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T&L@NAS Bulletin

No. 5 — 2020

Surviving Covid-19!

From the editors

Rory & Ina

We are *not* going to use the phrase "the new normal," but this fifth issue of the T&L@NAS Bulletin has a lot of COVID-19-inspired stories. We were blessed with contributions from several faculties (EBIT, EI, EMS, Health, NAS) making use of a great number of tools, platforms and software applications to improve their teaching and student learning.

Please take a *breather* (so rare these days!) and read about H5P interactive video options, the use of Miro — an online collaborative whiteboard, authentic group assessment tasks, using memes as learning tool, chalkboard teaching online, an innovative tutorial model, Open Educational Resources, and many more. Many contributions share little things colleagues have tried to make their lives better, such as on-screen marking tools, using mail merge to send tests back with comments, and managing students who are "kicked out" of their tests. There are also some who took communication to the next level with a Discord server.

We plan to do only one Bulletin in 2021, since the year will only start in March and this current issue is also later than usual. Please share more stories with us by dropping an email to ina.louw@up.ac.za; find our submission guidelines here. We are keenly interested to learn about your stories and any "new tricks" that proved to be scalable and sustainable. Don't forget to check out the T&L@NASResource List which we update with all the tools and resources shared in the Bulletin.

Innovative online teaching and learning approaches to training Public Health Professionals *# innovation and technology*

Sean Patrick and Liz Wolvaardt (School of Health Systems and Public Health)

There is an increased need to train more public health professionals in Africa and this need has become acutely apparent during the COVID-19 pandemic. In order to effectively transform the curriculum of the current teaching model, a new online Postgraduate Diploma in Public Health (PGDipPH) has been developed to equip those interested in public health with the necessary core competencies. The PGDipPH is fully online and uses technology-assisted teaching and learning methods to attract both local and international students with diverse skill sets and interests. There is currently no equivalent qualification offered fully online in Africa. The PGDipPH provides a unique opportunity to enhance the student's cognitive engagement through innovative interaction while keeping the students motivated and promoting deep learning.

The T&L@NAS Bulletin aims to be a forum for sharing thoughts, ideas, and stories on teaching and learning across NAS and UP. In doing so, we hope to help foster a supportive and collaborative community where we can be inspired by the experiences and innovations, no matter how minor, of all our colleagues.

Editors: Rory Biggs (Maths) & Ina Louw (Edu. Innovation)

A multi-phase research study is planned to understand the student experience. In the first phase — currently underway — we aim to assess core competencies students aspire to obtain and assess their perceptions of learning online. Learning analytics will be used to supplement these findings. The findings will be a new lens through which we, as the online facilitators, can ensure the optimal learning opportunities, relevant assessment and feedback needed to train a competent public health workforce. The second phase will involve interviews with graduates to understand if the intended core competencies have been achieved and workplace implementation.

Throughout the modules the students are presented with multiple opportunities to apply their knowledge to real-life scenarios, use household items to understand chemical exposures etc., be creative and design knowledge translation material to show how they to solve a public health issue. In a constantly changing, technologically advanced society, offering niche programmes, such as the PGDipPH, increases both UP's global academic footprint and also creates a novel platform to promote much needed change in the training of the next generation public health workforce.

Group work with a twist *# preparing students for the work environment*

Christel Hansen (Department of Geography, Geoinformatics and Meteorology)

GIS 310 is a 3rd year module that has a large computer-based practical component. Students traditionally do poorly in the practical test and exam. Such traditional assessment is also not entirely suitable for this module since testing GIS in such settings is unrealistic and does not simulate the actual work environment very well. This year I replaced the practical test with a group project. Students were randomly assigned to groups and their task was to identify a topic or design a geospatial problem, source potential data sources, and to provide a detailed memo of their solution. The memo had to incorporate ArcPy scripting, cartographic modelling, as well as step-by-step instructions; a map of their final solution was an optional output. Students had to submit their project as a Wiki and were encouraged to include multi-media.

Authentic assessment — This task was designed to simulate the work environment: working with people they might not know, working to a deadline, completing tasks they were unfamiliar with (such as designing a Wiki), and addressing all aspects of a project. Furthermore, students were tested on all major aspects of the practical component of the course (spatial problem solving and understanding, scripting, modelling, and map design).

Impressive results — Students were highly innovative, and projects covered topics ranging from identifying suitable locations for development of new student accommodation near Hatfield, to the current COVID-19 pandemic or finding Kruger's lost millions. Some groups designed their own images (see below), while others made videos. The lockdown had an unintended positive consequence. Because students could not meet face-to-face, they had to overcome quite a few unexpected challenges to complete this task (something you would expect in the 'real' world) and I was impressed by how well they did. This will stand them in good stead once they start work after graduation.

Tools for interactive online classes

Victoria Rautenbach (Department of Geography, Geoinformatics and Meteorology)

During semester 1, I had to move GIS 311, Geoinformatics, a very practical module from in-person to remote teaching. For this class narrated PowerPoint's would not be suitable — the focus is not on theory with some practicals, but rather on teaching the students new technical skills and applying their existing knowledge. GIS 311 is a semester module, so we were able to finalize a part of the work in-person, but topics on project management, business analysis and data analysis with Python had to be covered during the lockdown period. Before I tell you more about the tools we used, I want to acknowledge that this approach worked for a relatively small class of final year students (26 students), and might not work for larger classes.

The first tool we used was Miro: it is an online collaborative whiteboard platform with numerous useful templates. Miro worked great to get students involved and I was also able to see what they are working on in real-time. One example of how we used Miro, was to design a dashboard to monitor COVID-19 cases in South Africa. The students were given a scenario and then used sticky notes to indicate data or functionality that would be required. Thereafter, we could organize their ideas and lastly, draw wireframes for the design. You can see the students work here; another example is our introduction to algorithms.

