Emergency Remote Teaching a New Curriculum during a Pandemic

Sweta Patnaik, Cape Peninsula University of Technology, South Africa

The IAFOR International Conference on Education – Hawaii 2021
Official Conference Proceedings

Abstract
The COVID-19 outbreaks worldwide, led the academic institutions to entirely cancel face-to-face teaching including laboratories and other learning experiences as a step against the risk posed by the virus. Alternatively, various measures were initiated by the higher education providers to implement social isolation and online or remote teaching was adopted with rapid curriculum transformation. The online delivery is more convenient, as it can provide a vibrant and dynamic teaching and learning environment. However, due to limited time constraint, the curriculum transformation was anticipated to occur rapidly without sufficient preparation. Therefore, in this paper, the concept of the emergency remote teaching (ERT) including its application and evaluation is thoroughly discussed. The application of the ERT at an University of Technology in South Africa has been considered. This study draws on the CIPP evaluation model to assess the effectiveness of the adopted model, and qualitative data were collected online taking samples of students from a particular curriculum which was a new qualification that started this year. Besides, questionnaire responses via google forms, experiences, beliefs, and challenges encountered by the educator and students on the emergency remote teaching were used and analysed. In addition, students' attendance and module nature were considered to evaluate the students' participation in the online classes. The collected information was analysed, and based on the outcomes, recommendations were given to serve as an input for future strategies and to improve the performance of teaching learning activities during similar circumstances.

Keywords: Curriculum, Clothing and Textile, Educational Institution, Advanced Diploma, Remote teaching, Pandemic, COVID19, Blackboard, ERT

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Introduction

After the outbreak of COVID 19 in December 2019, the World Health Organisation declared COVID 19 as a global pandemic around March 2020 (WHO, 2020). To abate and ward off its outspread, countries around the world adopted strict protocols like lockdowns and social distancing and others choose herd immunity. This gave rise to options like work from home (WFH), flexi-working hours or some organisations deciding to close instead of spreading the infections. These conventions were adopted by educational institutions as well where it forced them to function remotely and to encourage the implementation of emergency remote teaching. Reports suggest around 1.5 billion learners of all ages globally were affected due to the closure of educational institutions like schools and universities owing to COVID 19 (UNESCO, 2020a; UNICEF, 2020). With the pace of spread of the COVID 19 virus, universities had to decide to move all courses online. This provided very little time for teaching staff to collect their materials from the campus and at the same time the students had to return home before local restrictions apply and before residences close. There was great anxiety and uncertainty when ERT carried on fully online both in the minds of students and educators. This pandemic has pushed many educational institutions globally to transform their lecture room based courses into online mode in an astounding moment of time.

In response to this global crisis, emergency remote teaching (ERT) was put in place. This mode of teaching is not only about uploading pedagogic content, instead it's a mode of learning that imparts learners agency, responsibility, pliability and possible options. It rather is a fusion that needs prudent planning and crafting to create a healthy and efficient learning environment. This emergency remote teaching was considered an interim solution to an instant problem (Golden, 2020). Academics and course coordinators were in a dire need of an emergency curriculum which would help them make informed decisions and formulate course content and assessments in times of crisis.

Against this backdrop, the study presented here was to understand the impact of an emergency remote teaching of a new curriculum and making sure that the course was effective and attainable especially when it's a new qualification without stressing the students and academics in any manner. The study provides a perception into the students experience in their first remotely taught online course and their viewpoint towards content, design of the course, mode of delivery and assessment. Precisely, the study investigates two research questions: (1) What are the major impacts of students towards our curriculum design and implementation? (2) What can be concluded from students' feedback to transform and modify our future curriculum?

