

#FEESMUSTFALL: Science Teaching during Student Unrest

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Abstract

Student protests are a regular feature of the tertiary landscape. However, there are claims that disruptions and potential threats to the academic project at traditional universities can be partially mitigated by online teaching and learning. This paper reports on insights gained when the mode of instruction was changed at short notice from contact to online teaching during student unrests at a South African university in 2016. A phenomenographic approach was used to generate a meta-reflection on experiences as reported by lecturers from 13 science departments during a *pecha kucha*¹ event (very short PowerPoint presentations) at the beginning of 2017. Video data was analysed inductively to generate six themes/categories, encapsulating aspects of the challenges experienced by the participants, the insights they had and the actions they took to address these challenges. This paper attempts to demonstrate the approaches taken by lecturers and how they incorporated the blended learning environment to support their students to complete the academic year, despite difficult circumstances. It offers useful pointers to affordances and weaknesses of the virtual learning environment when implemented at short notice to replace contact teaching.

Keywords: phenomenography, student unrest, blended learning, tertiary science education, meta-reflection, #FEESMUSTFALL

¹ **Pecha Kucha** (Japanese) is a presentation style in which 20 slides are shown for 20 seconds each which keeps presentations concise and fast-paced.

Introduction

Historically, universities around the world have had to cope with disturbances, disruptions and distractions caused by student protest movements (Ibrahim 2010). Most student protest movements were either revolutionary, such as ‘those against the British colonial rule in the United States in the 1760s’ (Ibrahim 2010:495), or they initiated significant social justice campaigns such as those in the United Kingdom in the 1970s that were aimed against the South African apartheid system (Pullan & Abendstern 2004). Although the number of student protests have in the past decade increased significantly across the globe (Brooks 2016), literature suggests student protest movements peaked in the 1960s and 1970s (Ibrahim 2010).

Student protests experienced in the past decade have either been a result of internal factors such as an increase in tuition fees or external factors that were mainly related to politics. In most cases, these protests led to the closure of the universities, destruction of university property, student arrests and deaths (Langa 2017; Taylor 2016; Waruru 2013). Interestingly, most student protests in recent years were facilitated by technology (Brooks 2016; Langa 2017). For instance, in 2016 students in South Africa used Twitter with the #FeesMustFall slogan (Brooks 2016; Langa 2017) to instigate protests within and beyond South Africa, and in 2010 students in London used Facebook and Twitter to communicate with their counterparts at other London universities (Cammaerts 2013).

Recently, several universities globally experienced severe disruptions as a result of student protests. In 2013 the University of Nairobi and Egerton University in Kenya were shut down because of riots related to examinations. These unrests left two students dead and caused end-of-semester examinations [final exams] ahead of the Christmas break to be cancelled (Waruru 2013). Furthermore, in 2012, Quebec students protested against an increase in tuition fees for more than 100 days on end (Marin 2012). Moreover, in 2016, students at the University of Papua New Guinea took to the streets to demand the prime minister’s resignation since he was alleged to be involved in corruption and economic mismanagement. The students stayed away from classes for several weeks and burnt a building and a truck (Lewis 2016). Similarly, in Mexico in 2016, protests were started by prospective students who failed their admission tests. These students occupied 20 of the 24 buildings at the University of San Nicolas de Hidalgo and disrupted normal classes for

more than 50 days. The students demanded to be admitted into the university's faculty of education (Mexico Daily 2016). In London, more than 1000 students from the University College London, Goldsmiths, Roehampton and Courtauld Institute protested against the poor quality of accommodation and high accommodation fees. The students claimed that rent was a form of 'social cleansing in the capital that excludes poorer students' (Taylor 2016). Other recent student protests include those that happened in Budapest in 2012, Stanford in 2016, Republic of Ireland in 2016, Puerto Rico in 2010, Chile in 2012 and Hong Kong in 2014.

To date, most literature reports related to student protests concentrated primarily on the reasons behind student protests (Pullan & Abendstern 2004; Rodriguez-Amat & Jeffery 2017) and the impact that protests have had on the university, the country, or the world (Ibrahim 2010; Pullan & Abendstern 2004). There is, however, an urgent need to also report on the impact of the protests on student knowledge acquisition, students' experiences of learning during the disruptions, and lecturers' experiences of teaching during student disruptions. Therefore, the aim of this study was to report on insights gained when the mode of instruction was changed at short notice from contact to mostly online during student unrest at a South African university in 2016. To achieve this aim, the research question addressed was: 'What are the lecturers' experiences of teaching during the 2016 student unrest?'

