

Association for Information Systems

AIS Electronic Library (AISeL)

Proceedings of the 2021 AIS SIGED
International Conference on Information
Systems Education and Research

SIGED: IAIM Conference

12-13-2021

REFLECTIONS AND LESSONS LEARNT ON TEACHING, LEARNING, AND ASSESSMENTS IN A FIRST-YEAR INTRODUCTORY COURSE DURING THE COVID-19 PANDEMIC

Pariksha Singh

IT Laboratories, University of Pretoria, pariksha.singh@up.ac.za

Jayshree Harangee

IT Laboratories University of Pretoria, Jayshree.harangee@up.ac.za

Tania Prinsloo

Department of Informatics University of Pretoria, tania.prinsloo@up.ac.za

Follow this and additional works at: <https://aisel.aisnet.org/siged2021>

Recommended Citation

Singh, Pariksha; Harangee, Jayshree; and Prinsloo, Tania, "REFLECTIONS AND LESSONS LEARNT ON TEACHING, LEARNING, AND ASSESSMENTS IN A FIRST-YEAR INTRODUCTORY COURSE DURING THE COVID-19 PANDEMIC" (2021). *Proceedings of the 2021 AIS SIGED International Conference on Information Systems Education and Research*. 2.

<https://aisel.aisnet.org/siged2021/2>

This material is brought to you by the SIGED: IAIM Conference at AIS Electronic Library (AISeL). It has been accepted for inclusion in Proceedings of the 2021 AIS SIGED International Conference on Information Systems Education and Research by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

REFLECTIONS AND LESSONS LEARNT ON TEACHING, LEARNING, AND ASSESSMENTS IN A FIRST-YEAR INTRODUCTORY COURSE DURING THE COVID-19 PANDEMIC

Pariksha Singh
IT Laboratories
University of Pretoria
Pariksha.singh@up.ac.za

Jayshree Harangee
IT Laboratories
University of Pretoria
Jayshree.harangee@up.ac.za

Tania Prinsloo
Department of Informatics
University of Pretoria
Tania.prinsloo@up.ac.za

Abstract:

When Covid-19 forced universities in 2020 to close the doors from face-to-face education and welcome an online hybrid approach, academics had to adjust all educational practices to ensure quality and proper education continued successfully. An introductory Academic Information Management course that deals mainly with computer literacy and has a cohort of over 9000 students had to find ways to help bridge the digital gap using online digital technology. The issues with internet connectivity, load shedding, and students not having compatible devices were just the start of the problems. Many students could cheat the online systems because assessments were not set for online learning; facilitators were not adequately prepared for this new shift to online education, and many felt stressed and overwhelmed. This study discusses the strategies implemented and the lessons learned after universities' shutdown in 2020 and the new approach in 2021. Digital technology plays a critical role in online education, and the assumption that students are ready to use any technological system for online learning is considered. Learner-centred teaching and learner engagement is one of the goals the module aims to satisfy. Online collaborative learning theories that deal with constructivism, behaviourism, and cognitivism are explored and implemented to improve teaching and learning. The reflections of this study can help academics in a similar environment adjust to online education and adopt the learning strategies that have proved to be successful. Further investigation is needed to explore approaches to engage and innovate large cohorts of students.

Keywords: Covid-19, hybrid approach, computer literacy, learning theories, constructivism, behaviourism, cognitivism

I. INTRODUCTION AND BACKGROUND

Inequality, poverty, lack of jobs, and criminality have contributed to the poor quality of the South African educational system [De Groot & Lemanski, 2021; Francis, Valodia, & Webster, 2020]. Most students who enter higher education are not equipped with the digital and information literacy skills needed to survive in higher education [Aumjoud, 2021]. Some students enter university without using a computer or even a smart device [Prinsloo & Singh, 2021]. When Covid-19 reared its ugly head and forced the educational system to move from a face-to-face environment to a hybrid online model, we as South African facilitators scurried to learn new technologies to run courses online to save the academic year. Students had to return home to rural areas where food and the learning environment were not ideal. Many students struggled in small places with other family members sharing the same space [Francis et al., 2020]. Some

families struggled with access to food and had to depend on the government for Covid-19 relief. Students and educators were thrown in the deep end. Being resilient South Africans, we accepted the challenge and had successful classrooms implemented on learning management systems in a few weeks. How successful were these online classrooms can be debatable? Academic Information Management (AIM) is a compulsory first-year module for students at a leading university with a cohort of over 9000 students per semester and had to adapt to the hybrid online model very quickly. The modules syllabus lends to basic computer concepts and applications in information and computer literacy. AIM helps students to reduce the digital divide in their first year.

