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NA Gordon

Authors' affiliations:
NA Gordon, Department of Oral Hygiene, Faculty of Dentistry, University of the Western Cape (UWC) and Tygerberg Academic Hospital, Cape Town, South Africa

Correspondence to:
N.A. Gordon
Department of Oral Hygiene
Faculty of Dentistry
University of the Western Cape (UWC) and Tygerberg Academic Hospital
Private Bag X08
Mitchells Plain
7785 Cape Town
South Africa
Tel.: +27 21 3704445
Fax: +27 21 3923250
E-mail: ngordon@uwc.ac.za

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Learning experiences of oral hygiene students in the clinical environment

Abstract: *Objectives:* To determine how students used daily and term-based clinical assessment tools, students' experience of clinical teaching and clinical assessment. *Methods:* This was a descriptive, cross-sectional study. The study population included final-year Degree in Oral Health (BOH) students (n = 34). Data were collected by means of a self-administered questionnaire using open- and closed-ended questions. *Results:* The response rate was 85% (n = 29). Respondents reported that term-based assessment tools were more useful than daily assessment tools in preparing for clinical sessions, in guiding their patient management and as a reflection of their competence. Factors influencing student experiences include authentic learning opportunities such as performing a variety of procedures, patient appreciation and positive reinforcement from supervisors; consistent and appropriate feedback on their performance, feedback in the presence of a patient; supervisor qualities of being patient, respectful, non-threatening and being positive role models; and organizational aspects such as punctuality and availability of supervisors. Inconsistencies were found in student experiences in terms of the quality of feedback received. Assessment experiences include inconsistency between supervisors and not being informed of assessment scores. Regular verbal feedback or being appraised of their assessment scores was reported more frequently for term-based assessment (77%) than for daily assessment (27%). *Conclusion:* The results of this study suggest that a blueprint defining assessment as a means to drive student learning is inadequate. A more comprehensive approach encompassing all the parameters that impact the learning process may be more useful.

Key words: assessment; clinical supervisor; clinical teaching; feedback; oral hygiene student; supervisor qualities

Introduction

The interaction between clinical educators and students is viewed as the strongest element to develop expertise and form students' professional identity (1). During patient treatment sessions, the clinical teacher occupies the multiple roles of a teacher, a clinical supervisor responsible for the safety of the patient, and of an expert clinician, (2) and is expected to continuously switch between these roles. It has been documented that the behaviour and the approach of clinical teachers may enhance or detract from the learning experience of students (1–12).

Traditionally, professionals have been seen as competent to teach students based on their professional qualification (5, 13, 14), implying an

apprenticeship where the novice learns from the expert and is assessed based on expert opinion. The literature shows that this simplistic definition does not take into account the complexity of the learning process (2, 3, 9, 10, 15). Furthermore, subjectivity affects validity and reliability of the curriculum (16). Epstein (17) articulated the differences in processes that students and experts engage in their decision-making in the clinical environment. Students proceed from a 'novice level using abstract, rule-based formulae', to a higher level where they use these rules appropriate to specific situations. In comparison, experts make rapid judgements based on the real life context and can articulate the basis of their decisions. This process indicates the developmental and contextual nature of competence (17).

The clinical learning experiences of medical (3), dental (2, 6, 7, 12, 18, 19), nursing (3, 9, 15, 20) and to a lesser extent dental hygiene (5) students are well documented. Effective learning experiences of dental students have been related to instructor characteristics, characteristics of the learning experience and the learning environment (7). Similar results were noted with medical students (10). The literature shows that students learn in the clinical environment by being shown the link between theory and practice (2, 13), by demonstration of procedures (2, 18, 19), by being exposed to authentic learning experiences (10, 19), from the emotional tone of clinical teachers (2), and by being given frequent feedback of their performance (3, 5, 7, 12, 19, 21, 22).

Educational programmes assure competence through their assessment practices. For educators, teaching and learning culminate in assessment. However, for the student, assessment defines the curriculum (23). Aligning assessment to what students should learn uses this notion in a positive manner (23). The literature shows that assessment should be valid, reliable and acceptable to students and staff. A blueprint or checklist indicating criteria to be assessed and the level of performance expected can improve reliability and also direct and support learning (16, 17, 24).

Quality of care provided to patients is dependent on universities producing graduates who demonstrate fitness to practice. This obligates professional programmes to perform continuous evaluation of the learning experiences of their students.

Background

At the time of this study, the University of the Western Cape (UWC) offered a Diploma in Oral Health (DipOH) and a Degree in Oral Health (BOH) with the first 2 years being common. A limited number of students were selected in their second year to complete an additional year and exit with a BOH. During clinical practice sessions, students treated patients under supervision of departmental staff at a ratio of 4–6 students to a clinical supervisor.

