Research

Reflection on remote teaching and learning of a final-year BPharm clinical training module during a pandemic

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Why was the idea necessary?

The COVID-19 pandemic continues to dominate the globe, driving transformation in our daily work and home environments. In South Africa (SA), health profession educators were forced to implement innovative and creative changes to teaching and learning practices in order to complete the 2020 academic year and deliver graduates amidst a global pandemic.

The School of Pharmacy (SoP) at the University of the Western Cape (UWC) is the only provider of pharmacy education in the Western Cape Province of SA. Close collaboration between UWC and local public sector healthcare providers facilitates work-based learning for our undergraduate pharmacy students. This partnership ensures that our graduates are well prepared to become pharmacists who will make significant contributions to the healthcare needs of the communities they serve. The Patient Care Experience (PaCE) programme is a 30-credit module, which provides final-year BPharm students with direct patient-focused experiences in the clinical setting. The primary goal of the PaCE programme is to provide students with real-life opportunities to practise and develop pharmaceutical care skills. These skills include identifying, solving and preventing medication-related problems in patients with commonly encountered conditions in the context of SA's public healthcare sector. Prior to 2020, final-year pharmacy students were exposed to patient care in various clinical training platforms over a period of 10 weeks. Two rotations of 5 weeks each were completed in a hospital and a community clinic setting respectively. Various tasks, activities and assignments were completed which focused on the optimisation of pharmaceutical care provided by pharmacists.[1,2] These clinical activities took place under the guidance and supervision of SoP clinical staff and specific on-site preceptors (pharmacists), who guided learning and served as mentors for professional development of the students.

However, in 2020, experiential learning in the workplace could not take place as scheduled. Healthcare facilities restricted access to essential staff only, in order to reduce the spread of the SARS-CoV-2 virus, and the increased workload meant facility staff did not have the capacity to tutor university students. The SoP clinical staff were therefore compelled to utilise the digital arena to create live and asynchronous remote clinical learning activities as a substitute for traditional facility-based clinical training. The switch to emergency remote teaching[3,4] highlighted inequalities in terms of access to the internet, connectivity issues, and device and data availability. Many students experienced major challenges in the first few months of the more restrictive levels of lockdown.

What was tried and tested?

Hands-on clinical training, with the focus on pharmaceutical care, had to be extensively re-imagined and re-developed in order to provide 'real-world'

simulated case studies, activities and assignments in a virtual clinical setting similar to the working environment of a clinical pharmacist. The revised PaCE programme was converted to a 9-week online course consisting of 1 week of orientation and 8 weeks of patient cases covering a variety of clinical conditions. The online course was then followed by 2 weeks of on-site healthcare facility-based experience.

The electronic institutional learning management system used by UWC is the iKamva platform (Sakai, Apereo Foundation, USA) for teaching, assessment and communication with students. Simulated patient cases were created on a weekly basis, using the online Lessons function of iKamva. These Lessons incorporated text, audio-enhanced lecture slides (PowerPoint), simulated patient medical folders, supporting videos and voice recordings (conversations between pharmacist and patient and/or prescriber). These weekly patient cases presented in iKamva Lessons functioned like an internet webpage. The SoP clinical staff would develop and upload all the information relevant to each case on a single page to create an intuitive system that students could easily navigate through at their own pace. Various individual and group activities designed to assist learning had to be completed by the end of each week. Successful achievement of learning outcomes was evaluated from student submissions of completed patient-care plans (identifying medicine-related problems, medicine therapy recommendations, safety and efficacy monitoring) and completion of online quizzes.

A vital component of the PaCE programme focuses on communication skills in the healthcare setting. SBAR (**S**ituation, **B**ackground, **A**ssessment, **R**ecommendation) was identified as a reliable and approved communication tool to reduce medication errors and to improve communication in the healthcare setting and ultimately improve patient safety.[5] This is incorporated into the PaCE programme to strengthen communication among healthcare professionals. During the 2020 programme, our students were provided with different simulated case studies. Each student then prepared a 5-minute video during which the case was presented using the SBAR approach. The video-recorded case review was uploaded onto the iKamva site for assessment by the relevant SoP clinical staff member. The case review assessment was evaluated using a standardised scoring rubric that assessed the students' actual knowledge and understanding, as well as their ability to communicate crucial medication-related issues from the case at hand. A virtual live oral assessment was subsequently conducted by the relevant staff member with the individual student, using Google Meet or WhatsApp video chat.