II. RESEARCH APPROACH

This paper is based on Gibbs' Reflective Cycle (GRC), as it provided us with a framework for analysing the learning experiences we had during the Covid-19 pandemic. To combat online learning, Graham Gibbs created this cycle in 1988 to offer structure to learning through experiences, allowing us to articulate and discuss the problems we have experienced and how we have tried to conquer each challenge [Adeani, Febriani, & Syafryadin, 2020]. GRC covers six stages, as seen in Figure 1 below:



Figure 1: Stages in GRC [Adeani et al., 2020].

The first step of GRC is a description that answers questions like what, when, who, and why. This stage explained the transition of online learning from 2020 to 2021. The second stage allowed us to evaluate feelings and thoughts from the lockdown period and how it influenced our experience as course facilitators.

The evaluation step examined the positive and negative aspects of the event, allowing us to answer the questions, what was good or unpleasant about our experience? What went well or did not go as planned? What role did the stakeholders play in the situation? The analysis step allowed us to focus on specific issues and figure out why things happened and what helped. The conclusion stage summarises what has been accomplished and what we have learned due to this situation. What could have been a better situation for all individuals involved? What did we need

to learn to deal with the situation? What other choice did we have? Lastly, the action plan outlines what we would do differently in the future.

The course outline was founded on the learning theory mentioned by Muhajirah [2020]; learning is a process that leads to a change in the student's way of thinking, feeling, and doing that is relatively permanent. The theories involved in this type of learning are behaviourism, cognitivism, and constructivism [Muhajirah, 2020].

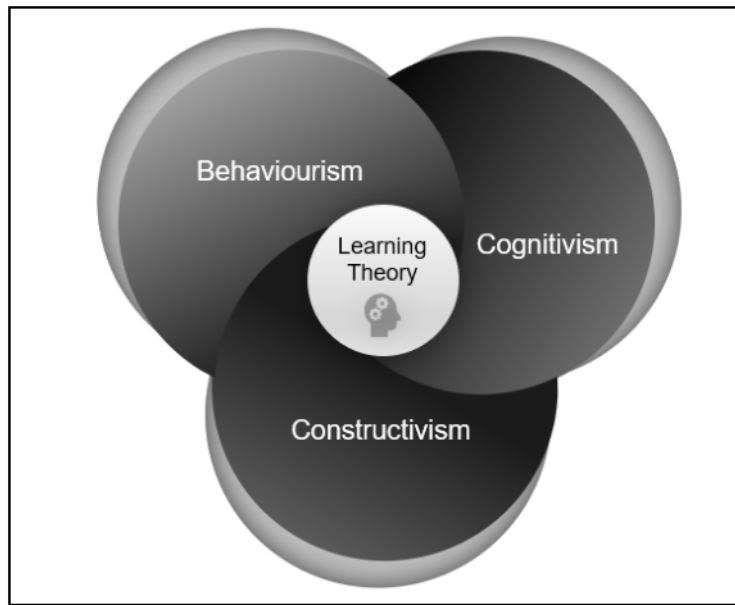


Figure 1: Paradigm Shifts in Designed Instruction: From Behaviorism to Cognitivism to Constructivism [Cooper, 1993].

According to Muhajirah [2020], the behaviourism theory determines behaviour by external stimuli, focusing on what the learner does. This type of learning focuses on basic definitions and explanations of topics and generalization and recollection. Cognitivism focuses on how students arrange new information and how they process it [Muhajirah, 2020]. Higher-order reasoning, information processing, memory and organising are stressed in this type of learning. Constructivism describes a student's approach to learning new material and applying it to real-world circumstances. This type of learning emphasises problem-solving and critical analysis, focusing on real-world scenarios [Muhajirah, 2020].

We improved the AIM course by embracing this paradigm, which allowed us to lead students towards better knowledge and, eventually, greater freedom in the learning process.

III. FROM SINKING IN 2020 TO SWIMMING IN 2021

The movement from a campus-based course to online education was forced upon the education system, a system that was not tested but had to prove successful [Aumjaud, 2021]; we needed to make the course work online as it affected 9000 students. March 2020 created opportunities but introduced limitations that the education sector was not ready to handle.

From chaos to structure

Blackboard Learn is the learning management system (LMS) that we used to allow students to view and download their content for each course they registered for during their degree [Darko & Jagger, 2020]. Many universities used this learning tool or a similar LMS as it was a platform that

allowed instructors to communicate with students. Instructors published their course information to modules, collected students' tests and assignments, graded students' work, and engaged with the students using the integrated communication features [Darko & Jagger, 2020]. Although students' interactions and engagements with Blackboard Learn were a vital process that increased their learning, students needed to understand how to interact with the resources and navigate the platform to improve their usage. As a result, the module in 2020 was designed with the idea of face-to-face interaction in mind. With the shift to the online hybrid approach, students struggled to navigate the LMS, leaving them perplexed and frustrated in their attempts to gain access to the content of the module. This was due to the instructor not being able to lead the student in a face to face environment. Students were left to navigate on their own.