The feedback from the students was very positive, here are some quotations from their feedback:

"The Miro whiteboard was a really great tool to use in class for us to participate and have our say. Maybe it would be possible to have students bring devices to class and use the whiteboard even in face to face classes"

"I really enjoyed the use of the Miro boards during lockdown and think the interactive approach was really effective."

If anyone is interested in trying Miro, have a look at their free educational package (they have a free version, but this package offers a couple of extras). They also have a training platform that might be useful.

The next topic we covered was python scripting and after reviewing several online tools, I decided to use Repl.it. Although there are various collaborative coding options available, we used Repl.it as it has a multiplayer function where you can see what everyone is working on, similar to Google Docs. For class, we divided a task into various functions and the students worked in pairs (pair programming) to complete their function. I was also able assist and show the students my process for debugging when we encountered an error (here is an example). Again, the students' feedback was quite positive,

"I liked coding together and to learn from each other how to solve the problem."

With Repl.it, students can get a hackers pack, with mean they can have private repositories.

Lastly, all our interactive classes were done using Google Meet, but for non-interactive classes, we used Google Chat as a text discussion/Q&A. I found that students asked more questions when using Google Chat and seemed more comfortable in that environment. Some of the student feedback,

"I suggest that the Google Chat sessions should continue in the future. This is easier than emailing you with constant questions"

"I also really appreciated the Google Chat sessions so that we could ask any questions whenever we got stuck with the work or assignments."

Generally, I found that students enjoyed the interactivity in the classes and this was also highlighted in their feedback. However, for all the students that enjoyed it, there was also some negative feedback,

"GIS 311 is a practical application subject and it is not suitable for online teaching. The online environment complicated and sabotaged the quality of the classes due to not being able to consult one on one face to face which made some practical aspect much more difficult than it would have been if we were on campus".

To summarize, these types of classes take some effort to set up but allows the students to be actively engaged during online classes and it seems to motivate them. Thus, I would highly recommend that you try these tools or any other educational tools in your next online class.

Design of an online version of “chalkboard teaching”

Helen Inglis (Department of Mechanical and Aeronautical Engineering)

When we were asked to do Emergency Remote Teaching in March, I felt very daunted. My comfort zone is to teach with the chalkboard, so I didn’t have a lot of electronic resources available, and I don’t like using powerpoints. Fortunately, we had a bit of time, and so I was able to consult with a range of people about how they have done online teaching. The most important advice I got was to choose an approach that I found easiest, because that would be the most sustainable.

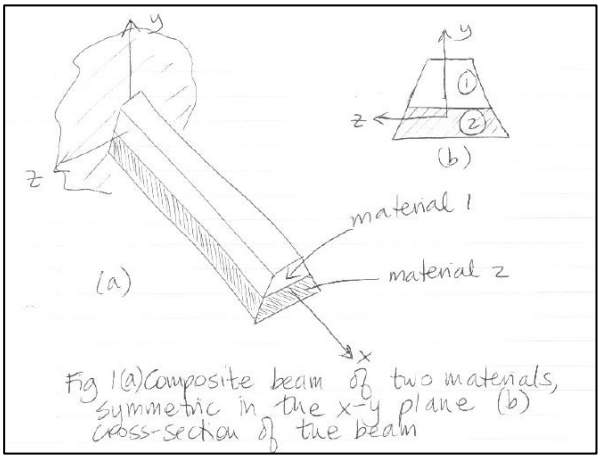


Fig 1. Example of figures in notes

I chose to prepare comprehensive handwritten notes, and to conduct my lectures using Blackboard Collaborate during the scheduled class periods. I will talk about the reasons I made these choices, and what my experience was with them.

In designing the course interactions, I paid attention to the hierarchy of channels through which students would access the lectures — they could download the PDF of the lecture notes; they could download the recorded BB Collaborate sessions; and they could attend the BB Collaborate sessions. Since students’ ability to access these channels was very unequal, I made a commitment that all important information should be communicated via text channels, i.e. announcement emails or PDF’s.

The choice to use handwritten notes was primarily made because it was much quicker for me to produce these than electronic notes. In particular, my course includes a lot of sketches, and a lot of equations, which would be time-consuming to produce electronically — examples are shown in Figs 1 and 2. Further, mathematical problem solving and derivation is something that students have to learn to do on paper, and I wanted to model that for them. I wrote the notes very comprehensively, trying to include all the points that I would highlight if I was speaking. My impression is that the handwritten notes felt accessible and immediate for the students.