Literature

The global crisis has deranged the centuries-old educational institutions curricula through various facets. This global emergency led to governments to place various protocols and preventive measures in order to curb the spread of the virus. This led to closure of educational institutions like schools and higher education institutions. The cessation began a sudden disturbance of the academic calendar both for students and academics. Ultimately, it gave rise to remote teaching, learning and assessments to ensure continuity for students (Evans et. al, 2020). Even though such interventions

using online platforms are not new, yet it requires time, effort, collaboration and planning in order to bring about an effective and efficient pedagogical approach (Longhurst et. al, 2020). This doesn't only involve preparing content apart from the fact that academics new to learn or refresh online teaching technological skills, tips and tricks. Most academics had to jump into this bandwagon overnight due to this pandemic and didn't really have a choice but to transform from a well-crafted years of face-to-face practice to moving teaching and learning online. The move to remote mode of teaching is presumably having a lesser effect on students' adjustment and transformation when it comes to using remote teaching platforms. This is because of the fact that most students belong to the "millennial cohort" with extraordinary online and social media skills, that warrant them to undertake a smoother metamorphosis to the world of remote teaching than their educators (Barry et. al., 2016; Pickering and Swinnerton, 2019).

As the spread of the virus evolved around the world, the majority of academic institutions responded diversely. This meant the curriculums were converted to an online platform by the educators, with the use of digital tools and learning management systems. The key focus is not just on online pedagogy but also on converting the curriculum to an online space. This conversion procedure is a real test for institutional dexterity (Wu, 2020). However, the significant challenges unfolded with alternate modes of delivery, especially those associated with expeditious digitalisation of curriculum. The eternal question here is: is the higher education sector well prepared for the upcoming digital era (Houlden and Veletsianos, 2020)?

Research Design

This research paper aims to focus on the adopted ERT model used at a clothing and textile technology department in a University of Technology in South Africa following the shutdown of physical classes due to the pandemic outbreak. The paper included students who enrolled for a new qualification that was run for the very first time, in the department which was equivalent to a B.Tech qualification. This qualification as nationally known is "Advanced Diploma", which is a new qualification to be adopted nationally by all other higher education institutions, as was approved by the Dept of Higher Education. The one on which the research has been carried out is named as "Advanced Diploma in Clothing and Textile Technology". The subject and content taught within the qualification is first of its kind taught within the department, where the focus was on current and future knowledge, trends and practices. The embraced model for ERT was assessed by using the CIPP evaluation model in terms of context, input, process and product output. Qualitative data were gathered via google forms with focus on questions around mode of teaching, curriculum design and implementation. The questions also emphasized on students' feedback to improve, revise and reform the curriculum.

Methodology

Analysis of Emergency Remote Teaching (ERT)

A qualitative estimation and gauging in an engineering faculty within a department of clothing and textile technology at an University of Technology is particularly considered to assess the quality of remote teaching. The research was conducted by

means of analysis of data for remote teaching for almost close to a year based on students experience. Synchronous mode of learning was considered as the students registered for the qualification were in-service or working individuals. Synchronous learning is a well-constructed learning approach, where the courses are time lined on remote platforms which were executed through institutional learner management system i.e. Blackboard. Fairly similar to asynchronous mode was email, where students could contact the lecturer directly for any queries on a one-on-one basis. There were around 15 students who registered for the qualification, however two of them dropped out due to difficulties that arose around COVID 19. All the other students actively participated in the scheduled live sessions via Blackboard and their involvement was more over emails. So synchronous mode worked for them in an effective manner.

The analysis conducted in this paper was designed based on the fact that:- all students who form part of the research had proper devices mainly laptops, they were available at the time of crisis, had almost no or minimal technical issues and that they were sound and healthy. The students name and personal information was kept anonymous at all times. The students didn't have to fill up their name and email address while filling up the google forms. Furthermore, the survey was collected as part of ERT and that the data was collected in the course of the year, through a range of surveys in the form of beginning, mid-year and year-end feedback surveys. The various aspects of the CIPP model is explained in the form of students' responses.

Context Evaluation (C)

According to Stufflebeam and Coryn (2014), context evaluation is defined as assessment of needs, problems, opportunities and problems which can be addressed in a particular environment. For the present paper, the context was gauged using student data from the feedback collected.

As can be seen in Figure 1, most of the students were in agreement that the lecturer/s stimulated interest in the new course. The course provided students access to materials via Blackboard and live sessions through Blackboard collaborate, where students were able to access the session recordings again and again to synthesize their knowledge. Transition from traditional face-to-face to remote teaching and learning bridges the gap between typical and recent advanced technologies, which proves beneficial for both students and educators.