In 2021 to enforce the behaviourism theory for learning, we created a video showing them how to use Blackboard Learn to navigate the module. We also integrated the resources into Blackboard Learn by developing content areas that organised information according to the students' needs to increase their overall involvement.

We created a fancy banner that drew attention to the course and used content links to link the most crucial information to the welcome page. The carefully designed welcome page was the start point the course opened up in, and all vital course content was easily accessible via the welcome page. This navigation method made students feel in control of their learning material.

In this way, we discovered that when the resources on Blackboard Learn are well-designed and managed, students' engagement, learning, and performance all significantly improved.

The interactive update

The AIM content was based on a Navigating Information Literacy (NIL) section that was predominantly theory and a practical component that required Microsoft Office. The textbooks for the course were provided using MiEbooks. MiEbooks is an application that allows students to actively engage with their e-book and content in an unprecedented way [ITSI, 2016]. This e-book system was another educational software product that provided technology support to enforce behaviourism. During the 2020 lockdown, students used the fifth edition of the NIL textbook, which was published in 2017. This textbook was designed as a single source of information containing fact-based knowledge, where students assumed that learning was simply a collection of facts and figures. The textbook had all the answers to the questions, which made students view learning as an accumulation of correct answers.

In 2021 the sixth edition of the e-book was released. The material and design of the book provided a balanced chronological presentation of information. Students had access to various information sources, including websites, videos, and a higher level of questions that encouraged creative thinking and problem-solving. According to cognitivism, learning theory focuses on how information is received, organised, stored, and retrieved by the mind. Therefore, chapters were created based on knowledge and included numerous critical thinking and extending activities for visualisation. The new e-book helped students engage with the content and was not just a reference book. The theory of behaviourism and constructivism also played a role in the development of interactive videos and resources.

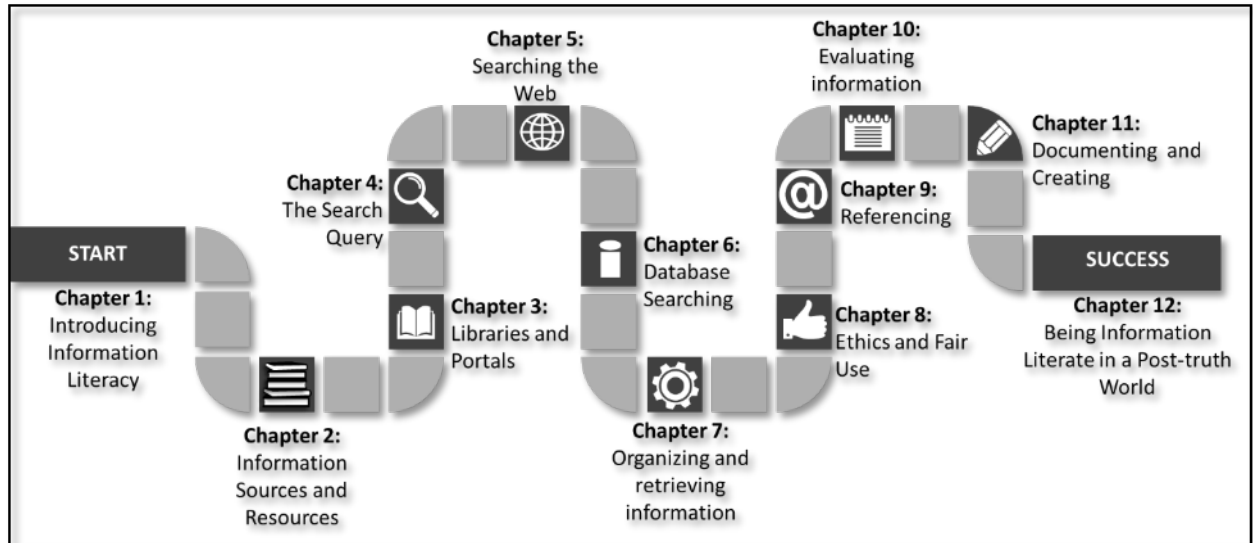


Figure 2: Roadmap showing of the chapters covered in the NIL book [Bothma, 2021].

Movement from the assessment nightmare

The platform used for disseminating the NIL content resides in Blackboard Learn; however, in 2020, the questions used for testing purposes were based on traditional exam questions used in the past. These questions also advanced students toward surface learning, in which they memorised information without understanding them. The database of questions could also be found by searching on the web, and in the textbook, it did not effectively engage students in lifelong learning. Cognitivism was enforced to assist students in exploring and exhibiting rigor in their application of knowledge, and the NIL content questions were modified to higher-order thinking questions. Even though a more extensive database of questions was created, it was designed so that quality was prioritised over quantity. The questions were now scenario-based, encouraging students to think outside the box and go beyond memorising facts. The students could not google answers or copy out of the textbook, and the questions were set such that the students needed to apply their knowledge to objectives.

