

Characteristics of effective clinical teachers identified by dental students: a qualitative study

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Abstract

This qualitative research study identified criteria for clinical teacher quality preferences as perceived by dental students. Third and fourth year dental students at New York University College of Dentistry were given a two question, open-ended survey asking what qualities they liked most and least in a clinical teacher. Responses were collected until data saturation was achieved. A total of 157 respondents provided a total of 995 written comments. Descriptive words within the responses were coded and grouped into key words, according to similar relationships, and further refined into 17 defined categories. Three core themes, Character, Competence and Communication, emerged from these 17 categories, which were validated according to specific references found in the existing educational literature. 'Character' comprised nine of the 17 defined categories: (caring, motivation, empathy, patience, professionalism, available, fairness, happiness, patient-centred) and yielded 59.1% of total student responses; 'Competence' consisted of five categories: knowledgeable, expertise, efficient, skilful, effective (29.2%); and 'Communication' represented the remaining three categories: feedback, approachable and interpersonal communication (11.7%). Positive and negative responses related to the defined category of caring were cited by 59.2% of all students. Motivation was the next highest category, cited by 45.9% of students. Non-cognitive attributes, especially those in the Character theme, comprised the majority of student comments. Because students' perceptions are so critical to understanding clinical teaching effectiveness in dental education, these findings can be used to develop assessments to measure clinical teaching effectiveness, to create criteria for the hiring and promotion of clinical faculty and to plan faculty development programming.

Introduction

In clinical educational settings, both the didactic and clinical aspects of the discipline or field of study must be taught effectively. Although there is a wealth of educational literature on effective classroom teaching, there appears to be far fewer studies that focus on clinical teaching effectiveness (1–13). Some of these studies have concentrated on didactic classroom teaching of clinical programmes (14–16), whilst others have focused on clinical teaching effectiveness (17–21). The study reported here was conducted to further the understanding of desirable and undesirable factors that affect clinical instruction in dentistry as perceived by students, with a goal of creating a future assessment tool for faculty development. An appraisal of the literature reveals a variety of attributes and characteristics associated with effective clinical teachers. In 1995, Irby determined the following

desirable characteristics of clinical teachers: physician as role model, effective supervisor and dynamic/supportive individual (22). Similarly, Sutkin et al. grouped characteristics of clinical teachers into three main themes: physician, teacher and human. Within these categories emerged five of the most commonly cited characteristics: medical/clinical knowledge; clinical teaching skills/competence; positive relationship with students and/or supportive learning environment; communication skills; and enthusiasm (the most cited category). Non-cognitive attributes accounted for approximately two-thirds of all descriptors (23).

Fluit et al. conducted a systematic review of the content and quality of assessments of clinical teachers and found that most assessments focused on the use of teaching strategies, being supportive, role modelling and the provision of feedback. Because these reviewed assessments did not provide a clear description of what constitutes a good clinical teacher, the

authors called for more valid and comprehensive assessments to assess clinical teaching (24). More recently, Finn et al. considered the opinions of peer observers of clinical teachers and identified five major abilities as essential for effective clinical teaching: questioning strategies, physical examination instruction, engagement of multiple learner levels, learner-focused teaching and teaching efficiency or time management (21).

In the dental education literature, several studies have focused on clinical teaching effectiveness. As part of a qualitative study of student–teacher interactions, interviews with third and fourth year University of Wales dental students revealed desirable characteristics of dental clinical teachers as: professional competence, approachability, punctuality, availability, consistency, practicality, understanding of limits of student knowledge and respect for the student/patient relationship (25). In 2005, Gerzina surveyed clinical dental teachers and their students and found that both groups valued empathy, provision of clear objectives, discussion of alternative treatments, demonstrations and the provision of continuous feedback (18). In a 2006 survey of student perspectives on the dental school curriculum, Henzi et al. found that students rated their interactions with faculty favourably overall with the exception of ‘inconsistent feedback’ and feedback of an insensitive or rude nature. Students also complained about the lack of availability of faculty when needed (26). In 2006, Schonwetter et al. studied student perceptions of teaching award nominees’ behaviours and found that 94% of student comments in the clinical teaching category covered four themes: individual rapport, organisation, enthusiasm and learning. On further review, the theme of rapport yielded 57% of total comments which encompassed descriptors of friendly, patience, caring and respectful (3).