Two types of clinical assessment were made from the beginning of the second year with assessment grids developed within the department defining the scope of each. The first was formative and used to assess student performance at every clinical practice session, also referred to as the daily assessment tool. This assessment grid defined the parameters and level of performance on a scale ranging from 1 (unacceptable), 2 (acceptable with assistance/prompting for core), 3 (acceptable with guidance/knows core), 4 (competent) to 5 (excellent). The second was a term-based clinical examination to assess students' management of a patient, which contributed to summative assessment for clinical practice modules. This assessment grid was more extensive with a formal interview after the treatment session probing deeper knowledge specific to the patient and to curriculum milestones.

Assessment grids were developed to assist students to prepare for the clinical session, guide their learning in the clinical environment and so ensure transparency. Departmental protocols require students to be given feedback of their performance in both the daily and term-based assessments. The research hypothesis was that comprehensive and transparent assessment grids would drive the learning and assessment practices in the clinical environment to meet the programme outcomes.

Aim and objectives

The aim of this study was to investigate the clinical experiences of final-year BOH students in terms of teaching and assessment. The objectives were to determine students' use of assessment tools to guide their learning, experiences of clinical teaching and experiences of clinical assessment.

Study population and methodology

This was a descriptive cross-sectional study. The study population included final-year (3rd year) BOH students (2007–2010; $n = 34$). Data were collected by means of a self-administered questionnaire using open-ended and closed questions.

Students were asked to respond to statements or questions as appropriate to the variables measured. Students' use of the assessment tools with questions such as 'Do you understand the criteria and scoring used' required a yes/no response. Questions on the usefulness of assessment tools to them required a response ranging from very useful, useful, not useful to not at all useful. Statements of students' learning experiences in the clinical environment such as 'I receive feedback when I do well' required a response ranging from always, most of the time (at least three of five clinical sessions), sometimes (<3 of 5 clinical sessions) to never.

A pilot study involving three students was conducted to validate the questionnaire. Quantitative data were reported in frequency tables, and qualitative data from the open-ended questions were put into themes.

The project was approved by the faculty and university research committees. Students were invited to participate in the study, assured of their anonymity and that there would be no negative consequences if they chose not to participate. The researcher was not present during completion or submission of questionnaires.

Results

The response rate was 85% (n = 29).

Most students reported to understand the criteria and scoring for the daily assessment (76%, n = 22) and term-based assessment (83%, n = 24). Table 1 shows that students find the daily assessment tools less useful than the term-based assessment tools. However, most students find the feedback provided supported their learning.

Table 2 shows a discrepancy between overall positive experiences and the more negative or ambiguous experiences when probed on specific aspects of clinical teaching, learning and assessment. Students reported receiving verbal feedback on performance or being appraised of their assessment scores for daily assessment: always or most of the time (27%) and for the clinical examination [always or most of the time (77%)].

Table 1. **Students' experience of assessment and assessment tools* (n = 29)**

Statements	Daily tool (%)	Term-based tool (%)
How useful do you find the assessment tools to prepare for the clinical session?	62	79.3
Do the assessment tools assist you in patient management in the clinical area?	65.5	79.3
Does the scoring for assessment reflect your competence?	68.9	79.3
Does feedback provided support your l earning and general patient management?	86.2	86.2

*Only positive (yes) responses are recorded.

Table 2. **Learning experiences of students in the clinical environment (n = 29)**

Statements	Frequency* (%)
I know who my supervisor is at the beginning of each session	68.9
The supervisor checks how I am doing during a clinical session, spends time observing my actions during patient management	79.3
Techniques/procedures that I struggle with are demonstrated to me during or after the session	68.9
I am helped to understand how the clinical procedures are related to patient health/ outcomes of treatment	72.4
Teaching in the clinic gives me confidence in the presence of my patients	62
I am assisted to evaluate my own work	44.8
I receive feedback on my performance for each clinical session	48.2
Feedback informs me of corrective action	79.3
Feedback is provided in a positive manner	79.3
I receive feedback when I do well	65.5
Feedback informs me what I have done incorrectly or any shortcomings	27.2

*The frequencies of 'most of the time' and 'always' were combined.

Questionnaire: results of open-ended questions

Students could elaborate on closed-ended questions. In the open-ended questions, students were asked to describe incidents that supported or did not support their learning, the qualities of a good supervisor and also provide general comments.

The themes identified include the learning process, the assessment process, organizational factors, qualities of the supervisor and environmental factors.