Background and Context

Early in 2015, student protests in South Africa began because of rising fees that placed tertiary education beyond the reach of poor and middle-class students. This situation was exacerbated by the inability of the National Student Financial Aid Scheme (NSFAS) – the state loan and bursary agency – to meet its commitments. The dissent grew to a national movement in October 2015 when universities started to announce their fee increases for 2016. In response to the protests, the president (Mr Jacob Zuma) announced that there would be no fee increases for 2016, which calmed the situation temporarily. However, protests erupted again in September 2016 when the Minister of Higher Education, Dr Blade Nzimande, announced that fee increases would be allowed for 2017 (BBC News 2016). The protests were associated with widespread violence and damage to property, which caused many institutions to close their campuses for extended periods of time (Isilow 2016).

Although the University where the study was conducted escaped the destruction of property, the disruption of classes and tests in the week of 19 September forced the University to close three of its six campuses. The two largest campuses were not reopened to students for the remainder of 2016, and on all campuses strict access control was implemented. The decision was taken to conduct instruction and assessment mostly online to complete the academic year by the end of 2016. Limited access to the main campus was granted for students in two faculties, engineering and science, to accommodate the demands and special needs of the disciplines in those faculties. However, the amount of contact time was reduced significantly which meant that lecturers had to change their planned instruction on very short notice. Furthermore, the fact that students had limited access to campus gave them limited access to the university library and the university internet. All mid-term assessments were cancelled, and final examinations were restricted to two hours rather than the standard three-hour duration. Lecturers responded to the challenge by implementing a variety of alternative teaching technologies, modes of communication and assessment strategies they had never used before. Prior to the student unrest, the university had invested in capacity building among lecturers to meet the demands of hybrid teaching and thus developed the necessary infrastructure and support mechanisms. The university addressed students' need for internet access by negotiating with cellular/mobile network providers for free access to specific domains and by providing access to computer labs in secure locations.

The paper presents a meta-reflection on what the lecturers shared at a public forum about their teaching experiences during student unrest. It is important to mention that in our study the term 'student unrest' refers to a period of three months during which normal teaching activities were severely curtailed and access to campus was restricted due to student protests.

Theoretical Framework

The theoretical orientation is informed by phenomenography, a framework that seeks to describe the perceptions, ideas, or experiences that people have in respect of a given phenomenon (Bodner & Orgill 2007; Marton 1981; Case & Light 2011). Phenomenography does not concentrate on the phenomenon studied; instead, it focuses on how people experience, understand or perceive a given phenomenon (Bhattacharyya & Bodner 2005; Orgill 2007), thus taking

a second-order perspective (Marton 1981; Orgill 2007). In the same way, our focus was not on the phenomenon under study, but rather on the lecturers' experiences of the phenomenon, which in this case was teaching during student unrests. Phenomenography was identified as an appropriate framework for our study because it allowed us to qualitatively identify variations in the lecturers' experiences of teaching during student unrests. According to phenomenography, individuals experience a given phenomenon in various ways based on their interaction with the world (Orgill 2007; Marton 1981). It is therefore the collective sum of the participants' different perceptions and experiences that defines a phenomenon. In our study, lecturers' various experiences gave us insights into how teaching had been done during student unrests.

Methodology

Participants, Sampling Technique and Data Collection

The faculty where the study was conducted consists of 16 departments. The Deputy Dean for teaching and learning requested the heads of these departments to identify staff members who had implemented innovative teaching practices during student disruptions. On 10 February 2017 an opportunity was created for these insights to be shared in the form of *pecha kucha*² (Beyer 2011) presentations. Of the 16 departments, only 13 participated in the session, as is shown in Table 1 below. Since the goal of phenomenography is to qualitatively identify variations in experiences, participant lecturers from all 16 departments in the faculty were recruited because we wanted to capture a wide range of lecturers' experiences of teaching during the period of student unrest.