2020	2021
<p>What does the acronym WIPO mean?</p> <ul style="list-style-type: none"> ✓ World Intellectual Property Organization • Wing Information Protection Office • Write in Poll Option • World Industrial Property Organization • World Intellectual Piracy Organization 	<p>Jay is a small business owner, and he is trying to be innovative and bring fresh ideas to the business market. Jay is trying to find out how he can patent his products according to the laws in South Africa. Who is in charge of the laws and ethics connected with intellectual property in South Africa to enable creative activity to flourish within a protected universal environment?</p> <ul style="list-style-type: none"> ✓ The World Intellectual Property Organisation. • The South African Intellectual Property Organisation. • The Gauteng Intellectual Property Organisation. • The African Intellectual Property Organisation. • The Global Intellectual Property Organisation.

Figure 3: Example of database questions used for the theory questions.

The practical assessment component was conducted and taught using a Skills Assessment Manager (SAM), a Cengage [2021] learning software developed to help students learn how to utilise Microsoft Office products. SAM embeds instructions into a Microsoft simulation, allowing

real-world application-based examples to drive critical thinking and improve applicable skills [Cengage, 2021]. Students can participate in training, which tracks their progress and provide insights into their grade book. As per cognitivism, students could rehearse the information they learn in training and store it for long-term use. On the other hand, in 2020 students did not fully use the training system because it did not contribute to their grade.

These graded practical training tasks could be completed before participating in sample project activities or completing assessments. The sample projects allowed individual learning to construct a meaningful end product based on their knowledge through past experiences. Sample projects with instructions and supporting materials were downloaded and finished using a start file. These sample projects could be completed offline on a computer once they have been downloaded. SAM supplied a score and report as soon as the final result was submitted, detailing the errors and correctness completed for each instruction [Cengage, 2021]. Based on behaviourism, this educational software allowed for positive and negative reinforcement. However, because sample projects were minimal, the same projects had to be offered to all 9000 students, which did not prevent students from copying.

These assessment tools reduce the effort of marking and improve feedback to 9000 students. However, the creation of appropriate test items was a time-consuming task, in particular, to assess content learning outcomes and different knowledge levels. At the end of 2020, all lecturers were required to generate capstone projects designed to include cognitive and constructive learning. Students had to retain their knowledge from the past chapters and training and integrate it into a final project. These were created to expand on the number of projects accessible to have different module projects for assessments. The newly created projects were used for testing purposes. To facilitate integrated, lifelong learning, these capstone projects contained the learning outcomes required for AIM and were designed for Microsoft Word, Excel, and PowerPoint. They were also moderated to ensure that the testing quality and standard were adequate.

The time conundrum

The semester mark involved seven compulsory assignments in 2020; each assignment was open for two weeks, allowing three attempts each, and only the highest mark was taken from the three attempts. Assignments were completed individually on either Blackboard Learn or the 3rd party SAM system; depending on the nature of the assessment, students could complete the assignments before or on the last day of the due date. The module included two-semester tests, which contributed 30% each towards the semester mark. Semester test one was composed of two sections, namely *section A*, which contained the theory aspect. *Section B* was performed on the SAM platform. Semester test two consisted of all the practical elements. In this test, students were provided with real-world projects from the SAM program.

The semester test was opened for two days and allowed all students to take the test without facing any technical, connection, or power-related issues. Any student absent from tests or performed poorly had access to a makeup test, to improve their marks.

In 2020 the continuous assessments were associated with deadlines. This showed that students' engagement only peaked a few times through the year, usually the days before the assessment deadline. Students did not know about the makeup semester test from the beginning of the year. Due to the large number of students adapting to the online environment, many failed the first-semester test and; therefore, we created two makeup semester tests and were carried out on different days during the semester. The creation of tests was very time-consuming and stressful for students as they were overwhelmed with work.

In 2021 we allowed access to all course content, including the 11 compulsory assignments. Three attempts were available at the beginning of the semester and closed at the end of the semester. Training that was optional in 2020 now contributed towards the students' marks. This allowed students to gain prior knowledge of the content, and it organised students thinking about what they were going to learn and experience in the course. Access to the entire course content permitted students to identify their strengths and weakness for the content. Behaviourism was enforced as if students missed the assignment deadline; no extensions were given because the

assessments were opened for long periods. This approach allowed the student to pace themselves throughout the semester. Regular announcements were sent to students to remind them to complete assessments timeously. The learning theory was applied to the assessments looking at students' learning process and the technology needed during the pandemic.