This qualitative research study identified the characteristics that students like in a clinical teacher, and those attributes they do not like in order to elicit a more complete picture of clinical teaching effectiveness.

Materials and methods

Qualitative methodology is the systematic analysis of ‘words’ and is defined by ‘exploration, meaning, understanding and thematic’ (27). Qualitative research methods include focus groups, interviews, direct observations and open-ended surveys (28). For the purposes of this study, the time required for observations, face-to-face interviews and focus groups was considered prohibitive. Questionnaires are efficient and allow students to provide valuable feedback in their own time without pressure, whilst maintaining anonymity. In that regard, an open-ended survey questionnaire was selected as the data gathering method.

This study was conducted during May, 2011 and was approved by the New York University Institutional Review Board and categorised as an exempted research protocol. In this study, 688 subjects (all 3rd and 4th year dental students at NYU College of Dentistry), over the age of 21, were sent an electronic survey by e-mail with a link to a Survey Monkey instrument (29). Subjects were told that participation was considered voluntary and all responses would remain anonymous. The survey design was limited to a one-time participation per subject as there was a pre-designed second mailing scheduled automatically. The survey asked two open-ended questions:

- What qualities do you like MOST in a clinical teacher?
- What qualities do you like LEAST in a clinical teacher?

In the electronic survey format, participants were not limited to the number of comments or words within the response to each question.

The analysis process included a constant comparison method of identifying, coding and categorising the primary patterns in the data, leading to defined categories and core themes (28, 30–36). Initially, all responses were coded independently by the four researchers to identify descriptive words within the responses (Fig. 1). The next step involved further examining the descriptive words to identify meaningful patterns or repetitive combinations. Words used several times in similar contexts across multiple responses were considered to be more common and were highlighted as specific positive or negative key words. From these key words, 17 defined categories emerged using inductive analysis and continual refinement. The use of these 17 categories was validated according to specific references found in the existing educational literature (Table 1). Throughout this process, any differences in opinions on assignments of key words were resolved through an open discussion amongst the four researchers.

Qualitative analysis methodology stipulates that independent categories can be grouped into one or more core themes to further refine the data into related phenomena (37). To better understand the methodology described for analysing results, Fig. 1 demonstrates the response analysis pathway using one student’s response to both survey questions. The analysis begins by highlighting descriptive words from the student’s initial comments. The highlighted terms are then: (i) separated into positive and negative key words. The key words are assembled according to similar patterns and (ii) refined into defined categories. The categories are then (iii) grouped in relation to emerged core themes. This selected example demonstrates the emergence of all three final core themes.

Whilst quantitative studies often use a power analysis to determine sample size, qualitative studies collect data until a ‘saturation point’ is reached; that is, until new data do not significantly add anything to what has been collected, marking the end point of the data collection process (38, 39). In this study, each new response was constantly compared to previous responses with the intent of identifying new issues or categories; or, noting redundancy of data.

To establish a data saturation ‘point’, a redundancy limit was set using a stopping criterion based on an initial sample size (40). The researchers decided that approximately 15% of the available target group of 688 subjects would represent the initial sample size, and that 10 subjects would be the redundancy limit. Thus, after the first 100 subjects responded to the survey, if 10 consecutive additional survey participants provided comments that offered no new insights into existing categories or no new categories emerged, then the data collection process would be considered complete. Simultaneous analysis of data allowed for subject enrolment until data saturation was reached.

