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COVID-19 and the academe in South Africa: Not business as usual

The famous R.E.M. song laments 'It's the end of the world as we know it, I had some time alone, I feel fine...'. Many South Africans would agree that COVID-19 signals the end of the world (or business) as we know it, and through the lockdown we have certainly had some time alone. But contrary to the lyrics, all may not be fine, especially for South Africa's scientific community.

The novel coronavirus SARS-CoV-2 has impacted every economic and social sector¹ across the globe, including higher education in South Africa. Every student and staff member at a higher education institution will have been affected in some way and to varying degrees; not one person will emerge from this unscathed. It is impossible to predict every short- and long-term impact of the COVID-19 pandemic, but we will experience the aftershocks for a long time to come. Here we discuss some of these impacts, ranging from undergraduate level to large research projects, and we offer suggestions on how to mitigate some of the damage.

At undergraduate and Honours levels, several higher education institutions have had to scramble to place study material online for students. Out of necessity, contact universities have had to develop innovative and flexible ways to offer both theory and practical components to students, and find alternative forms of formative (and most likely summative) assessment. However, academic staff at contact universities typically have little, if any, experience or training in the pedagogy or delivery of online learning. Thus, academics with teaching responsibilities will have had to upskill and familiarise themselves quickly with online learning platforms and all that they entail, including increased administration. The #FeesMustFall protests of 2015 may have prepared some faculties or universities hardest hit by earlier student protests for this transformation, but the total shutdown of almost all sectors of society has presented unprecedented challenges. In addition, COVID-19 has compounded the difficulties experienced at some universities in South Africa which were negatively impacted by staff or student strikes at the start of 2020. An encouraging aspect of this exercise is, however, that the shift to online teaching forces academics to truly interrogate and re-evaluate their curricula. It encourages a move away from 'rote learning' to focus more on problem solving, critical thinking and applied understanding by using a holistic and integrated approach, because traditional assessment techniques are no longer viable. But in a country where a large percentage of students depend on financial assistance to make ends meet, where data costs are high and even a mobile connection may not be readily available to all, and where devices such as laptop computers are seen as a luxury, it is not surprising that contact universities have faced push-back from students who have argued that universities cannot expect them to continue with online learning without providing the necessary resources.² To address the resource issue, universities have negotiated with several cellular networks to make data available to students (at a cost to the university, thereby forcing universities to reshuffle their financial budgets and/or asking the general public to donate to discretionary funds), and various universities are already providing devices to disadvantaged students. Moreover, a limited number of educational websites have been made data-free to students, although the largest online platform (Blackboard and its various platforms) is not hosted in South Africa and, therefore, cannot currently be accessed for free. (There are plans to move it to South Africa, but this will not be in place for several months.)

Notwithstanding all these remedial efforts, they do little to help students living in remote areas where electricity supply is inconsistent and network coverage is poor. In addition, not all university staff own a laptop or a personal home computer; neither do all have proper access to the Internet from home. Moreover, the devices that they do have may need to be shared with a spouse or with children who are being home-schooled. In particular, historically disadvantaged universities in rural areas have fewer resources to support their students and teaching staff. Even better resourced universities, such as the University of South Africa, which is an open distance learning institution and arguably best suited to address the challenges that this pandemic presents, has had to grapple with making laptops available for staff and devising mechanisms to run its internal operations and administration remotely, as well as to find alternatives to traditional sit-down examinations for hundreds of thousands of students. A notable number of courses have switched from traditional sit-down examinations to continuous assessment; however, large classes (sometimes in excess of 400 or 500 students) in many faculties renders this extremely difficult and its administration near impossible. In addition, many disciplines require compulsory experimental training to complete professional courses or retain accreditation with international bodies; these activities remain prohibited under lockdown. Here, the answers remain elusive.