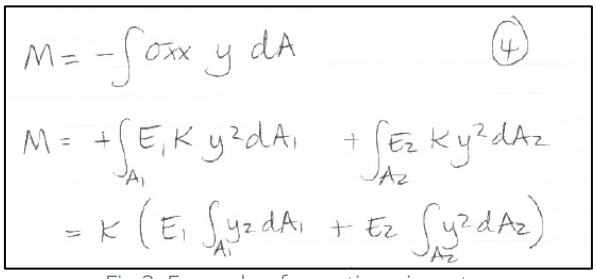


Fig 2. Example of equations in notes

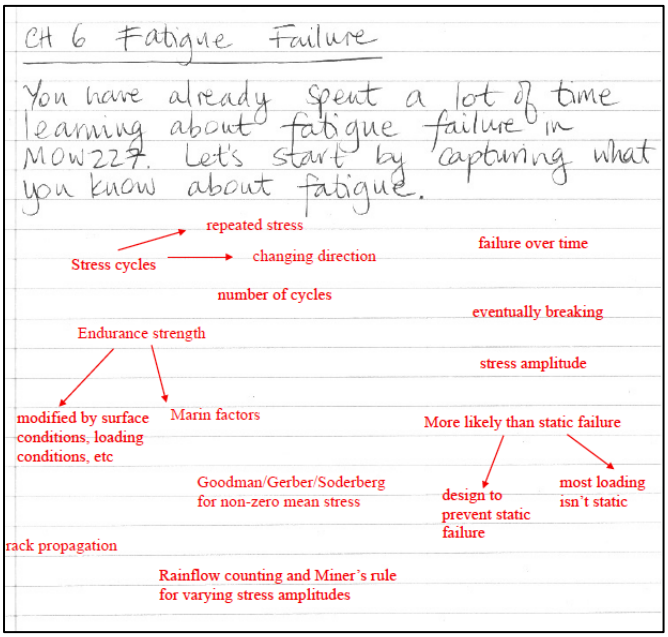


Fig 3. Example of class discussion

During scheduled class periods I lectured from these notes by sharing the screen in Blackboard Collaborate. Students reported that having class at regular times provided structure for them. Importantly, it also provided structure for me, with a deadline by which the notes had to be available, and rapid feedback from the class if there were mistakes or ambiguities. During the lectures, I annotated the notes, adding points from class discussions (see Figure 3) and correcting mistakes, and I made these annotated notes available.

An unexpected benefit of lecturing from written notes is that I was able to include many more worked examples. I have always resisted doing many worked examples in class because it takes so long to write them out on the chalkboard, and so many of the intermediate steps are tedious. However, it was now simple to include the full worked example in the notes, and then in class time highlight key issues. Students really appreciated this!

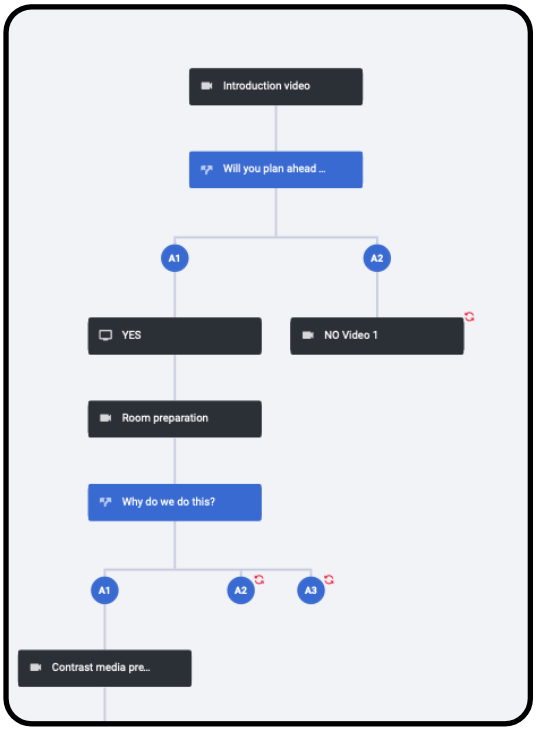
Interactive online learning: H5P *# the proof is in the pudding*

Kathryn Malherbe (Department of Radiography)

This year proved many challenges in the Health Sciences Faculty to teach practical patient procedures in a safe environment. The most challenging of this was to promote a virtual experience for students to instil the same soft skills as in the clinical setting.

In our Radiography Department, the practice of contrast studies proved most difficult, especially outdated methods, still part of the academic curriculum but lacking in the clinical outputs. For this reason, I searched for a suitable programme on the clickUP platform which could allow the students a "virtual" experience of an examination allowing ethical decision making and soft skills to be embedded, in the safety of their own homes.

H5P was the answer to this, and months thereafter, I am still discovering so many different exciting teaching methods on this platform, that I will be using this for many more years to come. H5P is an interactive content platform with multiple methods to embed interactive learning tools on your clickUP modules. One such method is a branching scenario, where a student has the ability to decide the next step during a procedure.



In our imaging field, this proved ideal, as in the example of a student choosing the wrong storyline to follow, the patient has repercussions, if the choice made was correct, then the patient goes onto next part of the procedure/process being presented. That is in itself, ethical decision making and problem solving in a unique online method. Students learn through making mistakes, and that helps to build evidence based knowledge!

Where do you start developing these scenarios? Firstly, there is a need to identify a procedure or examination currently lacking in the practical setting or a method of interaction which is poorly understood by students which requires such interactive teaching methods. Ex: Students struggle to talk to shy patients.

Following identification of such a procedure, a storyboard is required to develop into a real-time conversation/scenario. You need to envision yourself in a scenario in practice where students would interact with a shy patient and write a narrative for such an event. Keep in mind, you want things to go both right and wrong in this scenario so they can learn through their mistakes. Ex: Record live videos of a shy patient having conversation with a medical student about their bowel habits and include video clippings where the patient is either getting more comfortable as they speak as well as video clippings where the patient avoids further conversation.

Teaching point: Why do we do this? Students can learn ethical decision making through the various scenario outputs making wrong/right decisions.

I implore you: Build your branching scenario on H5P.

H5P has fantastic online tutorials taking you step by step through the setup. The interactive platform has an introductory slide/video/powerpoint and then the storyline begins! During videos short questions, MCQs can be included to ensure the students engage with the content and forms part of assessment marks embedded on clickUP. [The clickUP help site also has a stepsheet for creating H5P interactive videos.]

Things I learnt: Embedding YouTube links runs more smoothly on H5P than exporting an mp4 on the scenario platform. Also, go through your storyline as a student and make sure you have covered all your bases!

Onscreen marking tool *# normal assessments in an abnormal time*

Tanya Hill (Department of Taxation)

Covid-19 created many challenges (and opportunities) in teaching and learning, including how we continue to assess our students normally in an abnormal time. In Taxation (as is the case for many other subjects), it was essential that we continued to allow students to physically write out complex calculations and find a solution to marking online submissions effectively.

