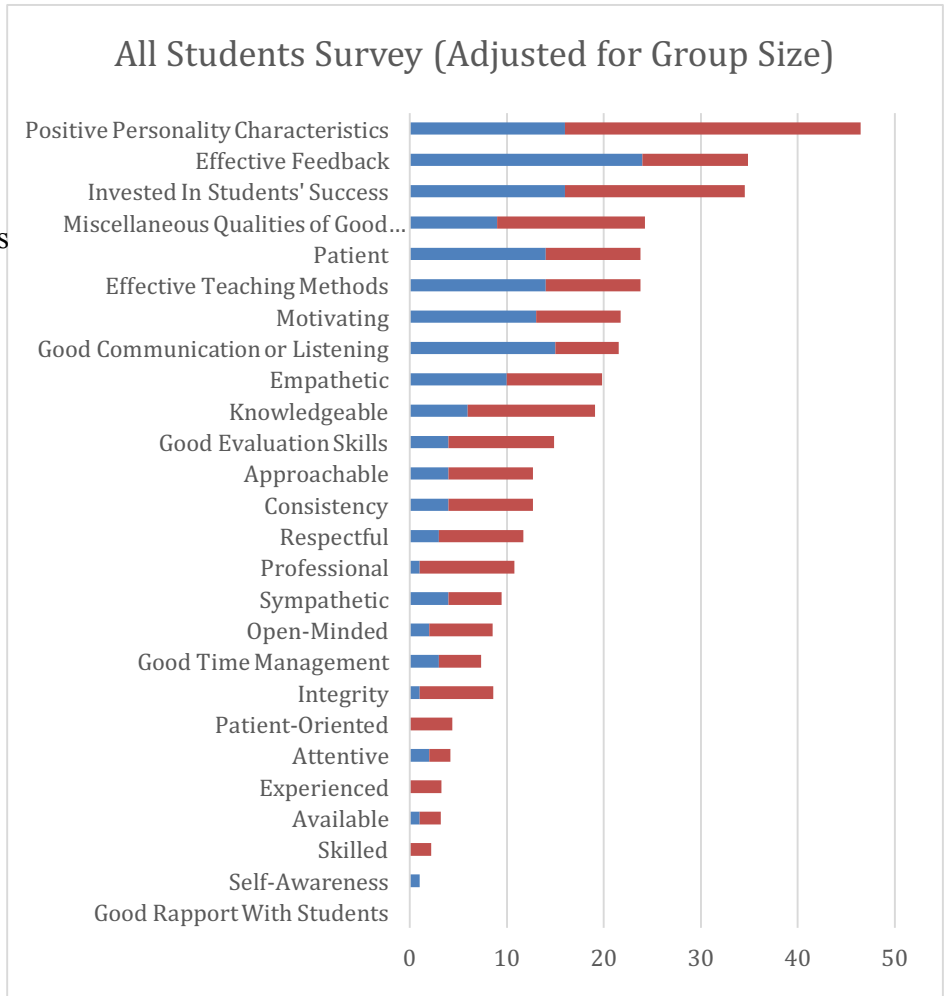
The following graphs depict the 26 categories of effective qualities and characteristics in descending order by the number of times mentioned by each cohort during the online survey.





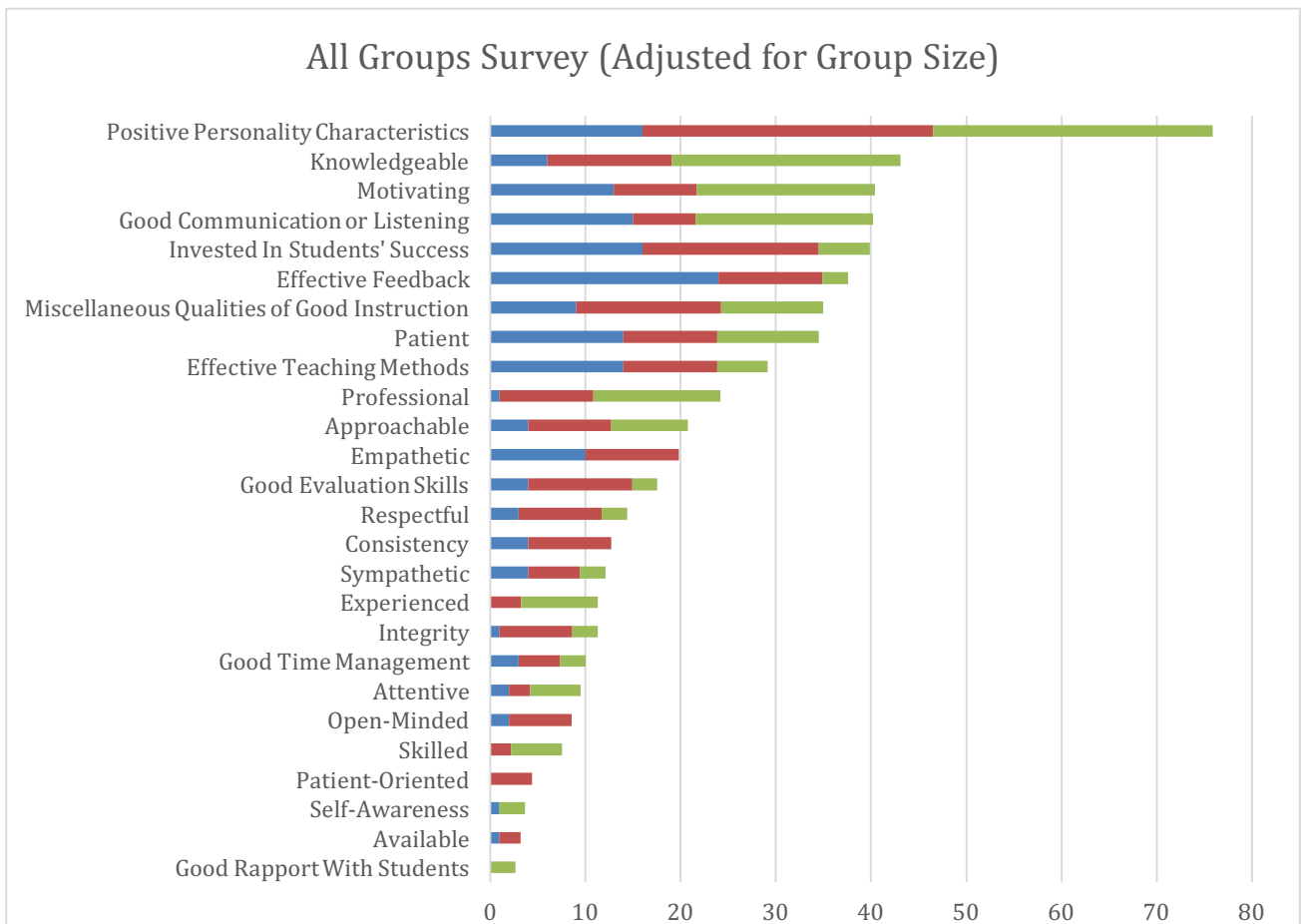
Combining junior and senior responses for the effective categories mentioned during the surveys and adjusting for group size, the five most frequently mentioned categories were:

1. Positive personality characteristics
2. Effective feedback
3. Invested in students' success
4. Miscellaneous qualities of good instruction
5. Patient



## Comparison Data – Juniors and Seniors Survey

Both juniors and seniors reported on all categories with the exception of “self-awareness” which was only mentioned by juniors; and “patient-oriented,” “experienced,” and “skilled” which were only mentioned by seniors. No juniors or seniors mentioned “good rapport with students.” Juniors placed greater emphasis on “effective feedback,” “patient,” “effective teaching methods,” “motivating,” “good communication or listening,” “empathetic,” and “self-awareness.” Seniors placed greater emphasis on “positive personality characteristics,” “invested in student’s success,” “miscellaneous qualities of good instruction”, “knowledgeable,” “good evaluation skills,” “approachable,” “consistency,” “respectful,” “professional,” “sympathetic,” “integrity,” “open-minded,” “good time management,” “patient oriented,” “attentive,” “experienced”, “available,” and “skilled.”



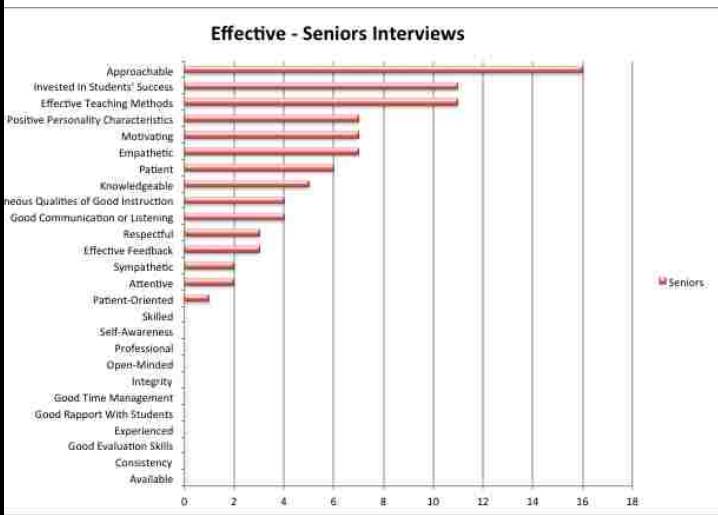
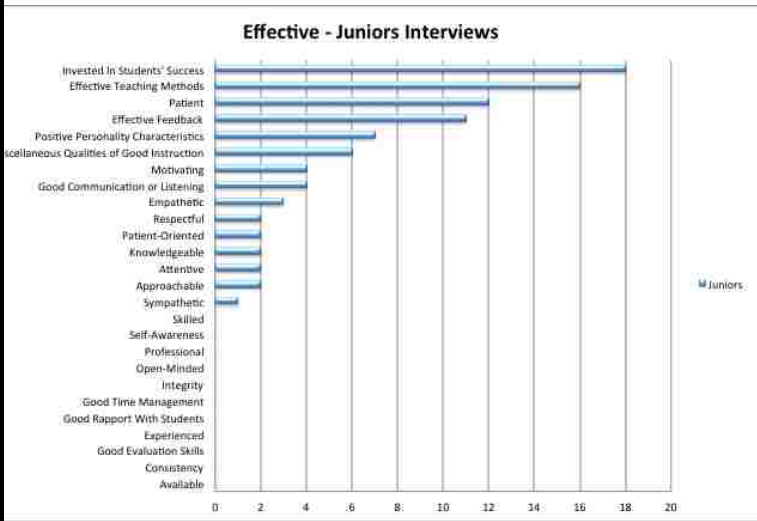
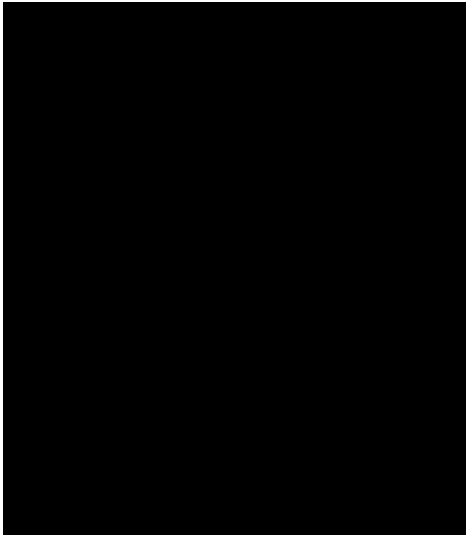
## **Comparison Data –All Groups Survey**