The cheating scandal

All questions set for the semester tests in 2021 were scenario-based; none of the questions used in the database was searchable on the internet. The large number of questions allowed for randomisation of the questions as this ensured that each student received a unique set of questions for the test. This randomisation reduced the chances of repeating the same question between groups of friends that reduced cheating. For the practical section, the projects within SAM contained an auto-grading feature that inspects for integrity violations; even though the module had approximately 9000 students, no student could upload a file that belonged to someone else. This was possible as the SAM program can detect files containing content copied and pasted from another student's start file and if the file contains information from another assignment or site. This validation process also lends to the behaviourism theory, where negative reinforcement is portrayed when students try to be dishonest.

From mountains to molehills

Our loudspeaker

Sending regular announcements or email reminders was rated as an essential engagement strategy by Martin and Bolliger [2018]. During lockdown in 2020, we sent out announcements regularly to remind students of due assessments and forthcoming semester tests. To our disadvantage, the students found this to be too overwhelming, as one of the Blackboard Learn features included the ability to send an email to the students. We used this feature as we thought it would help the students. However, they complained about email fatigue or receiving too many emails from several modules and not having enough time to read them all. In addition, we found that there was a lack of student participation in the emails as some students adjusted well to electronic communication while others struggled. Students who did not adapt generally did not participate, and since emails are private, there was nothing to promote or ensure student engagement. The overuse of these features went against the learning theory as this was not a student-centred approach.

Our diary of thoughts

One of the features of Blackboard Learn is discussion boards. Students could contact their lecturers via email for any questions they had in 2020, only a single thread called General queries was created. Students did not use the platform; instead, they emailed their instructors. During semester tests, the Lecturers' inboxes were flooded with emails from students with questions; students emailed about the trivial errors; they also waited until the last minute to submit, but their connection lagged due to an overload of submissions to the test servers, and the deadline passed.

Throughout the semester of 2021, the Discussion board was used more effectively to answer all student questions. A discussion board was created with numerous threads on all of the issues that students frequently faced. Assistant lecturers were assigned to specific sessions daily to maintain the discussion board updated. We saw that when semester assessments were due, students used the Discussion board to query rather than emailing their lecturer, which lowered tension and anxiety for both the lecturer and the students. We created a semester test discussion board that was open for the whole day during the semester tests. As a result, many students could submit their work on time because their questions were answered regularly and on time. To ensure that we provided consistent, correct, and valid responses to all students, we created a frequently asked questions booklet for the lecturers, which contained solutions to students' difficulties throughout the semester test. This document was updated regularly throughout the

semester. The discussion board proved more successful as it aligned with constructivism, where students used other students' posts to enhance their learning.

Thread action	Date	Thread	Status	Unread posts	Unread replies	Total posts
<input type="checkbox"/>	05/05/2021	Navigating Information Literacy	Published	0	0	41
<input type="checkbox"/>	05/05/2021	The site can't be reached	Published	0	0	46
<input type="checkbox"/>	05/05/2021	Cannot download all support files	Published	0	0	46
<input type="checkbox"/>	05/05/2021	Technical Issues	Published	0	0	260
<input type="checkbox"/>	05/05/2021	General Queries	Published	0	0	468
<input type="checkbox"/>	05/05/2021	Resubmit error	Published	0	0	157
<input type="checkbox"/>	05/05/2021	Mark not reflecting/ Marks reflect 0%	Published	0	0	410
<input type="checkbox"/>	05/05/2021	Cannot submit due to file name	Published	0	0	104

Figure 4: Discussion board made for semester test 1 in 2021.

Our window to students sitting behind the Covid-19 screen

Blackboard Collaborate was the platform we used to hold contact sessions with the students. These sessions were a Blackboard Learn feature that allowed for browser-based web conferencing without installing any software and provided quick access to all students and facilitators. We were able to focus on student engagement rather than technology management because the capabilities of Blackboard Collaborate were intuitive. Because students could access the platform from their phone, laptop, or tablet, they could stay involved no matter where they were. This access allowed students to participate in class or study groups remotely. We could record the session and give students access to it through the internet, allowing them to pause, rewind, or fast-forward through the lectures.

Since online learning was new to us, Blackboard Collaborate sessions were made available from Monday to Friday in 2020. The platform was difficult to navigate for the students. Students did not have devices to attend classes, and they needed significant data fees, so attendance was limited. It took a long time for the zero-rated UP connect page to load for students to get started. Some of the sessions did not fit into the students' timetables as they overlapped with their other modules. Assistant lecturers were also new to the online learning platform, providing a content-based class with zero student engagement. In 2021, we created sessions from Monday to Saturday, from 07:00 until 17:30 daily. Students could attend any session that suited their schedule. Training sessions scheduled for learning content included technology that enhanced the cognitivism theory for all lecturers in 2021.