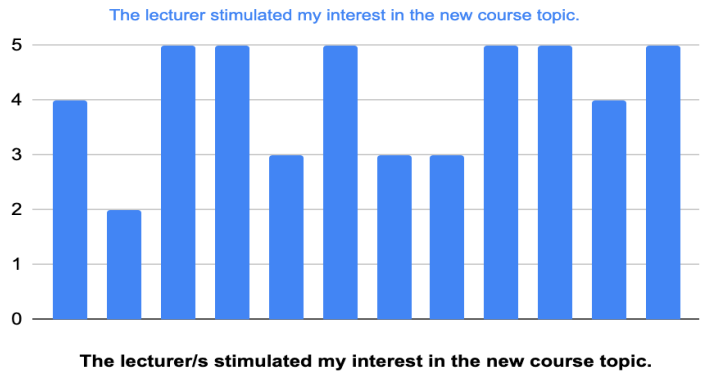

Figure 1: Stimulation of Interest in the Topic

The next question that was asked, if the students were explained of their expectations from the course as shown in Figure 2. To this, close to 90% of the class agreed that their expectations were met. As one of the main focal points was around curriculum redesign, the currently prepared curriculum to suit remote teaching was meeting and addressing student needs. There were very few of the students who either disagreed or were unsure, that might be due to various reasons like for instance students living in remote locations, difficulties in accessing online sessions and data and connectivity issues.

Figure 2: Course Expectations as a Student

Figure 3 highlights the questions that were asked to students via the use of Likert scale, i.e. if the lecturer/s were responsive to them. The responses received were all quite positive, which proves that the students were happy with the engagement and interaction amongst students and educators. This may be attributed due to the availability of online platforms which allowed both student and lecturer to reach out and gain feedback quickly with focus on individual attention. Therefore it shows that the adopted ERT was satisfactory.

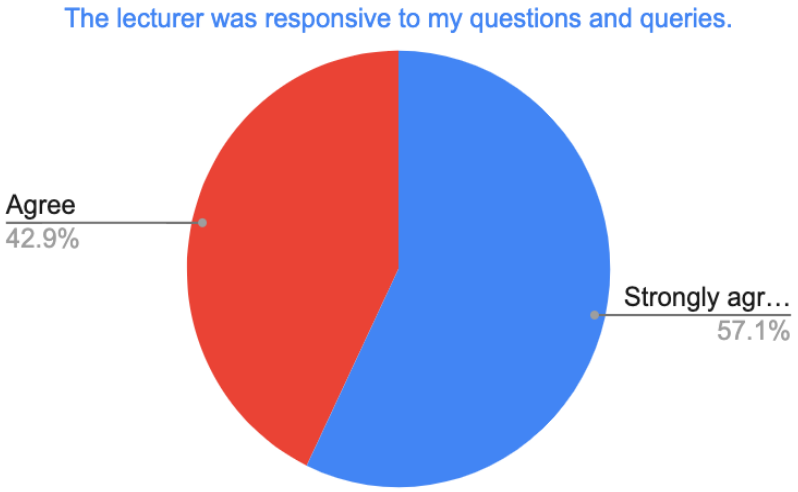

Figure 3: Lecturer's Responsiveness

Input evaluation

Input evaluation was meant to impart information with regard to the sources that can be used to execute ERT during COVID19. These requirements were put under three main sections namely:
Hardware requirements (Laptop/ computer/ tablet/ cell phone and internet availability)
Software (web-based tools in this case Blackboard)

Learning materials and resources (online mobile content, library access and access to similar research platforms)

Aimed at assessing the effectiveness of ERT, students' feedback were gathered in terms of the adopted LMS, Blackboard, which was not only used for content uploading but also for live sessions, assessments and feedback. In the two figures below (Figure 1 & Figure 2), students ensured that they were having access to content in various forms e.g. powerpoint presentation, terms and definitions, case studies, audio and video clips, similar resource materials etc. And also agreed on the usage and utility of blackboard and how it contributed towards participating in discussion forums. In general, the majority of students found this helpful and helped them in synchronous learning.