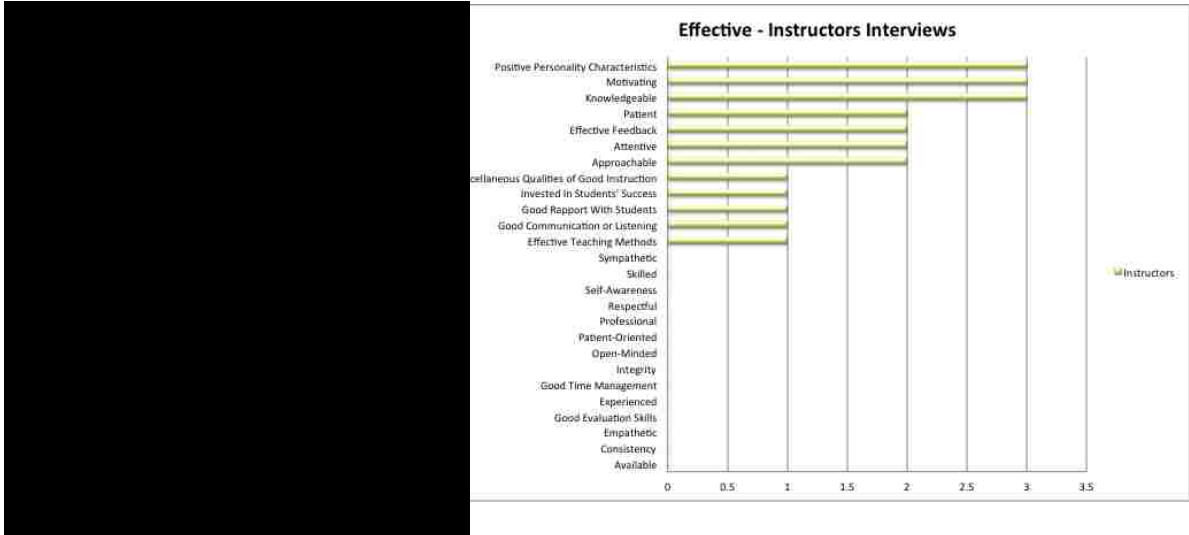
Adjusting for group size, the five most frequently mentioned categories from the survey data of effective clinical instruction for all participants were: 1) Positive personality characteristics, 2) Knowledgeable, 3) Motivating, 4) Good communication or listening, and 5) Invested in students' success.

The only category shared by students (juniors and seniors) and instructors within the five most frequently mentioned category of effective characteristics was “positive personality characteristics.” The remaining four categories differed between both groups. Students placed greater emphasis on “positive personality characteristics”, “motivating”, “good communication or listening”, “invested in students' success”, “effective feedback”, “miscellaneous qualities of good instruction”, “patient”, “effective teaching methods”, “approachable”, “empathetic”, “good evaluation skills”, “respectful”, “consistency”, “sympathetic”, “integrity”, good time management”, “open-minded”, “patient-oriented”, and “available.” Instructors placed greater emphasis on “knowledgeable”, “professional”, “experienced”, “attentive”, “skilled”, “self-awareness”, and “good rapport with students.” Students and instructors mentioned all categories with exception of “patient-oriented” and “available” which were mentioned only by students and “good rapport with students” that was only mentioned by instructors.



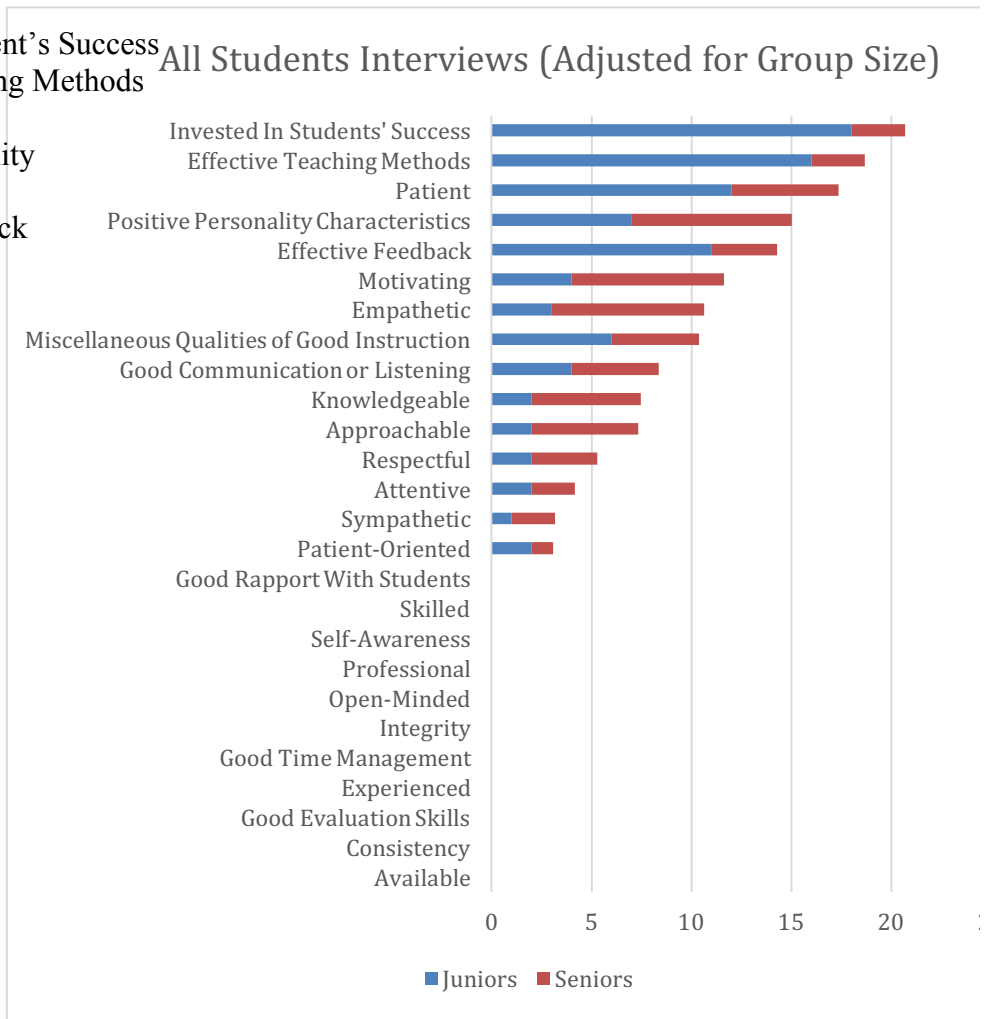
The following graphs depict the 26 categories of effective qualities and characteristics in descending order by the number of times mentioned by each cohort during the one-on-one interview.





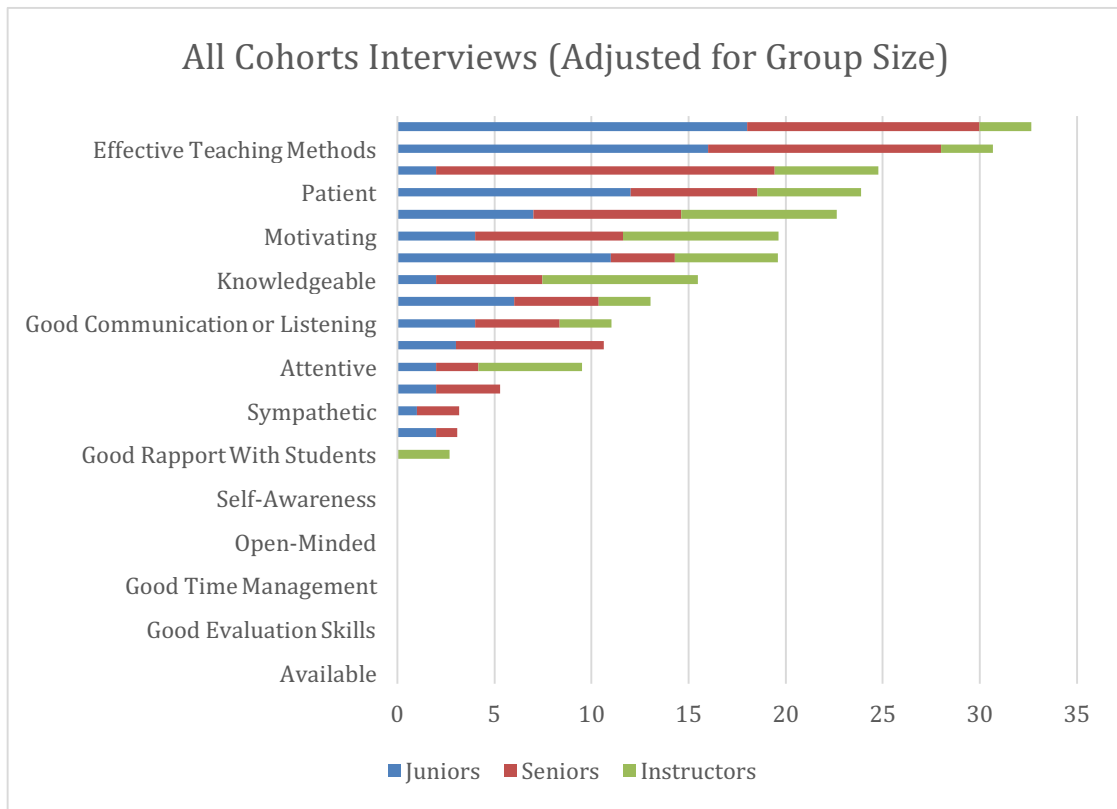
Combining junior and senior responses for the effective categories mentioned during the interviews and adjusting for group size, the five most frequently mentioned categories were:

1. Invested in Student's Success
2. Effective Teaching Methods
3. Patient
4. Positive Personality Characteristics
5. Effective Feedback



## Comparison Data –Juniors and Seniors Interview

There were many categories that were not mentioned at all during the interviews by any participant. These were: “available”, “consistency”, “good evaluation skills”, “experienced”, “good time management”, “integrity”, “open-minded”, “professional”, “self-awareness”, and “skilled.” There were no categories reported by only juniors and not seniors or visa versa. Juniors placed greater emphasis on “invested in student’s success,” “effective teaching methods,” “patient,” “effective feedback,” “miscellaneous qualities of good instruction”, and “patient oriented.” Seniors placed greater emphasis on “approachable,” “positive personality characteristics,” “motivating,” “empathetic,” “good communication or listening,” “knowledgeable,” “respectful,” “attentive,” and “sympathetic.”