Our journey to better scheduling

Weekly schedules were provided so students could know what was required of them beforehand. However, when lockdown began in 2020, the schedules continued to change due to government and universities policies for Covid-19. These schedule updates caused due dates to change and left the students confused about what to follow. Schedule changes contributed to extending assignment deadlines. Students, therefore, did not consider the latest schedules and did not take responsibility for their learning as too many changes occurred over a short period.

AIM 111 Weekly and Assessments Schedule 1st Semester 2020	
AMENDED SCHEDULE	
All work will be done online: - via videos, PowerPoint presentations, Blackboard Learn, etc. Mark Weighting will also change	
4th – 8th May 2020	
Content Covered	Weekly Assessment
<i>Navigating Information Literacy:</i> Chapter 9: Referencing <i>Navigating Office 2019:</i> Getting started with Excel	Assignment 4 & 5 will be due on the 8 th May 2020 (<i>These assignments opened early in March and before the vacation / lockdown period.</i>) Assignment 6: Microsoft Excel (SAM) Due date: 29th May @ 14h00 (No late submissions will be accepted) Contributes to Final Mark

Figure 5: Weekly schedule for 2020.

In the current times, the schedules were set beforehand. They were well prepared, and all assignments opened at the beginning of the semester; this was due to the course management deciding to remain online for the entire semester and relating to the concept of behaviourism. Students had full access to all the content, and they could prepare in advance and work at their own pace. Semester test dates were given in advance so students could prepare accordingly. The schedule was also updated compared to 2020 to include what students needed to complete per week.

AIM 111 Weekly and Assessments Schedule 1st Semester 2021	
Please note AIM 111 is a continuous assessment module and all compulsory assignments contribute to your final mark. These compulsory assignments are open and have different closing dates. All tests also contribute to your final mark. This module does not have a final exam or supplementary exam. Consistent hard work and attendance is required from day 1.	
17th – 21st May 2021 (WEEK 8)	
Content Covered	Weekly Assessment
<i>Navigating Information Literacy:</i> Chapter 8: Ethics and Fair Use <i>Navigating Office 2019:</i> Excel Module 1: Getting started with Excel TO DO THIS WEEK: <ul style="list-style-type: none"> • Read Chapter 1 and watch Chapter 1 video • Complete training for Excel Module 1 • Complete Excel exercise for extra practice 	Assignment 8: Ethics and Fair Use Due date: 28th May 2021 @14:00 (No late submissions will be accepted) Contributes to Final Mark

Figure 6: Weekly schedule for 2021.

The scurry for devices

Many students did not have devices at the beginning of the lockdown period, and the university had to make provision for a time-consuming delivery period for such students [Prinsloo & Singh, 2021]. These left students feeling frustrated and depressed as learning had to continue, and by the time the devices arrived, they had missed some deadlines or just had too much work to catch up and complete. During the middle of the semester, all registered students could apply to loan a device from the university and approximately 2 000 loan laptops were supplied to all those who qualified [Prinsloo & Singh, 2021]. As a result, students had to begin working to the best of their ability to catch up on their workload and meet deadlines.

With the forward movement to online learning at the beginning of the year, students were aware of what devices were required for the module. Residence opened for all disadvantaged students to stay and use the facilities towards studying. Permits were provided to students to make use of the computer labs, and also loan laptops were provided in advance for students to complete their work. The schedules were developed where all assessment deadlines and semester test dates were provided in advance so students without devices could make alternative arrangements to achieve their required deadlines.

The horror of connectivity and load shedding

Many impoverished students were caught in a catch-22 situation where they were required to finish their studies to save the academic year, but they also had to contend with inadequate resources and unsupportive social environments [Mgutshini, Oparinde, & Govender, 2021]. Unfortunately, during the Covid-19 lockdown in 2020, this was beyond our control. Students from rural areas were permitted access to the labs and to stay in residence for the academic year in 2021.

Another big issue that we continue to confront is load-shedding; a shortage of electricity causes poor to no connectivity, making it difficult for both assistant lecturers and students to participate in online learning. We could only address this by making all assessments available at the start of the semester, allowing students to complete their mandatory assignments before the deadline. This arrangement was also made to enforce behaviourism, in which students were held accountable for their time management. In addition, more than one assistant lecturer from different locations was placed in a Blackboard Collaborate session to ensure that online classes ran as scheduled. Students who missed the lecture due to load shedding could access the lecture recordings or attend another planned session for the week.

