Research

Exploring academics' and clinical supervisors' perspectives on teaching and training time management skills in undergraduate dental programmes

A M Gopie, B ChD; **S Singh,** PhD, PhD

Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, Durban, South Africa

Corresponding author: *S Singh (Singhshen@ukzn.ac.za)*

Background. Academics and clinical supervisors play a vital role in developing skills such as time management within the competency-based undergraduate dental curricula. However, it is unclear how academics and clinical supervisors include time management skills as part of the training programmes. The present study was done to explore academics' and clinical supervisors' perspectives on developing time management skills in dental therapy and oral hygiene programmes.

Study objectives. To identify time management skills taught in the training programmes; to describe participants' engagement with time management skills in practical training; and to discover the mechanisms of monitoring time management in the clinic.

Methods. Following an exploratory, qualitative research design, a semi-structured interview schedule was used to gather data from 13 participants. Criterion-purposive sampling was used to select study participants. The interview schedule focused on gathering participants' perspectives using seven open-ended questions. Data collected were converted into transcripts and inductively analysed through thematic analysis.

Results. Academics' and clinical supervisors' development of time management skills emerged as three significant themes. Theme 1 described the time management skills lectured in the first year of the curricula. Theme 2 identified the impact of time allocation on practical training for students to manage their time. Theme 3 reported the mechanisms to monitor and track students' clinical time management.

Conclusion. Participants teach and train time management skills to enable students to work towards their goals and meet deadlines. These skills play an essential role in clinical training, where they are enhanced so that students can meet their competency requirements.

Afr J Health Professions Educ 2025;17(4):e2610. https://doi.org/10.7196/AJHPE.2025.v17i4. 2610

Competency-based dental curricula have gained momentum in undergraduate programmes, given the opportunities to contextualise learning in real-world settings. This paradigm hinges on the development of clinical competency in response to cultivating students' core knowledge and skills reflective of both technical and non-technical skills.[1,2,25] Even though the technical skills projected in dental sciences are well documented in the literature, the non-technical skills, and specifically time management, were non-existent in the literature for the mapping of their development within the delivery of teaching and training. Implicitly, studies worldwide have pointed out that the role of dental preceptors, namely academics and clinical supervisors, is instrumental in inculcating knowledge and skills to institutionalise the development of competencies that mirror the dental profession.[3,4]

On this note, studies in health professions education have advocated that the teaching of time management skills be incorporated into undergraduate programmes.[5,6,17] This highlights that curricula workloads contained in health sciences are extensive yet time-constricted, requiring skills to manage and meet clinical competency productively.[5-7,17] Moreover, research has aligned students' higher education performance to their scholarship concerning time management skills. In the sphere of allied dental sciences, time management skills included in these training programmes have not been explored. To this end, the purpose of the study was to gather perspectives from academics and clinical supervisors on how they developed time management skills in undergraduate training programmes to meet clinical competency requirements.

To contextualise the profile of these training programmes, the Bachelor of Dental Therapy and Bachelor of Oral Hygiene span three years that underpin competency-based dental curricula. These programmes are offered full-time at a health sciences public institution in the South African higher education system accredited by the Health Professions Council of South Africa. Didactic learning, preclinical and clinical-based training form the three significant components embedded within these programmes.

Methods

Study design

An exploratory, qualitative design was implemented to gain an in-depth understanding of the phenomenon to conduct this study. This study formed a component of a larger research project within health professions education.

Study sites

The study was conducted at an identified academic institution offering the Bachelor of Dental Therapy and Bachelor of Oral Hygiene programmes, including the clinical training platform, which is a Department of Health facility located in KwaZulu-Natal (KZN) Province, South Africa.

Study population

The study population comprised academics and clinical supervisors employed by the identified academic institution, including staff employed by the KZN Department of Health at the clinical training platform,

given that clinical supervision formed part of their job responsibilities. Criterion-purposive sampling, a non-probability sampling technique, enabled the researcher to identify and select 13 participants. This included full-time academics and part-time clinical supervisors associated with teaching, learning, practical training, and supervision, and dental staff at the clinical training platform involved in practical supervision within the parameters of the training programmes. Staff appointments with training experience of less than a year in teaching or training or staff from other institutions were excluded. A description of the staff population is presented in Table 1.