Table 1: Departments that participated in the study

Departments within the faculty	Departments that participated in the study		Number of presenters from each department
	Yes	No	
Actuarial Science	x		1

² **Pecha Kucha** (Japanese) is a presentation style in which 20 slides are shown for 20 seconds each which keeps presentations concise and fast-paced.

Agricultural Economics, Extension and Rural Development	x		1
Animal and Wildlife Sciences	x		1
Biochemistry		x	
Chemistry	x		1
Consumer Science	x		1
Food Science		x	
Genetics	x		1
Geography, Geoinformatics and Meteorology	x		1
Geology	x		2
Mathematics and Applied Mathematics	x		1
Microbiology	x		1
Physics		x	
Plant and Soil Sciences	x		2
Statistics	x		1
Zoology and Entomology	x		1

In total, 15 faculty members participated in the presentations. Participants were briefed and supplied with a template for the *pecha kucha* in an electronic format. The template informed participants about the rules pertaining to the *pecha kucha* style of presentation. They were asked to prepare a five-minute PowerPoint presentation on their teaching practices during student unrest. All presentations were video recorded, transcribed and analysed as will be described in subsequent sections. Pseudonyms (P1-P15) were used to protect the anonymity of the participants and their departments.

Convenience sampling (Etikan, Abubakar & Alkassim 2016) rather than random sampling was used in this study. Convenience sampling targets

participants who are easily accessible and willing to participate in the study. The *pecha kucha* presenters were approached and gave consent for their contributions to be used in this study. The study also obtained ethical clearance from the university where the study was conducted.

Data Analysis

Phenomenographic data analysis aims to qualitatively identify categories that describe various ways in which participants experience a phenomenon (Orgill 2007; Rands & Gansemer-Topf 2016). Similarly, when analysing data, our aim was to qualitatively identify distinct categories that describe the range of the lecturers' experiences of teaching during student unrests. Two of the three authors (researchers) inductively analysed (Thomas 2006) the transcribed presentations.

Prior to analysing the data, the researchers individually read through the transcriptions a number of times in order to familiarise themselves with and understand the data. They then slowly started generating themes or categories that addressed the proposed research question. Once the researchers were satisfied that they were adequately familiar with the data, they individually began generating initial codes. That is, the researchers read through the transcripts line by line, underlining and coding each line that informed them of the participants' teaching experiences during student disruptions (Strauss & Corbin 1998). Labels used for the generated codes emerged either directly from the data or from the researchers' minds (Strauss & Corbin 1998). Once the initial coding was done, the researchers merged the generated codes and analysed them. They compared the codes with one another and with their supporting data in order to combine similar codes to form overarching themes/categories that portray the participants' experiences of teaching during student unrests (Braun & Clarke 2006; Glaser 1992; Strauss & Corbin 1998).

During the process of refining the themes/categories, the researchers read through the excerpts of each theme/category to check if they formed a 'coherent pattern' (Braun & Clarke 2006). In cases where data excerpts did not form a coherent pattern with the rest of the data excerpts, the researchers either moved such excerpts to other themes/categories or renamed the theme/category. Once the two researchers were satisfied with the generated

themes/categories, they each read through the data excerpts under each theme/category. This was done to provide a detailed description about what each theme/category revealed regarding the participants' reported teaching experiences during student disruptions. The developed categories of description are also referred to as an 'outcome space'. An outcome space is defined as the qualitatively different ways in which a phenomenon is experienced (Orgill 2007; Marton 1981).

Trustworthiness

Since the study employed qualitative methods, it became important to implement procedures that would establish the trustworthiness of the findings (Creswell & Miller 2000; Golafshani 2003; Hoepfl 1997). To increase the trustworthiness of the findings and the credibility of the study, the researchers provided rich, detailed descriptions of the settings or context and the themes of the findings (Creswell & Miller 2000). Credibility of the findings was further established via peer debriefing (Creswell 2009; Lincoln & Guba 1989). The two researchers asked the third researcher during data analysis to read through the codes, and themes/categories they had developed as well as the supporting data, to check if the developed codes, and themes/categories were a good description of the supporting data. These discussions led to the refinement of some codes, and themes/ categories.

