Digital Decisions

Understanding and supporting key choices in online and blended teaching in Sub-Saharan Africa

Project Report - **July 2021**

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AFRICAN ACDE COUNCIL for Distance Education

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Key findings

The Digital Decisions project analysed how staff in Higher Education Institutions (HEIs) in Ghana, Kenya, Nigeria and South Africa made decisions to make greater use of online learning. We explored challenges, how key decisions were made, and the impacts of these on students and staff. We also gathered views on good practices in digital decision making. Key findings of the project are that:

What were the challenges? Key difficulties in decision making were that staff lacked essential knowledge and skills, and that the primary tool for their work – a technology-mediated connection between them and the students - was constrained and not consistently available for all. Staff faced challenging decisions when they noticed limited attendance by students, who for reasons such as timing, awareness, connectivity or availability of appropriate devices, were not engaging as expected.

Pedagogical decisions were challenging because accepted approaches in areas such as assessment were known to not be suitable to online learning. Staff may know what they were aiming to achieve (for example, increased engagement of students with teachers and peers) but not how to achieve this. Alternatives to accepted approaches were unfamiliar, or not in line with policies (such as the use of social media tools for teaching, or moving away from face to face exams).

What types of decisions were made? Rule and policy related decisions were a common focus, given that the existing policies were not appropriate to online and blended learning. These could take time but were ultimately seen as important and beneficial to progress in delivering effective online and blended teaching. As noted above, pedagogical decisions in areas such as assessment and activities were also commonly required.

Decisions to proactively reach out and engage with the student community were seen to be essential, recognising their unfamiliarity and potential lack of motivation or confidence to engage online. Staff became aware that their roles were changing, and this could prompt concerns for their jobs as well as interest in personal development.

How did decision making happen? In the context of the pandemic, providing continuity of teaching was the key objective influencing senior management decisions across the whole institution. Other staff made decisions in their areas with the objective of teaching and supporting students effectively through a period of substantial change. Tensions were apparent between the objectives of individual decision makers and their communities, rules and tools. These tensions had to be accounted for in decision-making, such as in considering limited staff capacity to deliver the desired training or course creation activities, and making choices about tools that some students were not be able to access.

The use of new forms of communications technology for making and communicating decisions was very apparent – staff as well as students adapted to new ways of working across locations. There were positive stories about the use of tools among staff, but decision making about tools for teaching were fraught with tensions, due to the problems of connectivity and device availability already mentioned.

What were the impacts of decisions? In line with the key objective, the primary impact of these decisions on students was seen to be a continuation of teaching and the mitigation of pandemic-related disruption. This can appear to be distinct from using technology to innovate or offer a better study experience to students, however there was evidence that the decisions had supported improved opportunities and access to learning materials, prompted students to develop their digital

literacies, and increased satisfaction for some. There were also opportunities to have a positive impact on areas such as assessment, which already required attention. The majority of staff saw positive impacts for students, but there was recognition that some students had no ability to access the internet at all, were left behind, and needed to be supported in other ways.

The positive impacts aligned well with institutional goals of offering flexible and accessible learning, overcoming barriers of distance. There was also a recognition that the resilience of teaching had improved and that this could be beneficial in the future, with more ability to teach through any crisis or unpredictable event they could face. For staff, valuable skills had been developed, but for some, workload had increased to a worrying level.

What good practices should be shared? The experiences of participants led them to describe a range of practices that had positive impact. Attention to these in decision making should be effective for other staff and institutions as they move online. Good practices in pedagogy include the introduction of continuous and formative assessment, proactive communication with students and clear information about course activities, and, in blended learning, identifying how to make best use of the combination of in-person and online study time.

Institutional policies need to be revised to be appropriate to online and blended learning. Some flexibility in the application of policies can also be important to support staff to deliver teaching for students in any interim period before this is complete. Institutional strategies should also look to compensate staff for new costs incurred in order that they can complete their work, and incentivise their efforts to learn and adapt to new ways of working. Along with workload planning and harnessing of benefits such as sharing resources across locations, this can encourage a positive attitude towards these changes among staff.

The project co-created a professional development resource that summarises key areas of decision making and related good practices: Making Digital Decisions. This resource encapsulates findings on good practices in a practical format, with a set of 'Key decisions' and guidance on good practice across six themes derived from the project workshops:

- Upskilling staff and students
- Changing the pedagogy
- Overcoming barriers
- Working together
- Effective strategies for teaching
- Achieving quality

This report complements the Making Digital Decisions resource by providing a rich and more detailed analysis of our findings.

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Introduction and background

The Digital Decisions project was funded by the [British Council](#) and led by [The Open University UK (OU)](#) and [The African Council for Distance Education (ACDE)](#). Running from February to July 2021, it examined the choices made and experiences of moving towards greater online and blended teaching in four higher education institutions (HEIs) across Ghana, Kenya, Nigeria and South Africa.

The aim was to explore how institutions and staff make decisions at the conflux of pedagogy, technology and student support, the impacts of these decisions, and good practices that can be drawn from these experience and related literature.

The primary data source collected in the project were narratives of decision making from 84 participants across these institutions. Activity Theory was used as an analytical lens through which these decisions and the contexts in which they were made could be represented and considered. Thematic analysis was used to identify topics and issues in this data. Two online workshops with representatives from each of the four institutions were used to discuss and augment these findings, and to co-create a professional development resource that sits alongside this report as the primary outputs of the project.

Some African universities have made use of online and blended learning since the 1990s and 2000s (e.g. Bagarukayo & Kalema, 2015; Tarus & Gichoya, 2015). However, adoption has been considered to be slower than in other parts of the world, with challenges ranging from the lack of training and heavy workloads for lecturers to the limited Internet connectivity available for students. Negative attitudes towards online learning can also exist, perhaps caused in some cases by limited use of the full potential of eLearning to offer an engaging alternative to in person teaching (Mutisya & Makokha, 2016).

The upheaval caused by the Covid-19 pandemic radically increased the impetus in shifts to online and blended learning. Governments required educational institutions to close, but the clear potential for distance learning approaches to mitigate the impacts of these closures was not consistently supported. Situations and responses varied but common issues included a lack of access to technology, home environments that were not suited for study, and barriers to accessing learning materials (eLearning Africa & EdTech Hub, 2020).

Shifts towards greater online teaching and learning are complex and combine pedagogical, technological, administrative, pastoral and strategic elements. Institutions and their staff had variable knowledge, processes and infrastructure to draw on at this time, and the situation required strategic institutional decisions as well as decisions made by staff in their individual roles. The importance of both these aspects led us to a methodology that could explore both individual decisions and the contexts in which they were made.

The project team were also aware of the importance of upskilling staff and of supporting them to share and reflect on their experiences of these shifts in their working practices. Digital Decisions followed a rapid response project, Pathways for Learning, which delivered free online training for HEI staff across Africa in July - August 2020. Live events were attended by over 500 participants, and almost 300 completed the 'Tertiary Educator' programme involving study of a 24 hour Badged Open Course alongside a six week schedule of events.

Data from the surveys and learning activities included in Pathways for Learning provided a starting point for the development of this project and gave us initial themes for further exploration. Most participants had experienced a shift to online teaching and greater use of technology during the pandemic, and comments

showed that there was an expectation for many of the changes made to become more permanent. At the same time, a variety of barriers restricted the adoption of effective online or blended learning, ranging from a lack of confidence in students and staff, through to national or institutional policies that restrict assessment to in person examinations.

The report provides a detailed analysis of the findings related to each of the five research questions. In line with the British Council initiative that has supported the project, this aims to form part of a growing understanding of the Digital University in Africa, and in particular, the digital literacy, skills and competencies required of academics, professional services, university leaders and students.

Methodology

As described in the introduction, pedagogical, technological, administrative, strategic and pastoral decisions made by staff in different roles play a critical role in creating a successful and engaging online learning experience for university students. To understand these decisions better and to facilitate making of them, this project specifically focused on the following research questions:

> RQ1   What challenges did universities' academic and support staff experience in delivering online and blended learning?
>
> RQ2   What decisions did they commonly have to make in order to teach or support students online?
>
> RQ3   How did they make such decisions?
>
> RQ4   What kinds of impacts did these decisions then have?
>
> RQ5   What good practices can be identified in relation to these common decisions?

To address these questions, a narrative approach was chosen as it allowed participants to share the stories of their decisions while reflecting on their actions (Schön, 1987) and revisiting the rationale and impacts of their choices. It also enabled us to hear the personal stories of individual participants as well as the collective narrative of the university staff community (Murray, 2018). From different methods of narrative data collection, *audio narratives* were decided to be an effective means to gather the accounts from participants. However, to afford flexibility, they could provide a written narrative as an alternative if they preferred.

Ethical approval for the research was received from the Human Research Ethics Committee of the Open University (HREC/3897/Coughlan).

Participants and recruitment process

Narratives were collected from 84 university staff in academic, support, technical and senior management positions from four institutions in Kenya, Ghana, Nigeria and South Africa. Each institution had increased use of online teaching due to the pandemic, building on diverse experiences in delivering forms of online and blended teaching prior to this.

In order to recruit participants within each institution, purposeful sampling was applied; however, different approaches were used for each institution due to the context and practicalities (e.g., the processes of decision-making in some institutions were distributed among different roles or teams while in others it was limited to one person). As a result, whilst purposeful sampling in terms of ensuring participants have a role in the overall decision-making process was implemented, the steps taken to identify and select participants were not the same in the four institutions.

In each institution, an understanding of who is involved in making decisions about delivering and supporting students online was established through working with a representative of that institution, and then a list of staff to be invited to participate in the project was produced. Participants on the list were sent an invitation email and the project information leaflet. Volunteer invitees were then briefed about the project and were asked to record their narratives.

Data collection

Narratives

The project collected one narrative (requested to be 2-5 minutes in length) from each participating staff member over a period of 45 days. Participants were given instructions as to how to record their narratives as well as a number of prompts (please see Appendix A) to facilitate their reflection. These prompts were informed by the research questions and conceptual framework underpinning the project's research design, i.e. Activity Theory.

84 narratives were received from across the four institutions. These comprised 25 narratives from University A, 25 from University B, 27 from University C, and 7 from University D. While there were challenges to capturing a similar number of narratives from University D, those received were rich and diverse enough to provide good insights and were supplemented by the workshop activities in which a group of University D staff were strongly engaged.

Online workshops

The analysis of the narratives was supplemented with two follow-up workshops, each lasting for two hours, with a sample of volunteer participants. These gave the participants and project team an opportunity to reflect upon particular aspects of what they reported and to place their narrative within a larger narrative frame. The first workshop involved group activities focused on each of the research questions. For this, participants were introduced to the initial findings of the narrative analysis, and were then given questions to discuss. Most of the activities were conducted in smaller breakout groups, with attendees split up in two different ways: cross-institutional groups to provide opportunities to reflect on the experience of decision making and the impacts of this with those from the other institutions, and within-institution groups to discuss decision making structures and division of labour within their own institution.