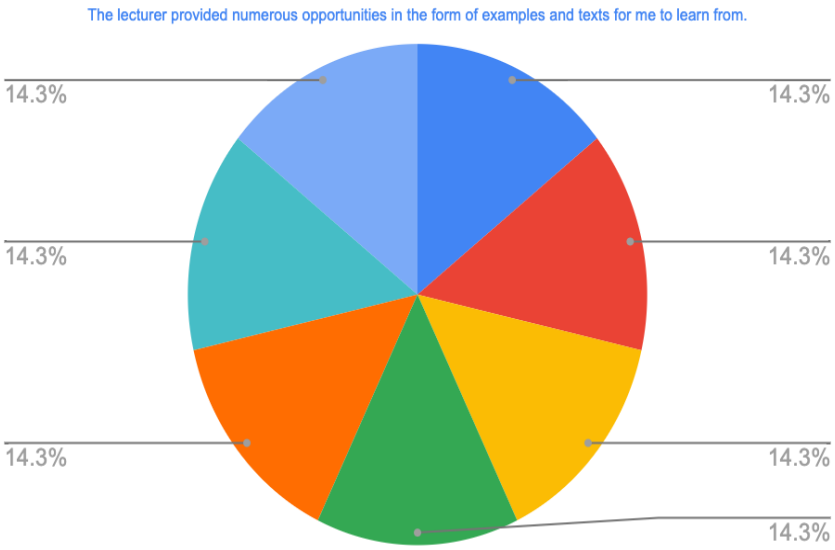

Figure 4: Availability of content in various forms

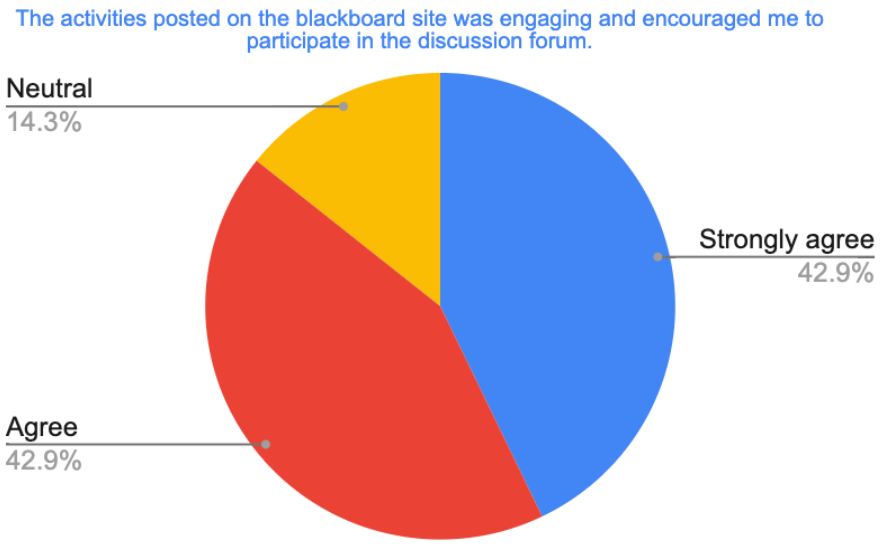

Figure 5: Usage of blackboard as an LMS

Process Evaluation

Process evaluation is about needing a methodical perspective to attain good quality teaching and learning. This is normally obtained by evaluation of modules, projects and assessments. In the present paper, assessments were carried out through blackboard, a web-based LMS, where a particular assignment with a set deadline is provided before time. On uploading or completing their task via the LMS, an email confirmation is sent to both parties which also acts as evidence. Submission is received at the lecturer's end and is marked and finally the student gets his/her feedback.

Students in general appreciated this mode of assessment submission and module availability. However, there were positive responses when it came to laboratory activities, as they were face-to-face and involved hands-on-experience. Overall, students indicated their satisfaction in the course. Figure 6 and Figure 7 highlight this.