Results

Data saturation was achieved with 157 subjects out of the target group of 688 students (23%). The 157 subjects provided a total

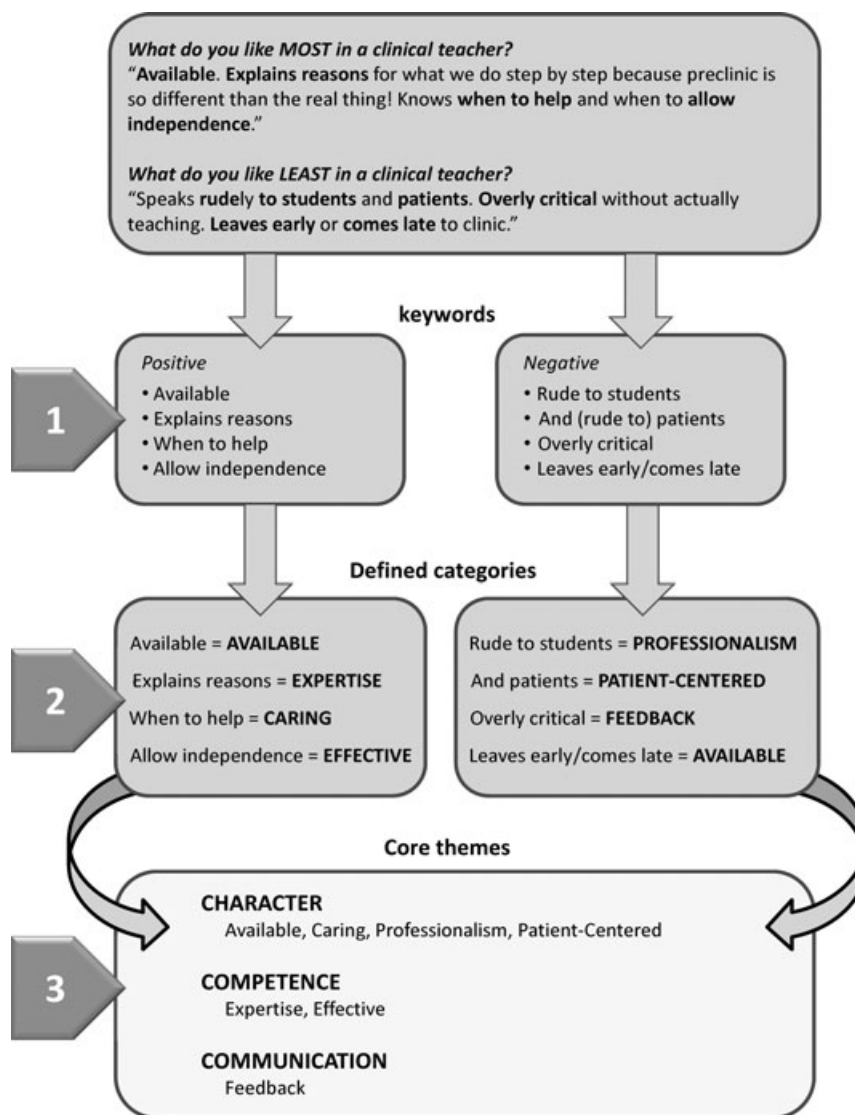


Fig. 1. Response analysis pathway identifying descriptive terms: (i) separated into positive and negative key words, (ii) assigned to defined categories and (iii) grouped by core themes.

of 995 written responses, with a mean number of 6.3 comments per subject.

Table 2 shows the results of the 17 Defined Categories by reporting the percent of positive and negative responses made within each category; as well as the number and percent of students responding within each category. The reason that the total of the percentages shown for the 'Students Citing Category' exceeds 100 percent across all 17 defined categories is as a result of each subject providing multiple responses. For example, 10.1% (100) of the 995 written responses fell into the category of 'motivation', with 45.9% of the 157 students making at least one comment related to motivation.

The category of 'caring' was found to be the most cited by students (59.2%) and the category of 'patient-centred' was the least cited (7.0%).

The final core themes that emerged from the consolidation of categories were Character, Competence and Communication.

(Fig. 2) The 'Character' theme comprised 9 of the 17 defined categories, accounting for 588 of the 995 total responses (59.1%); 'Competence' consisted of 5 categories, reflecting 291 responses (29.2%); and, 'Communication' represented 3 categories, covering 116 responses (11.7%).