Data collection

The interview schedule comprised seven open-ended questions to explore participants' experiences and teaching strategies in developing time management in undergraduate programmes. The questions posed included: Explain what time management means to you; Through the use of examples, describe your experience of using time management in the undergraduate dental therapy and oral hygiene programmes; How do you engage in time management for students to meet their competency and requirements (quotas) in practical training (preclinical/clinical)?; Describe some of the challenges regarding time management in the undergraduate training programmes; and What recommendations can be made to ensure better time management in the training programmes? The researcher invited participants to participate in a face-to-face, voluntary, semi-structured interview. Written consent was first obtained, including additional permission to audio record a semi-structured interview. Appointments were made to accommodate participants in their offices; interviews lasted 20 - 30 minutes on average. The collection of data ended on the 13th interview when data saturation occurred, owing to no new emergent themes being discovered (March - May 2024). The audio-recorded data were transcribed verbatim and cleaned using a Microsoft Word document to generate non-verbal qualitative data. Member validation was performed on all 13 transcripts and subsequently amended. Participants' responses were not reported as per categories to ensure confidentiality and maintain anonymity.

Data analysis

Following the six-step methodology described by Braun and Clarke,[8,9] thematic analysis was used to analyse the validated data. Data were read several times for familiarisation. Inductive coding was used to make initial codes from participants' responses, not the questions. A codebook was used to ensure codes were mutually exclusive. Patterns in the dataset formed themes. Interpretations of the themes were later refined to reflect the latent meanings embedded in the dataset and not from the researchers' perspective. The research supervisor checked and verified the results. The participant identifier codes were used to report on the responses.

Ethical considerations

The Biomedical Research Ethics Committee (BREC) of the University of KwaZulu-Natal (ref no. BREC/00006495/2023) and Health Research and Knowledge Management at the KZN Department of Health (ref no. KZ_202312_031) provided ethical permission to conduct the present study. Gatekeeper permissions were obtained from the managers based at the two identified study sites.

Trustworthiness

To test the interview schedule, a pilot study was conducted with one participant from each staff category; the results obtained were excluded from the primary research, and the questions were simplified, which ensured credibility. The interview questions were built from the research questions and the study aims and objectives. These, in turn, were aligned with the published literature in this field. The researcher spent a prolonged engagement and time at the study sites. The respondents' views were directly quoted in the results. Transferability was ensured through a detailed description of the research methodology, and participants' contextualised experiences were illustrated to the reader through the use of thick descriptions. Thus, inferences can be made to both dental and other health sciences programmes. The qualitative research methodology described in the literature was used to ensure dependability. Member checking ensured confirmability. Reflexivity was maintained through notetaking in a diary.

Results

Three themes emerged from data analysis. The themes described the teaching and training of time management contextualised from the classroom to the clinical setting. These included Inconsistent expression of time management in the curricula, perceived impact of time allocation in clinical training, and mechanisms to monitor students' clinical management. Subthemes are briefly explained and exemplified by a mixture of different participants' quotations.

Theme 1: Explicit expression of time management in the curriculum

Participants stated that time management was introduced as a series of two lectures in the first-year module of Academic Skills and Clinical Practice, where students receive skill training through psycho-education to plan their time spent during university, including balancing their personal and professional commitments. Participants also believed that not all modules covered time management in the remaining levels 2 and 3 of the curricula. As such, time management was implicitly developed during mainstream lectures, tutorials and even seminars by explaining topics and relating them to the clinical setting. This was perceived to introduce familiarity and assist in student preparedness in response to being productive for clinical sessions. Two subthemes emerged under this theme (Table 2).

Theme 2: Perceived impact of time allocation in clinical training

Participants revealed that they allocate a time limit for their students to complete their clinical tasks within the session, ensuring they can complete their patients timeously. Four subthemes emerged under this theme (Table 3).

Theme 3: Mechanisms to monitor students' clinical management

Participants agreed that time management is given a high priority within the programmes. There are measures in place to monitor and keep track of students' time management. Three subthemes emerged under this theme (Table 4).

Discussion

The current findings delineated the development of time management skills taught in the classroom and trained in the clinical environment.