Results

As discussed below, the lecturers' reported experiences of teaching during student unrests were categorised into six themes that encapsulated the challenges they experienced, the insights they had and the actions they took. The six themes were communication; limited access to campus; use of technology; academic immaturity of students; assessment; and the lecturer as a reflective practitioner.

Communication

One of the major challenges that lecturers faced was inadequate communication between them and their students, and between the university

management and the staff. Several lecturers indicated that the lack of communication with students made it difficult for them to give feedback relating to their assignments or dissertations. For example, P8 indicated:

For the postgrads it was a bit more difficult, we sent comments on dissertations via email, whereas P2 stated, one of the greatest things we saw, however, was that communication remained a problem. Communication, both to effectively and efficiently communicate with our students about changing arrangements.

With regard to the university management, some faculty stated that they felt left out because the university was not transparent regarding the decisions made about student access to campus. In support of the latter, P11 stated:

We felt uninformed. Everything was a secret and we didn't know why the campus was closed and it was very very frustrating. We expected, you keep expecting ok campus will open maybe we will see our students more. One day it is yes you can next day it is no you can't. I think that really frustrated our staff members a lot.

In order to overcome the challenge of communication, lecturers decided to maintain contact with students by using either WhatsApp, email messages, short messaging service (SMS) or by involving class representatives. For instance, P2 discovered that 'communication that worked very well is that all of us had class representatives and all of the classes had WhatsApp groups, so we communicated with the class reps through WhatsApp groups'. P14, on the other hand, realised that:

to keep communication with the students was a challenge due to the lack of internet access and so we used logic SMS which is a bulk SMS service that would allow us to avoid the internal UP system delays. Communication was interactive and immediate.

Lecturers realised that social media was an excellent platform for communication; thus, in hindsight, P11 proposed to 'give them [social media] the gold medal'.

Limited Access to Campus

Besides communication, limited contact with the students was another major challenge that lecturers faced. Only a limited number of students were granted access every day to reduce the risk of further disruption of activities. This meant that laboratory sessions were either cancelled or replaced with assignments; the library was closed as a safety measure, which reduced access to learning space and textbooks. The consensus among all presenters was that the drastic reduction in contact with students was a threat to the teaching and learning of science disciplines. Therefore, to overcome this challenge and ensure that teaching and learning continued, lecturers proceeded with instruction by means of having ad hoc meetings on campus, by arranging off-campus sessions, and by using teaching technologies such as Blackboard-collaborate, YouTube, Qualtrics, narrated PowerPoint and clickUP (the institutional learning management system hosted by Blackboard) for virtual lectures and tutorials. On-campus and off-campus meetings were used either for lecture sessions, discussion sessions or tutorial sessions; whereas technology was used to ensure that students had access to lecture material and assignments. Although off-campus meetings were beneficial for students, lecturers realised that they were costly, as indicated by P11: 'Also renting lecture venues outside cost money. So that was not really great'. Moreover, as indicated by P8, teaching off-campus was a risk: 'Our biggest lesson, don't teach off-campus, don't hire a venue and teach off-campus, social media has immense power and we [were] stuck with a group of protesters at one of these venues, we put everyone's safety in danger'.

Use of Technology

Although the use of technology allowed teaching and learning to continue during student disruptions, it also posed technical challenges. For instance, P9 stated:

We had a few technical issues with the narrated PowerPoint that there was in terms of sound problems that it's very soft at the beginning and then would come back. P14 pointed out: Learning to use Office Mix through PowerPoint, uhhmm, through YouTube, we prepared 5 - 8 slides, presentations which were uploaded to clickUP. Uploading to YouTube was however a bit problematic, therefore, it was abandoned.

Although problematic, lecturers experimented with various modes of web-based resources to find an appropriate resource to use. The latter is indicated by the following statements made by P10 and P3:

Some of the alternative teaching methods that we used was to create YouTube videos. We would make videos of between 5 and 10 minutes and then we would upload this onto YouTube and embed that into clickUP (P10);

What we realised from that was that the clickUP system and YouTube narrated PPT lectures actually worked very very well. Much better than we expected (P3).