Discussion

Students' perceptions are critical to understanding clinical teaching effectiveness in dental education. The results of this study indicate three core desirable attributes of clinical teachers: Character, Competence and Communication. The rationale for identifying these 'core themes' is that communicating research data becomes comprehensible, easier to commit to memory and has targeted applications. The understanding and application of the overarching perspective of a 'theme' allow for the developing of a proficiency in clinical teaching. For example,

TABLE 1. Positive and Negative key words within the 17 defined categories, segmented according to core themes

| Category | Positive key words | Negative key words |
|--|---|---|
| Character | | |
| Caring (2, 3, 8, 17, 18, 20, 24, 26, 41–57) Encouraging, sincere and helpful | goes the extra mile; mentor; kind; soft-spoken; willingness to teach; nice; humble; humility; open-minded; diligent | has an attitude; arrogant; sarcastic; sarcasm; condescending; belittles; talks down to discouraging; self-centred; self-promoting; egotistical; ego-centric; ego maniac; demeaning; mean; unwillingness to teach; incapable of giving help; not willing to help boring; dull; uninteresting; looks tired; beat; lazy; laziness; unmotivated; apathetic; lacks interest; less interested in student efforts; disinterested; not wanting or willing to work; does not want to be there; lack of involvement; on computers checking email whilst students are waiting; chatting with faculty whilst students wait; not attentive; thinks of the works as only a job or just a paycheck |
| Motivation (2, 3, 8, 17–19, 24, 26, 41, 43, 46, 48, 55, 57–61) Energetic and instils a sense of enthusiasm | motivates me; moving; empowering; good feeling; energetic; enthusiasm; enthusiastic; lively; can handle the load; excitement; interested; wants to be there; interested to teach; takes initiative to teach; willing; dedicated; has appropriately high expectations; likes the work; loves the work; loves teaching; likes to teach; eager to teach; eagerness | lack of understanding; single viewpoint; no sympathy; disrespectful; forget that we have only carried out this a few times; don't recall once being students; don't appreciate that this is students first time; unrealistic expectations; no mercy |
| Empathy (2, 3, 17–19, 23, 26, 41, 43, 45, 48, 49, 51, 55, 60, 62–66) Supportive, sees and understands from the perspective of the student | understanding; shares feelings; offers personal experience; appreciative; sees multiple perspectives; compassion; respect; supportive; acceptance | impatience; short; impatient with students; impatient in correcting mistakes; gets irritated when you don't understand or exasperated if something is carried out multiple times |
| Patience (2, 3, 8, 17, 18, 20, 24, 26, 43, 46–49, 51, 53, 54, 56, 57) Controls frustrations and devotes time to explain | patient; patience; patiently explains; devotes time; spends time with students; patient with students; knows that it will take time for us to do the procedure correctly | bad or rude behaviour; criticises other faculty; blames others; criticises in front of patients; embarrasses students in front of patients; impolite; yells at students; brings personal issues into clinic; disrespectful language; yelling |
| Professionalism (1, 4, 24, 25, 41, 42, 44, 48, 49, 51, 57, 60, 62, 63, 67–70) Respectful, considerate and ethical | good behaviour; ethical principles; sensitivity to diverse patient population; polite; good manners; considerate; does not yell at students; respects colleagues | unavailable; rushed; disappears; arrives late; leaves early; in and out of clinic; absent; waiting to leave; trying to finish up rather than teach |
| Available (3, 8, 25, 26, 41–43, 48, 49, 53, 54, 56, 65, 68, 71–73) Punctual and accessible | on-time; availability; accessibility; punctuality; stays late; works overtime; willing to stay overtime; readiness to teach | favouritism; prefers to work with males/females; favours males/females; gender bias; ethnic bias; stereotyping; sexist; partiality; differentiates between AP (Advanced Placement) and 4th year; discriminates; sexual harassment; prejudiced; political |
| Fairness (3, 8, 17, 26, 42, 51, 63) Shows no favouritism to gender, ethnicity or individuals | is fair; treats equally; teaching without preference; not biased; impartial; not political | moody; mood swings; grumpy; irritable; shows anger; gets mad or upset; angry; bad tempered; hot tempered; expresses disappointment; annoyed; personality is a downer; emotional; combative |
| Happiness (3, 17–19, 23, 24, 26, 48, 51, 53, 56, 60) Evidently enjoys teaching | smiles; funny; adds humour; fun; entertaining; positive | uninterested in patient's welfare; rude to patients; ignores patient complaints; not interacting well with patient; more concerned about the protocol than the patient |
| Patient-centered (4, 5, 24, 25, 41, 43, 44, 49, 51, 52, 55, 59, 62, 64, 69, 71, 74, 75) Simultaneously engages the patient whilst teaching the student | cares for patient; puts patient first; sensitive to patient needs; good manners with patient; respectful of patients | |