Student submissions: We first had to find an easy way for students to scan in their handwritten submissions and upload it onto clickUP. There are many free scanning apps available, but we needed one that specifically scanned documents into a PDF format (which is essential for the marking tool) and so we recommended that our students use the CamScanner App. CamScanner is available for free in the Google Play Store and Apple App Store. This App uses the phone camera to "scan" the students work and converts it to a PDF. This PDF can then be uploaded onto clickUP.

Onscreen marking tool: The tool we use allows the marker to mark and comment directly on the student's PDF script. It then automatically totals the student's mark. An Excel add-in is then used to pull in all the marks from the scripts, and the marks can then be uploaded onto Grade Center in clickUP. The best part about the tool is that it can be used by anyone who downloads the tool and it can be used offline. So much time is saved by not having to add up marks and also not having to manually capture marks. Click here to see some more functionality of the tool.

Download & upload scripts: UP recently acquired the Advanced Assignment Tool from BlackBoard and so it is now easy to do a bulk download of scripts from clickUP, mark them off-line with the marking tool and then do a bulk upload back onto clickUP so that each student sees their marked script on their profile. Click here to find out more about the Advanced Assignment Tool.

Future of the tool: We see this on-screen marking tool as the new-norm in marking. Currently our postgrad students are writing on campus and when they are finished, we get them to scan their scripts and upload onto clickUP in the venues so that we can still use the on-screen marking tool. We are excited about continuing on-screen marking into the future!

Taking a Mathematical X-RAY *# knowing your students*

Harry Wiggens (Department of Mathematics and Applied Mathematics)

Many degrees in NAS and EBIT require students to take first year mathematics modules. Mathematics is an important stepping stone and sometimes a hurdle for students to overcome on their journey to graduation day.

As a first-year mathematics lecturer, we are faced each year with a new group of students with big dreams, but we know very little about their mathematical abilities. For example, did they CPF (cram, pass and forget some of the high school mathematics), can they do simple calculations without a calculator, or can they do basic algebraic manipulations? To answer these questions, we developed an in-house Mathematical X-RAY aka Calculus Readiness Test. It is a 30 MCQ question test to be completed in 90 minutes without a calculator that tests basic skills we hope students have mastered — or will need for WTW114 and WTW158. It is has been conducted during Orientation Week since 2017.

#feedback We are fortunate to have another timeslot with our new mathematical students, to provide feedback to the results obtained from the Mathematical X-RAY. We get to create awareness that mathematics is a hierarchical subject and they are expected to know everything from high school; we also emphasise that the pace at university is much faster and encourage the students to develop a growth mindset towards mathematics.

Finally it is an opportunity to introduce them to the course, to make sure they start on good footing, and to ensure that they are ready to *conquer* Mathematics from day one. For the teaching team, we get to know our students mathematically and see some strengths and weaknesses. This can be used to identify students to keep an eye on and to identify what topics/skills/knowledge we can reinforce as the course progresses.

Report: Remote Teaching & Learning @UP *# COVID-19*

Gerrit Stols (Director: Education Innovation)

With the national lockdown the University decided to retain the key elements of it hybrid flipped-learning model (Teach & Learn the UP Way) during the period when teaching and learning would take place remotely. The guiding documents currently employed by the University to ensure the successful continuation of teaching, learning, assessment, and student success are as follows: Teach Online: The UP Way (COVID-19) and Alternative & Online Assessment: The UP Way (COVID-19).

Three weeks after the commencement of our remote teaching and learning strategy, the University decided to evaluate the effectiveness of the strategy. This report brings together the data from three sources, namely clickUP (Blackboard Learn's UP branding) data from Blackboard Analytics, a staff survey and student survey data on online teaching as a means of assessing the effectiveness of the strategy.

Connectivity and devices. To participate in an online environment requires personal computing devices, connectivity (data), general computer skills, and lastly, knowledge and skills to use the University's LMS, clickUP. The clickUP data for the first four weeks shows that the lecturers uploaded 443 GB of content to 3 158 online courses and that 34 818 (98%) undergraduate students used the LMS actively. One of the student respondents commented:

> *"The lecturers were more than understanding and helped us continuously, they made the transition from contact classes to online learning much easier. The lecture times were also very flexible, and organised."*

Worth noting is that the percentage of students and lecturers who indicated that they found connectivity (and access to data) very or extremely challenging was small.

Computer and clickUP skills. Data related to both lecturers and students show that their computer literacy skills were sufficient to adapt to online learning during COVID-19. Only 5,61% of the respondents indicated that their limited computer literacy skills made the online learning during COVID-19 very or extremely challenging. Only 2,8% of the lecturers indicated that their limited computer literacy skills made the online teaching during COVID-19 very or extremely challenging.

Online T&L model (remote flipped teaching). The lecturers were urged to be present and available in different modes during regular scheduled lecture periods to discuss difficult concepts and answer questions. Only 7% of the lecturers indicated that it was very difficult to adapt from a face-to-face/hybrid learning model to remote teaching. According to 72,3% of the students surveyed, the communication and announcements through clickUP are clear and on time.

Prepare before class. The data indicate that 50,73% of the student respondents always prepared before class, while 28,9% indicated that they prepare for class sometimes. Furthermore, 64,5% of students indicated that they always completed the required pre-class activities (such as quizzes and worksheets) before class, and another 28,4% indicated that they did so sometimes.