The second workshop was specifically planned to help address RQ5 about good practices and to design a professional development resource to guide future decision making. The resource aims to guide staff and institutions who are moving to greater use of online and digital learning. It is available from the [Digital Decisions website](#).

23 attendees joined the first workshop, and 18 joined the second workshop (in addition to the organisers). In both cases these included a range of staff from each of the four institutions.

The workshops were delivered online and were recorded. Recordings were then transcribed, and sections related to research questions were analysed to supplement data from narratives.

Data analysis

The recorded narratives were transcribed, and the transcriptions were analysed in two phases using Activity Theory (Engeström, 2015). In the first phase, all 84 of the transcripts were thematically analysed based on the five elements of the activity theory (i.e. subject, tools, rules and regulations, community and division of labour) to identify challenges staff experienced (RQ1), types of decisions they made (RQ2) and their decisions' impact (RQ4) and finally to establish good practices (RQ5). Although the thematic analysis at this

phase was directed by the activity theory, we were open to new themes and codes. Of note, inductive thematic analysis was used to identify factors that influenced staff decisions.

In the second phase, 24 narratives (6 from each institution as the below table shows) were sampled from a variety of roles and learning contexts based on the richness of information they provided or critical cases they presented (Table 1). Then, the activity system for each narrative was drawn, actions involved in the activity and relevant tensions were specified to address RQ3 and to understand how the decisions were made (please see cases 1-4 under "how decisions were made". At the end, a constant comparative method was used to draw conclusions.

Table 1: Sampled narratives for in-depth analysis

University A	Staff role
Lecturer	Educator
e-Learning trainer and lecturer	Educator
Head of examination	Manager
Chairman of the department	Manager
Dead of school	Manager
Exam coordinator	Support staff/collaborator
University B[1]	
Lecturer	Educator
Lecturer	Educator
Lecturer	Educator
System administrator	Support staff/collaborator
IT facilitator	Support staff/collaborator
Technical advisor	Support staff/collaborator
University C	
Lecturer	Educator
Lecturer	Educator
Director of learning	Manager
Dean of faculty	Manager
Graphic designer	Support staff/collaborator
Instructional designer	Support staff/collaborator
University D[2]	
Lecturer	Educator
Lecturer	Educator
Lecturer	Educator
Lecturer	Educator
Lecturer/MOOC developer	Educator
Head of facilitation	Manager

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[1] No participant in a management position at University B volunteered for this project.
[2] Dataset from University D includes limited number of roles.

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Activity Theory

As described in the previous section, Activity Theory directed our data analysis. It was used as a conceptual framework for analysing staff activity of decision making within their specific educational context and institution. Based on this framework, staff purposeful activities and decisions to meet students or institutional needs for online education were the unit of analysis. To analyse these activities and decisions, staff actions were examined as they enabled decision making. In addition, to understand their decisions within the relevant context, we considered conditions within which decisions were made and tools which mediated the decision or implementation of it. These conditions, according to Yamagata-Lynch (2010), are reflected in the formal and informal rules, regulations and policies of each organisation as well as the division of labour or responsibilities that specify procedure to make a decision or to carry out an activity. A final element that was considered in our analysis was the community within which staff worked. We checked how the community (e.g. other staff, departments, students, parents, cultural or social structures of universities) facilitated or hindered a decision.

Furthermore, as the nature of an activity components such as tools, rules and community and contextual contradictions create tensions, we also identified and studied tensions that affected staff's decisions and activities.

Research Findings

This section presents the findings based on the analysis of narrative and workshop data, and sheds light on different aspects of decision making by university staff for online education. For each research question, the results are presented in order, from the most to the least reported themes in each category by participants. The findings are also presented in a table view where the counts of each code are indicated. This is to allow consistency in reporting the findings and transparency with thematic analysis.

RQ1: Challenges experienced by staff

One of the reflection prompts asked participants about challenges they faced in making decisions about online education. Challenges were related to elements of activity theory, i.e. subject-related, tool and technology-related, rule and policy-related, community-related challenges and those related to division of responsibilities. In addition, participants reported challenges associated with the design and delivery of online education (as represented in Table 2). This category itself included challenges linked to *assessment and feedback, instructional design and learning activities, rapport and teacher-student relationships, facilitation and communications* and *quality assurance.*

Table 2: Challenges faced by participants in making decisions about online education

Challenges	Instances (N)
Tool and technology-related	**72**
Connectivity and electricity	49
Devices, software and hardware	21
Open Educational resources	2
Subject-related	**58**
Digital literacies and training opportunities	18
Connectivity	19
Motivation and engagement with online education	10
Workload and lack of time	6
Access to devices	5
Community-related	**58**
Student-related challenges	
-Students' access to technology and the internet	29
-Students' motivation and engagement	14
-Students' learning	3
Support staff and support departments	7
Staffing	5

Pedagogical design and delivery-related	**30**
Assessment and feedback	12
Instructional and learning designs	10
Facilitation and communication with students	4
Practical activities	4
Rule and policy-related	**8**
Institutional policies and procedures	8
Challenges related to division of labour	**5**

1. Subject-related challenges

In Activity Theory, the 'Subject' is the individual who is acting and is the focus of the analysis. Subject-related challenges therefore refer to challenges that individual member of staff faced when they wanted to decide about teaching or supporting students online or leading online education in their department or institution. These challenges included themes such as low level or lack of essential digital literacies, lack of necessary training and professional development opportunities, issues with connectivity and access to technology, lack of motivation to engage with online education, heavy workload and a lack of time for planning and delivering online learning.

Digital literacies and training opportunities: Some participants reported that they did not have a good level of digital literacies or capabilities to make or implement necessary decisions. Similarly, some staff in management positions such as heads of departments pointed out that several academic staff were falling behind the schedule for delivering their modules "due to the lack of ICT skills" and this in turn concerned management about timely access of students to the learning resources. The lack of certain digital skills also led some staff to have difficulty in navigating and working with the institution learning management system (LMS).

> *"… another challenge is also that some of us are not computer literate, so they are being forced to at least learn a bit of it, especially the elderly lecturers, they are trying to cope with it, they are trying now to learn, "Where do I go to teach? Where do I click?" and all that. So, it has not been smooth all around"*

> *"We have faced a lot of challenges, especially in the teaching online. One, many of us who are not computer-literate or rather even if we were computer-literate, because we are using phones, we are using laptops and what have you, we did not know how to use Zoom, Google Meet and even setting the lesson, releasing a lesson using those applications. Therefore, it looked like a big challenge"*

> "*The other challenge was all the training. Once the trainings were scheduled on how to use the platform, again, for those who didn't have the ICT skills, it also became a challenge to facilitate the same training through an online mode, because they needed to have acquired the skills on how to use the ICT technology, the ICT platform, and especially the platform that we use in our institution. And we had that disparity where some were very good, others were novice, and bringing all of them on board so that they can facilitate the classes online, it was such a challenge"*

Another group of participants pointed out that there was a lack of appropriate training to enable them to make right decisions. According to them, most training was limited to a few hours or did not have enough depth.

> *"There was also a lack of proper and adequate training. Some of the trainings we attended were done in two hours, one hour. And then the facilitators assumed that we have acquired the competencies. So, some of the trainers were also learning how, they were trying, they were learning what blended learning is so they were learning and training us so there was a lot of priority"*

> *"Then the other one is blended learning was hurriedly introduced by the university. There was no time for us to learn about the technology, to try the technology, and then implement the technology. It was introduced in a hurry and that was a big challenge"*

Connectivity and access to devices: Another similarly important reported challenge was related to difficulties caused by staff's access to the wifi, data bundles or the internet in general. This group of challenges ranged from living in areas without internet to having access to data for limited hours (e.g., one or two hours) and unreliable internet. Of note that, many participants had to pay for their access to the internet themselves and this was reported as a financial burden.

> *"The main challenge that we are facing even now is the university was not giving us the bundles to do this even though students were in other universities, where other students were given bundles, so the students are able to be online. But here they were not given bundles, and this became a real, real challenge for us"*

> *"I want to say that I have experienced numerous challenges and the first one is lack of the internet bundles specifically at home"*

> *"So, then the last one is lack of internet allowance. You see we buy bundles from our money. So, we were not given an allowance for buying internet bundles"*

> *"Some of the challenges I face as an online tutor is the interruption of internet services during lecture times"*

A few participants (n=5) also emphasised challenges caused by not possessing or having access to a suitable device, software or application. Since this group of challenges were also observed for students too, many participants reported a delay in delivering the academic timetable in general. They considered this delay as one of the short to medium-term impacts of COVID on students' education in general.

> *"There was a serious challenge. First of all some of the applications I used are not compatible with locally or common laptops available in the market. So I need some sophisticated laptops"*

> *"The general challenges experienced, technology-wise, [name of university]'s outdated technology and also, for many of us academics, the absolutely outdated laptops that we are working on"*

"Most of the tools that were made use of involved us making use of our systems and not just any kind of system, you need a system that had a random-access memory of nothing less than 8 gigabyte and having an SSD hard drive to improve the usability as considering the requirement of the software that was being used. Those were part of the challenges that faced us then"

Staff motivation to engage with online education- Reflections from a group of participants revealed that some university staff were not motivated to engage with or move to online education. There were several underlying reasons for their lack of motivation including their general psychological state caused by the pandemic, stress caused by heavy workload and a lack of time to adapt to the new teaching/ work conditions.

"Then the other challenge is a lack of motivation. You see blended learning is a form of technology, something new in Kenya, something new for staff. So, for them to use it effectively they needed some motivation. That motivation was not there"

"Another challenge is that usually maybe because we are ODL we are a little short-staffed. Sometimes the stress of doing so much at the same time can actually be discouraging"

"The challenges I face. The challenges about, one of it which is power outage, very poor network, lack of motivation, no paid(?) on the course that I facilitated"

Workload- A closely connected challenge to the staff motivation is heavy workload and a general lack of time to understand and adapt to the use of technology and technology-enhanced teaching, support and evaluation approaches. Some participants pointed out that they were introduced to online and blended education in a *"hurried way"* and that they did not have enough time to *"learn about the technology"* and then use or implement it. Likewise, some participants disclosed that due to a shift to teaching and supporting students online, their workload increased considerably.

"Then the other one is there was lack of time for us to learn how to use the technology, to try the technology, and then make some improvement"

"Of course there is so much work for me as a Chair because the roles that used to be carried out by other members of staff, I find myself bombarded with activities because if a lecturer cannot be here, okay we have shared responsibilities. But you realise that not everything can be done online"

"Then I had an overloaded email inbox, but we had to work through that. I had to work through it on a daily basis. That made me to work much, much more and overtime than I usually do. As a matter of fact, I'm sitting here now doing this"

2. Tool and technology-related challenges

Tool and technology-related challenges include challenges that staff faced either in deciding about the tools, technologies, software and hardware to use for their online teaching and assessment or student support or in using tools and technologies to implement their decisions. These challenges revealed themes such as electricity and connectivity, devices, software and hardware, and Open Educational Resources.