Table 1. Continued

| Category | Positive key words | Negative key words |
|--|---|--|
| Competence | | |
| Category | Positive key words | Negative key words |
| Knowledgeable (1–5, 8, 17–19, 23, 24, 42, 44, 46, 48–51, 54–57, 63, 70, 72, 74, 76–78) Proficient and up-to-date with procedures | knowledgeable; core knowledge; current clinical knowledge; follows the rules; standardised; comprehension; evidence based; research; up-dated information between clinic and lectures | not versed with school techniques; lack of knowledge; shallow knowledge; ignorance; not calibrated; no set criteria; unaware of materials in clinic; old school; old style; archaic; out of touch; not open to new age dentistry; closed-minded; doing procedure because they have carried out it this way for years |
| Expertise (3, 4, 8, 17, 21, 23, 25, 47–49, 51, 55, 61, 65, 67, 70, 72, 77, 79–84) Confident and, experienced; logically explains or simplifies the materials; able to solve problems | simplifies information; relates to the audience; command of material; connects the topics; clarity; explains well; gives clear or easy instructions; good explanatory skills; guides students step-by-step; calm; in control; practiced; can think on their feet; authoritative; assertive; trustworthy; experienced; mentions practical experience; diagnoses and treatment plans; can get you out of trouble when case has a problem; can bail you out; handles complications | lack of explanation; not explaining procedures or decisions; does not explain reasons; not specific in instructions; inability to teach; no guidance; looks nervous; anxious; intimidated; afraid of questions; not confident in evaluating work; mistrust; constantly asking for speciality consults to defer responsibility; anxious; inexperienced |
| Efficient (1, 3, 8, 17–20, 24–26, 41–43, 46, 48, 49, 51, 53, 55–60, 63, 65–68, 71–74, 77, 79, 80, 82, 85–87) Focused, organised and resourceful in the given time | completes planned work; productive; good time management; mindful of time; makes quick decisions; hastiness; expedites processes; fast; prioritises and attends to those in need; concentrates on the session at hand; multitasking; structured; follows a plan; prepared; resourceful; realistic; down-to-earth; gives practical tips; doesn't see things as just black & white; consistent | wasted my time; poor time management; takes too much time to see patient; keeps students waiting; delays patient care by adding steps; slow; don't spend enough time chair side; keeps student from attempting; rushing the student; long conversations; talks too much; too concerned about paperwork or attendance; hard to get approvals; poor preparation; inconsistent; lacking realistic approach; different opinions on procedures; digresses; drifts; tells irrelevant stories; puts up road block; naysayer |
| Skilful (1, 5, 8, 17–19, 25, 26, 47–51, 55, 56, 59, 61, 63, 67, 68, 73, 74, 80, 81) Dexterous in the application and demonstration of knowledge | demonstrates techniques; willingness to demonstrate; dexterity; competent; proficient; hands-on; detail-oriented; thoroughness; attention to details | hands-off; does no work; not able to demonstrate clinically; inferior; awkward |
| Effective (3–5, 18–20, 23–26, 41, 42, 45, 48, 51, 55–57, 60, 66, 72, 74, 77, 82, 84, 85) Transfers own skills into student learning | gives good examples; uses analogies; tells stories; allows student to learn by actively doing; asks questions to stimulate thinking; allows student to self-assess; lets student do the work; independence; critical thinking; uses different ways of teaching; good teaching skills; quality teaching; watches to make sure student can do the procedure; ability to teach | faculty decide to do things themselves; teacher does the procedure; ones that do all the work; lets student make same mistakes over and over but they never show the right way; takes over; answers question with question; erratic behaviour; just tells students what to do; inflexibility in treatment; lets student flounder by themselves without helping and then leaving you to struggle |
| Communication | | |
| Feedback (2–5, 17–21, 23–26, 42, 43, 45, 47, 51, 54, 56–60, 62, 65, 66, 70, 72–74, 77, 79, 81–83, 85, 86, 88) Offers constructive comments that encourage and enhance knowledge or skill | constructive feedback; positive reinforcement; honest critic; ability to critically teach; corrects mistakes; gives feedback; interactive | makes too many negative comments; highly critical; gives no feedback; harsh criticism; criticises in front of other students; judgmental; makes assumptions; looking only for perfection; not giving competency even though you are competent; blaming student |