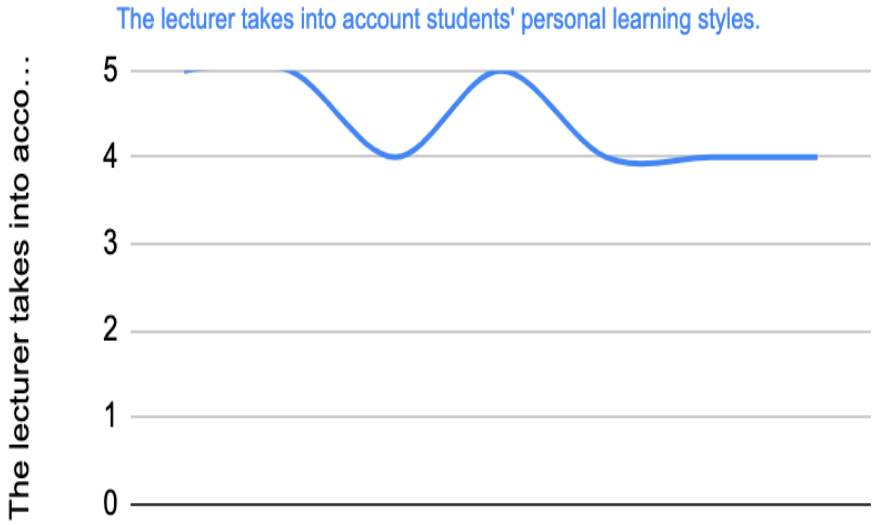

Figure 6: Focus on Personal Learning Style

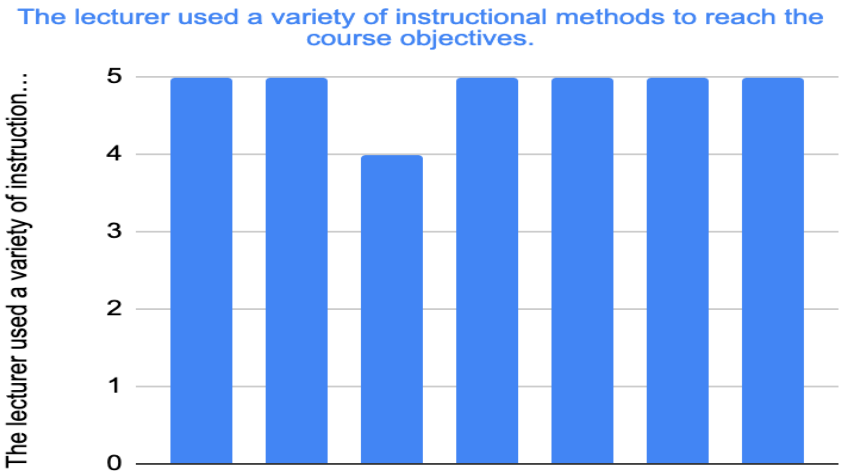

Figure 7: Use of Instructional Methods

Product Evaluation

Product evaluation estimates the after-effect of an adopted technology or procedure which will help in minimizing errors and mistakes for the next time besides fulfilling and addressing the needs as per the feedback provided. Cornock (2020) mentioned that product evaluation for ERT is not important. That's because this was done at a staggering speed in a very short timeframe. Hence the ERT evaluation should focus on context, input, and process and not product (Hodges et al, 2020).

In the figures below i.e. Figure 8,9 and 10, students have shared their feedback and experiences while completing the qualification. It emphasizes on all the aspects of the CIPP model. It reflects their understanding and knowledge gained through the course. However, the converse students brought up certain facts which they felt affected their performance and focus towards the course like working and studying was not always easy, needed more focus on practical's, and seamless communication to make the process smoother.

What was your experience of getting to know the new courses like product development, smart and sustainable textile, supply chain, etc?
Interesting, to learn about new products and more about each subject that I was not aware of
The only subject I enjoyed was supply chain. Everything else was ok. I think there's room to have learnt more in other areas. Research me
It was an eye opening and it showed me the importance of the innovation that goes into clothing
Fun and educational because I've gained new knowledge about the industry.
It was an interesting experience to learn about new things and better understand things that I've learned before.
It was good, but time was an issue. Work is so hectic
It was new and interesting
The course provided insight to sustainability on a greater scale.
Learning the whole process of supply chain from logistics to inbound and outbound transportation.
Very interesting I wish I was introduced in the early stages of my career.
Should the pendamic have been non existence maybe the process would have been smoother.
Interesting as some things were relatively new.