Electricity and connectivity- A noticeable number of participants (n=37) stated that issues related to the internet and electricity either made decision making about online education difficult or made the

implementation of such decisions challenging and complicated. For example, the academic staff made the decision to use the institutional VLE for sharing the learning materials with students; however, students' lack of access to the internet or unreliable connection made staff to re-consider some of their decisions. The narratives revealed similar issues considering students' access to electricity. In addition, in the second phase of the data analysis where tensions between different elements of a decision activity were examined, it was found that the highest level of tension exists between the tools and technologies that staff used and the users, i.e. students as the members of a staff community.

> *"The greatest challenge I faced in trying to do this was data and lights, that we have internet connectivity, sometimes you can be trying to teach or prepare something, maybe a slide or a presentation, and the network goes off, and I had challenge with my students equally because a lot of them were not able to access the lessons, they were not able to join in because maybe they didn't have internet connectivity, or they didn't even have the physical or the working to work with"*

> *"Going online requires that you have access to internet, and to pay for internet is very, very costly, and many students, given their backgrounds, very poor backgrounds, cannot access internet because they don't have the resources to buy the data"*

> *"The challenges faced by this decision I made was that in availability of the internet or with whereby the server which I use at home could go off at certain points in time and shortage of light or the flow of electricity in my area. This was some of the problems or challenges I faced during the distance or online tutorials"*

Devices and equipment- Another group of challenges that participants faced was related to the devices and equipment they required for online or blended education. These challenges ranged from not having necessary equipment such as PCs and laptops to having working equipment that did not work well or were not compatible with software and applications that staff would have liked to use. As an example, one lecturer stated that he was not able to use an application as his laptop did not meet the system requirements for running the app.

The staff in management roles also pointed out that budgeting for computers or laptops to enable lecturers to deliver their classes was a challenge.

> *"Maybe the facilitators and management need to look at even staff connectivity and working equipment, which could be laptops that can be able to facilitate this. Not all laptops or desktops work well"*

> *"Some lecturers used their office computers, which they did carry with them during the lockdown, at home, and due to the lockdown, most of them were away. And again, that meant budgeting for computers or laptops in order to ensure they went on with their online classes, and this again also became a really big challenge"*

> *"There was a serious challenge. First of all, some of the applications I used are not compatible with locally or common laptops available in the market. So, I need some sophisticated laptops"*

A closely related challenge to staff access to the devices and equipment was university systems. A few participants reported that institutions' ICT systems became overloaded due to the sudden move to online education and staff working in the IT and ICT departments had to make quick decisions to ensure both staff and students have access to these systems.

Open Educational Resources (OER)- In order to save time and effort in shifting to online education, a few staff, particularly in academic positions, decided to use OER. However, since most available OER are produced by western countries and are in English, staff reported challenges such as:

> *"Most of the Videos were foreign videos so they [students] couldn't relate to the some of the issues discussed"*

> *"I also struggled to find really good quality OERs"*

3. Community-related challenges

Participants also reported challenges caused by the community within which they work. Their community mainly involved students, colleagues within and outside their departments, and other departments and centres in their universities. This group of challenges included three main themes of a) *students related challenges*, i.e. *students' access to technology and internet, students' motivation and engagement*; and *students' learning*; b) *challenges related to support staff and support departments*; c) *staffing and staff-related challenges* (this group was reported by managers, deans and head of departments only).

Student-related challenge: Motivation and engagement- One of the major challenges revealed by narratives was students' lack of engagement with online learning or a lack of motivation to do so. Staff reported difficulties in encouraging students to get online and engage with lessons or discussions. They pointed out that students' disengagement and lack of attendance had several reasons including not accepting the paradigm shift from the conventional or from the traditional model of lectures to the online webinars, lack of training about online learning, not being able to afford data to attend online classes and other commitments such as full-time work.

> *"The biggest challenge that we have and is still in existence is the low attendance of the classes or the workshops. Students are aware of this, and I think the biggest is that as much as they would like to attend, they cannot afford data, and the institution only provided them with data during examination periods"*

> *"Sometimes, even with the facilities provided for my students to engage with me online, and even with the official online teaching timetable released by the university for our students to access us, we had very few who turned up. They were reluctant, and that is not encouraging"*

> *"The other challenge was that for students, this was something new to them and so sticking to their stipulated lecture hours online was a challenge to some of the students because some of them, or quite a lot of our students are people who are working, who could be working full time, and so when you create that hour when you are supposed to*

meet them online you realise that the class attendance is sometimes not that good, because of the student's other engagements"

Student-related challenge: Access to technology and internet- Issues related to students' access to technology and internet were the most-cited community-related challenges. The majority of staff mentioned that most students were not able to afford data bundles or their internet connection was poor and unreliable or they did not have a phone or computer to use for their learning.

> *"The three hours that we are set to teach them, some can only go on for one hour and they stop, some can only go for 30 minutes and they stop, because they don't have enough internet support to support the three hour online."*

> *"Some students also claimed that they could not afford android phones or a computer that would have helped them to facilitate participation in the online learning."*

> *"Some students come from poor communities, some from informal settlements, where there is no access to the internet. If they have to go to the internet, they have to pay for it. Some do not, they come from poor backgrounds, and they are unable to afford such resource"*

Student-related challenge: Learning- Academic and support staff also believed that the shift to online delivery created some issues for students' learning. These issues were mainly because lecturers and tutors were not able to deliver certain tasks online. For example, a head of department commented that they were not able to go out to moderate students' projects or to talk and interact with them during supervision meetings and go through their work chapter by chapter. Another lecturer indicated that practical demonstrations were not possible while an instructor argued that: *"another challenge is that students are able to grasp the theoretical aspects of lessons, but students find it extremely difficult to grasp the explanations of the calculations"*.

> *"We would go out for project moderation, especially when you are supervising your students, you have to go to chapter one or chapter two and you would need to talk and interact with them because we had the face-on learning more than online learning. But with the advent of the pandemic, that method had to change... "*

Staffing and staff-related challenges- some participants in management positions such as chairs of departments or deans stated that decisions about staffing during pandemic was a challenge as many of their staff were locked in their home areas and were not able to travel to campus.

Another group of managers reported difficulties in dealing with their staff when work was moved online. There seemed to be a general resistance to teaching or working online. As shown in the below quotations, some staff resisted moving online or accepting it and others did not complete their allocated responsibilities on-time. Managers believed that both of these difficulties decreased their staff efficiency.

> *"... like other chairmen, I faced serious challenges when we shifted, when we started shifting to the blended mode because there was the resistance that comes with change. Quite a number of people did not feel comfortable with this new mode of teaching because*

they thought it lacked that personal touch, the belief that a lecturer is ideally supposed to interact with students face to face and that when this is done remotely, then the lecturer, some efficiency or effectiveness is lost"

"Number two of the decisions that I made was to ensure that they understood their roles, and this was very hard because some of them were resisting, they did not even see the need for it. They were scared and they thought that probably they will lose their jobs, so it was really a major issue of ensuring that they were brought onboard to understand that that is the way the world is"

"There are others who, because we had also to train them for them to be able to write modules, we realised that some of them, because of commitments here and there, were not able to write modules. And those who wrote, they were not able to write them on time. This became a serious challenge, because the students have to be taught, and you can't teach them without materials. And that one, even to the university as we speak, is still a major handle"

Support staff and support departments- Some participants indicated that they had difficulties in making and implementing decisions for their online teaching or student support, because they either did not know about the support or support departments available at their universities or such departments did not exist or were not prepared to support online education. Overall, staff found it challenging to make a decision without appropriate support particularly in areas that they did not possess the required knowledge, skill or expertise.

"The biggest challenge was the support departments that weren't ready for fully online"

"The institution at the time that I was developing the MOOC didn't have a support department in terms of things like graphics and copy editing, so those are things that I sort of had to learn using apps and whatever resources that I could find to develop the MOOC"

"I would have appreciated more support, but I was working in a team where everybody had to kind of figure out how to do these things on their own"

4. Pedagogy and delivery-related challenges

One of the emerged themes that is context specific and not addressed by the activity theory was pedagogy and delivery related challenges that affected staff decisions noticeably. This category included themes such as *assessment and feedback, facilitation and communications*, *instructional and learning design, and planning practical activities.*

Assessment and feedback- Different aspects of assessing and evaluating students' work seemed to challenge staff in all roles. Academic staff reported a wide range of challenges including:

- home-base settings of the exam which were not desirable;
- difficulties in complying with examination regulations;
- students' lack of experience and skills in sitting online exams;

- students' lack of access to the internet or a device to take part in the exam;
- staff' lack of access to appropriate tools, software and applications to administer exams, mark and evaluate students' work;
- managing students' academic misconducts (e.g., copying work from their friends);
- not being able to change the assessment pattern for online delivery due to institution policies.

> *"Sometimes there are problems with the quizzes because the quizzes are scheduled for a day or so, for a certain time in a day. And although they remain open for a day, some students who take a whole day without accessing internet which means then quizzes close before they respond"*

> *"I had assessment challenges with markers and J-Router. ICT, the poor turnaround time, and markers had problems with their devices and with the J-Router specifics"*

> *"Also marking of scripts, we've also realised that some of the students virtually copy work from their friends. I don't know how they do it, but we suspect either when they finish, they send their script through the internet to their colleague and their colleague also uses it to copy. That is one challenge that we face in the online conduct of examination"*

Instructional and learning design- In move to the online education, staff also highlighted pedagogical challenges related to the design and delivery of their courses or services. Since many staff did not have previous experience of online teaching or were not familiar with online approaches and methods, they found designing an online learning experience difficult and demanding. They stated that they had to make a range of pedagogical decisions (e.g. those about online facilitation, synchronous sessions and activities, length and level of sessions), for which they required training and professional support. Some of them pointed out that they were not sure how to change their course or module model to ensure an engaging and interactive learning experience.

> *"The challenges I faced were that of the nature of experience because it was my first time of delivering content online so the challenges were those of how best do I communicate, how best do I use the time allotted to deliver substantial amount of content I have to deliver and how well would I deliver that content in a manner that is understandable to at least a significant proportion of the student body who would access it"*

> *"In trying to prepare these online facilitation lectures, I discovered that perhaps the course models were perhaps not interactive enough, there was a need to make them more interactive, more user friendly, so that it is easy for the students to be guided, and they really, really needed guiding"*

Online facilitation and communications- Another category of challenges associated with online learning and teaching was facilitating and communicating with students online. The narratives suggested that staff faced difficulties in engaging students or communicating with them online. Another set of challenges within this category were related to the clarity and simplicity of communications for a better understanding of the learning content.

"You realise that in the forums, most of our students, they will not attend to these forums. So, one of the decisions I made, I told them that out of the participations, it will comprise 5% so that I could prompt them to perform, and that one I did"

"I had to find a way of saying it to, I mean through the online module and saying it in a very, very simple and clear manner, and yet creating a challenge that the student would learn through"

Planning practical activities- A few academic and support staff who had to teach or deal with practical activities (e.g. examining dance routines, teaching students to play a musical instrument or teaching braille to teacher trainees) found planning and designing online activities particularly difficult and sometime nearly impossible.