Table 1. An overview of the study population

Participant role	Occupation	Service years	Sample size
Academic	Dental professional; clinical psychologist	8+	5
Clinical supervisor	Dental professional	8+	4
Department of Health clinical supervisor	Dental professional	8+	4

Table 2. Time management incorporated in the academic context

Subthemes	Explanations supported with participants' quotations
1. Goal-setting	Participants indicated that students are taught time management by creating awareness during psycho-education, during which they learn life skills and other coping mechanisms to achieve their goals. They also believe that this builds the foundation that allows students to balance their academic and personal commitments in channelling their time and dedication to various activities: 'We look at the long-term, the medium-term and the short-term goals and I break it down for my students right down to step one which is attending all your lectures in order to get to your goal of obviously getting your degree.' (GA5S3)
2. Meeting deadlines	Participants believed that the undergraduate curricula are overloaded in terms of the academic requirements and number of modules; therefore they advocate for timetabling and making priority lists to assist students in managing their studies: 'I do tell the students, when they're studying because of the volume of work and the different modules. They have to design a timetable and allocate a certain amount of time for each module, so that they cover all sections.' (GA1D5)

Table 3. How time management is developed during practical training

Subthemes	Explanations supported with participants' quotations
1. Time management graded in the preclinical environment	Participants explained that time management includes communication skills and is graded in the preclinical setting so that students can work efficiently before transitioning to the clinical environment: 'We have to implement good time management because of achieving a certain number of [procedures]. If we do not have proper time management, then we would have problems in the lab where we will not get our quotas done. So it is enforced in the lab.' (GA4R6)
2. Timeous completion of clinical tasks	Owing to the shared responsibility in service learning, time management is given priority in line with meeting service delivery standards contained in the Department of Health's policies and guidelines. Therefore, participants expressed that students are reminded of the time spent treating patients during their clinical procedures: 'We work according to government policies, according to quality and time management. So, it is very important that we adhere to those policies and that we don't get more patient complaints in the future.' (GA12J5)
3. Being considerate of the patient's time	Participants reiterated that students fundamentally develop sound clinical skills through patient engagement; however, in doing so, considerations should always be placed from the patients' perspectives. This serves to guide the students in terms of what is expected from them (procedures to perform), allowing them to work strategically and be done to attend to the next patient: 'For patients to be happy that they have had their procedure done and leaving home with what they came to actually do. And all of that is dependent on how students manage their time.' (GA7H3)
4. Perceived impact on clinical procedures performed	Students' clinical performance is affected by their ability to manage their time efficiently. Participants believed that the more patients a student can see in their session time, the more they can improve their clinical skills, confidence and competency: 'I find that by third year they do reach some amount of maturity and that towards the latter half of the third year, they get their patients and try to work towards their quotas.' (GA13P2)

These skills are developed over a period of time, which leads to building students' clinical competency in line with clinical-based training.

Results gathered from each theme are discussed in relation to the concepts found in the literature below.

Time management was formally taught to students in their first year, with efforts made implicitly to inculcate skills in lectures, tutorials, and seminars. This skill assists students in navigating the workload while maintaining a balance between study and social life. While this pedagogical approach has relevance in the first year of learning, the need for more explicit expression of time management skills in the curriculum, especially with regard to clinical training in the subsequent years, is paramount. This is particularly critical, given that students interact with patients in the health system as part of service-based learning. Hence, the explicit development of time management skills will not only enhance student learning but will also contribute to enhanced patient confidence in student-centred health service delivery. A focus on the development of such skills will further close the gap between classroom-based learning and student interactions in real-world settings, thus ensuring that the graduate entering the health system is fit for purpose. In agreement, Khajeghyasi *et al.*[10] found that time management was the most rated soft skill for dental students to embody during their tenure at higher education and influenced the quality of service offered in the profession itself. This re-emphasised that teaching and learning in the field of dentistry should centre on time management development to prepare graduates to meet a 21st-century workforce.[7,11,12,18] This view was in

Table 4. Reported strategies to monitor time management

Subthemes	Explanations supported with participants' quotations
1. Time recorded on control sheets	Participants explained that students' activities are monitored and tracked in the clinical setting by recording the procedures and time taken per patient: 'There is a student list where they enlist their names when they get patients and get allocated to the specific units, they also record time of taking the patient into the unit so that we can monitor if the student is working within a reasonable time limit or is going beyond.' (GA6N4)
2. Students clock watch	Participants stated that the wall clock present in the clinic helps students to keep track of their own time and ensures that they work within the time limits: 'I think it's been helpful having a clock in the clinic, it's in a public place where the students can refer to the time, they can actually physically see for themselves how much time is available, rather than the supervisor communicating that.' (GA8L8)
3. Students' time skills evaluated in the final clinical examinations	Participants mentioned that external examiners assess students' time management skills in the existing clinical examinations at the end of the year. Thus, it is reinforced in the clinic when students transition from preclinical to clinical training: 'When it comes to the exams at the end of the year, time management is very important. The fact that it's going to be overseen by an external examiner so they would also look at those points when they are examining the students at the end of the year.' (GA3M1)

alignment with a competency-based dental curriculum where it is necessary to cultivate skills in dental students that transcend the technical aspects of the profession.[10,12,13,25]