Table 1. Continued

| Category | Positive key words | Negative key words |
|--|--|--|
| Approachable (2, 17–19, 23–26, 43, 49, 51, 53, 55, 58–60, 63, 65, 66, 68, 70, 72, 81, 82) Appears friendly and receptive to comments and interaction | encourages participation; promotes discussions; allows questions; open; friendly; warm person; pleasant to work with; allows students to express opinions; open to suggestions | interrupts people; intimidating; students scared to go to teacher; scared to ask; bossy; aloof; not pleasant; a closed personality; not open to criticism; |
| Interpersonal Communication (1, 2, 8, 17, 20, 23–26, 41, 43, 45, 47–49, 51, 54, 55, 59, 62, 63, 65–67, 70–74, 79, 83, 85) Listens actively and interacts positively with student and patient | describes to patient; accent is understandable; listens to the student; listens to the patient; willing to listen; likes to interact; one-to-one; responsive | does not listen; spoon-feeds students; faculty thinks they are always right; always has to be carried out their way; opinionated; blunt |

TABLE 2. Student response rates for each of 17 defined categories, arranged according to the number of students providing responses in each category

| Category | Student response rates (n = 995) | | | Students citing category (n = 157) | |
|-----------------------------|----------------------------------|------------|------------|------------------------------------|---------|
| | % Positive | % Negative | % Combined | Number | Percent |
| Caring | 8.4 | 6.6 | 15.1 | 93 | 59.2 |
| Motivation | 3.7 | 6.3 | 10.1 | 72 | 45.9 |
| Empathy | 5.5 | 2.4 | 7.9 | 60 | 38.2 |
| Knowledgeable | 4.2 | 1.9 | 6.1 | 56 | 35.7 |
| Patience | 4.8 | 2.2 | 7.0 | 55 | 35.0 |
| Expertise | 4.2 | 2.1 | 6.3 | 54 | 34.4 |
| Efficient | 3.0 | 4.3 | 7.3 | 52 | 33.1 |
| Professionalism | 1.1 | 4.3 | 5.4 | 46 | 29.3 |
| Available | 1.9 | 4.5 | 6.4 | 44 | 28.0 |
| Skilful | 3.8 | 1.3 | 5.1 | 41 | 26.1 |
| Feedback | 1.6 | 3.1 | 4.7 | 39 | 24.8 |
| Effective | 2.6 | 1.7 | 4.3 | 33 | 21.0 |
| Approachable | 2.6 | 1.1 | 3.7 | 30 | 19.1 |
| Fairness | 0.5 | 2.9 | 3.4 | 28 | 17.8 |
| Interpersonal Communication | 1.7 | 1.5 | 3.2 | 26 | 16.6 |
| Happiness | 0.4 | 1.9 | 2.3 | 23 | 14.6 |
| Patient-centred | 0.6 | 0.8 | 1.4 | 11 | 7.0 |
| Total | 50.9 | 49.1 | 100.0 | | |

a clinical teacher, after receiving student feedback about having a ‘lack of empathy’, focuses on the Character theme and is likely to improve in the category of ‘empathy’ as well as in the areas of ‘caring’, ‘happiness’ and ‘motivation’ which are also part of the Character theme. Similarly, efforts to improve in the “skilful” category will likely contribute to greater ‘expertise’ and ‘efficiency’, both of which are also part of the Competence theme. Therefore, the most important application of this data is in providing feedback to faculty and in creating focused faculty development programmes.