"Some practical subjects are suffering because it is not easy to convert practical subjects like braille into a lecture subject. It requires doing as the student learns. So, these are some of the challenges that we cannot teach, some subjects like braille, sign language as effectively as we can when I am online"

"The other thing we do which must be done physically is the internship activities at the factories and hospitals when we are talking about biomedical engineering or industry where we are talking about mechanical engineering, civil electrical engineering. This was not possible online"

"They do the dances. Usually, they will dance – if it's a female dance or a male dance or the mixed dance, they need all of them there together to be taught, so that they know how to perform the dance. So, the context of the decisions that we made is that we have had to reduce or to modify the way in which we examine them, and one of them was to reduce the number of dances that they normally would perform"

5. Rule and policy-related challenges

According to the activity theory, there are formal and informal rules, policies and conditions within an organisation that affect staff activities and actions. These rules and policies can have a positive influence on an activity or constrain it. One category of challenges that staff reported were related to formal and informal institutional rules and policies that made some of their decisions difficult to make or implement. Since these challenges are very context specific and there were participants from four different contexts, categorising these challenges was not straightforward. As a result, they are reported under one theme of policies and procedure.

Policies and procedures- Several participants reported challenges caused by the official or unofficial policies and procedures set by their universities. These policies (mostly formal and official) often constrained staff decisions. For example, one lecturer decided to use social media (WhatsApp) to communicate with students as it was the most accessible app to students; however, the university policy discouraged the use of social media. Or an instructor planned to change the module assessment strategy to suit the online delivery and the existing policies did not allow such a change.

"… if I have to say, {name of university} discouraged the use of social media for teaching and learning before COVID, but we continued using it and we are continuing even now. … Tutors created WhatsApp platforms so that they are able to connect with the students, and the students were able to post their questions which could be answered by the students or the tutor himself. However, these platforms, the social media platforms, were discouraged by the university because they were not backed up by the policies of the university"

"The existing policies at {name of university} didn't allow for continuous assessment as well as fully online, and I had to find work around to stay within the confines of the policies, but still to teach fully online with continuous assessment"

Another example shows how inflexibility in teamwork approach restricted staff actions:

"As I said, we need to redesign the modules, but the framework for teamwork approach isn't flexible enough and doesn't have enough capacity to deal with everyone at the same time, so in a sense we are still left with paper behind glass and online discussion classes"

Or how the procedure to produce an online module prevented staff from offering online teaching:

"I would like to take my module to be a fully online module, with formative assessments leading to a portfolio, but this would require the assistance of the Department of Curriculum, Development and Training, I believe. However, those are booked up years in advance, so you can't get your module into a proper framework for team approach until scheduled. I think this is leaving a lot of modules behind"

A small number of participants considered teaching and working online due to the pandemic as a major change in the university policy which affected many of their activities. In fact, they considered it as the cause for many challenges that they experienced:

"As the pandemic has been recorded in Ghana, the authorities have adopted the full Zoom lecture model. This was quite challenging for some of us, especially those of us teaching subjects that involve calculation, as in Ghana our mode of teaching has been face-to-face most of the time. This requires that I have to adapt my lecture models, update them, bringing the calculations, everything, into the lecture model to make it simpler and more straightforward for the students to have the examples and the principles as would be addressed by face-to-face in the lecture model"

"We are faced with certain challenges of administering examinations. Because as much as learning could continue through the digital platform, the examinations were not offered through online. And therefore, the challenge was how were we to get these examinations done physically by the students in those areas. The decision was finally made to be able to take the exams to the students but this, of course, impacted on the cost. It had some cost implications because the person who was to travel and administer the exams had to stay there for a longer period because of quarantine"

6. Challenges related to the division of labour (tasks)

Narratives did not reveal much about challenges related to sharing of tasks and responsibilities to deliver online education. One member of staff indicated that their institution teamwork approach did not allow effective collaboration among departments and limited capacity of particular departments such as ICT also prevented sharing of tasks. Another participant stated that since some lecturers and facilitators were not able to travel to campus to run exams, other members had to accept the extra work and do the duties of these staff. Likewise, a department chairman stated that because some his staff were not able to travel, he had to fulfil their duties, and this made him feel overworked.

RQ2: Types of decisions made to teach or support students online

Participants were also asked about the types of decisions that they had made, and their responses revealed six categories of decisions: *subject-related, tool and technology-related, rule and policy-related, community-related decisions* and those related to *pedagogy* and *division of labour*. Table 3 below shows the number of instances where decisions were coded to each of these themes.

Table 3: Types of decisions made by participants when delivering online and blended education

Types of decisions	Instances (N)
Rule and policy-related decisions	**55**
Pedagogical decisions	**39**
Instructional and learning design	11
Module and course delivery	8
Facilitation and online communications	7
Assessment and feedback	5
Synchronous online teaching	4
Students' motivation and engagement	2
Supervision	2
Community-related decisions	**25**
Tool and technology-related decisions	**23**
Platforms and VLEs	11
Devices, software and applications	9
Electricity and connectivity	3
Subject-related decisions	**20**
Improving digital literacies and seeking professional development opportunities	17
Access to devices	3
Decisions related to division of labour	**6**

1. Rule and policy related decisions

Rule and policy related decisions refer to decisions that were made at an institutional or departmental level and which affected the actions of those working within it, i.e. our participants and their students.

There were some commonalities across the four universities, including a central decision to move to online or blended learning. For example,

> *"In [name of university] we have online teaching and learning policies which requires that during the COVID-19 pandemic teaching should be done online or remotely."*

"Then eventually there came a policy or there came a decision by the management that we can reach out to these students on, I mean through Zoom. And we have indulged ourselves in teaching these students through Zoom."

There were differences between the universities in how this was approached and who was involved in making the decision. In some instances, there were clear government or senate led decisions about moving students off campus.

"When the government changed and said the students should go, the Senate also allowed the students to go home because it was dangerous to have them around, then that was enough reason for us to be able to change our way of doing things."

These decisions resulted in changes to models of delivery and a move to remote or blended learning:

"One of the decisions that the senate approved was the blended learning policy. This policy was developed by the digital school. This policy was required to inform the technicalities of delivering the programmes using the blended learning format. This policy informed the roles of the various players on how to leverage on the blended learning approach in delivering their programmes. So, this policy was developed by the digital school, but the policy was approved finally by the senate."

"We have decided to, through the support of the two university managements, to do blended teaching on the learning for our students, particularly during this period of the pandemic."

Participants spoke about their role in the communication about these decisions:

"We didn't know exactly how to proceed. But then a decision was made that we embark on online, virtual classes. And once that decision was made then this was conveyed to heads of department in a meeting that we attended and so we had to convey this decision to the members of staff. So, the first thing, of course, that the chair was to call all the members of staff for a meeting and to convey the message that now we had to move towards virtual classes."

Each university managed the process of blended learning differently. For example, focusing on monitoring the quality of delivery:

"The demand for the university policy and permission to teach and then we record what we have taught and send it to the Chair who could send the recordings to the registrar card to show that really this thing is taking place."

There was also evidence of specific training programmes being organised to support staff in moving to online and blended learning.

"We also made a recommendation to the senate that the training of staff be a continuous process, because there are certain staff members who, for one reason or another, required continuous development. So, the senate also approved this decision, and hence the training of staff has been a continuous process. Any staff who feels that he requires

additional skill in leveraging technology in teaching and learning, all he needs to do is to inform the digital school, and the digital school will arrange for individual training. Where a department requires further training, all they need to do is to inform the digital school, and the digital school would arrange for training for the whole department."

Across each university there was an emphasis on how assessments, marking and examinations took place in an online or blended context. Each university responded differently, for example, utilising either reduced examination content, making different logistical arrangements or using alternative means of assessment (e.g. online tests). Some participants spoke about the ways in which these decisions affected consequent decisions about examination content:

"Some of the decisions that we have had to make with regard to exams… is that we have had to reduce or to modify the way in which we examine them."

Other participants described implications of making decisions on logistical examination arrangements.

"The decision was finally made to be able to take the exams to the students but this, of course, impacted on the cost. It had some cost implications because the person who was to travel and administer the exams had to stay there for a longer period because of quarantine. So that meant that the university had to undergo an extra cost of maintaining that person for more days as they administered the exam"

"Now with the COVID-19 pandemic top of my mind is how we had to engage in ISO surveillance online. It was a very interesting experience because we needed to, you know, ISO is really evidence based. You really need to show if you have a narrative of this is what we do, you must then show where is the document that shows you do that? And so we had to display those documents on the screen online. Or at some point email them to the auditor."

2. Pedagogical decisions

There were a number of pedagogical decisions made by participants including decisions relating to i*nstructional design and learning design, module or course delivery decisions, facilitation and communication decisions, assessment and feedback, synchronous online teaching, supervision and learner motivation and engagement decisions*.

Instructional and learning design- Some of these decisions related to how students responded to online provision, and the consequent decisions that participants needed to undertake. Decisions were made that lecturers should adjust their *instruction and/or learning design* in order to address this.

Furthermore, *learning design decisions* were made in order to respond to the different experiences that students would have when participating in remote or blended learning. For example, decisions made were about how course or module content was delivered or organised. In some cases, this affected the order of content being taught.

"The decision that was then made is that, because of this blended learning, we knew that we would meet them face to face, so during the online learning, we did more of theory with them, and then when they came, then we decided to play the music that they were not able to hear. Previously, when you teach this unit, you teach both the theory and then they are also able to listen to the music, so that their learning is – they understand the whole thing. But because of covid, so that is how we had to go."

Participants spoke about decisions referring to *module or course delivery.* For example, describing how they adapted their materials and resources to become more interactive or engaging – supporting *student motivation and engagement*. Where participants spoke about the content of their teaching and learning resources it was typically with reference to the use of images, video, pdfs or slides, or online quizzes. For example;

"My decisions concerning some of the teaching tools. Like the slides I used yesterday I had to make up my mind to add pictures so that the students can actually understand. I was teaching them solid waste management and the pictures really brought the topic to life. They were able to understand the various ways where we can manage our waste."

"So, there was a need to repackage the course materials from the heavy text that was there, input images and have a lot of instructional videos there incorporated into those course materials. Have in quizzes, that is quizzes within those course materials to ensure that as a student reading there could be some sort of reinforcers, reinforces the knowledge of the previous chapter or the previous unit that they have read and considering these needs the conclusion was made to have the materials, that's the PDF materials, converted into a SCORM format and that kickstarted the project of making use of the Adobe Captivate to bring this wish into reality."