Service learning is contextualised to clinical-based training in an undergraduate dental programme,[14] where students treat patients and deliver dental services that require a level of soft skills such as time management.[10,15] Similarly, participants exemplified time management as a vital skill needed for students to meet their preclinical goals, including clinical tasks and patient treatment timeously. This was further reiterated by Mehboob *et al.*[16] In the present study, it was also perceived that constant learning exposure in the clinical environment enabled students to develop their skills in time management, which influences the quality of rendered services and patient satisfaction. This was also found in the study by Nazir *et al.*[18] Interestingly, participants perceived that clinical exposure and repetition of dental procedures whereby participants allocated amounts of time to perform clinical tasks from their own experiences in working with patients for students to meet their quotas (the set number of dental procedures required by the student to demonstrate competence in that specific treatment) improved students' time management skills towards their latter programmes. This was explicitly supported in the study by Mathur *et al.*[17] Collectively, these findings support the notion of lifelong learning as graduates would be intrinsically motivated to apply time management to their work settings and enhance decision-making in patient, resource and practice management. At the same time, these findings corroborate the dual responsibility of clinical-based training in improving both the student and patient experiences to develop clinical competency.[17,21]

Given that clinical supervisors play a fundamental role in shaping students' knowledge and skills in the clinical environment,[19,20] a significant responsibility lies within the supervision process to closely monitor students' activities. Participants believed that the mechanisms in place to identify a lack of time consciousness helped to keep track of students' time management in the clinic. Similarly, this was reported by Dalaya *et al.*,[15] who pointed out that time can be successfully managed in academic settings by making and keeping records using schedules. These measures indicated that time management was given priority in the undergraduate programmes with the considerations of advancing patient-centred care, where participants reinforced that time management was evaluated in clinical assessments. This view reiterated quality assurance in promoting sound patient care.[22] Likewise, participants perceived that having a clock in the clinic assisted students in completing their procedures within session time and fulfilling their quota requirements. On the contrary, however, Moodley and Singh[23] reported that students had developed better time management skills through working in an external clinical placement and subsequently attained more quotas than those working in an academic clinical setting. This suggests that skills developed in time management are contextualised to a clinical setting in which familiarity, protocols and opportunities in the clinical environment scaffold students' holistic performance.[24]

Study strengths

The study provided an in-depth analysis of the phenomenon by exploring participants' perspectives that contributed to filling the knowledge gap identified in the literature within the competency-based education framework. The methodology complemented the aim and objectives.

Study limitations

The findings are limited to one teaching site. The study did not take into account students' perspectives on time management in the clinic. The timing of the study was also critical as students' competence in time management develops over a period of time.

Study contribution

Despite these shortcomings, the study contributed valuable insights that serve to inform curriculum designers, including preceptors, in augmenting time management skills within the domain of teaching and learning in the field of health professions education.

Recommendations

The following recommendation is made: to include student perspectives on how they develop skills in time management in the clinic, by including perspectives from other dental institutions across the country, with teaching practices of time management to be inculcated throughout the entirety of training programmes and not limited to study level one. This would optimise the longevity of time management skill training in the undergraduate dental programmes.

Conclusion

This exploratory study's outcome indicated that teaching and training time management skills are embedded within the classroom, preclinical and

clinical settings so that students can achieve their goals and meet their deadlines in the training programmes. These skills are further enhanced in practical training, where they are assessed externally in the final clinical examinations. This process enhances the notion of lifelong learning and highlights the need to ensure that such competencies are developed and maintained over time.

Declaration. None.

Acknowledgements. The authors express gratitude to all participants and acknowledge their support.

Author contributions. Both authors contributed to conceptualising the manuscript.

Funding. None.

Conflicts of interest. None.

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Received 5 September 2024. Accepted 13 January 2025.