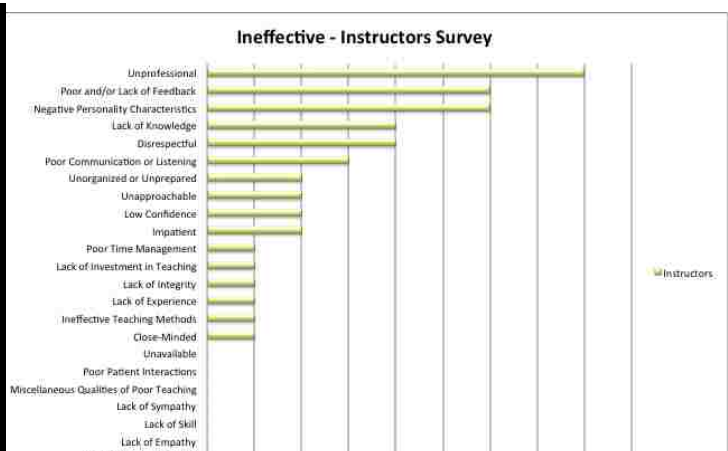
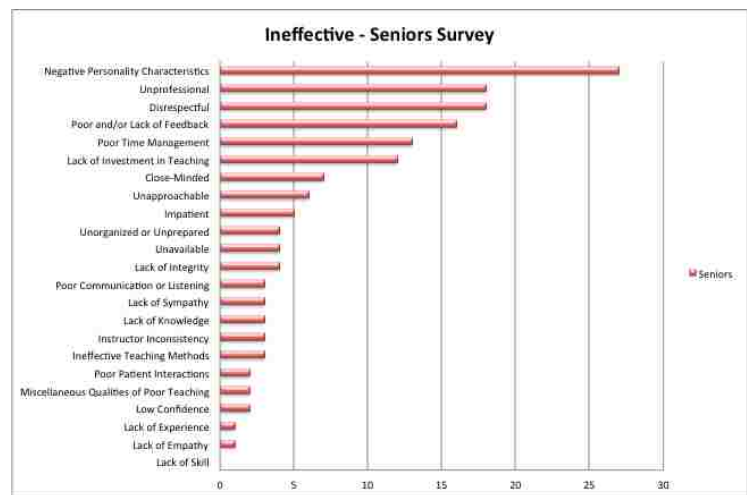
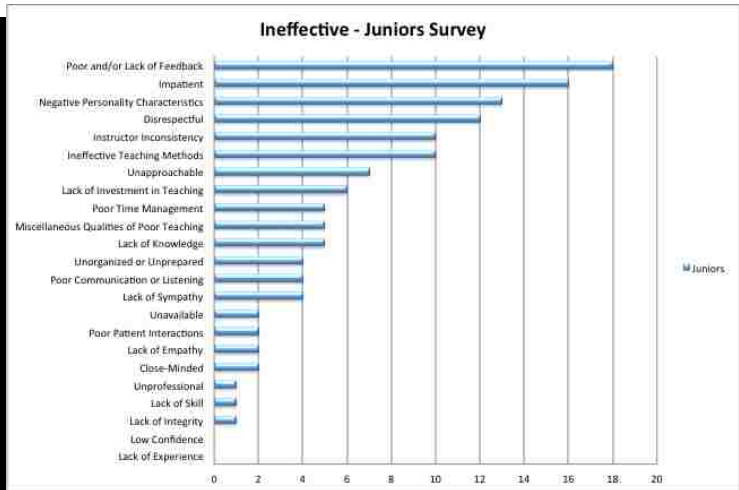


### **Comparison Data- All Groups Interview**

Adjusting for group size, the five most frequently mentioned categories from the interview data of effective clinical instruction for all participants were: 1) “Invested in students’ success”, 2) “Effective Teaching Methods”, 3) “Approachable”, 4) “Patient”, and 5) “Positive Personality Characteristics”.

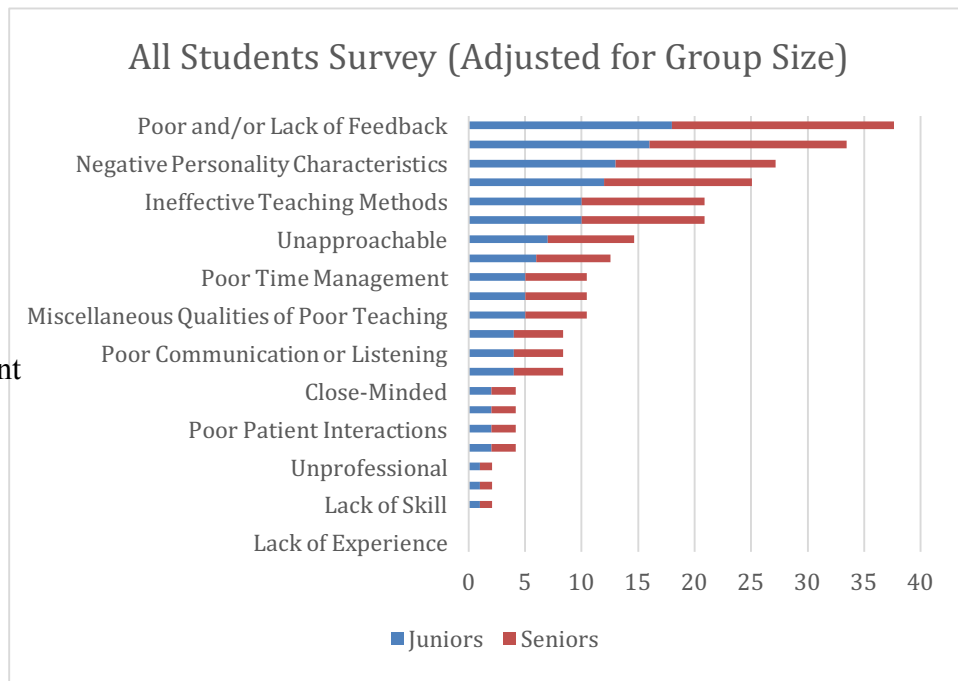
The only categories shared by students (juniors and seniors) and instructors within the five most frequently mentioned categories of effective characteristics were “positive personality characteristics,” and “patient.” The remaining three categories differed between both groups. Students placed greater emphasis on “invested in students’ success”, “effective teaching methods”, “approachable”, “patient”, “positive personality characteristics”, “effective feedback”, “empathetic”, “motivating”, “miscellaneous qualities of good instruction”, “good communication or listening”, “knowledgeable”, “attentive”, “sympathetic”, and “patient-oriented.” Instructors placed greater emphasis on “respectful”, and “good rapport with students.” Students and instructors mentioned all categories with exception of “knowledgeable”, “attentive”, “sympathetic,” and “patient-oriented” which were mentioned only by students and “good rapport with students” that was only mentioned by instructors.

**Ineffective** The following graphs depict the 23 categories of ineffective qualities and characteristics in descending order by the number of times mentioned by each cohort during the survey.



Combining junior and senior responses for the ineffective categories mentioned during the surveys and adjusting for group size, the five most frequently mentioned categories were:

1. Poor and or lack of feedback
2. Negative Personality Characteristics
3. Ineffective Teaching Methods
4. Unapproachable
5. Poor Time Management



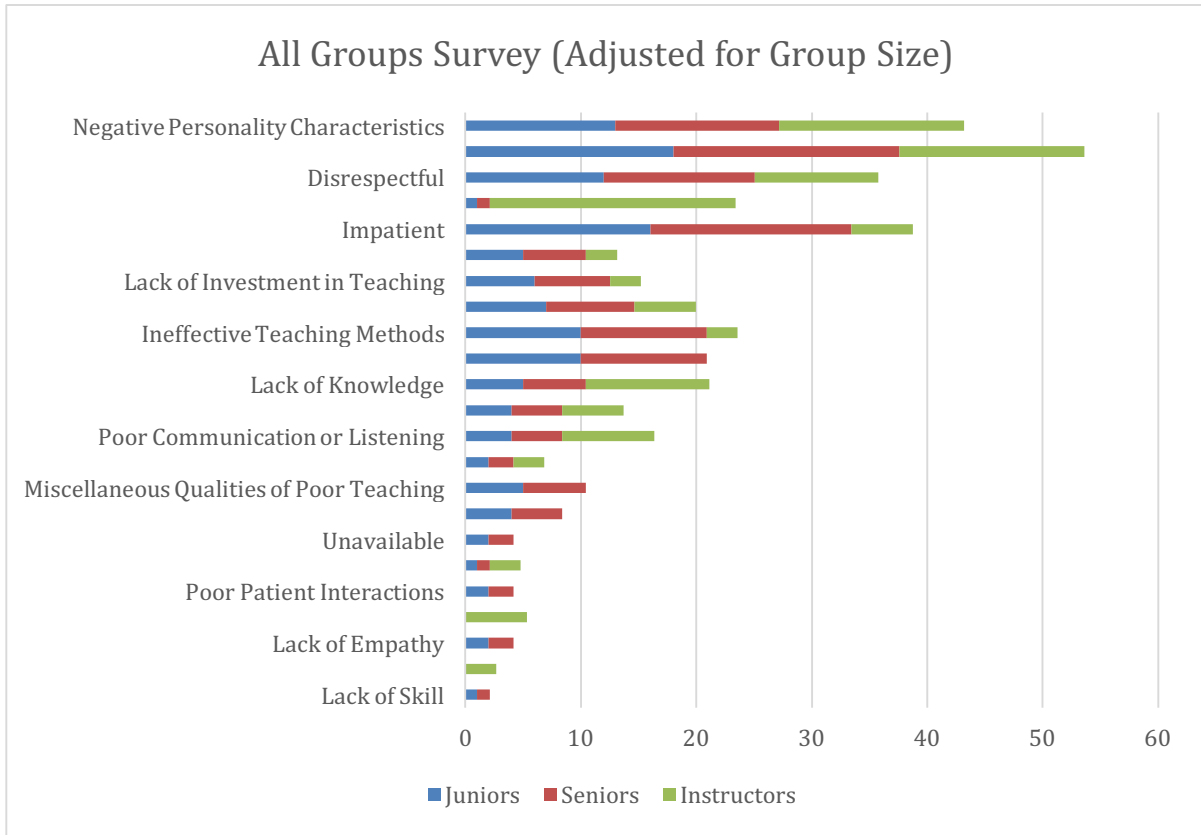
### Comparison Data – Juniors and Seniors Survey

Both juniors and seniors reported on all categories with the exception of “lack of skill” which was only mentioned by juniors; and “low confidence,” and “lack of experience” which were only mentioned by seniors.