As part of their pedagogical decision making, participants often spoke about the role of *facilitating and communications* with their students. Apps such as WhatsApp were set up by lecturers to communicate with their students – often communicating dates, times and arrangements for Zoom lectures. One participant explained the importance of this decision:

"So, I took that decision to be having contact with my students so that we will not have any break in dissipation of information. And the reason why I took such a decision is because they are students. They are in the process of acquiring knowledge, so anything that will hinder the deliverance of this knowledge or dissipation of such knowledge to these students will have negative impact on the students and that we worked seriously to make sure that such thing does not occur."

Many participants talked about changes to *assessment and feedback arrangements*, but these tended to relate to inherited decisions made by others (e.g. examinations). For example, one participant spoke about how lecturers moved to giving online feedback through the use of 'track changes', as part of *supervision,* and how this created an unintended consequence of students engaging less with the thinking behind that feedback:

"The lecturers have got to supervise online and give us the information and it is not very easy to understand whether the students are getting the feedback that they get when they are sitting on one to one because with the lecturers have to read, have got to track changes. And then we have other students of – I mean we've got cases of students just accepting the changes. So they accept even when we are advising them to do something, they say accept changes and they send to the lecturers so it has not been very easy. So we have requested, I keep on requesting the lecturers to go over the work because at times it becomes embarrassing when a statement that a lecturer had just written is accepted."

As a result of participants making adjustments to their pedagogical approaches and adopting *synchronous online teaching*, some also spoke about their own professional learning or training needs. Sometimes these had been attended to through university professional development programmes specifically set up to support staff adjust to online or blended learning. For example:

"Doing blended teaching is new, it is not easy. So, I am still learning the ropes, hoping that with time I will get better, with more training, more exposure, I will be able to do better to help my students get the best of what we have to offer them, and make them become the best they can be of themselves."

"COVID-19 pandemic left me with no choice but to revisit my delivery of content to my students. I thought of using a technological, pedagogical and content-knowledge model to deliver my modules, and the point of departure was to find out the available digital tools in our line management team that I know very well and can maybe assist me to be productive in sharing content with my students. Like, for instance, "Announcement to discussion forum, the big blue button" and so forth. My approach was no longer teacher-centred but learner-centred, and thus trying to motivate my students to participate in sharing knowledge and be in control of their learning."

3. Community-related decisions

Participants often spoke about the range of circumstances that students and staff were in - citing both infrastructure variance. For example:

"It was a hard decision because not all lecturers, students, have the same infrastructure from where they are, but it was to be that we were all online if learning was to take place."

In addition, participants referred to the different economic situations facing their students (e.g. those balancing studies with employment, or those who feared the move to blended learning would remove the need for their employed role).

"I cannot fail to mention the supervision of postgraduate students using the online method which also was influenced by COVID-19 pandemic because earlier on the students had to travel all the way to where I am as a supervisor. But with the COVID-19 coming in, we had to adopt quickly to Zoom meetings, supervision meetings, and we discussed documents and that went a long way to helping them graduate. At times I think faster and

when they had to travel face to face, to come and meet me face to face because they had to seek permission from their employer. I also had to set aside time during the working hours. But with supervision online I have been able to supervise them past 5.00pm. And sometimes even over the weekend."

" I consider they availability of the student and the choice of time. I choose to be with the students online as they are workers. At a point the university specified that online meetings with the students can only be after working hours. That is 4.00pm and beyond."

Three participants highlighted their concern about students potentially becoming idle or their engagement with learning suffering due to lack of teaching provision. These responses tended to be from lecturers themselves rather than those holding more senior roles;

"The most important decision that I took during the advent of this pandemic was the decision that has to do with reaching out to the students and making sure that there is continuity in learning and other academic activities."

"First, students were no longer going to classes for their lectures. Students were not willing to study anymore. Students lack interactions with their colleagues. All students have lost the zeal for routine. What influences my decision was that students were willing to learn through online because most of them have lost the hope of going to classroom for lecture due to the pandemic."

"We also had to consider the fact that students were idle and they are young people and that could easily lead to stress or some even engaging with other things and probably abandoning education. So, to avoid all that the university made a decision to teach using the online strategy."

4. Tool and Technology-related decisions

Staff also had to make tool and technology-related decisions in order to teach and support students online. The types of decisions relating to tools and technology were operational and included decision about *platforms, VLEs and LMSs; devices, software and application, and students' access to electricity and connectivity*.

Platforms and VLEs- In most cases decisions relating to platforms, VLEs and LMSs were about participants deciding to adopt relevant technology to support their role in student's courses (e.g. lecturing or assessment).

"My second decision is to adopt the relevant technology. You know for me to teach online what it means that I must adopt the relevant technology and this one includes the Learning Management System which the university is using."

Some participants spoke about their role in decision making about technologies and tools on behalf of students and staff. One participant spoke about the considerations that informed their decisions relating to the choice of platform or learning management system.

"Okay, the first thing that I consider when I look into this selecting of the online spaces is the identification of relevant ICT platform or learning management systems. Firstly, I have to make sure that the selected learning management systems, or platform can handle the relevant content or it has enough capacity to handle the content, because mostly my content, it comes in different forms. Also, the platform must be able to promote the collaborative learning, okay? Number two, now once I have selected the platform, I should look into the issue of accessibility and the visibility of the platform. Access, in this context, becomes very broad, because it starts from myself as a lecturer understanding that either I buy or I just access it for free; in this case I do not want to purchase to use the platform. Okay, the question is now, if I have to pay or if my students have to pay, that platform is out, it is not considered in the process. I, rather, have to pay or go for Shadow IT"

Devices, software and applications- In light of the difficulties surrounding synchronous activities, a number of participants stated that they had to make decisions about which technologies to use. There were a number of considerations cited by these participants including devices, software and applications which facilitate the processes of communicating with students.

"I record my lectures by sound, and then send them over to the students on the student learning management platform, or to their WhatsApp groups. Then the students would pick the lecture notes from there and listen to."

"The most important decision I have had to make since the beginning of the pandemic is online teaching by using Zoom during COVID-19 school closure. I considered a lot of things before taking the decision."

"I encouraged them to create a sub-chat room which also helped them, so I found that practising, teaching one another, building on what we have done. Then I found that fulfilling because before I was helpless in helping the students. We felt some of them were saying, "Okay, why don't you come?" I said, "Okay,". Of course, I was joking because there's no realistic way I could go round Nigeria and be teaching one after the other, and that was why I actually offered the university to do a video."

Electricity and connectivity- Issues surrounding electricity and connectivity permeated across most participants in each university due to the consequent problems that lack of these created for both staff and students. Decisions made as result of these issues included utilising different technologies and funding data access. For example:

"We have other challenges, including the unreliability of the networks, so we have to adapt, make decisions to use social media platform, being WhatsApp groups for the students and the classes, whereby students ask questions, post questions there and we discuss them over the platform."

Issues about the costs of connectivity and data were addressed in part by decisions made at institution level. For example:

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"the university provided [data] bundles. So where we thought we had a challenge of buying bundles and engaging online because of lack of internet connectivity we found the problem was already sorted. And that has been good because every month we are getting the bundles sent to our phone without even any further follow-up on this. It happens automatically. We are really grateful."

However, this was not universally the case. For example:

"I equally reached out to internet service providers requesting that they subsidise the cost of mobile data for our learners."

5. Subject-related decisions

This group of decisions included decisions that staff had to make about themselves, their skills and knowledge or situation. They consist of decisions about improving their digital literacy or capabilities and seeking professional development opportunities, enabling their access to the internet and technology.

Participants varied in their willingness and enthusiasm to engage with the changes to remote or blended learning and this affected the nature of their decisions. For example:

"The decision was to positively accept using online teaching which beforehand was not very – it wasn't an interesting thing for me. I had to accept to be trained and even to go and ask the digital office how to use it. For example, setting Zoom meetings, setting Google Meet. And I was able to learn because this time I had to because I had to teach students online"

One of the categories within Subject-related decisions was concerned with *Improving digital literacies and seeking professional development opportunities.* In most cases, where participants referred to professional development it was by means of describing their decision to engage with professional development opportunities that had been made available to them or resources that they had sought out for themselves.

"The other decision I made is that I must attend training on blended learning since now I'm supposed to teach remotely. Then it means that I must have the competencies that is to blended teaching. And this one requires that I should attend blended teaching trainings."

"And the fourth important decision I made is to read more on blended teaching and learning, to research more on the internet on blended teaching and learning so that I can get my information because it is said that information is power, or knowledge is power. So for me to be more effective in blended teaching and learning, it requires that I should read more about the technology."

"Another decision made or that I was able to avail myself and participate on online training on content delivering in blended learning in an ODL environment."

In a small number of cases (2), participants referred to their role in providing the professional development materials or environments for other staff.

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"When we looked at it, we realised that the teaching had to change drastically from face to face to virtual or blended. So, the first one was to ensure that they are trained. We took them through the training for them to be able to understand what it is."

"I identified some champions from the department and members of the department who are familiar with this blended learning to train, you know, the other members of staff on this mode of teaching and learning."

"The role I played in terms of digital decisions, as an e-learning trainer and a lecturer at the same time, there has to a decision on what need to be trained on in terms of capacity building of the lecturers, training of the students in terms of accessing their resources for learning and for teaching, which needed to be done. And there are certain activities that needed to be worked on or done, and I needed to actually involve the students, involve the administration, involve the lecturers, because this has to work as a team."

Access to devices and the internet- In order to teach or support students online, staff had to ensure they have access to appropriate devices and the internet, and 3 participants referred to the arrangements that they had made in their own homes or offices. For example:

"Before that, each lecturer in the country had been given an opportunity to get free bundles. Bundles is what enable one to use online. Funded under the support of Telecom Kenya and KENET. That we all got. And towards the end of that period the rights have become very, very useful. Many of us have installed Wi-Fi in our houses and wherever we are"

There were also some examples of participants paying for devices or connectivity from their own funds:

"I decided to change the environment by buying the modern phone and also the lap computer, and with the two then I can access any software and link provided, the link is communicated in advance, and then through that I do communicate with my students by giving them the link to which they can all access."

"I personally had to purchase a very good headphone, a new laptop and a very good connection to WIFI."

"I in person had to get upgrade all personal gadget to enable me have a smooth and effective online teaching experience which also meant to pay for a FBB (Fixed Broad Band) service in my residence."

6. Decisions related to the division of labour

Narratives about decisions related to the division of labour were usually concerned with decisions that individual participants undertook as part of their role or responsibilities. In some cases, these referenced

actions undertaken by other individuals or departments, but there was no evidence that the point of decision was about the intrinsic dividing of labour (tasks).

A typical description about the decisions is as follows:

"And decisions had to be made by the university which ended up becoming personal decisions because we had to own them. And I think this was a very significant decision and we had to consider the waiting which was indefinite."

There were scenarios where participants spoke about how their decisions related to the actions or views of others. For example:

"Number two of the decisions that I made was to ensure that they understood their roles, and this was very hard because some of them were resisting, they did not even see the need for it. They were scared and they thought that probably they will lose their jobs, so it was really a major issue of ensuring that they were brought onboard to understand that that is the way the world is."