Although the number of positive and negative responses appears to be split evenly (Table 1), upon further observation, several categories in the Character and Communication themes elicited overwhelmingly more negative responses than positive ones, suggesting that students appear to recognise the void of certain characteristics, possibly because the presence of such

attributes is already expected. For example, students commented on the lack of professionalism (80%) four times as much as the presence of the attribute (20%). Similarly, responses related to the lack of fairness (85%) far outweighed those comments that recognised the existence of fairness (15%). In addition, students noticed the unavailability of faculty more often (70%) and judged feedback as being more critical (66%). A higher number of negative responses were also found with the issues of motivation (63%) and happiness (83%).

The findings of this study are consistent with other studies of clinical teaching where students overwhelmingly identified non-cognitive attributes as being most important in their clinical teachers (3, 23). The non-cognitive attributes of caring, motivation and empathy in this study elicited the highest number of both positive and negative responses.

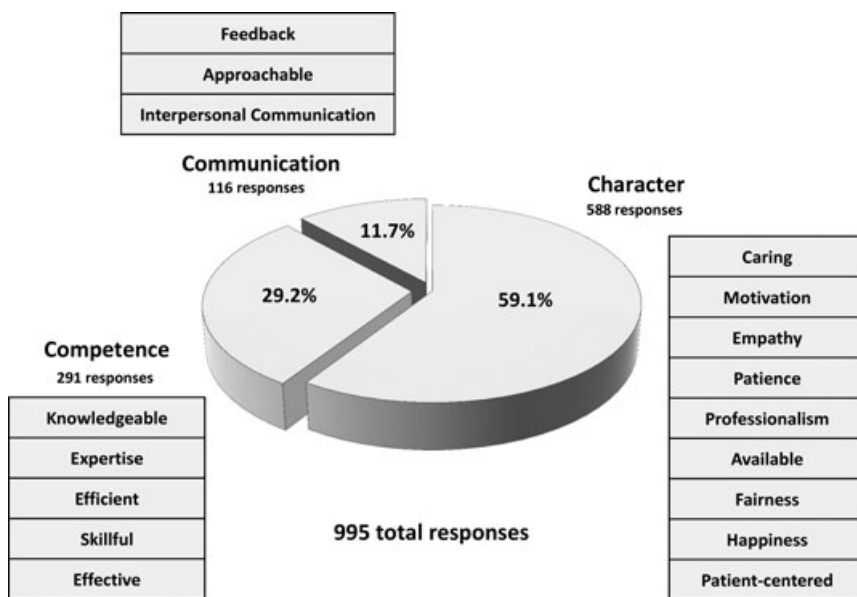


Fig. 2. Defined categories displayed according to the three 'core themes' of Character, Competence and Communication, based on student responses.

The limitation of this study may be that whilst insight is provided from the student perspective regarding clinical teaching effectiveness, faculty perceptions may be equally important (18). Furthermore, the lack of direct correlation to patient outcomes may explain the reason for the attribute of 'patient-centred' as being the least-cited category. Whilst this may not represent student or faculty beliefs, it does reflect the limitation of the study design.

Clinical teaching in dental education is described as direct, often one-to-one student–faculty encounters involving the refinement of psychomotor and diagnostic skills with substantial role modelling of effective communication with patients. In contrast, classroom teaching is primarily focused on knowledge acquisition, lecture delivery skills and communication with larger groups of students. These two varied environments explain the differing expectations of students with regard to classroom and clinical teaching. In the classroom, students valued teachers who are organised and have well-designed content (6). In the clinic, character attributes take centre stage. These differing findings indicate that, depending on the teaching environments, faculty may have to develop or improve certain skills; and, that it is entirely possible for a teacher to be effective in one setting but not in the other. This can pose a challenge to a dental education workforce, often understaffed, who looks to have faculty be flexible in their teaching skills, both clinically and didactically.

In summary, the findings from this study can be used to develop or refine current student and peer assessments of dental clinical teaching and can have utility for designing and implementing faculty development programmes in clinical teaching instruction.

Conclusion

The purpose of this study was to identify through qualitative methodology the dental student perspective on both positive and negative clinical teacher qualities. Students' most valued clinical teachers who cared, were motivating and empathetic. It is

recommended that faculty development efforts focus on positive as well as negative attributes, in order to meet the expectations of students and provide an effective teaching environment.

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