Juniors placed greater emphasis on “poor and/or lack of feedback,” “impatient,” “unapproachable,” “ineffective teaching methods,” “instructor inconsistency,” “lack of knowledge,” , “poor communication or listening,” “lack of sympathy,” “miscellaneous qualities of poor teaching,” and “lack of empathy.”

Seniors placed greater emphasis on “negative personality characteristics,” “disrespectful,” “unprofessional”, “poor time management,” “lack of investment in

teaching,” “unapproachable,” “close-minded,” “unorganized or unprepared,” “unavailable,” “lack of integrity,” and “poor patient interactions.”



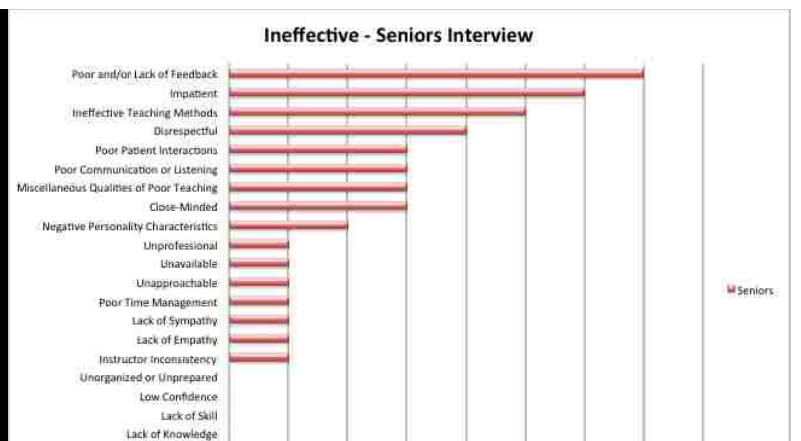
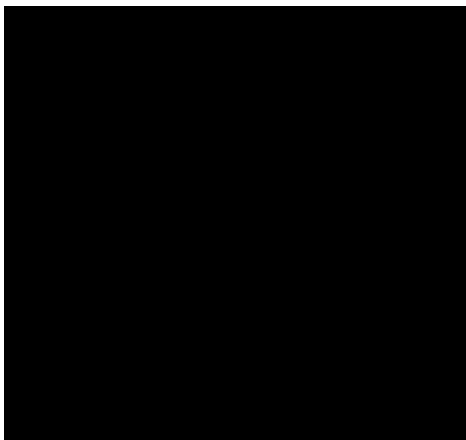
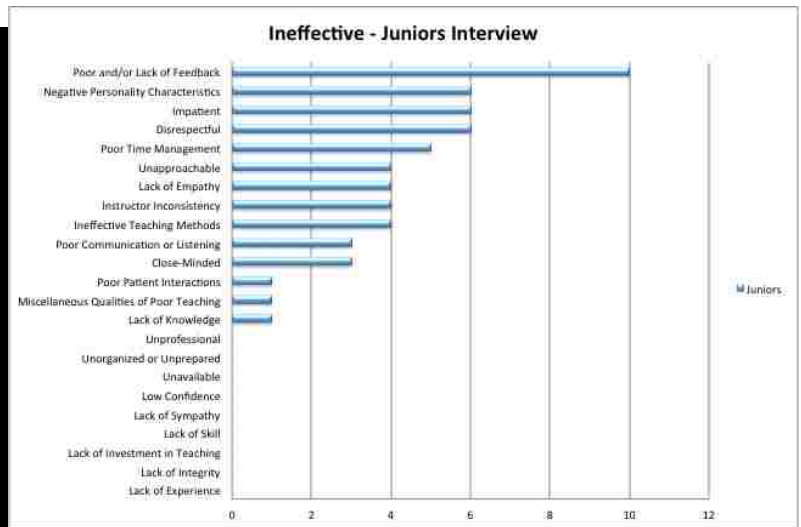
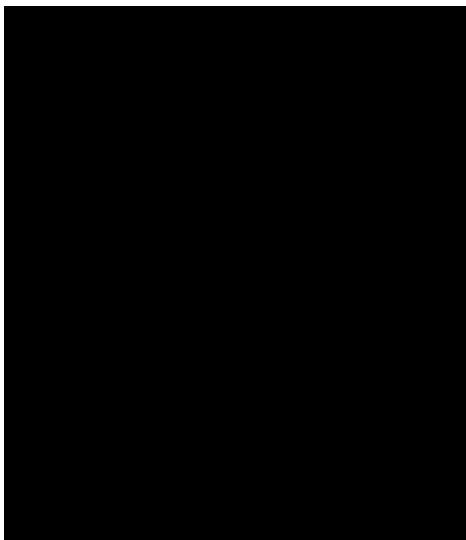
### Comparison Data - All Groups Survey

Adjusting for group size, the five most frequently mentioned categories from the interview data of ineffective clinical instruction for all participants were: 1) “Negative personality characteristics” 2) “Poor and/or lack of feedback”, 3) “Disrespectful”, 4) “Unprofessional”, and 5) “Impatient”.

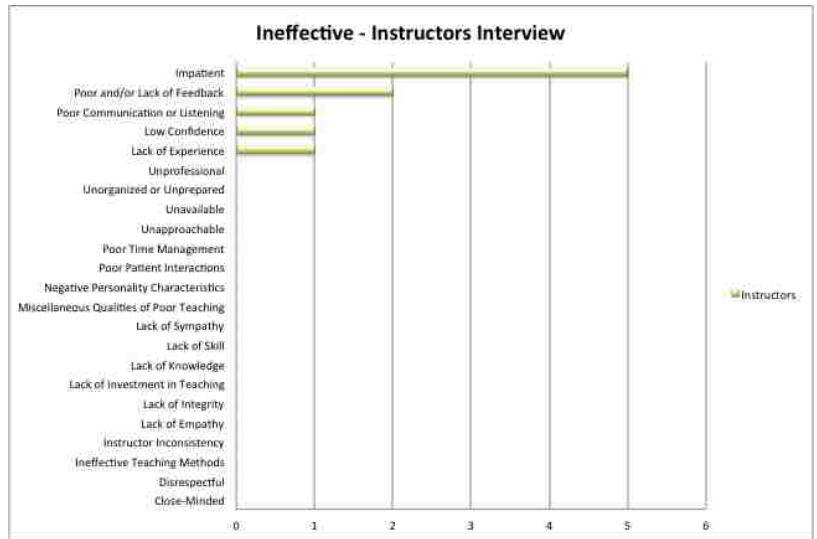
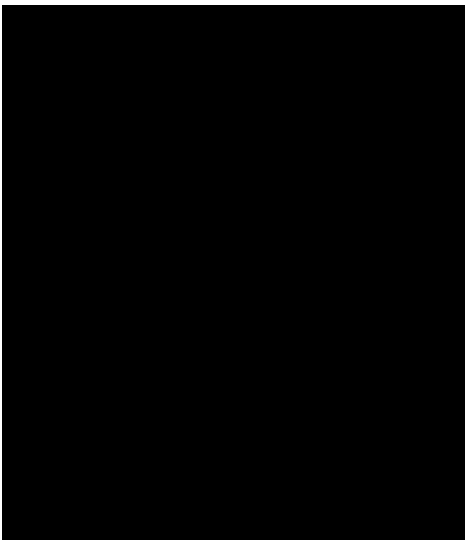
There were 4 categories shared by students (juniors and seniors) and instructors within the five most frequently mentioned categories of ineffective characteristics which were “negative personality characteristics, “poor and/or lack of feedback,” “disrespectful,”

and “unprofessional.” The only categories that were not shared out of the five most frequently mentioned are “lack of knowledge,” (mentioned by instructors) and “impatient (mentioned by the students). Students and instructors mentioned all categories with exception of “lack of sympathy,” “miscellaneous of poor teaching,” “unavailable,” “poor patient interactions,” “lack of empathy,” and “lack of skill” which were mentioned only by students. There were none that were only mentioned by instructors.