There were also participants who spoke about decisions that they made from a management perspective which set out tasks for others (e.g. lecturers) to undertake.

"For those programmes that did not have content, we gave the lecturers an opportunity to develop interactive models, which were subsequently uploaded on our learning management system."

"Then we record what we have taught and send it to the Chair who could send the recordings to the registrar card to show that really this thing is taking place."

RQ3: How decisions were made

The analysis of decision-making processes of 24 sampled narratives from a variety of roles (see Table 1 for more detail) based on the activity theory revealed the aims of decisions, mediating tools for making and implementing them, influencing rules and procedures, involved community and the sharing of relevant tasks and responsibilities. More importantly, the analysis shed light on the tensions between the named elements which will facilitate future decisions related to online education. In this section, first an overview is provided and then four cases are presented in detail for a more comprehensive picture.

Decision objectives

The main objective of the studied decisions was to enable education to continue during pandemic and cancellation of face-to-face teaching. However, participants in different roles set the objectives based on their positions and domain of work. For example, the eLearning trainer's aim was to provide training that facilitated delivery of online classes while the exam coordinator aimed to ensure online exams happen and meet the requirements and the governing code of conduct regarding security and integrity. Participants in management positions such as deans and heads of schools attempted to ensure schools and faculties run smoothly and there are no interruptions in teaching or supervising students. For technical advisors, system administrators and ITC facilitators the goal was to keep IT related systems up to date, managing online platforms, providing necessary infrastructure for students and staff, and setting online assignments and exams. Lecturers and educators also tried to continue teaching, offer lectures, assess student work, and supervise their work. As can be seen, all these objectives contributed to the overarching aim of providing education.

Moreover, the narratives showed that when objectives are set for an activity (in the case of this study, for decisions) the involved communities (e.g. students or other departments) must be considered. It was found that there had been tensions between objectives and the community in a few cases. For example, many participants aimed for continuing teaching online and following a specific timetable; however, there was a tension between this objective and students (i.e. community) who were in employment or ill and their availability for attending tutorials and lives classes was affected. Another example of tension between an activity objective and the community was observed when a lecturer's community, i.e. The Department for Curriculum and Training did not have enough capacity to support the development of online modules (objective).

Mediating tools

Participants reported several tools (often digital) that mediated their decisions. These tools are not limited to objects as listed below. In some cases (e.g. deans and heads of departments), the human resources, i.e. staff were the mediating tool as they enabled the implementation of the decisions and fulfilling the objectives. Therefore, both objects and humans are considered as tools in the analysis.

Apps and software - Tools in this category mainly included apps that facilitate online communications and live lectures such as Zoom, WhatsApp, Google Meet and MS Teams. The second most common category within this group was exam-related apps such as iCam for monitoring exams, J-router for marking or Unplug for checking plagiarism. Participants in supporting roles such as graphic designers reported specialist software (e.g. CorelDRAW and Photoshop).

The internet and data bundles - Participants used the internet as a source of information for making decisions or its online facilities to meet their objectives. A closely connected tool for a number of participants was data bundles which enabled their online activities and access to the internet. However, in many instances instead of facilitating the decision, the data bundles and connections were hindering. For example, a group of staff did not have stable connections at home, or they had to pay for a package themselves which was not financially viable. Of note that the internet and data as tools caused the highest tensions especially when the community (i.e. students) is concerned.

Learning Management System (LMS) - one of the main tools mentioned by academic, support and technical staff was the institution learning management system. They were the main tools to offer teaching, share learning materials and enable submission of assignments or administration of test. However, they were not particularly useful when communicating with students was considered.

Online (learning) materials - One of the key tools that enabled staff particularly lecturers to meet their objectives was online resources that they created themselves (e.g. instructional videos, recording of lectures, lecture notes) or were produced by others and were freely available online (e.g. OER and MOOCs). Nevertheless, some chairs of departments reported an absence of online resources that impede their decisions. This is an example where the activities of one person- a lecturer not making online resources available to students- have a negative impact on the activity of another person- chair of the department not being able to ensure a smooth running of his courses.

Devices and gadgets- computers and laptops were the most common tools reported by participants in this category. Without them, participants were not able to implement their decisions and meet their objectives.

Participants also used tools which were role specific. Lecturers and teaching staff in many cases referred to online or blended teaching and tele tutoring as the tool that enabled their decisions. Sometimes they were more specific and discussed for example, discussion forums, WhatsApp groups or lecture recordings. Exam co-ordinators, mentioned the human resource available to them, i.e. markers and staff in management positions referred to budgeting for devices. As can be seen, a variety of tools depending on the participants' roles were used. However, these tools were also the main sources of tensions which will be discussed later.

Rules, regulations and procedures

All participants had to make their decisions following the rules, regulations and procedures set by their institutions. Sometimes there were formal and sometimes informal. In either case, they had an impact on the decision or application of it and in a number of instances they were the source of tension. Since they are very context specific and vary from one institution or individual staff to another, a few examples are provided below. In the next section where cases are presented in detail, rules will be discussed fully based on the case under study.

Example 1: "Prior to Covid, online teaching was optional; during Covid 'it was a must'"
Example 2: "Staff must adhere to National Qualification Framework [for choosing OER]"
Example 3: "Lateness in exams is not accepted by Pro-vice Chancellor"
Example 4: "Continuous assessment is not allowed because assessment follows a tuition model"
Example 5: "Rules and regulations governing the conduct of in-person exams must be followed for online exams".

Community

In examining participants' decisions, the community to which they belonged and within which they worked was also studied. In the majority of cases, the community included *students*, *members of staff from one's own or other departments* (e.g. administration colleagues, other lecturers, chairs of departments, exam officers, ICT officers, Vice Chancellor, facilitators), and *other departments* such as Office of the Registrar Academic at DVC Academic, Department of Curriculum, Development and Training, Digital School or Board of examiners.

One observation about a participant's community was about its size. In some cases, a participant's community was as small as including students only (that may explain why in some cases no division of labour is reported) and it some cases as big as several departments, staff and students. This was mainly the case of staff in management positions such as chairs, heads and deans.

The key finding about the community of participants is that they caused the most tensions. There were reports of tension between *community* (e.g. students) *and Tool* (e.g. LMS, online learning material)*, community* (e.g. students) *and Rules* (e.g. policy to deliver lectures synchronous and online), *community* (e.g. Department for Curriculum, Development and training; not having capacity) *and objective* (e.g. offering online learning).

Sharing of tasks (division of labour)

There was a very limited number of narratives that referred to sharing of tasks and responsibilities for making and implementing decisions. This can be because such information might not have appeared important to participants to report or else, they share responsibilities and tasks so often and routinely that they have become unconscious work arrangements, unlikely to be noticed and reported. Neuman (2014) describes this phenomenon as unconscious non-reporting, i.e. this group of activities appear to be too insignificant in participants' minds to be reported. It can also be explained in terms of participants treated decision making as an individual activity. In some cases, however, a clear absence of division of labour is reported. One of the lecturers, for instance stated that their university did not have a support department to providing graphics and copy-editing services for staff who create online modules.

Example 1: An exam coordinator who aimed to ensure exams are delivered online had the support of "chairs of departments" to set exams and distribute papers and the "Office of the Registrar Academic" to set the exam schedule and procedures and relied on the timely coordinated return of exam papers to academic staff by the "Head of Exams Office" who processed the exam papers. This example shows how tasks were shared by a number of departments.

Example 2: The Head of Facilitation for Learning aimed to support students during lockdown by ensuring tutorials and training for academic literacies and technology-enhanced online learning are offered. To this end, he asked: a) "Academic Coordinators" to support students and train them to be digitally literate; b) "tutors" to create WhatsApp groups and communicate with students and c) "tutors" to record workshops for students who were not able to attend.

Tensions

The contradictions between the described contextual elements of decisions can create contradictions and tensions. These tensions can affect the interaction between different components- for example between community and tools or subject and division of labour- and can affect the participant's ability to meet his or her objective (Yamagata-Lynch, 2010). However, according to Barab et al. (2002), these tensions encourage change and improvement in a system or in an organisation. This section summarises most common tensions that the narratives revealed.

Tension between the "Community" and "Tool"- most instances of tensions were found between a participant's community and tools s/he used to achieve his/her objective(s). The common tension was observed between students as members of the community and tools that lecturers, exam coordinators or support staff used to deliver online education. For example, lecturers used Zoom (tool) to deliver their online sessions while students (community) were not able to attend them due to unstable network or the exam coordinators planned online exams (tool), however, students (community) were not able to sit them due to a lack of device or again poor connection. In the narrative from a dean, a tension between staff of a department (community) and online teaching (tool for the dean to meet his objectives) was reported. Staff were concerned about losing their jobs and were reluctant to engage with the tool. Thus, when deciding to use a tool for planning or delivery of online education, staff must consider community that are required to engage with the tool.

Tension between the "Community" and "Rule"- Another group of tensions was found between institutional rules and procedures and the community. In most cases, students as members of the community were not able to comply with the rules and this caused challenges for staff. For example, students (community) had to attend online lessons according to the set timetable (rule); however, some of them missed the lessons as they were working full-time or they did not have access to a device at the time of the online session. Another common example was students' (community) rejection to engage with online lecturers as required by university (rule), since they were resistant to the shift from traditional lectures to online ones.

Tension between the "Rule and regulations" and "Tool"- There were also instances of tensions between the rules and procedures set by the institution or the management and tools that staff used to deliver online education. There were cases that the university policy (rule) discouraged use of social media such as WhatsApp (tool) which was the most accessible way of communication with students or using of OER (tool) was subject to its compliance with the National Qualification Framework (rule).

Tension between the "Subject/participant" and "Tool"- There was also a tension between participants as the subject of the activity and tools. For example, one of the lectures' (i.e. subject) outdated laptop (tool) prevented the module redesign. Another lecturer (subject) pointed out that due to poor connection (tool) at home, he found online communications with students particularly challenging. Understanding this kind of tension is important for management, as for successful achievement of their strategic goals and objectives, they need to ensure staff have access to the appropriate tools.

Tension between the "Subject" and "Community"- In some cases, the participant (subject) was not supported by his or her community. A lecturer (subject) for example, required support from the Technical Department (community) which was not available to him due to limited capacity of this department. In another case, the

head of department (subject) had issues with his immediate community, i.e. his staff, as they were not responsive enough to students' issues. These examples show support from community is needed for successful completion of an activity.

There was also a single instance of the following tensions which cannot be generalised as they were reported by one participant only. However, they are worth reporting, as they give insight into possible types of tensions that can be addressed or minimise in future digital decisions:

- *Tension between "Rule" and "Rule"* - Rules set by different departments or individuals within an organisation sometimes contradict and cause tension. For example, an exam coordinator has to comply with the assessment requirements (rule 1) and at the same time administer exams online (rule 2). For performing arts subject, complying with both rules was not possible and as a result the coordinator had to choose to comply with one of the rules.
- *Tension between "Subject" and "Rule"* - Rules can also affect the participant and restrict their actions and decisions. One lecturer (subject) decided to change her honours level module from distance to fully online (objective) and to changes the assessment plan from formative/summative 40/60 to continuous assessment. However, the university policy (rule) did not allow for continuous assessment as well as fully online delivery.
- *Tension between "Subject" and "division of labour"* - In the case of a chair of department, the absence of division of labour was the main source of his heavy workload during pandemic. Since his staff were not able to come to campus for certain tasks during local lockdowns, he had to cover a range of tasks. This is an example of tension between a lack of division of labour and subject.

