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Rethinking radiography education amidst the coronavirus pandemic

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ABSTRACT

The COVID-19 pandemic has posed significant global challenges in all spheres of our daily lives. A challenge for the higher education sector is to ensure its core function of learning and teaching remains operational. This paper views the pandemic through an encouraging lens. It highlights some opportunities that the pandemic has brought about for radiography educators and other health science disciplines, from a South African radiography educator's perspective. The opportunities are related to professional development and lifelong learning, role change, and student-centeredness.

LAY ABSTRACT

Opportunities to employ different technologies in radiography lectures provide educators with many opportunities for personal growth.

BACKGROUND

On 11 March 2020, the World Organisation (WHO) declared COVID-19 a global pandemic.[1] COVID-19 is coronavirus disease 2019 caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus is mainly transmitted through infected respiratory droplets among humans.[2] On 18 April 2020 South Africa had 3 034 confirmed cases of COVID-19; 903 cases recovered and there were 52 deaths.[3-4] Since 18 March 2020, as per the directive from the Minister of Higher Education, Science and Technology,[5] the higher education sector has been closed. This has resulted in no learning and teaching activities taking places, including lab-based research, and work-integrated learning.

In response, the institutions of higher learning have been engaging and rethinking the way in which they can manage and keep their core functions of teaching, learning and research operational during this pandemic. To this end the higher education sector had to, and is still, considering many avenues to get back on track to ensure that enrolled students can carry on and complete the academic year. The main option being considered is digital pathways for learning and teaching.

However, many challenges pose barriers which need to be recognised, considered and addressed to enable and facilitate both student success and academics' ability to carry out their functions related to

learning, teaching and research. Some of these challenges pertain to limited access to resources, conducive learning and teaching and working environments, and the need to rapidly respond and adapt to new ways of being, learning and working in a higher education sphere. In response, a move has been made to present learning and teaching using the digital space. These challenges stem from the significant barrier posed by access to internet services and the exorbitant costs related to data.[6-7] Therefore, some students, and academics, are excluded from participating in learning and teaching.

The university where I am employed aims to address this by adopting multiple staggered pathways, using a pathway to offer fully digital learning and teaching to those who have access to devices and the internet. This is supplemented with another pathway for those with no or limited access to attend flipped classroom sessions at the campus, together with digital learning and teaching using the resources available at the campus. Flipped classrooms use a blended-learning approach, which requires students to use self-directed learning to complete lower order cognition theoretical components of a module, and then engage with the theoretical concepts in small-group discussions in a classroom setup to develop higher order cognition. The theory is usually contained on an accessible digital platform for students. This has proven to increase student motivation, engagements and grasp of the module

content. Students can also access the materials anytime, anywhere. In contrast, a great deal of time investment is required from educators initially to effectively plan and implement flipped classrooms, and, students need to come prepared or else this will not be of any benefit to them.[8-9] The intention is that flipped classrooms commence when a national directive is received.

The above outlined challenges do also apply to radiography programmes; ways are continuously being thought of and implemented to enable students to meet the learning outcomes for their specific level of study, to achieve success.

Nonetheless there are several opportunities that exist for radiography educators and, by implication, other health sciences educators in higher education.

OPPORTUNITIES FOR RADIOGRAPHY EDUCATORS

The COVID-19 pandemic, I believe, has presented opportunities for radiography education. My belief stems from my reflections as a radiography educator who has to comply with the above requirements of the university. Over the past weeks I have had to plan different modes and strategies to deliver the module content to my students in the digital space. This made me realise, among all the uncertainty and anxiety during this process, some opportunities exist for me as an educator. These opportunities are outlined below.

• **Learning and expanding one's skill set and competencies**

Many radiography educators may not be comfortable presenting learning and teaching-related activities using digital technologies and platforms. This may be because of their limited skills to use the technologies and platforms or discomfort may be fuelled by their fear of the unknown. Educators therefore have an opportunity to learn new skills and to become more competent in using various digital technologies and platforms to carry out their learning and teaching function. Consequently, there is a potential for professional development as well as the satisfaction of the expectation of an educator, as a healthcare professional, to be a lifelong learner and engage in such practises. It is mandatory for radiography educators to be registered with the Health Professions Council of South Africa (HPCSA) and to engage in continuing professional development (CPD) activities so that their clients, or patients, can reap the benefit thereof. Hence, radiography educators can add these new skills to their CPD portfolios as evidence.[10]

• **Reimagining practices**

Coupled with professional development and lifelong learning is that of reimagining practices. Since it is maintained that the traditional classroom-based approach is almost obsolete since mastery of learning within digital spaces is the proposed future in the fourth industrial revolution.[11] Radiography educators, after obtaining their new skills and competencies, would be in an ideal place to reimagine their future learning and teaching practises. By implication, even in the way that we conduct research. I hold this notion because during this initial planning and implementation phase, using digital technologies and platforms for learning, teaching and research, one can get feedback from students or reflect on what one has done to improve on it for future use. When an effective digital learning, teaching and research space is in place, then its use can become habitual. One thus becomes more comfortable with it and then one's practice transitions more seamlessly into a new working space.[12-13]

• **Changing your role**

During digital learning and teaching, students have greater autonomy and responsibility for their learning.[14] In other words the traditional role of radiography educators of transferring knowledge is almost obsolete, since they now adopt a facilitating role to guide students to achieve certain learning outcomes. Students also adopt various learning modes to suit their learning style. In doing this radiography educators now have greater opportunity to hone in on the development of problem-solving, critical thinking, and affective and creativity skills, to enable students to be creators of knowledge instead of simply consumers of knowledge. Furthermore, educators are implicitly adopting the attitudes and practises needed to prepare students for the fourth industrial revolution; curricula will inevitably be more digitally and technologically driven.[8-9,14-16]