The learning process

Authentic learning experiences, performing a variety of procedures on patients, patient appreciation and acknowledgement and positive reinforcement from supervisors facilitated student learning, 'I completed…, my patient was happy, my supervisor said they looked excellent and that the patient was in good hands. I felt that I achieved something and felt good about myself as a clinician'.

The supervisor as a role model was articulated by comments, 'I get motivated by looking at how supervisors interact and work with patients. I strive to have a lot of confidence and knowledge'.

Engagement in the presence of patients was generally experienced negatively as captured in a comment, 'sometimes the teaching in front of a patient makes me feel inadequate by the manner shown by the supervisor'. Reference was also made to supervisors 'taking over' patients, 'first they tell you how and then they do it themselves'.

Their ability to provide comprehensive care to patients, treating medically compromised patients, seeing skills improve and completing treatment in one session was highlighted as positive learning experiences, 'I had a patient with a heart valve replacement… it inspired me to read up' (on topic).

The student's ability to reflect on the learning process was captured in a comment on being instructed to use hand instruments instead of an ultrasonic scaler to remove calculus, 'I understand that I must develop dexterity but should I not have this by the end of my second year?'

Students advise each other on how to deal with inconsistencies or frustration experienced in the clinic articulated in a comment, 'next time you call another supervisor to check'.

The assessment process

Students primarily commented on the lack of feedback, 'it would be helpful and motivational if we get more feedback on clinical sessions'.

Inconsistencies between supervisors were highlighted, 'sometimes you get assessed and different supervisors expect you to do a procedure differently, not in the way you understand it'.

Ambivalence to the assessment tool and their view of the scoring system was reflected in the following comments '…some supervisors tell you that you are good but they give you a score of one', 'it gave a false indication of my competence, sometimes make you feel useless' and 'I get nervous when I am being watched so it does not reflect my competence'.

Organizational factors

Issues highlighted were lack of feedback to students, students not always being aware who their clinical supervisors were, punctuality and availability of supervisors and that supervisors did not always behave in a professional manner. One student referring to professionalism commented, '…chatting to other staff even though they see you need them'.

Qualities of the supervisor

Positive professional traits identified were being non-threatening, patient, easy to approach, passionate, encouraging, not only concentrating on the negative, respectful of learners and patients, trusting student work, listening and advising, respecting views of students, skilful, punctual and available and communicating clearly.

Expectations of a supervisor was articulated in the following comment, 'I want a supervisor to look at what I am doing and when I'm doing it wrong to tell me even if it means taking my hands in theirs,… continuing with the procedure'.

Environmental factors

Functional equipment, a clean clinical environment and noise were noted as environmental factors impacting their learning, 'when you are busy with a patient other students and supervisors should not make a noise in the clinics'.

Discussion

Student use of assessment tools

The results indicate that students generally did not use assessment tools as intended, namely to guide their learning in the clinical environment. Furthermore, students appeared to have more confidence in the term-based assessment tool than the daily assessment tool evident in their learning and assessment experiences. The results suggest that supervisors and students placed more emphasis on the term-based clinical examinations that contribute to summative assessment than daily clinical assessments. As summative assessment is used as an overall judgement of competence and fitness to practice (17), it may have been more valued by students and supervisors in this study. Yet, formative assessment can guide future learning, provide reassurance, promote reflection, shape values and provide benchmarks to orientate students (17, 25), reinforce students' intrinsic motivation to learn and inspire them to set higher standards for themselves (26).

Student experiences of teaching and learning in the clinical environment

The literature shows that feedback of good performance can reinforce good practice yet is often not given (2, 21, 26, 27). Feedback gives students messages about their effectiveness and worth and has an indirect effect on their academic self-esteem (21). Therefore, limited feedback may result in lost learning opportunities. However, Branch *et al.* (22) reported that students often did not recognize feedback when it was given due to the tone or manner in which it was presented to the student. This view may also hold true for respondents in this study. It may also explain the apparent contradictions in student experiences of feedback. Students in this study were able to reflect on and articulate the expected behaviours and what they would need to hear from supervisors to support their learning in the clinical environment, and these were consistent with the literature (2, 3, 6, 8, 10).

A number of authors have raised reflection as a component of the formal learning process for clinical competence (20, 28, 29). Dr Smith-Tolken (personal communication 19 June 2011) argued that reflection should be at the pinnacle of Miller's triangle (16) as the final level of competence.

McMillan (30) highlighted the need for post-reflective learning to enable clinical teachers to engage teaching and learning challenges experienced by students. The author argued that failure to do so will cause students and teachers to 'go through the motions' rather than participate in active collaborative learning. Students in this study appear to make sense of their clinical experiences through self-reflection and validating these with peers rather than access their clinical supervisors, further motivating for formalizing reflection within the learning process for clinical competence.