From kilobytes to gigabytes

According to Mhlanga and Moloi [2020], the South African government partnered with private network providers to offer zero-rated applications and educational websites due to COVID-19. These applications and websites were provided by many network operators, including Vodacom, Cell C, and MTN. In April 2020, the university officially launched the connect portal for students and staff to access their digital content and online assessment without incurring any data charges [University of Pretoria, 2021]. The platform aimed to increase access to digital content and enhance opportunities for continuous assessment activities to support curriculum delivery in the AIM module. However, the platform could only be used for the university's web page, Blackboard Learn, and library services. The connect portal was also dependent on the quality of our internet connection, making it difficult for some students to access this platform due to a lack of devices and internet connection. Due to the limitations of the connect portal, the university provided 20GB (10GB any time + 10GB night-time) of data per student to be used for tests and examinations. This data also allowed students to access other platforms that required data costs; however, students were responsible for managing their data for the semester as part of the behaviourism theory.

The joy of video creation

From the beginning of 2021, creating online content was a critical step. Voice-over PowerPoint videos were made to go over the content and interact with the activities given [Prinsloo & Singh, 2021]. As a result, the work was divided among the assistant lecturers, who generated appropriate content for each student [Prinsloo & Singh, 2021]. The videos, however, were not consistent between the chapters; the videos were too long and not very engaging. Assistant lecturers were not equipped with the correct tools for video creation; therefore, audio quality was poor. Looking at the learning theory of behaviourism, cognitivism, and constructivism, improvements in 2021 videos were made to allow self-guided learning related to the constructivism theory. A standardised template was created and approved for all the assistant lecturers to follow. This change relates to the idea of cognitivism, where the video represented a visual tool to enhance learning. Interactive exercises were included in the video creation for student engagement. The voice-overs were conducted by one person, who had all the required equipment like noise-cancelling headsets and a professional mic. All video scripts went through a series of moderation to ensure the language, grammar, and content were of a good standard. Many students used the newly created videos during semester test periods for revision [Prinsloo & Singh, 2021].

Table 1: Summary of our adventure.

Headlines	2020	2021	Improvements for the future
From chaos to structure	Blackboard Collaborate was designed with face-face interaction in mind and students were shown during lectures how to navigate the system.	Organisation of online content was well taught out, interaction via video.	Take into consideration students with learning disabilities in structuring the module e.g. visually impaired, colour blind.
The interactive update	Traditional textbook with no student engagement.	E-book with enhanced features for student engagement e.g. videos, flashcards, online resources.	Track student engagement with the e-book.
Movement from the assessment nightmare	Questions were set in a traditional way for proctored.	Questions were changed to scenario based which were not Googleable.	Create scenarios that are based on current South African related content.
The time conundrum	Rigid assessment schedule.	Flexible assessment schedule.	Enhance learning by the use of the adaptive release tool in clickUP.
The cheating scandal	No randomisation.	Enhanced integrity/violation checking. Randomisation of NIL questions.	Randomisation of practical questions.
Our loudspeaker	Overwhelming message content	Reduced email fatigue.	Find the balance using a student-centred approach for communication.

Headlines	2020	2021	Improvements for the future
Our diary of thoughts	Unorganised Discussion board.	Organised Discussion board with relevant threads.	Encourage student engagement.
Our window to students sitting behind the Covid-19 screen	Stringent online lecture schedule.	Flexible online lecture schedule with Saturday classes and enhanced student engagement.	Introduce pre and post class activities.
Our journey to better scheduling	Continuous changing of content timelines due to government and universities regulations due to Covid-19.	Set content schedule with all due dates for improved time management.	
The scurry for devices The horror of connectivity and load shedding	Loan devices from the universities allocated to students who met certain conditions.	Access to labs at residence, access to the university labs for students with permits. Increased timeframes to cater to students that experience connectivity and load shedding issues.	Access to labs with generators and a stable internet connection at the university.
From kilobytes to gigabytes	Connect portal was created that allowed zero-rated applications.	Connect portal was enhanced, third party tools were also zero-rated, the university provided data to students.	
The joy of video creation	Created videos with no guidelines and time limits. No moderation so videos were accessible to the students immediately.	Set guidelines, recommended video time limits were followed. Videos and video scripts were moderated.	Create videos with assessments using online tools.

THE BEGINNING OF THE END

COVID-19's shutdown has caused significant disruptions to 2020's academic activities. In this article, GRC was utilised to provide an overview of the learning experience that the AIM course, facilitators, and students had in 2020. We discovered that incorporating the learning theory within the module transformed the online environment into a more resourceful and successful learning environment. Future research should investigate how South Africa can achieve long-term sustainability in higher education if the COVID-19 regulations are the way of the future for online learning and what metrics we can use to ensure tertiary education quality remains high.