Academic Immaturity of Students

Lecturers expected students, especially senior students, to be self-disciplined enough to continue with their studies off-campus, but that seemed to have been an unrealistic expectation as admitted by P8: ‘...students tend to procrastinate and they tend to not do things that we expect of them if we don’t have contact sessions with them’. The need for effective learning support, in the absence of contact sessions, in terms of clear communication of expectations, as well as pacing and guiding soon became clear as indicated by P14: ‘...so we guided them through the process by, with a detailed study plan, as well as biweekly emails explaining what the focus of the day is ...’. The initial reaction by most lecturers was to send as many messages as possible, but they soon gathered that they were flooding students with information, as mentioned by P5: ‘The problem with clickUP and other media is the confusion: there was so many different types of messages and they didn’t always know what to look at’. To reduce this confusion, some lecturers realised they should encourage email contact with students, and as stated by P6, students embraced it: ‘Students interact with us, they could write emails and we responded, sometimes we had hundreds of the same question and you would then upload the answer onto clickUP for them’. Another participant, P15, expected questions from students about demarcated work, but he soon discovered that the students had fallen behind: ‘We were already [busy] with Chapter 7, but they keep on only asking about Chapters 1, 2, 3’. Lecturers also realised that detailed instructions are

important, and P1 mentioned that they had to ‘add instructions to every single file that you upload so that students know exactly what you want them to do’.

One lecturer, P4, explained that lecturers had to take on the role of metronome, that is, ‘setting the pace explicitly’. A particularly useful function for this purpose in the LMS was the adaptive release function. This function allows the lecturer to upload many documents and set a date and time for each document to be released to students. As stated by P13, the adaptive release function is ‘[u]ser friendly and make[s] sure that the students do the work when it is required of them’.

Assessment

Acknowledging the importance of assessment for quality assurance, lecturers searched for alternative ways to assess students. Assignments were used by many to replace class tests, practical assessments and semester tests [mid-term exams], as indicated by P13:

Assignments were compulsory, [there] is a multitude of questions and questions/options that can be used in clickUP and we played around with that and we had lots of fun with different types of questions, also making it challenging to the students.

In a numerical subject, students were given the ‘test in the form of an assignment. And we said that they could just take photos of their answers and upload that onto clickUP’ (P10), thereby overcoming the problem of using mathematical symbols in some online environments. Lecturers did however experience frustration due to limited opportunities for proper feedback to students, as indicated by P10, ‘...and you want to say to the students what are they doing wrong but you know they are not going to get their paper back’. Moreover, some modules offered students exemption from board examinations and this necessitated an opportunity for students to receive formative feedback on similar assessments, as explained by P10, an actuarial scientist: ‘Some of our exams allow students to get exemption to our professional [board] exams, the semester tests [mid-term exams] are important to give them an indication of the standard, which the assignment couldn’t do’.

Issues about the reliability and validity of assessment had to be interrogated rigorously as it was perceived as a potential risk. The university

encouraged lecturers to minimise the security risk associated with students on campus during the final examinations and, where possible, to conduct online rather than sit-down examinations. However, this option was rarely used because of the difficulty to detect plagiarism in a solved problem in the sciences. Lecturers deliberately implemented strategies to enhance the reliability of the assessment, as mentioned by P5: ‘We had online assessment via clickUP and Qualtrics that offered options: we can build a big test base or a big pool and then ... to get a different question, we must build in a randomiser’.

Lecturer as Reflective Practitioner

The lecturers in our sample shared their reflections on their teaching experiences during a challenging time and presented their insights into what they had learnt about their practice and their students. Several also shared aspects of their personal journey as they tried to serve their students and do justice to their disciplines. According to P8, they (the instructor and colleagues in the department) were naïve initially, since they assumed they would ‘just keep swimming and we will basically just upload all our lectures on clickUP because the students do go on clickUP regularly and they do read what we put on So we thought we were ok’. However, it soon became clear that online teaching placed additional demands on their time and creativity. P8 stated that they were overwhelmed by ‘all the additional admin that was on our desks. Their response to the challenge was to step up our game, we had to be a bit more innovative and creative in how we upload teachings and materials on clickUP’ (P8). P11 described the emotional consequences of the disruptions: ‘We found it a very tough time, but I think there is also a potential to learn a lot of new skills that will move us away from traditional lecture strategies and (to) something new and dynamic’. The comment by P4 sums up the general feeling: ‘The lecturer as a surfer riding the waves of change, adapting continuously and trying your best to stay steady in all of this. And I think it was a good exercise for all of us’. Lecturers had to learn new skills and were forced out of their comfort zones, but the experience opened up new possibilities and many were proud of what was achieved.