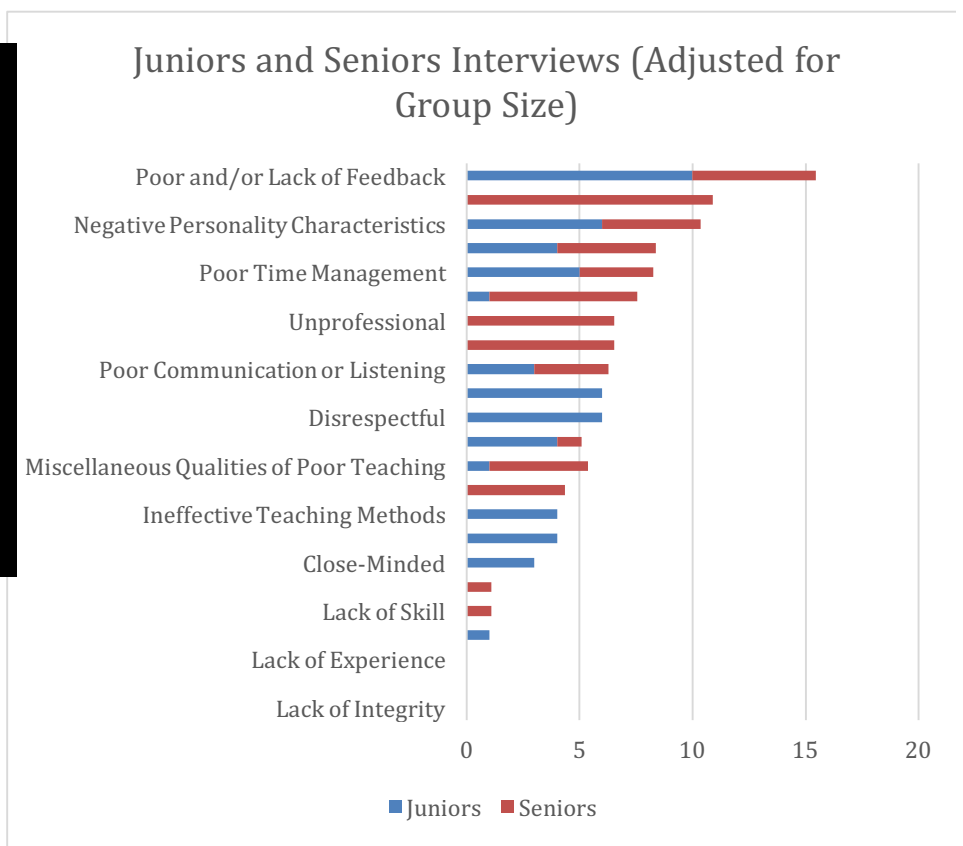
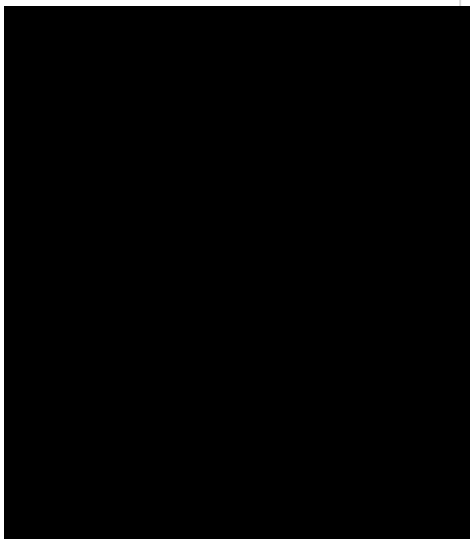
The following graphs depict the 23 categories of ineffective qualities and characteristics in descending order by the number of times mentioned by each cohort during the interview.







Combining junior and senior responses for the ineffective categories mentioned during the interviews and adjusting for group size, the five most frequently mentioned categories were:



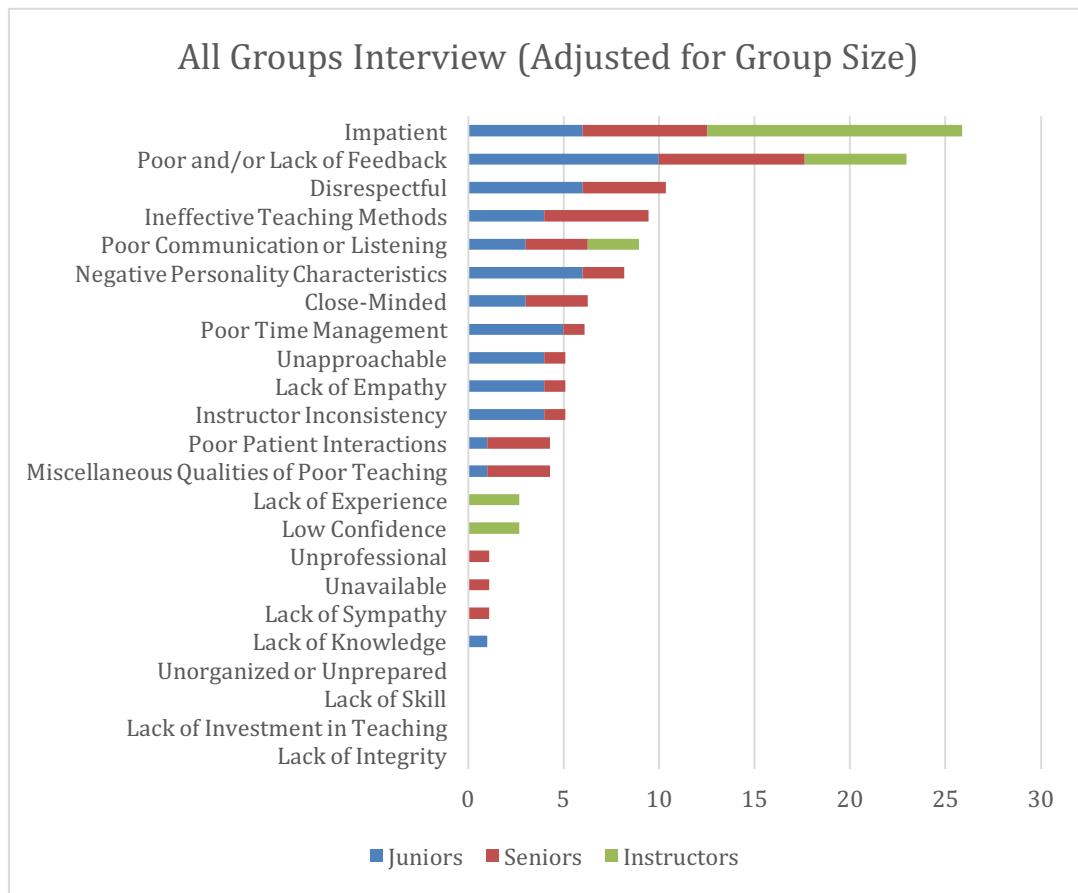
## Comparison Data – Juniors and Seniors Interviews

Both juniors and seniors reported on all categories

with the exception of “lack of knowledge” which was only mentioned by juniors; and “unprofessional,” “unavailable,” and “lack of sympathy” which were only mentioned by seniors.

Juniors placed greater emphasis on “poor and/or lack of feedback,” “disrespectful,” “negative personality characteristics,” “poor time management,” “unapproachable,” “lack of empathy,” and “instructor inconsistency.”

Seniors placed greater emphasis on “impatient,” “ineffective teaching methods,” “poor communication or listening,” “close-minded,” “poor patient interactions,” and “miscellaneous qualities of poor teaching.”



### **Comparison Data - All Groups Interview**

Adjusting for group size, the five most frequently mentioned categories from the interview data of ineffective clinical instruction for all participants were: 1) “Impatient” 2) “Poor and/or lack of feedback”, 3) “Disrespectful”, 4) “Ineffective teaching methods”, and 5) “Poor communication or listening.”

There were 2 categories shared by students (juniors and seniors) and instructors within the five most frequently mentioned categories of ineffective characteristics which were “poor and/or lack of feedback,” and “impatient.” The categories that were not shared out of the five most frequently mentioned were “poor communication and/or listening,” “low confidence,” and “lack of experience” (mentioned by instructors) and “disrespectful,” “ineffective teaching methods,” and “negative personality characteristics” (mentioned by the students). Students and instructors mentioned all categories with exception of “disrespectful”, “ineffective teaching methods”, “negative personality characteristics,” “close-minded,” “poor time management,” “unapproachable,” “lack of empathy,” “instructor inconsistency,” “poor patient interactions”, “miscellaneous qualities of poor teaching,” “unprofessional” “unavailable,” “lack of sympathy,” and “lack of knowledge” which were mentioned only by students and “low confidence,” and “lack of experience” were only mentioned by instructors.

## Appendix H – Categories

### Effective

1. APPROACHABLE
  - a. Included qualities or characteristics such as – approachable, approachable because does not make the student feel stupid, approachable because easy to talk to, approachable by not seeming too busy, approachable by smiling, being able to ask questions without fear of consequences, makes students feel comfortable asking questions, and does not make student feel bad for mistakes.
2. ATTENTIVE
  - a. Included qualities or characteristics such as – being present mentally, attentive, gives full attention to student and patient, recognizing when a student is struggling, checking in on student, individual attention, following through, and close observation of student.
3. AVAILABLE
  - a. Included qualities or characteristics such as – available, accessible, and being present physically.
4. CONSISTENCY
  - a. Included qualities or characteristics such as – consistent, consistent between instructors, consistent in grading, consistent in teaching, and consistent in grading/evaluating with the same instructor.
5. EMPATHETIC
  - a. Included qualities or characteristics such as – empathetic, understanding, and relatable.
6. EXPERIENCED
  - a. Included qualities or characteristics such as - experienced, has variety of clinical experience before, and few years of experience before teaching.
7. GOOD COMMUNICATION OR LISTENING
  - a. Included qualities or characteristics such as – concise communication skills, effective communication skills, explains things, good listener, clear instructions, explains well, explaining why things are important, and explains topics well.
8. GOOD EVALUATION SKILLS
  - a. Included qualities or characteristics such as - thorough, fair in grading, grades thoroughly, treats students equally, and fair through grading.

9. GOOD RAPPORT WITH STUDENTS
  - a. Included qualities or characteristics such as – good rapport with students and establishes a personal connection to student.
  
10. GOOD TIME MANAGEMENT
  - a. Included qualities or characteristics such as - good time management, efficiency, and has time to teach.
  
11. INTEGRITY
  - a. Included qualities or characteristics such as – ability to make mistakes, honest, trustworthy, ethical, and sincere.
  
12. KNOWLEDGEABLE
  - a. Included qualities or characteristics such as - knowledgeable, thinks on feet, competent, educated, and being up to date with advances.
  
13. MISCELLANEOUS QUALITIES OF GOOD INSTRUCTION
  - a. Included qualities or characteristics such as – well-prepared, organized, resourceful, supportive, quality work, good teaching ability, understands the teaching process, rational or logical, gives accurate information, leads by example, definitive, helping student think outside the box, encourages autonomy, thorough in teaching, challenges student, giving students space when appropriate, engaging student, and good coaching skills.
  
14. MOTIVATING
  - a. Included qualities or characteristics such as - motivating, engaging/stimulating, encouraging, makes students excited to learn, inspiring, reassuring, pushes students to do best, believes in student, empowering, and has confidence in student ability.
  
15. OPEN-MINDED
  - a. Included qualities or characteristics such as – adaptable, non-discriminatory, open to learning, being open-minded, and accepts criticism well.
  
16. PATIENT ORIENTED
  - a. Included qualities or characteristics such as – patient oriented, ability to work with challenging patients, good communicator with patients, involving patient during instruction, and genuinely cares about the patients.

17. PROFESSIONAL

- a. Included qualities or characteristics such as - professional, responsible, compliant, being on time, respectful in front of patients, works agreeable and professional with others, dependable, and reliable.

18. RESPECTFUL

- a. Included qualities or characteristics such as – not condescending, making student feel like an equal, doesn't make the student feel stupid, respectful, not degrading, and respectful of patients' and students' time.