While consideration and attention has been focused on moving teaching content online – and rightly so – the neglected 'elephant in the room' concerns the broader impact of COVID-19 on research in South Africa. These impacts include those on supervising postgraduate students, meeting research output targets, submitting new grants to secure the next cycle of research, and meeting research funding and project deliverables. What the impact will be on the country's overall research output remains to be seen. Some research³ has argued that academics have more time for research during lockdown, with data sheets being taken out of proverbial bottom drawers, dusted off, and turned into publications. However, the research outcome will be unique to every person. For example, working under heightened anxiety may limit research productivity.⁴ Academics with young children will feel this especially as they juggle childcare and work in the same household. Other research⁵ suggests that women's productivity is likely to suffer more than men's during the pandemic because, even in many higher earning households, women remain the primary caregivers and, as such, childcare and home-schooling fall predominantly on their shoulders. On the other hand, the psychological effects of enforced solitude may be severe for those having to isolate without a partner or family. And equally, early-career researchers may be affected more by the lockdown than senior researchers with established laboratories.⁵ These examples serve to illustrate that we



live in a complex world with a plethora of real-world problems, and that the experiences of students and staff during the COVID-19 pandemic cannot be generalised. It is, therefore, inappropriate to highlight any one particular group as being more or less vulnerable than another, but rather to see the collective in this situation together.

From a practical perspective, many research projects will be compromised by lockdown and social distancing regulations. The limitations will affect, in some way or another, Honours students who now have no access to a laboratory on campus (or the field) to run their experiment, to many A-rated researchers who will likewise struggle to achieve the objectives of funded research and may fail to meet international obligations. While academics from the natural and physical sciences will mainly be affected by the lack of access to field study sites and laboratory facilities during the various phases of lockdown, many social scientists may be affected far longer as social distancing strategies persist. Social science research often relies on interviews, focus groups, and survey questionnaires; thus, these researchers face the risk of exposing themselves, or the communities in which they work, to the virus. Most geospatial modelling predictions indicate that many poorer communities will be hardest hit by the disease. Therefore, post-COVID-19, they may not wish to participate in research, even after the pandemic and life has returned to the 'new' normal in the following months and years.

On the other hand, COVID-19 may also present opportunities for research, particularly for social scientists. The proliferation of COVID-19-related research being disseminated through preprints attests to this opportunity.⁶ Wherever possible, postgraduate students and researchers from all disciplines are required to be innovative in terms of running experiments, collecting data and redesigning postgraduate projects. Examples might include using remote-sensing methods for long-term monitoring studies, mining older data sets, extracting information from large online data sources such as the Global Biodiversity Facility or the Scientific Committee on Antarctic Research's various data portals (to name but a few), or conducting reviews or meta-analyses of existing studies.

The overarching point is that academia, including all researchers and administrators, and associated bodies such as the South African National Research Foundation (NRF), should be conscious of the impacts that this pandemic will have on every academic and student in terms of research, and will have to devise strategies to facilitate the research of all who are impacted. Academia, as a whole, needs to be cognisant of the plight of all researchers and be aware of claiming that specific groups are disproportionately affected. How individuals experience this period will be highly individualistic. In different ways, this pandemic will touch everyone, and it is the responsibility of academia to show compassion during this difficult time. Field and laboratory experiments may fail, collection of data in long-term studies will suffer, the submission of journal articles for review may be delayed, and the submission of grant applications may be deferred (although several institutions have indicated that they will be submitting more grant applications than in other years), and this is to be expected. The question is what can (and should) be done to benefit the entire research community during this difficult time? What mechanisms and strategies can higher education institutions and the research sector in general put in place to facilitate the continuation of research and save the aspirations of students and staff alike?