Discussion

The paper has captured insights gained when the mode of instruction was

changed at short notice from contact to online during student unrest at a South African university in 2016. During this time, the university management and the lecturers had to deal with a situation that was fluid and unpredictable, one for which they were not prepared and had no previous experience from which to draw. Effective communication at all levels was essential, but also exceedingly difficult. There was consensus among our sample of lecturers that university management did not perform well in this regard and this fuelled uncertainty and frustration among staff. However, our findings also indicate that lecturers realised the need for effective communication and experimented with different media to achieve this goal. It is well documented that social media provided a powerful platform for mobilisation of support and organisation of mass action during recent protests (Brooks 2016; Langa 2017). Our study revealed that social media can also be a powerful tool for effective communication to facilitate teaching and learning during such turbulent times.

Arguably, the university involved was better prepared than most other South African universities to respond to the threat posed by student unrest, because of its strategic decision to endorse the hybrid model for teaching and learning and to invest in building capacity for its implementation prior to the event. Therefore, when the decision was taken to cease or drastically reduce normal contact instruction in October 2016, teaching and learning continued online by means of web-based technologies for the rest of the academic year. The almost-overnight implementation of alternative teaching modalities initially posed technical challenges. These measures pointed to the fact that virtual teaching and learning should be an integral component of the instructional model if staff and students are to be well versed in its use, especially in the case of future emergencies. Assessment posed additional challenges in terms of the difficulty to provide formative feedback and the challenge of reliability and validity for summative assessments. A surprising finding was the fact that even senior undergraduate students were largely unprepared to take full responsibility for their own learning once the pattern of regular class attendance was disrupted. Students did not apply themselves appropriately to the task and lecturers had to take on the responsibility for pace setting as well for ensuring that learning goals are reached. This was not really surprising, as it is well known that students lack persistence in online learning environments (Hart 2012; Kranzow 2013; Rutter 2016; Van Rooij & Zirkle 2016). Furthermore, the fact that lecturers realised they had to set the pace is consistent with the habit in online course design

where incentives such as digital badges are used to motivate students' participation and persistence when they are not supported by regular contact with lecturers (Abramovich, Schunn & Higashi 2013; Hurst 2015).

Our findings suggest that lecturers were determined to continue facilitating learning, regardless of the circumstances, thereby demonstrating their commitment and resilience. Although they did not have adequate preparation time, they still managed to employ teaching strategies that enabled students to achieve most of the learning outcomes for the courses that were taught. According to Perry (2002:33), resilience is the ability to manage 'stressors without significant negative disruption in functioning'. Besides being resilient, lecturers also displayed agency; that is, their response to student unrest showed that they had the capacity to respond appropriately to the situation. According to Bandura (1982), people constantly judge their self-efficacy to decide if they have the ability to execute an action effectively and to avoid taking on tasks that are outside of their ability. During the disruptions, lecturers did not have the luxury of risk avoidance; instead they ventured into the task of virtual teaching and in doing so, discovered where they required additional skills to use technology more efficiently.

The faculty where the study was conducted is a large and very diverse faculty. The *pecha kucha* presentations by lecturers from such a wide range of disciplines provided the researchers with a unique opportunity to gauge subtle differences in the impact of the student disruptions across the spectrum of science disciplines. Lecturers from all departments agreed that contact teaching was the preferred modality and that loss of contact time was detrimental to teaching and learning. However, the potential threat to the academic project was experienced most severely in mathematics-based disciplines. Courses that were more descriptive in nature, for example Geography and Agriculture, were more amenable to fully online presentation than numerical courses such as Mathematics, Statistics, Physics and Chemistry.