An additional intervention that was preventative in nature was the implementation of an online mentorship programme. Each SoP clinical staff member was assigned a group of 16 or 17 students to mentor. The

purpose of mentorship was to engage with the students on a regular basis, identify any concerns or issues, discuss their ongoing experiences, provide suggestions and support for students and refer students for further support if necessary. This was done by scheduling virtual informal 'chat' sessions on a weekly or fortnightly basis. Students could suggest topics for discussion and the mentor would provide support, tips and guidance. These sessions were not compulsory, so student attendance was guided by self-need and interest.

What will be kept in the PaCE programme?

From the educators' perspective, invaluable new skills were rapidly learnt and implemented in order to transform the PaCE module to an online format. The nature of the workload was very different, time-consuming and complex, in that we were developing new simulated cases and resources. However, this turned out to be beneficial on different levels, and will now complement and enhance the student learning experience in future years. The successful use of a variety of electronic resources established that remote teaching and learning is feasible but everyone agreed that there is still no substitute for real-life experience.

The initial 9 weeks of online orientation and simulated clinical exposure prepared the pharmacy students for the drastically shortened on-site clinical rotation time of 2 weeks in health facilities, as illustrated by the students' feedback obtained from the module evaluation at the end of the semester.

'It allows for on-site learning which is valuable. The cases we dealt with in the weeks really prepared me for the hospital rotation. The assignments and tasks are in alignment with the course objectives. It was well organised and I think it's objectives were strongly met.'

'I feel that our knowledge is really tested and we learn more on site than in class and it is exciting to be able to apply the knowledge we have acquired from books.'

'The only weakness was the short time spent in the facility.'

'Unfortunately because of Covid-19 we only had 2 weeks to complete the pace rotation so it felt a bit overwhelming that everything was packed in the 2 weeks.'

The majority of student feedback comments were positive. It seemed as if the online component prepared them well for the actual clinical exposure, which was an added strength and a byproduct of the pandemic restrictions.

It was evident from the collective experiences of the SoP clinical staff that the iKamva platform was pivotal in creating an intuitive learning environment to set up clinical case scenarios as electronic lessons, to incorporate voice notes (simulated between patient and pharmacist or pharmacist and clinician), and to use videos made by students as part of their case presentations to enhance the concepts of pharmaceutical care. These methods can most likely also aid in developing clinical case studies which closely mimic practice within the SA setting, and can be introduced to second- and third-year pharmacy students as authentic and valid preclinical preparation for the PaCE programme in their final year.

Online assessments, conducted using question pools set up on the iKamva platform, proved to be robust when incorporating the randomisation function and ensuring large numbers of questions per section.

The majority of the final-year pharmacy students actively engaged online, taking responsibility for their own learning. Students described how these changes richly enhanced their learning experience despite the educational challenges associated with the switch to remote teaching as a result of the COVID-19 pandemic.

'It's draining, but worth it.'

'This course is very transformative. It collates everything we have done in all 4 years of undergrad and even broadens our classroom knowledge.'

'Very practical, very realistic to our scope of practice and the lecturers did a great job in assisting us with the content and patient cases.'

'The efforts from facilitators and staff was impeccable. We felt supported and an environment that encouraged self learning, open discussion, built confidence and reasoning skills.'

The year of 2020 will be imprinted in our memories as a time of anxiety, fear, desperation and uncertainty. However, 2020 will also be remembered as a time of great reflection, innovation, perseverance and the realisation that teaching and learning can be done differently and effectively and still achieve the desired outcomes and positive experiences within the SA tertiary educational system.

Evidence of innovation

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