Strict time frames to completion are imposed on postgraduate students, both by the NRF by limiting the number of years of student financial support as well as by universities that require motivations from students unable to complete their degrees within the allocated time. Students whose research can be conducted entirely online or is conceptual in nature, or whose data have already been gathered, may be less affected by the lockdown. However, students who still need to collect data in the field, or to perform laboratory experiments, will experience significant challenges in completing their research on time. Where fieldwork is season dependent, students may lose an entire year. A case in point concerns students funded through the South African National Antarctic Programme. The annual Marion Island Relief Voyage in 2020 was cancelled, and unless a second voyage can be scheduled later in the year, students will lose an entire year's data. Long-term data sets that have continuous sampling over several decades will suffer. The NRF and various universities should carefully

assess requests for extending student support. Despite cost implications, it is certain that the long-term benefits would outweigh those costs. These 'costed' extensions are urgently needed, particularly for postgraduate students in South Africa.⁷ Simply deferring student registrations may not be the most sensible option as numerous students will disappear from the system (the leak in the pipeline will increase notably) as background and socio-economic circumstances⁸ may not allow students to spend a year being idle and simply re-enter the pipeline next year.

The majority of NRF grants are cyclical; unspent money has to be returned at the end of each year. Where projects are in the middle of a cycle, researchers can motivate for a roll-over of unspent funds only under specific financial rules and these should be carefully re-examined. In addition, where projects were due to end in 2020, consideration might be given to allow projects to extend for another year so that they can be completed (the so-called 'no-cost extensions' being considered by the Royal Society of London and the Wellcome Trust, the German Research Foundation and the Swedish Research Council). This is especially required for projects that require field-based work, or projects involving foreign or international partners who will not be able to travel for months. Travel bans will also prevent international conference attendance and thus the presentation of the latest research, during which international collaborations are set up. Collectively, working from home during lockdown, heightened anxiety, and travel bans – coupled with countries coming out of lockdowns at different times – may also affect the number of local and international (as part of larger multinational collaborations) grant applications that are submitted.

Another possibility may be to extend deadlines for grant proposals or stipulate no deadlines. In South Africa, as elsewhere⁹, the NRF extended the closing date for the 'One Call' from 30 April to 15 May 2020, but this was only done after the internal closing dates for most of the institutions had passed. Thus, the benefit of this extension sits with the designated university authorities, some simply using the extension to extend the time available for screening and providing feedback to their own researchers. The German Research Foundation provides a workable alternative because most of its funding calls have no deadline. We suggest that the NRF consider a second funding call in September or October 2020, once there has been time to scrutinise the number of researchers who submitted funding applications during the 2020 One Call. In addition, a reallocation of some existing subsidies to universities should be considered. For example, higher education institutions that pay out publication subsidies from the Department of Higher Education and Training directly to academics' salaries should consider retaining these funds to help researchers support their own research and fund postgraduate students.¹⁰ In short, we need flexibility in a time of crisis.

The South African government has pledged billions of rands to kickstart the economy during and after COVID-19 and this itself may have severe implications for how much funding will be channelled into academia and research. If COVID-19 has any lessons, it is the importance of research across various spheres (natural and social sciences, economics, medicine, etc). We earnestly hope that Treasury and those government departments that drive research will continue to support these endeavours and even increase funding to expand research. Governments across the world are basing their decisions on advice from scientists and research panels, and it seems that how well countries fare in curbing the spread of COVID-19 depends on how well they implement research advice. Cutting funds from research departments may therefore be fundamentally flawed, not only now but certainly in any future crisis.

In conclusion, the pandemic has taught us that academics must be innovative in the way we do our science and facilitate learning. We also need to be compassionate to fellow academics and students: we are all in this together. Several research groups have set up platforms of communication (e.g. Zoom, WhatsApp, Google Group) to remain connected, to plan research and to maintain group morale and a research culture while working remotely.¹¹ We suggest that now is the time to forge strong supportive collaborations enabling South African researchers to stand together and support one another, particularly in light of possible future austerity measures.¹² Collectively, we need to ensure the well-being of our colleagues, of our postgraduate students



who fear that they may not complete their degrees on time, and of our undergraduate students, many of whom feel rudderless. And foremost, we need to safeguard our own physical and mental health.

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