Figure 8: Experience of the New Course

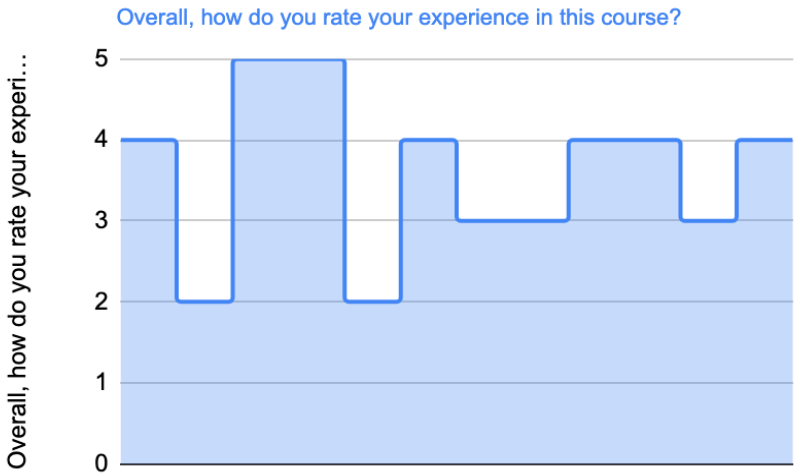

Figure 9: Rating of the New Course/ Qualification

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What are your suggestions for improving the course? What did you feel could be done better?
Better communication between lecturers and students, clear instructions on work given
Firstly, a student guide is essential in my opinion or atleast some sort of communication as to what we'd be ta
I thnk we need to do a lot of practical in each subject I. E we need to make it practical
Learner's should receive a schedule/ time table to plan their time.
Lecturers should communicate more effectively with each other and students to avoid any confusion. At many
Give the learners a layout of the term so that they know what to expect. There need to be Clearer communica
Lecturers must communicate with students always and also communicate between themselves to make it eas
Better flow of communication between lectures and students. The course work must be more structured.
Everything was fine for me.
The communication between lectures to integrate modules more effectively and efficiently.
Communication at all levels,to avoid pressure and adequately combined decision making from the lectures.
Students understanding on course content

Figure 10: Course Feedback for Future Improvement

Product evaluation focuses on understanding the effect of ERT on student's engagement and if the pre-desired objectives of ERT were met. The end result of this survey showcased that the majority of students respected and valued the fact that the ERT model was carried on instead of suspending the course and the teaching and learning process during COVID 19. Although some felt that if they could have had the lecture physically then it would have been a different experience, being a new qualification, the adopted ERT successfully solved the purpose for the year 2020. Along with the distraction that COVID 19 caused to the educational institutions, there are a few winners that have emerged during this crisis. Firstly, ERT grants ample opportunity to students to become self-learners and critical thinkers. Secondly, it compels both students and educators to be at par with technology and it's usage. Lastly, it encourages the educators to upgrade their teaching and learning skills through adopting various teaching and learning courses, web tools, social media platforms, etc which will have an enormous influence on students' skills and attitudes.

Challenges – ERT Implementation

With the onset of ERT due to the pandemic in the educational institutions came with certain challenges. It impacted both students and educators in various ways as well as the content. The educators need to be well trained in order to attain academic creativity to interact with learners and stimulate them in their learning. There are many freely available resource learning materials that can be used as part of their learning to further enhance their skills. Challenges around assessments have been seen as a hindrance both for students and educators. The onus therefore is on the educator as they are the ones who assess students individually or in groups to obtain the necessary outcomes.

Students should possess the pre-requisite learning skills, capacity for self-learning, ability to communicate effectively, and seek for support if and when required. Students should also have to the capability to learn and interact with peers through virtual platforms. While the content should be in a standard format and structure for ease of understanding and that it should be simple and well organized in order to be reachable to all the students. It should be in a medium which is easily accessible. The usage of live sessions posed many challenges for educators. The live sessions weren't used previously, hence it might in a way affect the teaching and learning outcomes and the quality of teaching (Wang et. al, 2020). Educators and/or students might have difficulty connecting from home, where they might face the burden of home-schooling or childcare which might affect their teaching and learning process.