In the next section, four cases of decision activity systems are presented to provide a more comprehensive picture of participants digital decisions.

CASE ONE: Exam coordinator and lecturer (University A)

Narrative: The participant is a lecturer and an exam coordinator (Subject) who schedules and organises exam timetable for practical subjects in the Department of Music and Dance and ensures that students are examined in both musical instruments and dance routines. He spoke about the specific requirements within the Music and Dance Department such as mandatory move to blended teaching during Covid (Rules and Regulations) and how these had been affecting lecturers (Community) and therefore exam preparation (Objective). For example, there was a decision to teach theories online and the practical elements during face-to-face teaching or to reduce the number of dances students perform for assessment. This shows how the sequence of teaching had been changed to take account of the limitations of blended learning, including connectivity and lack of musical instruments in students' homes (Tools, Community).
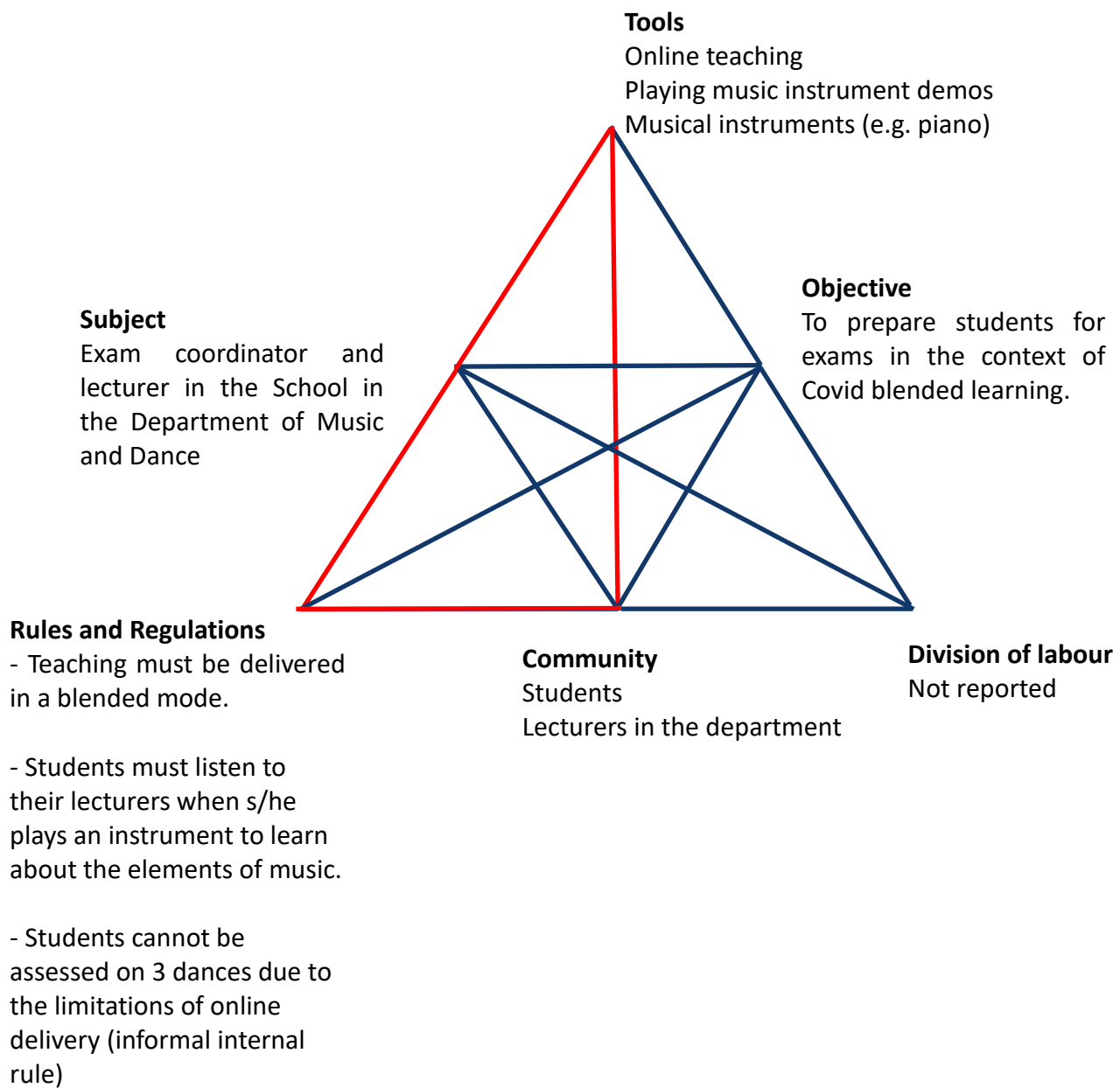
Tensions-The narrative also revealed several tensions between different components of this coordinator's activity to prepare students for the exam. For example, he stated that students were taught about music using music itself. Therefore, the lecturer had to first play the music and then explain the elements that had been used. He found that in online learning, there were sometimes problems with the internet, meaning that, when lecturers had explained a concept and wanted the students to listen, they were not be able to do so because of poor connectivity (Tool- Community tension as well as rule-community tension). Or students had to practise playing a musical instrument to prepare for practical exams, but many of them did not have the instrument at home (Tool-Community tension). Another tension was between rules and regulations (i.e. students must be taught dance and playing two musical instruments as a part of their degrees) and tool (blended delivery of lessons). These tensions are shown in the below diagram in red.

Community- According to the narrative this participant provided, his community is very small and includes students and lecturers in the Department of Music and Dance.

Rules and regulations- The participants actions and activities were influenced by the following rules:

- Teaching must be delivered in a blended mode.
- Students must listen to their lecturers when s/he plays an instrument to learn about the elements of music.
- Students cannot be assessed on 3 dances due to the limitations of online delivery (informal internal rule)

Division of labour- The participants did not talk explicitly about any sharing of responsibilities or tasks or support he received to meet his objective.

Tools
Online teaching
Playing music instrument demos
Musical instruments (e.g. piano)

Objective
To prepare students for exams in the context of Covid blended learning.

Subject
Exam coordinator and lecturer in the School in the Department of Music and Dance

Rules and Regulations
- Teaching must be delivered in a blended mode.

- Students must listen to their lecturers when s/he plays an instrument to learn about the elements of music.

- Students cannot be assessed on 3 dances due to the limitations of online delivery (informal internal rule)

Community
Students
Lecturers in the department

Division of labour
Not reported

CASE TWO: Lecturer (University D)

Narrative: The participant is a lecturer who spoke about her pro-active move to learn for themselves how to move to online teaching and changing her distance module to a fully online one (Objective). To meet this objective, she took a five-week intensive course on how to teach online (Tool) and then used this to adapt their teaching and assessment methods by using the university virtual learning system (Tool) and Webtic (Tool). She spoke about a tension between her wish to move to continuous assessment for her new online module and the university assessment policy (Rules and Regulations), and the friction that this caused between her and her senior academic colleagues and support departments (Community). However, she manages to overcome this issue by the support of the Executive Dean (Community) and have low-stake online activities and peer review (Tool) as her module assessment strategies. Another big challenge was that the support departments (Community) were not prepared for fully online delivery and that she was restricted to the institution learning management system (Rule and Regulation); she also struggled with finding good quality OER (Tool) for as learning materials.

Tensions- The narrative revealed several tensions including:

- A tension between the participant (Subject) and the university policy (Rules and regulations)
- A tension between the participant (Subject) and support departments (Community) as they were not ready to support online teaching
- A tension between the participant (Subject) and the policy of using university learning management system for online delivery (Rule and regulation)
- A tension between the participant (Subject) and the university learning management system (Tool) as it did not fully support her to mover her module online
- A tension between the participant (Subject) and the senior management (Community)

Community- Based on the narrative, the participant community is extended and involves, students, the executive dean, support departments, senior academic colleagues, and staff on the training course (external). Some of these members of community were facilitating her move to the online teaching (e.g. executive dean) and staff on her training course, while others such as some support departments were not cooperative.

Rules and regulations- The participants actions and activities were influenced by the following rules:

- Online delivery of modules must be done through the university learning management system.
- Continuous assessment for online modules is not available for online modules.

Division of labour- The only reference to sharing of responsibilities is related to the peer review for continuous assessment where students do part of the marking. The participant believes this has reduced her marking load considerably.

Tools
University learning management system
Webtico
5-week training course
OERs
low stakes online assessment activities
Peer review

Subject
Lecturer

Objective
To re-develop a distance module for fully online delivery

Rules and Regulations
- Online delivery of modules must be done through the university learning management system.

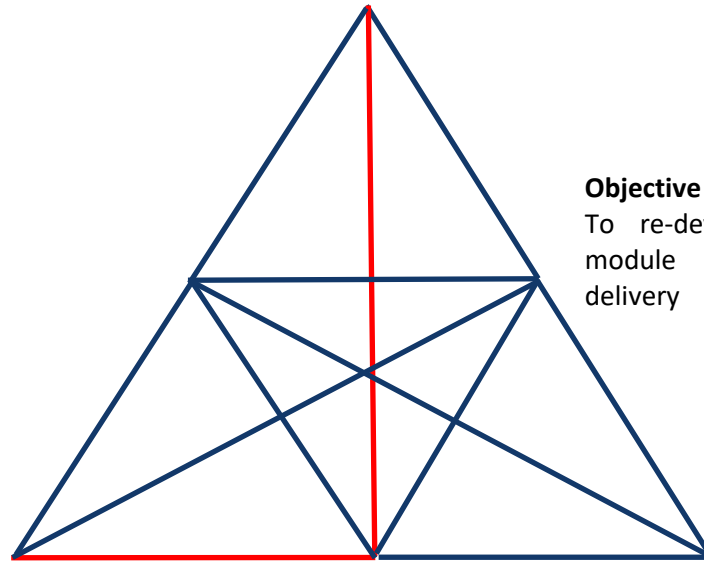- Continuous assessment for online modules is not available for online modules.

Community
Students
Executive dean
Senior academic
Support department
Staff on five-week training course (external)

Division of labour
Peer review for module continuous assessment (student-subject)

CASE THREE: Director of learning content management systems (University C)

Subject

Narrative: The participant is the director of learning content management systems in a distance university and as a part of her role, she provides ELAN infrastructure for staff and students and ensures students have access to learning materials. Traditionally, students (Community) were sent learning material to study at their own pace and then they were supported by different centres on campus. But recently, materials are provided to students online and via university platform (Tool). The narrative predominantly focused on activities of 'The University' (Community). These included obtaining video conferencing infrastructure (Tools) in order to facilitate remote staff meetings, and the encouragement of staff (Community) to obtain devices. The participant also spoke about the University having an existing expectation for every course to have an online component (Rule and regulation) and that this was not new but accelerated by the pandemic.