Engage during scheduled class time. In March 2019 a total of 23 319 students visited the campus on a daily basis (UG and PG students entering the UP gates to attend on-campus classes). This compares well with the 21 791 students attending the virtual online classes on a daily basis. A total of 79,4% responses from students confirmed that live classes continue online. Based on the student responses, 61,6% of the students attended at least 60% of virtual online classes that are available. Of the students engaging in these virtual classes, 40,9% indicated that they asked questions sometimes and 16,9% asked questions in every class. Only 22,9% of the respondents indicated that attending Collaborate live classes was very or extremely challenging (largely because of technical problems).

Consolidate after class. Lecturers recorded 7963 Collaborate classes and they are popular. 63,1% of students routinely watch the recordings of Collaborate/Google Meet sessions/classes, interactive videos and/or narrated PowerPoint slides after lectures; 24% watch them sometimes. A total of 65,7% of the responses indicated that students are also approaching their lecturers to help clarify misunderstandings. A total of 1363 positive comments by students on the value of the lecture recordings were captured by the survey.

Conclusion. The data from the survey of lecturers and students confirm the clickUP data that shows that the vast majority of lecturers and students managed to move with confidence and fairly seamlessly into the remote

teaching and learning mode. Many students like the flexibility of remote teaching. In fact, 217 positive comments were related to this. More than 6000 positive comments were made about online teaching. Unsurprisingly, there are many students that do not prefer online learning (in all, there were 1172 negative comments) and miss the face-face teaching. Practical work in an online environment is challenging for students and their lecturers. Some students mentioned their challenging home environments and also miss the social and human interaction. It is clear from the data that the remote learning environment has some advantages, e.g. flexibility, working at one's own pace and (re-)viewing video recordings after lectures.

Thinking outside the box: getting students to generate memes as a way to present conservation issues *# beta phase*

Adrian Shrader (Mammal Research Institute, Department of Zoology & Entomology)

For conservation biology, getting information out to the general public in a form that they understand and engage with is vital. In an attempt to get my third-year ZEN 364 Conservation Biology students to do this, I created a new practical where each student generated a conservation-focussed meme (i.e. an image macro which has text laid on top of a picture) on a conservation topic that they were concerned about. In addition, to get them to engage more with the material I had them write a 300-word abstract about their topic. To give them a bit of guidance on what was required and to be transparent, I provided them with a rubric (view it here), which spelled out the requirements for the different aspects of the assignment.

My thinking behind the practical, was that each of us likely have at least one meme that we liked so much that we posted it on Instagram, Facebook, and/or Twitter. From there, our friends and followers saw it and may have shared it with their friends, and on and on infinitum. As a result, the meme (and the joke) spread throughout the internet. If you think about it, this is a very powerful way in which bite-sized chunks of information can be spread to a vast number of people. However, being able to distil an idea or concept down to a bite-sized chunk is not so easy.

This was the first year I have tried this, so I was unsure what the students would think about practical and how they would react. However, as with the social media project that I have the students do in the same module (see the first T&L@NAS Bulletin, 2018–01), the students rose to the challenge and generated fantastic memes — click here to see a selection. Moreover, feedback from the students about the practical was very positive. The combination of these factors suggest that I was able to get students to think outside the box about how to convey conservation messages, while at the same time bring in a bit of fun to the process of learning during these strange times. If you want to try something different and think that generating memes might work for your module, I can highly recommend it. You'll be pleasantly surprised just how cleaver and witty your students can be.

A new tutorial model for WTW 124

Jan Harm van der Walt (Department of Mathematics and Applied Mathematics)

It's half-past-ten on a Wednesday morning, sometime in August 2017. A lecturer, a tutor and about eighty first year students are gathered in EM 4–151. The lecturer and his side-kick have handed out a worksheet, consisting of about ten questions, ranging from routine calculations to more thought-provoking problems. After five to ten minutes the trickle of latecomers listlessly wandering into the lecture theatre has dried up, and the lecturer begins to speak. He wants to discuss a difficult problem from the previous week's worksheet, which most students did not manage to solve. He asks for quiet, and the intense buzzing of confused voices dies out. A few minutes into his explanation, the buzzing has returned. He turns away from the blackboard, to find about half the class in intense conversation with each other; one student is even standing, back to the board, excitedly gesturing to his comrades. "What do you think you're doing?", he asks. "Do you think this tutorial is for my benefit? I passed this course many years ago!"

After a brief sermon on their responsibilities as students, the tutorial proper begins. The students begin working on the problems in the worksheet while the lecturer and tutor move through the class, dashing from one raised hand to the next. In two-and-a-half hours' time, they will hand in their solutions to the worksheet. Some students eventually give up on raising their hands. There's only twenty minutes left, and they still have three or four problems to solve; rather copy from a friend than get zero! Solutions are flying through the room in countless WhatsApp messages; it's chaos!

A group of four girls, sitting near the front of the room, catches the lecture's attention. They weren't among the buzzing mass earlier, had arrived on time and had been working diligently for the duration of the tutorial. However, an hour into the tutorial they had only solved two of the problems, the easy, routine calculations which anyone who had done only a few of the prescribed exercises from the textbook should be able to do in five minutes or less. These seemingly hardworking students were going to fail the course. What had gone wrong? It turns out that, besides the weeks leading up to the semester tests, the tutorials were the only time these students spent on the course.

Walking back to his office after the tutorial had concluded, hungry (it's lunch time), exhausted (a three-hour tutorial takes it out of you) and depressed (he had lost his composure, and the students did not seem to benefit much from the tutorial) he thought: things had to change.

The above is a true story, and perhaps others have had similar experiences, but it wasn't always like this. A tutorial, or discussion class, is supposed to be a small-group session during which students can engage on a deeper level with the material, with a tutor or lecturer at hand to guide them through rough patches and explain subtle points which they may have missed, were they working on their own.