The implemented ERT in an UoT in South Africa within the department of clothing and textile technology had good responses from students. However, with these comes challenges that need to be brought into attention. The educator/s mode of contact with students was through emails and LMS Blackboard. There were still gaps where students won't respond back to the educators' messages or emails. And that may be due to various reasons: network and connectivity issues, personal reasons, limited data access, load shedding, etc as highlighted by few students in Figure 11.

What were some of the challenges you experienced?
Understanding some segments of assignments given, deadlines for assigments
Network problem
Previously answered
Poor time management
Nothing comes to mind right now. This has been an extraordinary year which has required us to adapt to new ways of learning and living. Given the current circumstances of many, I'
Although it wasn't a major challenge, traveling while class was ongoing was something I had to adapt to but it was a sacrifice that I am willing to make as online classes are more cor

Figure 11: Challenges Experienced in the Course/ Qualification

On another note, the students within the Advanced Diploma qualification in clothing and textile technology come from diverse locations. There are students who are neither working nor are based in an urban location, therefore they have limited data access or interrupted data services. Although the adopted mode of ERT abolishes this as there are recordings of sessions, still students who have missed out a live session

felt that they needed attention. Many times in the face-to-face sessions, there were tutors available who could assist their peers or juniors when the need arises which wasn't possible via ERT.

In conclusion, the ERT worked well for the new curriculum of the new qualification, not only this but the students were satisfied with the teaching and learning strategies adopted during the pandemic.

Fortuity and Learnings for the Future

One of the main positive aspects in adopting ERT is that the curriculum redesigned and content created can always be used in future. For instance the prepared content can be used in the current year 2021, the chances of carrying on ERT mode of teaching and learning are very high. Further, along with content, assessments were also moved online which will act as a question bank and educators can take this opportunity to automatically select, assign and later mark those questions which will minimize their academic workload. The pandemic sort of acted as an eye opener to universities which is also very apt during this time where the fourth industrial revolution is being talked about and implemented everywhere, to upgrade and prepare universities for the future. This sudden adoption and implementation of online teaching has and will prepare students to have good collaborative and communication skills, to be good self-learners and be resilient at the same time. It also prepared students to find out innovative ways to show team working skills. Some students even mentioned how beneficial it was to study and learn while at home or at work, through live sessions and don't having to travel to the university campus by investing extra time and effort.

Limitations of the Study

One of the good positives about this study was getting a good response from almost all the students within the qualification, irrespective of where they were located. This shows students' perspectives towards ERT. As last year was the first year for the new qualification, there were probably less students that enrolled for the course. Higher number of students could have responded more diversely. Although the course offered full time and part time programs, yet the students registered only for full-time programs, else the response would have been different. The questionnaire didn't cover questions around the mental health of students during these difficult times.

Conclusion

The swift shift to ERT due to COVID19 has created disruptions for educational institutions. This disruption wasn't only limited at the educational level but also to the normal lives of people. It was a reality for universities around the world in terms of readiness both for students and educators, flexibility and adaptability. If seen from the brighter side, it serves as a change agent which has prepared all of us for similar times of crisis. As Lederman (2020) says, forthcoming normalisation of the current emergency remote teaching does not necessarily mean extending the limitations placed upon face-t0-face teaching, instead it refers to strategies that frame the prevalent adoption of online learning under COVID19 as a pathway to a new conventional rather than an emergency response. Therefore, it can be proclaimed that,

even though ERT has been introduced as an emergency adoption to protect the community, it will eventually bring about a change in the learning landscape of schools and higher education institutions. As much as the students were content with their exposure to ERT, it is vital that students' needs and wants are carefully addressed in future.

While designing and creating online content and structures in ERT, being obvious and precise about what is being done, will ensure accessibility for students. Providing feedback on their experience in the online platforms will encourage them to perform well and communicate well.

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Contact email: patnaiks@cput.ac.za