19. SELF-AWARENESS

- a. Included qualities or characteristics such as – knowing own strengths and weaknesses, and knowing own limitations.

20. SKILLED

- a. Included qualities or characteristics such as - clinically skilled and clinically competent.

21. SYMPATHETIC

- a. Included qualities or characteristics such as – Comforting, nurturing, thoughtful, considerate, compassionate, and makes student feel comfortable.

**Ineffective**

1. CLOSE-MINDED

- a. Included qualities or characteristics such as – close-minded, not accommodating, unwilling to compromise, prejudiced, discriminatory, not flexible, stubborn, and not willing to change.

2. INSTRUCTOR INCONSISTENCY

- a. Included qualities or characteristics such as - inconsistency, inconsistency between instructors, inconsistent grading with same instructor, inconsistent instruction between instructors, and inconsistent expectations between instructors.

3. LACK OF EMPATHY

- a. Included qualities or characteristics such as – lack of empathy or relatability, not understanding, and not empathetic.

4. LACK OF EXPERIENCE

- a. Included qualities or characteristics such as – inexperienced and inexperienced in teaching.

5. LACK OF INTEGRITY
  - a. Included qualities or characteristics such as – insincere, gives inaccurate information, marking off grade out of spite, untrustworthy, negligent, giving false info when not knowing answer, and inability to admit mistakes.
  
6. LACK OF INVESTMENT IN TEACHING
  - a. Included qualities or characteristics such as – unwilling to help, not willing to help students not assigned to, inattentive, lazy, boring, not taking the time to teach, ignoring the student, disinterested, not being engaged, does not take time to make sure the student understands not taking the time to explain, unwilling to take time to help, not fully engaged, and lack of motivation.
  
7. LACK OF KNOWLEDGE
  - a. Included qualities or characteristics such as – not educated to a high enough standard, not being up to date with current practices, and lack of knowledge.
  
8. LACK OF SKILL
  - a. Included qualities or characteristics such as – lack of skill.
  
9. LACK OF SYMPATHY
  - a. Included qualities or characteristics such as – uncaring, unsupportive, lack of interest, unfeeling, insensitive, and not thoughtful.
  
10. LOW CONFIDENCE
  - a. Included qualities or characteristics such as – timid, unsure of self, low self-confidence, indecisive, and lack of confidence.
  
11. MISCELLANEOUS QUALITIES OF POOR TEACHING
  - a. Included qualities or characteristics such as – does not like the process of learning, poor guidance, lack of guidance, not helpful, not understanding the teaching process, not being able to support teaching point, not being aware when students are struggling, not explaining reasoning when questioned, discouraging, and not encouraging.
  
12. POOR COMMUNICATION OR LISTENING
  - a. Included qualities or characteristics such as – poor communication or listening, does not listen/ineffective listener, ineffective at conveying message, speaking in terms student does not understand, unclear instruction, not taking the time to listen to student justification, lack of communication, and not articulating thoughts.

13. POOR PATIENT INTERACTIONS

- a. Included qualities or characteristics such as – belittling patient, impolite to patient, not respecting time of patient, unfriendly with patients, ignoring patient, makes patient feel uncomfortable, unprofessional in discussing a different patient in front of current patient, and not respectful of patient.

14. UNAPPROACHABLE

- a. Included qualities or characteristics such as – unapproachable, intimidating by tone, annoyance when sought after, unapproachable because too busy, unapproachable because seems mean, moody or frustrated, unapproachable because seems not interested, unapproachable because rushed, unapproachable because makes student feel stupid, and cannot ask questions for fear of consequences.

15. UNAVAILABLE

- a. Included qualities or characteristics such as – unavailable because too busy, instructor not being available, and not available when needed.

16. UNORGANIZED OR UNPREPARED

- a. Included qualities or characteristics such as – unorganized and unprepared.



## **Appendix I – Results for Survey and Interview Independently by Category and Cohort**

The following represents each category and describes participants' responses for each by cohort (junior student, senior student, and instructor). For all the online survey results, stated are the number of participants that mentioned a quality or characteristic within that category, the number of total times a quality or characteristic within that category was mentioned, the average rank given to those qualities or characteristics within that category, and the average rank given by all participants within the cohort (including non-responders of the category). For the interview results, stated are the number of participants that mentioned a quality or characteristic within that category and the number of total times a quality or characteristic within that category was mentioned.

### **Categories of Effective Clinical Instructors (in alphabetical order)**

#### ***Approachable***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "approachable" and organized by cohort.

##### **Juniors**

Online survey - 4 juniors mentioned 1 quality or characteristic that was categorized as "approachable". The average rank of importance from these responses was 4.25.

The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.71.

Interview - 2 juniors mentioned 1 quality or characteristic that was categorized as "approachable".

##### **Seniors**

Online survey - 7 seniors mentioned at least 1 quality or characteristic that was categorized as "approachable". The total times mentioned by this group was 8. The average rank of importance from these responses was 4.75.

The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.73.

Interview - 4 seniors mentioned at least 1 quality or characteristic that was categorized as “approachable”. The total times mentioned by this group was 16.

#### Instructors

Online survey - 3 instructors mentioned 1 quality or characteristic that was categorized as “approachable”. The average rank of importance from these responses was 5.0.

The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.67.

Interview - 2 instructors mentioned 1 quality or characteristic that was categorized as “approachable”.

#### *Attentive*

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “attentive” and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as “attentive”. The average rank of importance from these responses was 5.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category was 0.42.

Interview - 2 juniors mentioned 1 quality or characteristic that was categorized as “attentive”.

#### Seniors

Online survey - 2 seniors mentioned 1 quality or characteristic that was categorized as “attentive”. The average rank of importance from these responses was 4.5. The average ranking of all senior respondents and non-respondents for the on-line survey for this category was 0.41.

Interview - 2 seniors mentioned 1 quality or characteristic that was categorized as “attentive”.

#### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as “attentive”. The average rank of importance from these responses was 4.5. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category was 1.0.

Interview - 2 instructors mentioned 1 quality or characteristic that was categorized as “attentive”.

### ***Available***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “available” and organized by cohort.

#### **Juniors**

Online survey - 1 junior mentioned 1 quality or characteristic that was categorized as “available”. The rank of importance of this response was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.17.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “available”.

#### **Seniors**

Online survey - 2 seniors mentioned 1 quality or characteristic that was categorized as “attentive”. The average rank of importance from these responses was 4.5. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.41.

Interview - no seniors mentioned any qualities or characteristics that were categorized as “available”.

#### **Instructors**

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “attentive”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “available”.

### ***Consistency***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “consistency” and organized by cohort.

#### **Juniors**

Online survey - 3 juniors mentioned at least 1 quality or characteristic that was categorized as “consistency”. The total times mentioned by this group was 4. The average rank of importance from these responses was 4.5. The

average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.75.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “consistency”.

#### Seniors

Online survey - 6 seniors mentioned at least 1 quality or characteristic that was categorized as “consistency”. The total times mentioned by this group was 8. The average rank of importance from these responses was 4.38. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.59.

Interview - no seniors mentioned any qualities or characteristics that were categorized as “consistency”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “consistency”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “consistency”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “effective feedback”. The rank of importance of this response was 5. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview - 2 instructors mentioned 1 quality or characteristic that was categorized as “effective feedback”.

### ***Empathetic***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “empathetic” and organized by cohort.

#### Juniors

Online survey - 10 juniors mentioned 1 quality or characteristic that was categorized as “empathetic”. The average rank of importance from these responses was 4.5. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 1.88.

Interview - 3 juniors mentioned 1 quality or characteristic that was categorized as “empathetic”.

#### Seniors

Online survey - 9 seniors mentioned 1 quality or characteristic that was categorized as “empathetic”. The average rank of importance from these responses was 4.56. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.86.

Interview - 6 seniors mentioned at least 1 quality or characteristic that was categorized as “empathetic”. The total times mentioned by this group was 7.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “empathetic”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interviews - no instructors mentioned any qualities or characteristics that were categorized as “empathetic”.

### ***Good Evaluation Skills***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “good evaluation skills” and organized by cohort.

#### Juniors

Online survey - 3 juniors mentioned at least 1 quality or characteristic that was categorized as “good evaluation skills”. The total times mentioned by this group was 4. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.50.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “good evaluation skills”.

#### Seniors

Online survey - 9 seniors mentioned at least 1 quality or characteristic that was categorized as “good evaluation skills”. The total times mentioned by this group was 10. The average rank of importance from these responses was 4.2. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.91.

Interview - no seniors mentioned any qualities or characteristics that were categorized as “good evaluation skills”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “good evaluation skills”. The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “good evaluation skills”.

### ***Experienced***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “experienced” and organized by cohort.

#### Juniors

Online survey - no juniors mentioned any qualities or characteristics that were categorized as “experienced”. The average rank of importance from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “experienced”.

#### Seniors

Online survey - 2 seniors mentioned at least 1 quality or characteristic that was categorized as “experienced”. The total times mentioned by this group was 3. The average rank of importance from these responses was 4.67. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.64.

Interview - no seniors mentioned any qualities or characteristics that were categorized as “experienced”.

#### Instructors

Online survey - 3 instructors mentioned a quality or characteristic that was categorized as “effective teaching methods”. The average rank of importance from these responses was 4.33. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.44.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “experienced”.

### ***Good Communication or Listening***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "good communication or listening" and organized by cohort.

#### **Juniors**

Online survey - 12 juniors mentioned at least 1 quality or characteristic that was categorized as "good communication or listening". The total times mentioned by this group was 15. The average rank of importance from these responses was 4.4. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 2.75.

Interview - 4 juniors mentioned 1 quality or characteristic that was categorized as "good communication or listening".

#### **Seniors**

Online survey - 6 seniors mentioned 1 quality or characteristic that was categorized as "good communication or listening". The average rank of importance from these responses was 4.5. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.23.

Interview – 4 seniors mentioned 1 quality or characteristic that was categorized as "good communication or listening".

#### **Instructors**

Online survey - 6 instructors mentioned at least 1 quality or characteristic that was categorized as "good communication or listening". The total times mentioned by this group was 7. The average rank of importance from these responses was 4.43. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 3.44.

Interview - 1 instructor mentioned 1 quality or characteristic that was categorized as "good communication or listening".

### ***Good Rapport with Students***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "good rapport with students" and organized by cohort.

#### **Juniors**

Online survey – no juniors mentioned any qualities or characteristics that were categorized as "good rapport with students". The average rank of importance

from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “good rapport with students”.