Small groups alone are not sufficient. What the students do before and during the session is what matter most; a small group is a means to an end. Being a passive onlooker in a small group is just as ineffective as in a large group, and deep concepts cannot be mastered without the basics in place. What students do before the tutorial is just as important, if not more so, as what they do during such a session.

Active learning is key to success in Mathematics; you must do mathematics, struggle with it, in order to gain some understanding and mastery of it. But being active encompasses more than doing problems. Explaining your ideas or solutions to someone else demands a higher level of understanding, which is why it is so important for students not to work in isolation. In fact, I think you only truly understand a piece of mathematics once you can successfully explain to it someone else.

With the above in mind, and after some lunchtime conversations with my colleague Eder Kikianty, a new tutorial system was piloted in WTW 124 in 2018. The key components of this system are set out below.

- At the beginning of the semester, students write a "readiness" or "diagnostic" test. The students are divided into tutorial groups of about twenty-five each, with an approximately uniform distribution of readiness test scores among the groups.
- Each group is divided into teams of five students, each team being a mix of strong, average and weak students. The teams are fixed for the semester, and students cannot move willy-nilly between groups or teams.

- Each group is assigned a tutor or lecturer, who stays with his or her groups throughout the semester.
- Each Wednesday, the students receive a set of homework problems which covers the basics of the relevant material. The homework must be submitted at the start of the tutorial in the following week. Ample consultation hours with lecturers and tutors are available to students who struggle with the homework.
- In the tutorial itself, the teams work on a short assignment which covers more advanced aspects of the work. The tutors carefully monitor the teams, to make sure everyone is actively engaged, and encourage the students to explain their ideas to each other. If a team is going down a wrong route, or have no idea how to start, the tutor intervenes. To facilitate this kind of collaborative approach, make-shift white-boards (in the form of large add-board sheets) and white-board markers are provided.
- At the end of the session the teams hand in their solutions. The worksheets and a selection of the homework problems are graded. At the start of the following tutorial, the tutor points out common mistakes and misconceptions that she picked up while grading the assignments and homework.
- Every second week, a short test is written at the start of the tutorials. During these weeks the worksheets are shorter.

Clearly, this system is very labour-intensive. In order to make it work, the three-hour tutorial sessions were split in half. Managing such a tutorial group also requires a skills set from the tutor that goes far beyond mastery of the mathematical content. Tutors were therefore carefully trained, and weekly meetings were held with them. During these meetings we discussed the worksheet, homework and test for the week to come, common mathematical problems that students experienced during the past week's tutorials and issues surrounding the presentation and running of the sessions.

The system is not perfect. Some students, no matter how much you prod or push them, simply don't participate satisfactorily in the tutorials, while others don't do the homework. However, I would estimate that at least 80% of the students are engaged in the tutorials, a huge improvement on the old way of doing things. Some tutors also struggled with this setup, and we need a better way of tracking how they do. In particular, managing the sometimes unhealthy dynamics within a few teams (for instance, a weak student dominating the whiteboard, or a strong student doing everything) takes a lot of skill.

The new tutorial system had a marked impact on student success in the course. From 2017 to 2018 the pass rate increased by 10%. Before the semester test some students commented that, had it not been for the compulsory weekly homework, they would have been too far behind to catch up. On the other hand, some students complained about the homework, but overall the students seem to have had a positive experience.

HELP! clickUP kicked me out of my test! *# tried and tested # how to*

Christine Kraamwinkel (Department of Statistics)

We've all been there. THAT email… "Ma'am/Sir, clickUP kicked me out of my test and my time is running out. Please help me!"

As we all know, major online assessments can be quite daunting. There's a careful balance between assisting students with technical issues and unethical students taking advantage of the help. It is never a good idea to have an untimed test, but on the other hand, problems like loadshedding or an internet connection that cuts out causes a lot of stress for students.

Selecting "Force completion" in a test will force students to complete a test in a single sitting. This means that a student who has exited the test accidentally will not be able to continue again. Blackboard is quite sensitive to a loss in connectivity, and treats a student who briefly lost their connection in the same way as a person who exited a test.

If "Force completion" is switched off but a timer is switched on, students have the ability to re-enter a test. The advantage here is that the timer will continue counting down and an unethical student will not be able to get an unfair advantage over other students. However, students who experience legitimate connection or device problems will lose out. In order to help these students, we set a group up on clickUP for our "problem cases". A duplicate test with the same time limit is then created and adaptive release is used to only release this test to

students in the "problem case" group. A student who experiences a power failure or some other significant issue, can email us immediately. We can then assist by adding that student to the "problem case" group which will release the new test to the student. Since we use question sets, these students are unlikely to get the exact same questions in the new test. In our response to the student, we also indicate which questions they are allowed to complete (only the ones that were unanswered in the first test) and that they are only allowed to use the amount of time that remained on their original test. The marks for the two tests are then combined to give the final mark for the assessment.

Blended learning techniques *# Blend, share and learn*

Selma Karuaihe (Department of Agricultural Economics, Extension and Rural Development)

The increased demand from 'techno savvy' student population requires a change in approach to learning, thus driving blended learning. I started using blended learning techniques in a module on Environmental and Resource Economics for the Collaborative Masters Programme in Applied and Agricultural Economics (CMAAE)*, since 2017. I used Moodle to design the Learning Management System (LMS), upload the teaching material and other sources, as well as for online facilitation. In a class of four hours per week, f2f took half or more hours; online chats took one hour, while online forum discussions extended over 24-48 hours depending on the topic. Before commencing with class, I used a YouTube video to welcome the students and present the course overview and rules of engagement.

The online facilitation involve the application of theories to case studies dealing with environmental problems and policies affecting different countries in Africa. The approach was effective in stimulating debates, which encouraged students to come prepared to class, share their country experiences and learn from each other through effective participation.