Conclusions

Technological advances have opened up a wide range of possibilities for higher education that have prompted widespread adoption of hybrid or blended learning (Graham, Woodfield & Harrison 2013; Moskal, Dziuban & Hartman 2013). The fact that the university has endorsed the hybrid model for achieving excellence in teaching and learning has set the scene for an appropriate

response to the student unrest of 2016. More importantly, this vision was supported by a strategic investment in infrastructure and human capacity development to equip lecturers with the resources and skills required for the implementation of hybrid teaching. Our findings suggest that institutions that embrace these international developments in alternative modalities for teaching and learning will be less vulnerable during student protests than others that rely mainly on contact instruction. However, for the switch to fully online teaching to occur smoothly during turbulent times, virtual learning should be a regular feature of the instructional model rather than merely an emergency measure.

Several limitations could have an impact on the generalisability of the findings, namely the limited size of the sample, the time limit imposed by the *pecha kucha* format for presentations, and the unique context within which the study was conducted. However, despite these limitations, our study provided powerful insights to inform the design of emergency teaching strategies for implementation when students are prevented from attending face-to-face classes. The university where the study was conducted and several other tertiary institutions in South Africa are currently conducting an in-depth study of student experiences during the disruptions of 2016, which is expected to complement the findings of this report.

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References

- Abramovich, S., C. Schunn & R.M. Higashi 2013. Are Badges Useful in Education? It Depends upon the Type of Badge and Expertise of the Learner. *Educational Technology Research and Development* 61,2:217 - 232.
<https://doi.org/10.1007/s11423-013-9289-2>
- Bandura, A. 1982. Self-efficacy Mechanism in Human Agency. *American Psychologist* 37,2:122 - 147.

<https://doi.org/10.1037/0003-066X.37.2.122>

- BBC News: Africa. 2016. Why are South African Students Protesting? 4 October. Available at:
<http://www.bbc.com/news/world-africa-34615004> (Accessed on 14 June 2017.)
- Beyer, A.M. 2011. Improving Student Presentations: Pecha Kucha and Just Plain PowerPoint. *Teaching of Psychology* 38,2:122 - 126.
<https://doi.org/10.1177/0098628311401588>
- Bodner, G. & M. Orgill 2007. *Theoretical Frameworks for Research in Chemistry/Science Education*. Upper Saddle River: Pearson Prentice Hall.
- Braun, V. & V. Clarke 2006. Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3,2:77 - 101.
<https://doi.org/10.1191/1478088706qp063oa>
- Brooks, R. 2016. Politics and Protest – Students Rise up Worldwide, *University World News* 13,413. Available at:
<http://www.universityworldnews.com/article.php?story=20160510173152311>. (Accessed on 25 September 2017.)
- Cammaerts, B. 2013. The Meditation of Insurrectionary Symbolic Damage: The 2010 U.K. Student Protests. *The International Journal of Press/Politics* 18,2:525 - 548.
<https://doi.org/10.1177/1940161213496283>
- Case, J. & G. Light. 2011. Emerging Research Methodologies in Engineering Education. *Journal of Engineering Education* 100,1:186 - 210.
<https://doi.org/10.1002/j.2168-9830.2011.tb00008.x>
- Creswell, J.W. 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks: Sage Publications.
- Creswell, J.W. & D.L. Miller 2000. Determining Validity in Qualitative Inquiry. *Theory into Practice* 39,3:124 - 130.
https://doi.org/10.1207/s15430421tip3903_2
- Etikan, I., S. Abubakar & R.S. Alkassim 2016. Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics* 5,1:1 - 4.
<https://doi.org/10.11648/j.ajtas.20160501.11>
- Glaser, B.G. 1992. *Basics of Grounded Theory Analysis: Emergences vs. Forcing*. Mill Valley: Sociology Press.
- Golafshani, N. 2003. Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report* 8,4:597 - 606.
-