LIST OF REFERENCES

- Adeani, I., R. Febriani and S. Syafradin. (2020). Using GIBBS' reflective cycle in making reflections of literary analysis. *Indonesian EFL Journal*, 6, 139-148. doi:10.25134/iefj.v6i2.3382
- Aumjaud, B. (2021). Critical Reflection on Teaching and Assessment Practices in a Higher Education Setting in Mauritius during the Covid-19 Lockdown. *Editors: Dr UG Singh (University of KwaZulu-Natal, South Africa) Prof CS Nair (Victorian Institute of Technology, Australia) e-ISBN: 978-1-990901-49-2 (2020): 160.*
- Bothma, T. C, I. Fourie, I and C. Penzhorn. (2021). *Navigating information literacy : In a Digital World*. Cape Town, [South Africa]: Pearson South Africa.
- Cengage. (2021). Office-Savvy Through Simulation, <https://www.cengage.com/sam/#overview> (current Sep.13, 2021).
- Cooper, P. A. (1993). Paradigm Shifts in Designed Instruction: From Behaviorism to Cognitivism to Constructivism. *Educational Technology*, 33(5), 12-19, <http://www.jstor.org/stable/44428049>.
- Darko, C. and D. Jagger. (2020). *How Can We Manage the Blackboard Learning Management System to Enhance Student's Learning?* Paper presented at the Proceedings of the 2020 4th International Conference on Deep Learning Technologies (ICDLT), Beijing, China, <https://doi.org/10.1145/3417188.3417205>.
- De Groot, J. and C. Lemanski. (2021). COVID-19 responses: infrastructure inequality and privileged capacity to transform everyday life in South Africa. *Environment and Urbanisation*, 33(1), 255-272, doi:10.1177/0956247820970094.
- Francis, D., I. Valodia and E. Webster. (2020). Politics, Policy, and Inequality in South Africa Under COVID-19. *Agrarian South: Journal of Political Economy: A triannual Journal of Agrarian South Network and CARES*, 9(3), 342-355, doi:10.1177/2277976020970036.
- ITSI. (2016). *Miebooks Manual*, <https://www.curro.co.za/media/6927/miebooks-manual-2016.pdf> (current Sept. 5, 2021).
- Martin, F. and D. Bolliger. (2018). *Engagement Matters: Student Perceptions on the Importance of Engagement Strategies in the Online Learning Environment*.
- Mgutshini, T., K Oparinde and V. Govender. (2021). *Covid-19: Interdisciplinary Explorations of Impacts on Higher Education*: African Sun Media.
- Mhlanga, D. and T. Moloji. (2020). COVID-19 and the Digital Transformation of Education: What Are We Learning on 4IR in South Africa? *Education Sciences*, 10(7), 180, <https://www.mdpi.com/2227-7102/10/7/180>.
- Muhajirah, M. (2020). Basic of Learning Theory: (Behaviorism, Cognitivism, Constructivism, and Humanism). *International Journal of Asian Education*, 1, 37-42. doi:10.46966/ijae.v1i1.23.
- University of Pretoria. (2021). Message regarding zero-rated data, <https://www.up.ac.za/coronavirus-updates/article/2889779/message-regarding-zero-rated-data> (current Sept. 12, 2021)
- Prinsloo, T. and P. Singh. (2021). COVID-19: Leapfrogging 8,000 Students from Face-to-Face to Online Learning in Three Weeks. *Communications of the Association for Information Systems*, 48, 71-79. doi:10.17705/1CAIS.04810.

ABOUT THE AUTHORS

Pariksha Singh has been in higher education for over two decades, where student-centred education is her goal. As a manager of Student Relations, her key focus is based on improving teaching, learning and assessments for courses with huge numbers. Pariksha is currently involved with information and digital literacy for first-year university students, and her primary area of research is to personalise learning for academic information management. Dealing with cohorts of over 9000 students, technology has become one of the leading resources used for teaching, learning and assessment. Her focus is to use technology effectively and efficiently to improve the lives of all students. Pariksha works with a wide range of stakeholders in bridging the gap using Academic Information Management between school and first-year university students.

Jayshree Harangee is a postgraduate student at the University of Pretoria, completing her Master's degree in Anatomy. Research and lecturing have always been the highlight of her student years. She is a skilled assistant lecturer with a demonstrated history of working in the higher education industry. Her educational goals include obtaining a Ph.D. to pursue a career as an academic.

Tania Prinsloo is a senior lecturer in the Informatics Department of the University of Pretoria. Her research focus is mainly ICT4D and ICT for Education. She has published five journal articles and was nominated for the Research Director position for SIGED, where she now serves. Her love for teaching and the severe impact that COVID-19 had on poor and marginalized students have been the focus of her latest research. She hoped to be back in the class room again full-time from 2022.