> *"I enjoyed the online platform as there was interaction among students from different countries. I learned a lot from the platform. It is a fast way to learn new things. I suggest that CMAAE ensure all the requirements are in place before implementing it in different countries".*

At the end of each academic year, a survey on the potential and effectiveness of blended learning as an LMS is conducted. In 2019, the class consisted of fourteen male and five female students, representing six African† countries and 95% of the class participated. Over 80% of the students ranked accessing digital versions of course materials and multimedia resources as the highest (score of 5), followed by interacting with guest lecturer and being freed from attending lectures.

Over 90% of students ranked access to internet connectivity as their main concern, especially for universities in Africa where access to broadband is limited and can affect learning. Furthermore, students indicated that they benefited from blended learning and they believe the system would be beneficial for their colleagues who were not able to attend the f2f session in Pretoria. Online facilitation was also beneficial to the module facilitators through the use on new teaching techniques. Therefore, we conclude that blended learning can be used to promote interactive learning among students and reduce f2f class costs. The use of blended learning prepared us better to transit to online learning during the 2020 covid-19 pandemic when all f2f contact classes had to stop.

* CMAAE is offered in seventeen African universities, coordinated by the African Economic Research Consortium (AERC). The University of Pretoria (UP) hosts the shared facility for electives every second semester of each year.

† Note that the participants' countries of origin might be different from their host countries during their studies. For example, the six students at the University of Pretoria, three were from Zambia, two from Eswatini and one from South Africa.

The Plagiarism conundrum[‡]

Irene Lubbe (Edu. Innovation) and Sumaiya Adam (Obstetrics and Gynaecology)

Universities have been struggling with issues relating to plagiarism from time immortal and now during the COVID-19 lockdown it would appear as if teaching and assessing remotely and online illuminates the magnitude of the potential for academic dishonesty. One would assume that students and staff are inherently honest and that they accidently venture into the dark and dangerous area of plagiarism. However, academic dishonesty is viewed in a serious light, with dire consequences varying from disciplinary interventions up to possible expulsion from university.

Traditionally, the library personnel takes on the mammoth task of equipping academic staff and students with the necessary basic information as it relates to plagiarism. They offer training and workshops and focus on all the nuances and variations of plagiarism. However, despite all their efforts, there was a raising concern of academic dishonesty amongst our students. It also became evident that there was a few 'cloudy' areas of uncertainty amongst the academic staff as well.

A small ad hoc sub-committee from the Faculty of Health Science's Teaching and Learning committee was formed, consisting of an Educational Consultant, a Professor/Lecturer from the School of Medicine and a member from the Library. The Deputy-Dean acted as a Quality Control Member. The members volunteered to look at different, cost-effective and easy to create content to assist in a plagiarism awareness campaign. This was necessary since it was evident that the traditional approach was less successful during the lockdown period.

The committee looked at some of the different ways that people prefer to interact with content and based on those preferences, decided on the format of the content. Each member of the sub-committee took responsibility for a certain approach to create content.

The decision was further made to create micro-learnings, consisting of small pockets of learning, as well as low-cost interactive content for learning and reinforcement of learning.

The content created by the members included a:

- Basic digital app or application that can be downloaded on a mobile device;
- Short animated video;
- PowerPoint presentation (narrated and in pdf-format);
- Re-purposing of an earlier recording by a guest presenter on the use of images and how to cite them
- Quick animated 10-mark quiz in the format of a game; and
- More elaborated (but still basic in complexity) digital escape room game

There are certain challenges as it relates to this type of awareness and support campaigns – especially if it is not outsourced. The most significant challenge was TIME to conceptualize and create the content, since this was an add-on to the committee members' already overfull schedules. Linking closely to the time-factor, is the learning of new skills and the time it takes to master those skills to enable one to use new applications and platforms to create the content.

One of the lessons learnt by the committee members, is that sometimes ignorance is bliss in that we did not anticipate the amount of time it will take to create a single small pocket of learning (and how brutally honest family members can be about the artefact

[‡] Based on the talk "Unintentional stealing — when ignorance isn't really bliss..."

created). The advantage emerging from this process is now we know how to use the platforms and apps and can guide others in using it.

The hidden goal was also to showcase to the lecturers the different ways and approaches that they can use to assist students in their learning processes.

Since most of the content were created using OER, going forward, one might look at funding to buy some of the programs or apps used to create the content and replace the OER-branding with UP-branding.

To conclude: Creating such a campaign is easily scalable and can be repeated for various areas of concern or training.

It's time to add #OER

Marius Pienaar (Department for Education Innovation)

It might be time to add open educational resources (OER) to your teaching strategy. OER are openly licensed digital resources that are useful for teaching and learning, and research. The term OER is described as publicly accessible resources for any user to use, remix, improve and redistribute depending on the license assigned to a particular resource.

According to the Community College Consortium for OER the main benefits of OER are the following: First, they are cheaper than commercial textbooks (for free most of the time), meaning a low cost for students. Second, students can gain immediate access to course materials. And third, the absence of copyright (with 'some rights restricted') provides you flexibility as you select and remix resources for your syllabi. This makes joining the OER movement very enticing.

Why don't you come and join the OER *revolution*? Consequently, if OER is to fulfil the promises set out above, we need your experience of the OER movement to inform your colleagues abouts the educational efficacy of OER. That way we can advance the use of OER in the university.