• **Empathetically resonate with your students' experiences**

As radiography educators develop themselves to adapt and be effective in a new learning and teaching environment it gives them the ideal time to reflect on their clients: students. Students will invariably experience some difficulties to adapt during this time from conventional classroom-based lectures to a digital space where they must take more responsibility for their success and learning. Educators' fears and difficulties are valid but not much different from those of their students. Therefore, being cognisant of this, educators can become more empathetic towards their students and resonate with their challenges; in the planning and implementation phases of this new way of working the educators probably had similar experiences. When radiography educators reimagine their practises, they should keep their students in mind. They must also at the same time keep themselves in mind as to not experience burnout. Keep in mind what works within your setting: what is available to you and your students. From my experience one needs to consider the principle of keeping it simple and specific.[17-18] By doing this should then minimise confusion and stress for both parties involved in the virtual learning and teaching space. Additionally, engage with your students and get feedback on digital technologies used and challenges they experience so that the learning and teaching space can at all times remain conducive for its purpose. Keeping all this in mind can then make for more student-centred learning experiences and enable educators to optimise their time.

CONCLUSION

The opportunities outlined above have been implicitly highlighted by the global coronavirus pandemic that radiography educators can embrace amidst the uncertainty and numerous challenges that can result in much stress and anxiety. It is hoped that reflecting on these opportunities will result in others appreciating that the adaptations occurring at this time will be effective for what is to come in the near future. Although the opportunities are student-focussed they would also be beneficial for educators' own career and development.

REFERENCES

1. World Health Organisation. WHO Director-General's opening remarks at the media briefing on COVID-19 –11 March 2020. [press release].

2. National Institute for Communicable Diseases. COVID-19. [cited: 18 April 2020]. Available at: https://www.nicd.ac.za/diseases-a-z-index/covid-19/.

3. Department of Health of the Republic of South Africa. 2020. Update on COVID-19 – 18 April 2020. [cited: 19 April 2020]. Available at: https://sacoronavirus.co.za/2020/04/18/update-on-covid-19-18th-april-2020/.

4. Kahla C. 2020. COVID-19 update: Latest confirmed cases in SA at 3 034, deaths at 52. [cited: 19 April 2020]. Available at: https://www.thesouthafrican.com/news/latest-covid-19-coronavirus-cases-and-death-toll-18-april-2020/.

5. Dell S. 2020. Minister announces closure of all universities, colleges. University World News. [cited: 18 April 2020]. Available at: https://www.universityworldnews.com/post.php?story=20200318072231325.

6. Tamrat W, Teffera D. 2020. COVID-19 poses a serious threat to higher education. University World News. [cited: 18 April 2020]. Available at: https://www.universityworldnews.com/post.php?story=20200409103755715.

7. Mabena L. Digital divide will isolate poor South Africans from 4th Industrial Revolution, May 2019. [cited: 19 April 2020]. Available at: https://www.sabcnews.com/sabcnews/digital-divide-will-isolate-poor-south-africans-from-4th-industrial-revolution/.

8. Hew KF, Lo CK. Flipped classroom improves student learning in health professions education: a meta-analysis. [cited: 19 April 2020]. BMC Medical Education 2018; 18, 38.

9. Lewis CE. Is the flipped classroom a panacea for medical education? [cited: 19 April 2020]. Current Surgery Reports 2019; 7, 9.

10. HPCSA. Continuing professional development guidelines for health care practitioners, September 2017. [cited: 18 April 2020]. Available at: https://www.hpcsa.co.za/Uploads/Professional_Practice/CPD/CPD%20Guidelines%20Sept%202017.pdf.

11. Doan N, Gupta I. Reimagining education for the 21st century, April 2019. [cited: 19 April 2020]. Available at: https://www.ft.com/content/3d4ab492-56f4-11e9-91f9-b6515a54c5b1.

12. US Department of Education. Use of technology in teaching and learning. [cited: 19 April 2020]. Available at: https://www.ed.gov/oii-news/use-technology-teaching-and-learning.

13. Moran J, Briscoe G, Peglow S. Current technology in advancing medical education: perspectives for learning and providing care. [cited: 19 April 2020]. Academic Psychiatry 2018; 42: 796-799.

14. Lan YJ. Technology enhanced learner ownership and learner autonomy through creation. [cited: 19 April 2020]. Educational Technology, Research and Development 2018; 66: 859-862.

15. Nwareni O. Youth need skills for the fourth industrial revolution. Mail & Guardian, June 2019. [cited: 18 April 2020]. Available at: https://mg.co.za/article/2019-06-25-00-youth-need-skills-for-the-fourth-industrial-revolution/.

16. Gray A. The 10 skills you need to thrive in the fourth industrial revolution. World Economic Forum, January 2016. [cited: 18 April 2020]. Available at: https://www.we-forum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/.

17. Lee K. Coronavirus: 14 simple tips for better online teaching. The Conversation, March 2020. [cited: 19 April 2020]. Available at: https://theconversation.com/coronavirus-14-simple-tips-for-better-online-teaching-133573.

18. Food and Agriculture Organisation of the United Nations. E-learning methodologies. A guide for designing and developing e-learning courses, 2011. [cited: 19 April 2020]. Available at: http://www.fao.org/3/i2516e/i2516e.pdf.