The views of students in this study suggested that supervisor qualities had a greater impact on their learning than the assessment tools intended to guide their learning. Positive learning experiences reported that include authentic learning opportunities, the range of patients treated, comprehensiveness of care provided, patient response, respect for autonomy and role modelling of supervisors are consistent with the literature (2, 3, 6, 8, 26). Literature on clinical teaching behaviours that students found most important include enthusiasm, among dental students (12), teacher attitudes among nursing students (15) and individual rapport among dental hygiene and dental students (5). These behaviours were also noted by students of this study. Tang *et al.* (15) suggested that teacher attitudes towards students rather than their professional abilities are the crucial difference between effective and ineffective clinical teachers.

Observations in the open-ended questions suggested that students need supervisors who were alert to their needs and competencies at the time. Comments of supervisors 'taking over their patients' emphasized the tension inherent in the multiple roles of the supervisor. The ambiguity of these roles as experienced by the student may result in resentment if they feel that their autonomy is questioned as also reported by Fugill (2). These reinforce a need for clinical sessions to be structured, taking into account the level of competence of the student. This should be articulated to the student to ensure transparency of the learning process in the clinical environment.

Student experiences of assessment in the clinical environment

Limited feedback on formative assessment scores and negative feedback as indicated for daily assessment could result in missed learning opportunities for students, reinforcing the limited use of tools by students and making parameters indicated in the assessment blueprints meaningless to them. An unintended consequence of the notion of 'assessment driving learning' is that students may associate practices, norms and patient management with clinical supervisors and perform to their perceptions of supervisor expectations.

Feedback for term-based clinical examinations was experienced more positively. However, the low frequencies of these assessments affect the potential for useful feedback to support learning and clinical teaching. Furthermore, students would have limited opportunity to improve. Judgement of competence indicated in the 'showing how' and 'doing' (16) for a procedure such as a scaling requires direct observation during the process, and this should be done for a reasonable number of scaling procedures. Without direct observation during the procedure, reliability of the scores given and the quality of feedback are compromised. Students in this study reported limited supervisor observation, availability and hands-on teaching, as also reflected in the type of feedback reported. Feedback should contain specific information and advice to enable the student to reflect on their practice, and this should be positive and supportive in tone (21). Students' limited confidence in the assessment scores may reflect the ambivalence of the feedback given during clinical assessments.

The planning and development of teaching and learning

Student experiences in this study suggest that there should be greater emphasis on aspects such as the clinical environment, the conduct and behaviour of the clinical teacher, the learning and assessment process as indicated in the literature (6, 10), in planning for patient treatment sessions. Taking these factors into account may influence the manner in which the clinical session is structured. Structural aspects were alluded to by students in knowing who their supervisors are at the beginning of the session and supervisor qualities of being punctual and organized. Student experiences of stress in the clinical environment, also noted in this study, can be reduced, and their confidence increased if the instructor arrives early and prepares them for the session (11).

Student learning experiences may also have been influenced by the student–staff ratio. The preparation of students for the clinical session, monitoring of performance and hands-on teaching, feedback on performance and grading require time. The specific needs of the student and the patient may not allow time for the process of teaching and assessment as indicated in departmental protocols to be met.

The clinical supervisor

The term 'clinical teacher' may be more appropriate as it would encompass all the dimensions of the teacher role located within the context of the clinical environment. Traits, qualities and desirable behaviours of the clinical supervisor that students found significant are consistent with the literature (2, 5, 7, 10). Student experiences of the supervisor as a positive role model show the potential of the supervisor to socialize the student to the profession. Supervisor-related factors affecting clinical learning such as good relationships, respect, good communication skills, commitment, positive attitude and good feedback as identified by medical (10), dental (7) and nursing (15) students were also among the positive qualities identified by this group of oral hygiene students.

Recommendations

The results indicate that the clinical teaching and assessment quality assurance mechanism of the oral hygiene programme needs to be reviewed. As this study reports on experiences from the perspective of students, a more comprehensive picture requires research on clinical teaching and assessment from the perspective of the clinical supervisors, the theoretical framework that underpins the decisions and practices of supervisors and an analysis of the formative and summative assessment records of students. This would allow for a holistic intervention taking into account all role players to improve student experiences and ultimately clinical competence of the profession.

Conclusion

The results of this study indicate that the hypothesis of assessment tools as a means to drive learning in the clinical environment is not sound. A more comprehensive approach articulating all factors that impact the learning process and ultimately 'fitness to practice' may be more useful. These include the clinical environment, the clinical teacher and the organization of the clinical sessions. Additionally, these factors should be explicit and rigorous in terms of best practice in curriculum planning for the oral hygiene programme.

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