- Graham, C.R., W. Woodfield & B.J. Harrison 2013. A Framework for Institutional Adoption and Implementation of Blended Learning in Higher Education. *Internet and Higher Education* 18:4 - 14.
<https://doi.org/10.1016/j.iheduc.2012.09.003>
- Hart, C. 2012. Factors Associated with Student Persistence in an Online Program of Study: A Review of Literature. *Journal of Interactive Online Learning* 11,1:19 - 42.
- Hoepfl, M.C. 1997. Choosing Qualitative Research: A Primer for Technology Education Researchers. *Journal of Technology Education* 9,1:47 - 63.
<https://doi.org/10.21061/jte.v9i1.a.4>
- Hurst, E.J. 2015. Digital Badges: Beyond Learning Incentives. *Journal of Resources in Medical Libraries* 12,3:182 - 189.
<https://doi.org/10.1080/15424065.2015.1065661>
- Ibrahim, Y. 2010. Between Revolution and Defeat: Student Protest Cycles and Networks. *Sociology Compass* 4,7:495 - 504.
<https://doi.org/10.1111/j.1751-9020.2010.00289.x>
- Isilow, H. 2016. *South Africa University Shuts for Week after Protests*. Available at:
<http://aa.com.tr/en/africa/south-africa-university-shuts-for-week-after-protests/658825> (Accessed on 14 June 2017.)
- Kranzow, J. 2013. Faculty Leadership in Online Education: Structuring Courses to Impact Student Satisfaction and Persistence. *MERLOT Journal of Online Learning and Teaching* 9,1:131 - 139.
- Langa, M. 2017. *#Hashtag: An Analysis of the #Feesmustfall Movement at South African Universities*. Johannesburg: Centre for the Study of Violence and Reconciliation. Available at:
<https://www.csvr.org.za/pdf/An-analysis-of-the-FeesMustFall-Movement-at-South-African-universities.pdf> (Accessed on 20 September 2017.)
- Lewis, S. 2016. Papua New Guinea Moves to End Student Protests after Violence. *Time* 8 June 2016. Available at: www.time.com (Accessed on 25 September 2017.)
- Lincoln, Y.S. & E.G. Guba 1989. *Fourth Generation Evaluation*. Newbury Park: Sage.
- Marin, M. 2012. Student Protestors in Quebec are Safeguarding the Future. *University World News* 22 April 2012. Available at:
www.universityworldnews.com (Accessed on 25 September 2017.)

- Marton, F. 1981. Phenomenography – Describing Conceptions of the World around Us. *Instructional Science* 10:177 - 200.
<https://doi.org/10.1007/BF00132516>
- Mexico News Daily* 2016. University Occupation by Failed Students Passes 50 Days. *University World News* 22 October 2016. Available at: www.universityworldnews.com (Accessed on 25 September 2017.)
- Moskal, P., C. Dziuban & J. Hartman 2013. Blended Learning: A Dangerous Idea? *Internet and Higher Education* 18:15 - 23.
<https://doi.org/10.1016/j.iheduc.2012.12.001>
- Orgill, M. 2007. Phenomenography. In Bodner, G. & M. Orgill (eds.): *Theoretical Frameworks for Research in Chemistry/ Science Education*. Upper Saddle River: Pearson Prentice Hall.
- Pullan, B. & M. Abendstern 2004. *A History of the University of Manchester 1973-1990*. Manchester: Manchester University Press.
<https://doi.org/10.7228/manchester/9780719062421.001.0001>
- Rands, M. & M. Gansemer-Topf 2016. Phenomenography: A Methodological Approach for Assessment in Student Affairs. *Education Publications* 45:1 - 22.
- Rodriguez-Amat, J.R. & B. Jeffery 2017. Student Protests. Three Periods of University Governance. *TripleC: Journal for a Global Sustainable Information Society* 15,2:524 - 539.
- Rutter, K. 2016. Student Satisfaction and Persistence in Online Courses: Implications for Instructional Design. Available at: <https://www.researchgate.net>. (Accessed on 15 November, 2017.)
- Strauss, A.L. & J.M. Corbin 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications Inc.
- Taylor, D. 2016, University Students Across London Take Part in Rent Strike. *The Guardian* 6 May 2016. Available at: www.theguardian.com (Accessed on 25 September 2017.)
- Thomas, D. 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation* 27,2:237 - 246.
<https://doi.org/10.1177/1098214005283748>
- Van Rooij, S.W. & K. Zirkle 2016. Balancing Pedagogy, Student Readiness and Accessibility: A Case Study in Collaborative Online Course Development. *Internet and Higher Education* 28:1 - 7.
<https://doi.org/10.1016/j.iheduc.2015.08.001>
-

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Waruru, M. 2013. Two Students Killed in Protests, Universities Close.
University World News 19 December 2013. Available at:
www.universityworldnews.com (Accessed on 25 September 2017.)

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