#### Seniors

Online survey - no seniors mentioned any qualities or characteristics that were categorized as “good rapport with students”. The average rank of importance from these responses was 0.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no seniors mentioned any qualities or characteristics that were categorized as “good rapport with students”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “good rapport with students”. The rank of importance of this response was 3.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.33.

Interview - 1 instructor mentioned 1 quality or characteristic that was categorized as “good rapport with students”.

### ***Good Time Management***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “good time management” and organized by cohort.

#### Juniors

Online survey - 3 juniors mentioned 1 quality or characteristic that was categorized as “good time management”. The average rank of importance from these responses was 4.33. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.54.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “good time management”.

#### Seniors

Online survey – 4 seniors mentioned 1 quality or characteristic that was categorized as “good time management”. The average rank of importance from these responses was 4.75. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.86.



Interview – no seniors mentioned any qualities or characteristics that were categorized as “good time management”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “good time management”. The rank of importance of this response was 4.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.44.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “good time management”.

### ***Integrity***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “integrity” and organized by cohort.

#### Juniors

Online survey - 1 junior mentioned 1 quality or characteristic that was categorized as “integrity”. The rank of importance of this response was 3.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.13.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “integrity”.

#### Seniors

Online survey – 6 seniors mentioned at least 1 quality or characteristic that was categorized as “integrity”. The total times mentioned by this group was 7. The average rank of importance from these responses was 4.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.27.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “integrity”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “integrity”. The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “integrity”.

### ***Knowledgeable***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "knowledgeable" and organized by cohort.

#### Juniors

Online survey – 6 juniors mentioned 1 quality or characteristic that was categorized as "knowledgeable". The average rank of importance from these responses was 4.83. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.21.

Interview - 2 juniors mentioned 1 quality or characteristic that was categorized as "knowledgeable".

#### Seniors

Online survey - 11 seniors mentioned at least 1 quality or characteristic that was categorized as "knowledgeable". The total times mentioned by this group was 12. The average rank of importance from these responses was 4.67. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 2.55.

Interview – 5 seniors mentioned 1 quality or characteristic that was categorized as "knowledgeable".

#### Instructors

Online survey – all 9 instructors mentioned 1 quality or characteristic that was categorized as "knowledgeable". The average rank of importance from these responses was 4.89. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 4.89.

Interview - 2 instructors mentioned at least 1 quality or characteristic that was categorized as "knowledgeable". The total times mentioned by this group was 3.

### ***Miscellaneous Qualities of Good Instruction***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "miscellaneous qualities of good instruction" and organized by cohort.

#### Juniors

Online survey - 5 juniors mentioned at least 1 quality or characteristic that was categorized as "miscellaneous qualities of good instruction". The total times mentioned by this group was 9. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 1.50.

Interview- 5 juniors mentioned at least 1 quality or characteristic that was categorized as “miscellaneous qualities of good instruction”. The total times mentioned by this group was 6.

#### Seniors

Online survey – 10 seniors mentioned at least 1 quality or characteristic that was categorized as “miscellaneous qualities of good instruction”. The total times mentioned by this group was 14. The average rank of importance from these responses was 4.57. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 3.05.

Interview – 4 seniors mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of good instruction”.

#### Instructors

Online survey - 4 instructors mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of good instruction”. The average rank of importance from these responses was 4.25. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.89.

Interview – 1 instructor mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of good instruction”.

### ***Motivating***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “motivating” and organized by cohort.

#### Juniors

Online survey - 10 juniors mentioned at least 1 quality or characteristic that was categorized as “motivating”. The total times mentioned by this group was 13. The average rank of importance from these responses was 4.4. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 2.42.

Interview - 4 juniors mentioned 1 quality or characteristic that was categorized as “motivating”

#### Seniors

Online survey - 5 seniors mentioned at least 1 quality or characteristic that was categorized as “motivating”. The total times mentioned by this group was 8. The average rank of importance from these responses was 4.13. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.50.

Interview – 6 seniors mentioned at least 1 quality or characteristic that was categorized as “motivating”. The total times mentioned by this group was 7.

#### Instructors

Online survey - 4 instructors mentioned at least 1 quality or characteristic that was categorized as “motivating”. The total times mentioned by this group was 7. The average rank of importance from these responses was 4.57. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 3.56.

Interview – 2 instructors mentioned at least 1 quality or characteristic that was categorized as “motivating”. The total times mentioned by this group was 3.

### ***Open-Minded***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “open-minded” and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as “open-minded”. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.33.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “open-minded”.

#### Seniors

Online survey - 4 seniors mentioned at least 1 quality or characteristic that was categorized as “open-minded”. The total times mentioned by this group was 6. The average rank of importance from these responses was 4.83. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.32.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “open-minded”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “consistency”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “open-minded”.

#### Instructors

Online survey - 4 instructors mentioned 1 quality or characteristic that was categorized as “patient”. The average rank of importance from these responses was 4.25. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.89.

Interview - 2 instructors mentioned 1 quality or characteristic that was categorized as “patient”.

#### ***Patient-Oriented***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “patient-oriented” and organized by cohort.

#### Juniors

Online survey – no juniors mentioned any qualities or characteristic that were categorized as “patient-oriented”. The average rank of importance from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - 2 juniors mentioned 1 quality or characteristic that was categorized as “patient-oriented”.

#### Seniors

Online survey - 3 seniors mentioned at least 1 quality or characteristic that was categorized as “patient-oriented”. The total times mentioned by this group was 4. The average rank of importance from these responses was 4.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.73.

Interview – 1 senior mentioned 1 quality or characteristic that was categorized as “patient-oriented”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “consistency”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “patient-oriented”.

#### Instructors

Online survey - 6 instructors mentioned at least 1 quality or characteristic that was categorized as “positive personality characteristics”. The total times mentioned by this group was 11. The average rank of importance from these responses was 3.36. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 4.11.

Interview - 2 instructors mentioned at least 1 quality or characteristic that was categorized as “positive personality characteristics”. The total times mentioned by this group was 3.

#### ***Professional***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “professional” and organized by cohort.

#### Juniors

Online survey - 1 junior mentioned 1 quality or characteristic that was categorized as “professional”. The rank of importance of this response was 5.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.21.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “professional”.

#### Seniors

Online survey - 7 seniors mentioned at least 1 quality or characteristic that was categorized as “professional”. The total times mentioned by this group was 9. The average rank of importance from these responses was 4.78. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.95.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “professional”.

#### Instructors

Online survey – 5 instructors mentioned 1 quality or characteristic that was categorized as “professional”. The average rank of importance from these responses was 4.4. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 2.44.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “professional”.

### ***Respectful***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "respectful" and organized by cohort.

#### Juniors

Online survey - 3 juniors mentioned 1 quality or characteristic that was categorized as "respectful". The average rank of importance from these responses was 4.33. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.54.

Interview - 2 juniors mentioned 1 quality or characteristic that was categorized as "respectful".

#### Seniors

Online survey - 8 seniors mentioned 1 quality or characteristic that was categorized as "respectful". The average rank of importance from these responses was 4.63. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.68.

Interview – 3 seniors mentioned 1 quality or characteristic that was categorized as "respectful".

#### Instructors

Online survey – 1 instructor mentioned 1 quality or characteristic that was categorized as "effective teaching methods". The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview - no instructors mentioned any qualities or characteristics that were categorized as "respectful".

### ***Self-Awareness***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "self-awareness" and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as "self-awareness". The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.33.

Interview – no juniors mentioned any qualities or characteristics that were categorized as "self-awareness".

### Seniors

Online survey - no seniors mentioned any qualities or characteristic that were categorized as “self-awareness”. The total times mentioned by this group was 0. The average rank of importance from these responses was 0.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “self-awareness”.

### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “self-awareness”. The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “self-awareness”.

### ***Skilled***

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “skilled” and organized by cohort.

### Juniors

Online survey - no juniors mentioned any qualities or characteristics that were categorized as “skilled”. The average rank of importance from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “skilled”.

### Seniors

Online survey - 2 seniors mentioned 1 quality or characteristic that was categorized as “skilled”. The average rank of importance from these responses was 4.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.36.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “skilled”.



#### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as “skilled.” The average rank of importance from these responses was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.11.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “skilled”.

#### *Sympathetic*

The following are the effective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “sympathetic” and organized by cohort.

#### Juniors

Online survey - 4 juniors mentioned 1 quality or characteristic that was categorized as “sympathetic”. The average rank of importance from these responses was 4.5. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.75.

Interview – 1 junior mentioned 1 quality or characteristic that was categorized as “sympathetic”.

#### Seniors

Online survey- 4 seniors mentioned at least 1 quality or characteristic that was categorized as “sympathetic”. The total times mentioned by this group was 5. The average rank of importance from these responses was 4.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.91.

Interview – 2 seniors mentioned 1 quality or characteristic that was categorized as “sympathetic”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “sympathetic”. The rank of importance of this response was 4.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.44.

Interview - 1 instructor mentioned 1 quality or characteristic that was categorized as “sympathetic”.

## **Categories of Ineffective Clinical Instructors (in alphabetical order)**

### ***Close-Minded***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "close-minded" and organized by cohort.

#### **Juniors**

Online survey – 2 juniors mentioned 1 quality or characteristic that was categorized as "close-minded". The average rank of importance from these responses was 5.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.42.

Interview - 3 juniors mentioned 1 quality or characteristic that was categorized as "close-minded".

#### **Seniors**

Online survey - 4 seniors mentioned at least 1 quality or characteristic that was categorized as "close-minded". The total times mentioned by this group was 7. The average rank of importance from these responses was 4.43. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.41.

Interview - 1 senior mentioned 3 qualities or characteristic that was categorized as "close-minded". This gave the senior group a total of 3 in this category

#### **Instructors**

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as "close-minded". The average rank of importance from these responses was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.11.

Interview - no instructors mentioned any qualities or characteristics that were categorized as "close-minded".

### ***Instructor Inconsistency***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "instructor inconsistency" and organized by cohort.

#### **Juniors**

Online survey - Online survey - 9 juniors mentioned at least 1 quality or characteristic that was categorized as "instructor inconsistency". The total times mentioned by this group was 10. The average rank of importance from

these responses was 4.9. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 2.04.

Interview – 4 juniors mentioned 1 quality or characteristic that was categorized as “instructor inconsistency”.

#### Seniors

Online survey - 2 seniors mentioned at least 1 quality or characteristic that was categorized as “instructor inconsistency”. The total times mentioned by this group was 3. The average rank of importance from these responses was 4.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.55.