Selection of Open Educational Resources

Academic Earth · ChemCollective · Internet Archive · MathWorld · Merlot · OER Africa · OER Commons
Open Academics textbook catalogue · Open Course Library · OpenLearn · Open Science Resources · OpenStax
Open Textbook Library · Phet (Physics Education Technology) · Public Library of Science (PLoS)
Commonwealth of Learning: Directory of Open Educational Resources (DOER)
Consortium for the Advancement of Undergraduate Statistics Education

But you don't only have to be a consumer of OER. When the university's policies allow for it, you may also become a contributor to OER. The term 'intellectual property' is daunting. Still, the practice of sharing OER provides you as academic and creator of resources with control over how your work is accessed, used and disseminated by others. This could be important to you as an academic at the university who may place great value on retaining intellectual property rights while sharing your work as OER. The most common form of legally and openly sharing your educational resources is through Creative Commons which provide "free, easy-to-use copyright licenses to make a simple and standardized way to give the public permission to share and use your creative work – on conditions of your choice."

Do you want to find out how to apply these licences to your work and how you may use the work of others? You are invited to do an introductory course on OER offered by the Department for Education Innovation. It is a self-paced online course that enables you to explore and harness the potential of open educational resources in pursuit of your teaching. You are welcome to register on Peoplesoft and self-enrol here.

The Department for Education Innovation also offers OER grants. So, be on the lookout for future advertisements regarding the availability of these grants.

The use of Discord during remote teaching *# engage*

Annique Smith and Diffie Bosman (Department of Information Science)

During the COVID-19 pandemic, lecturers at tertiary institutions were required to make use of alternative strategies for communicating with students, delivering content, etc. The use of client software such as Discord could provide a scalable solution to rapid, informal communication between lecturers and students.

What is Discord? Discord is a free desktop application that allows for text and voice communication between user-defined groups. Discord allows for different levels of groups to be created, from larger groups capable of hosting entire departments, which, in Discord's terminology are called "servers" to smaller groups per modules which are called "categories" and smaller "channels" within categories. Channels, in the context of Discord, function similar to chat rooms or WhatsApp groups, which can be used for dedicated purposes within a module, such as creating separate channels to discuss assignments, lecture content, projects, etc.

How is Discord being used? A Discord server was created by the lecturers of the BIS Multimedia degree. Each module is defined as a category containing a variety of channels with specific purposes - announcements, practicals, assignments and exams — among others. Each lecturer has a dedicated voice channel nicknamed their "office" used for individual student consultations. The lecturers have their own private chat room to maintain contact even whilst working in separate locations.

Why Discord? Providing an informal platform where lecturers and students can quickly and easily post messages for specific modules has many benefits for facilitating communication for a module. Discord also allows for voice chat and screen sharing, which means that students can discuss problems with lecturers in-depth and provide illustrative examples to help lecturers understand their needs. Data from a survey of 86 students show that 15 of these made use of Discord for sending text messages at least once per week, while three stated they sent text messages on Discord every day. Furthermore, 10 students noted that they used the Discord voice chat at least once per week and five students used this functionality every day. When asked which tools introduced during the shift to remote teaching they would like to see their lecturers continue using, Discord was also the most commonly cited tool, with 27 out of 73 text responses specifically referring to it.

Getting started with Discord: https://discord.com/why-discord

Teaching Geology during COVID-19 lockdown

Matthys Dippenaar (Department of Geology)

2020 has been daring. Teaching through a semester of Introductory Geology, and now a semester of Engineering Geology, while also being involved in the honours programme throughout, I can indeed confirm that it has been hard for everyone involved. Of course, as staff we realise that online learning was never the plan, and that a whole new suite of concerns and issues arose from teaching being taken online. Nonetheless, it is going remarkably well given that there just simply is no alternative.

What I personally experience is an astonishing will power driving most students to put in effort to attend online lectures. Class WhatsApp groups are buzzing with questions, photographs, and interesting geological chit-chat. Despite the lack of contact, there seems to be the required interaction that I as a staff member feared would disappear.

Obviously, the issues faced by staff and students are different. For me, likely the hardest part of this lockdown and online teaching is to try and maintain some semblance of enthusiasm about our Planet Earth. The WOW-effect is simply lacking. It is very hard to teach rocks without rocks. Without showing, and touching rocks. Without going on excursions. And even though these will likely resume at some stage, it was still very hard to teach without being able to look at minerals, rocks, thin sections, fossils, and maps.

Online assessments are going very well, with class marks generally being comparable to previous years. The lockdown possibly nudged me to take more assessment online as is appropriate for 2020. The online platforms

are exceedingly useful, and I still learn new functionality every time I use the system. There are truly wonderful opportunities to be used parallel to one-on-one teaching and instruction, and it is time to acknowledge that I never truly knew the power of these online teaching platforms.

Above all, I commend every student who is persisting through these times. We are not blind to the enormous efforts on their behalf, and honestly can't wait to be in the field looking at rocks again. The participation and interaction in online classes, the interest in the content, and the willingness to use the available opportunities to learn during lockdown are all noticed.

Earth has been around for a few billion years, and it will be there when we go out again, waiting for a bunch of geology students to stare at an outcrop in the sun. I'm sure we're all looking forward to that.

And, with all of this said, it seems as though 2020, with all its difficulties, still managed to be successful, albeit not ideal.

Invitation to contribute *# dare to share*

Do you have a new teaching innovation you are trying out? Have you been doing something tried and tested for years to engage with students? Has some issue been on your mind of late? Perhaps you have found a way to streamline some aspect of your course saving you valuable time? Please share your thoughts with our teaching and learning community through this bulletin; we welcome contributions from all faculties.

Kindly keep the style of this bulletin (and intended audience) in mind. Find our guidelines here. Submissions can be emailed to Ina Louw (ina.louw@up.ac.za); your piece will be (lightly) edited for inclusion in the next bulletin.

Any suggestions for an improved bulletin (or a special issue) are very welcome!

All bulletins will be archived here and on the NAS faculty website.