Interview – 1 senior mentioned 1 quality or characteristic that was categorized as “instructor inconsistency”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “instructor inconsistency”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “instructor inconsistency”.

### ***Lack of Empathy***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “lack of empathy” and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as “lack of empathy”. The average rank of importance from these responses was 4.5. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.38.

Interview – 4 juniors mentioned 1 quality or characteristic that was categorized as “lack of empathy”.

#### Seniors

Online survey – 1 senior mentioned 1 quality or characteristic that was categorized as “lack of empathy”. The rank of importance of this response was 1.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.05.

Interview – 1 senior mentioned 1 quality or characteristic that was categorized as “lack of empathy”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “lack of empathy”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “lack of empathy”.

### ***Lack of Experience***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “lack of experience” and organized by cohort.

#### Juniors

Online survey - no juniors mentioned any qualities or characteristics that were categorized as “lack of experience”. The average rank of importance from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “lack of experience”.

#### Seniors

Online survey – 1 senior mentioned 1 quality or characteristic that was categorized as “lack of experience”. The rank of importance of this response was 5.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.23.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “lack of experience”.

#### Instructors

Online survey – 1 instructor mentioned 1 quality or characteristic that was categorized as “lack of experience”. The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview – 1 instructor mentioned 1 quality or characteristic that was categorized as “lack of experience”.

### ***Lack of Integrity***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "lack of integrity" and organized by cohort.

#### Juniors

Online survey - 1 junior mentioned 1 quality or characteristic that was categorized as "lack of integrity". The rank of importance of this response was 1.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.04.

Interview – no juniors mentioned any qualities or characteristics that were categorized as "lack of integrity".

#### Seniors

Online survey – 2 seniors mentioned at least 1 quality or characteristic that was categorized as "lack of integrity". The total times mentioned by this group was 4. The average rank of importance from these responses was 4.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.73.

Interview – no seniors mentioned any qualities or characteristics that were categorized as "lack of integrity".

#### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as "lack of integrity". The average rank of importance from these responses was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.11.

Interview – no instructors mentioned any qualities or characteristics that were categorized as "lack of integrity".

### ***Lack of Investment in Teaching***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants' online surveys and interviews, which were then categorized as "lack of investment in teaching" and organized by cohort.

#### Juniors

Online survey - 6 juniors mentioned 1 quality or characteristic that was categorized as "lack of investment in teaching". The average rank of importance from these responses was 4.5. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 1.13.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “lack of investment in teaching”.

#### Seniors

Online survey - 9 seniors mentioned at least 1 quality or characteristic that was categorized as “lack of investment in teaching”. The total times mentioned by this group was 12. The average rank of importance from these responses was 4.58. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 2.50.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “lack of investment in teaching”.

#### Instructors

Online survey - 1 instructor mentioned 1 quality or characteristic that was categorized as “lack of investment in teaching”. The rank of importance of this response was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.56.

Interview – no instructors mentioned any qualities or characteristics that were categorized as “lack of investment in teaching”.

### ***Lack of Knowledge***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “lack of knowledge” and organized by cohort.

#### Juniors

Online survey - 5 juniors mentioned 1 quality or characteristic that was categorized as “lack of knowledge”. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.83.

Interview – 1 junior mentioned 1 quality or characteristic that was categorized as “lack of knowledge”.

#### Seniors

Online survey – 3 seniors mentioned 1 quality or characteristic that was categorized as “lack of knowledge”. The average rank of importance from these responses was 5.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.68.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “lack of knowledge”.

#### Instructors

Online survey – 4 instructors mentioned 1 quality or characteristic that was categorized as “lack of knowledge”. The average rank of importance from these responses was 5.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 2.22.

Interview - 1 instructor mentioned 1 quality or characteristic that was categorized as “lack of knowledge”.

#### ***Lack of Skill***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “lack of skill” and organized by cohort.

#### Juniors

Online survey - 1 junior mentioned 1 quality or characteristic that was categorized as “lack of skill”. The rank of importance of this response was 1.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.04.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “lack of skill”.

#### Seniors

Online survey - no seniors mentioned any qualities or characteristics that were categorized as “lack of skill”. The average rank of importance from these responses was 0.00. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “lack of skill”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “lack of skill”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no instructors mentioned any qualities or characteristics that were categorized as “lack of skill”.

#### ***Lack of Sympathy***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “lack of sympathy” and organized by cohort.

#### Juniors

Online survey - 3 juniors mentioned at least 1 quality or characteristic that was categorized as “lack of sympathy”. The total times mentioned by this group was 4. The average rank of importance from these responses was 3.75. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.63.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “lack of sympathy”.

#### Seniors

Online survey - 3 seniors mentioned 1 quality or characteristic that was categorized as “lack of sympathy”. The average rank of importance from these responses was 4.33. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.59.

Interview – 1 senior mentioned 1 quality or characteristic that was categorized as “lack of sympathy”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “lack of sympathy”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “lack of sympathy”.

### ***Low Confidence***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “low confidence” and organized by cohort.

#### Juniors

Online survey - no juniors mentioned any qualities or characteristics that were categorized as “low confidence”. The average rank of importance from these responses was 0.00. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.00.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “low confidence”.



### Seniors

Online survey - 2 seniors mentioned 1 quality or characteristic that was categorized as “low confidence”. The average rank of importance from these responses was 3.50. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.32.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “low confidence”.

### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as “low confidence”. The average rank of importance from these responses was 4.5. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.00.

Interview - 1 instructor mentioned 1 quality or characteristic that was categorized as “low confidence”.

### ***Miscellaneous Qualities of Poor Teaching***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “miscellaneous qualities of poor teaching” and organized by cohort.

### Juniors

Online survey - 4 juniors mentioned at least 1 quality or characteristic that was categorized as “miscellaneous qualities of poor teaching”. The total times mentioned by this group was 5. The average rank of importance from these responses was 4.4. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.92.

Interview – 1 junior mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of poor teaching”

### Seniors

Online survey - 2 seniors mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of poor teaching”. The average rank of importance from these responses was 4.38. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.27.

Interview – 3 seniors mentioned 1 quality or characteristic that was categorized as “miscellaneous qualities of poor teaching”

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “miscellaneous qualities of poor teaching”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned a quality or characteristic that was categorized as “miscellaneous qualities of poor teaching”.

#### ***Poor Communication or Listening***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “poor communication or listening” and organized by cohort.

#### Juniors

Online survey - 4 juniors mentioned 1 quality or characteristic that was categorized as “poor communication or listening”. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.67.

Interview – 3 juniors mentioned 1 quality or characteristic that was categorized as “poor communication or listening”.

#### Seniors

Online survey - 3 seniors mentioned 1 quality or characteristic that was categorized as “poor communication or listening”. The average rank of importance from these responses was 4.67. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.64.

Interview – 2 seniors mentioned at least 1 quality or characteristic that was categorized as “poor communication or listening”. The total times mentioned by this group was 3.

#### Instructors

Online survey - 3 instructors mentioned 1 quality or characteristic that was categorized as “poor communication or listening”. The average rank of importance from these responses was 4.67. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.56.

Interview – 1 instructor mentioned 1 quality or characteristic that was categorized as “poor communication or listening”.

### ***Poor Patient Interactions***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “poor patient interactions” and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as “poor patient interactions”. The average rank of importance from these responses was 5.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.42.

Interview – 1 junior mentioned 1 quality or characteristic that was categorized as “poor patient interactions”.

#### Seniors

Online survey – 1 senior mentioned 2 qualities or characteristics that were categorized as “poor patient interactions”. The average rank of importance from these responses was 3.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.27.

Interview – 2 seniors mentioned at least 1 quality or characteristic that was categorized as “poor patient interactions”. The total times mentioned by this group was 3.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “poor patient interactions”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “poor patient interactions”.

### ***Unapproachable***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “unapproachable” and organized by cohort.

#### Juniors

Online survey – 6 juniors mentioned at least 1 quality or characteristic that was categorized as “unapproachable”. The total times mentioned by this group

was 7. The average rank of importance from these responses was 3.57. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 1.04.

Interview – 4 juniors mentioned 1 quality or characteristic that was categorized as “unapproachable”.

#### Seniors

Online survey - 5 seniors mentioned at least 1 quality or characteristic that was categorized as “unapproachable”. The total times mentioned by this group was 6. The average rank of importance from these responses was 4.33. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 1.18.

Interview - 1 senior mentioned 1 quality or characteristic that was categorized as “unapproachable”.

#### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as “unapproachable”. The average rank of importance from these responses was 4.5. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 1.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “unapproachable”.

#### ***Unavailable***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “unavailable” and organized by cohort.

#### Juniors

Online survey - 2 juniors mentioned 1 quality or characteristic that was categorized as “unavailable”. The average rank of importance from these responses was 4.0. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.33.

Interview - no juniors mentioned any qualities or characteristics that were categorized as “unavailable”.

#### Seniors

Online survey - 4 seniors mentioned 1 quality or characteristic that was categorized as “unavailable”. The average rank of importance from these responses was 4.0. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.73.

Interview - 1 senior mentioned 1 quality or characteristic that was categorized as “unavailable”.

#### Instructors

Online survey - no instructors mentioned any qualities or characteristics that were categorized as “unavailable”. The average rank of importance from these responses was 0.00. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.00.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “unavailable”.

### ***Unorganized or Unprepared***

The following are the ineffective qualities and characteristics of clinical instructors that were obtained from participants’ online surveys and interviews, which were then categorized as “unorganized or unprepared” and organized by cohort.

#### Juniors

Online survey - 4 juniors mentioned 1 quality or characteristic that was categorized as “unorganized or unprepared”. The average rank of importance from these responses was 3.25. The average ranking of all junior respondents and non-respondents for the on-line survey for this category is 0.54.

Interview – no juniors mentioned any qualities or characteristics that were categorized as “unorganized or unprepared”.

#### Seniors

Online survey – 3 seniors mentioned at least 1 quality or characteristic that was categorized as “unorganized or unprepared”. The total times mentioned by this group was 4. The average rank of importance from these responses was 4.75. The average ranking of all senior respondents and non-respondents for the on-line survey for this category is 0.86.

Interview – no seniors mentioned any qualities or characteristics that were categorized as “unorganized or unprepared”.

#### Instructors

Online survey - 2 instructors mentioned 1 quality or characteristic that was categorized as “unorganized or unprepared”. The average rank of importance from these responses was 4.0. The average ranking of all instructor respondents and non-respondents for the on-line survey for this category is 0.89.

Interview - no instructors mentioned any qualities or characteristics that were categorized as “unorganized or unprepared”.