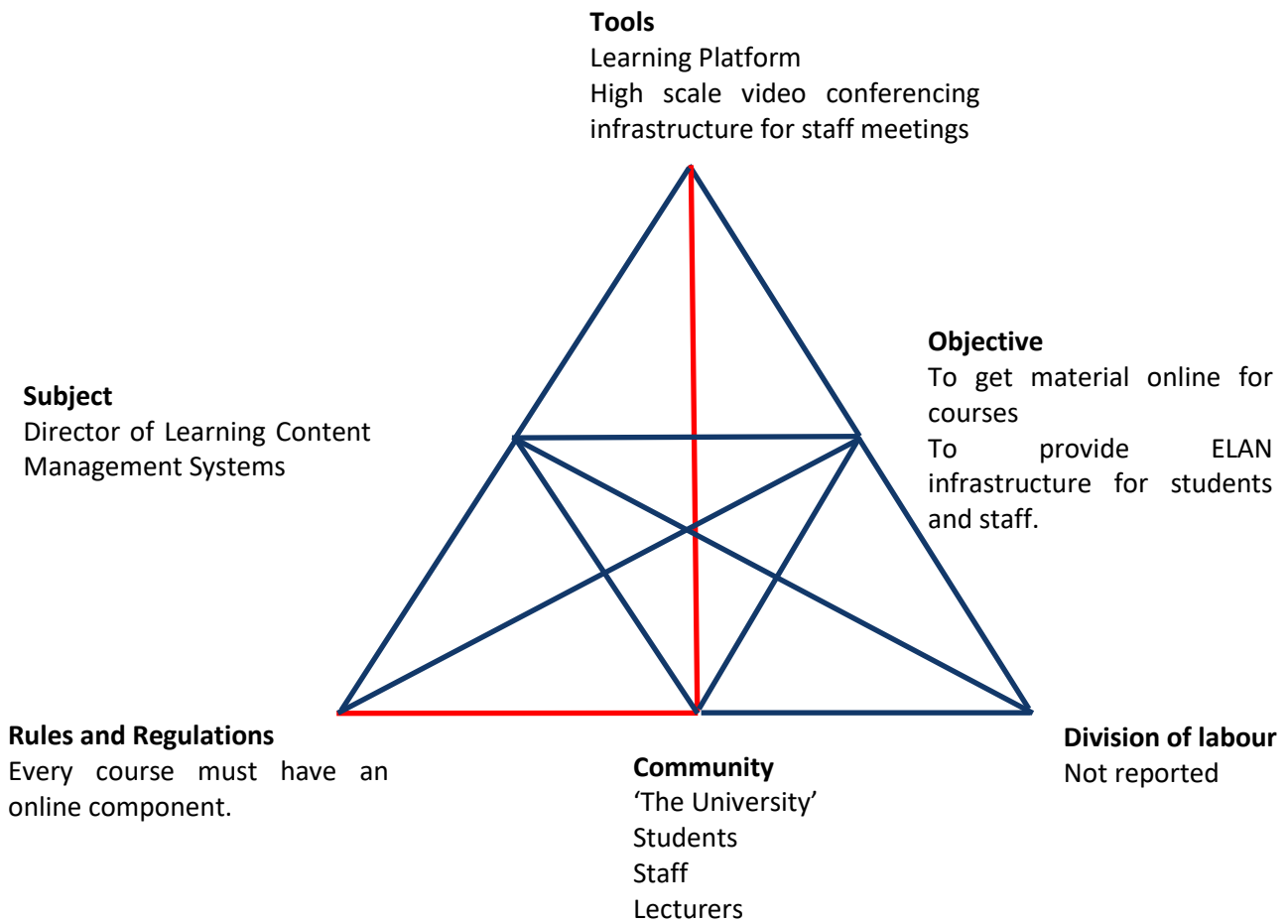**Tensions-** The narrative revealed several tensions including:

- A tension between students as the main community members and the university online platform (Tool) as some students were unable to access it due to connectivity issues
- A tension between staff (Community) and the rule set by university that every course must have an online component. The main source of this tension was staff lack of capacity and in some cases a lack of device to engage with online activities
- A tension between staff (Community) and the online platform (Tool) as some staff did not have devices.

Community- Based on the narrative, this director's community involves students, staff (although she has not specified), lecturers and "The University". Although it is not clear who the University involves, they supported the participant's objective by encouraging and enabling staff to get devices and also by addressing the issues related to connectivity to some extent.

Rules and regulations- The participants actions and activities were influenced by the following rules:

- Every course must have an online component.

Division of labour- No explicit division of labour reported.

Tools
Learning Platform
High scale video conferencing
infrastructure for staff meetings

Objective
To get material online for
courses
To provide ELAN
infrastructure for students
and staff.

Subject
Director of Learning Content
Management Systems

Rules and Regulations
Every course must have an
online component.

Community
'The University'
Students
Staff
Lecturers

Division of labour
Not reported

CASE FOUR: IT facilitator (University B)

Subject
Narrative: The participant is an IT facilitator who has the responsibility of supporting students (Community) with their IT inquiries and difficulties (Objective). During the pandemic he provided his support online and through Zoom (Tool). However, he spoke about using Zoom being affected by network problems and the light-out which created a tension in providing continuity and lectures to students (Community). Despite these difficulties, he believed that students enjoyed learning online more than face-to-face as they were not pressured to be present on campus to attend a session.
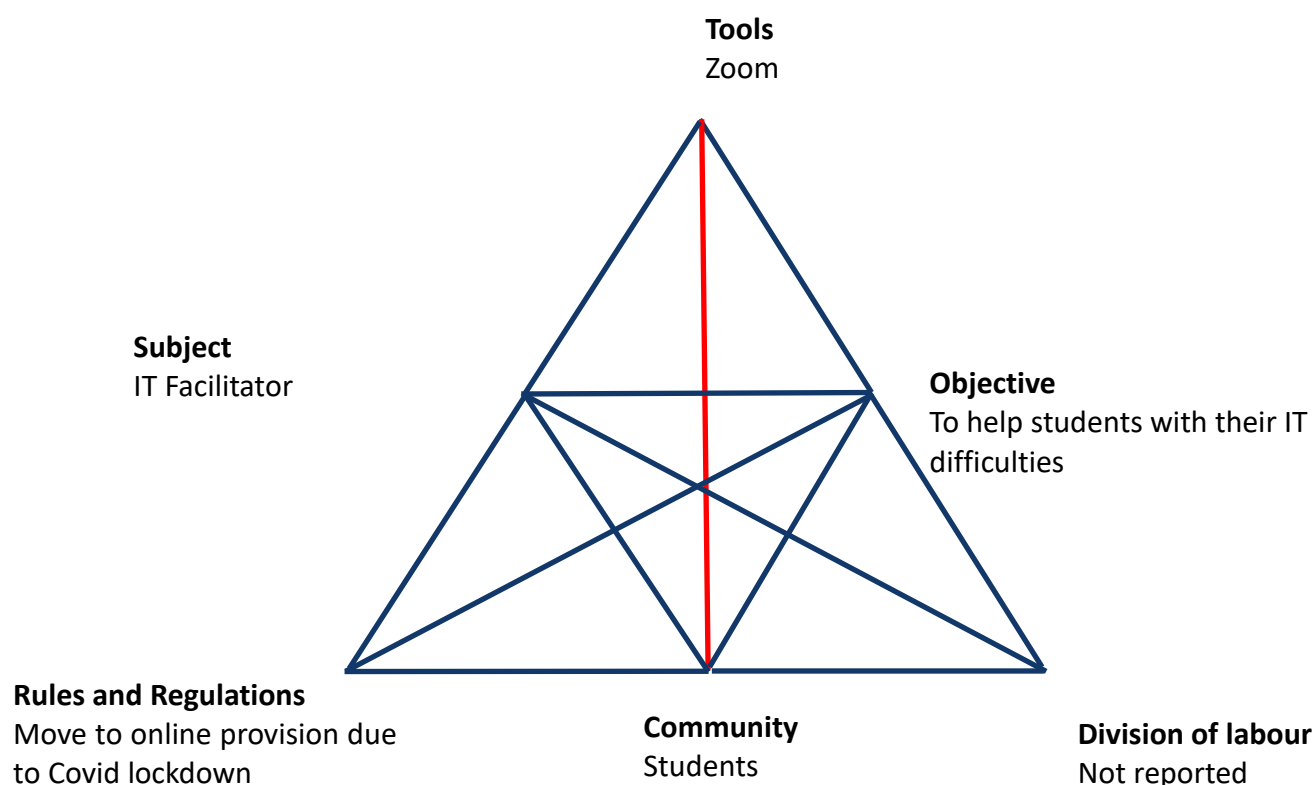
Tensions- The narrative revealed only one tension and it was between the students (community) and the tool, i.e. using Zoom and as in many cases, the source of tension is poor connectivity. However, this is a major tension as it did not allow the participant to meet his objective fully.

Community- Based on the narrative, this facilitator's community involves only students.

Rules and regulations- The participants actions and activities were influenced by the following rule:

- Support is required to be provided to students online due to lockdowns.

Division of labour- None reported.

Tools
Zoom

Subject
IT Facilitator

Objective
To help students with their IT difficulties

Rules and Regulations
Move to online provision due to Covid lockdown

Community
Students

Division of labour
Not reported

RQ4: The impact of decisions

One of the reflection prompts specifically asked participants about the impact of their decisions. Responses to this prompt revealed *impact on students and their learning, impact on teaching and course delivery, impact on staff* and *impact on university.*

1. Impact on students and their learning

Enabling learning- Participants in different roles unanimously agreed that their decisions enabled learning to be continued and not to be interrupted by the pandemic. For example, eLearning administrators believed that their decisions about the institutional VLE, made it possible for students to learn from wherever they are located, or lecturers highlighted those decisions such as recording sessions allowed students who missed a session to catch up with the class and study at the time that suited them. Similarly, PhD supervisors reflected that they were able to supervise students' work and encourage them to finish on time.

> *"In all, I think using the virtual platform to conduct examination has been so good and has also enabled us to continue our business and also enable the students to continue learning during the pandemic"*

> *"The impact is that the students have been able to continue with their studies despite the closure of the university. So, that is a positive impact on the student in the sense that they have not lost much academic time"*

More learning resources- Due to the shift to online teaching, staff believed students were able to access more learning resources as they were introduced to OERs and other freely available content which in turn brought other voices and faces to the lessons. They also pointed out that using OERs instead of "expensive prescribed textbooks" helped students financially.

> *"Students also now have a lot of – they have access to a lot of resources which was not possible before"*

> *"Earlier we used to teach face to face with the limited resources; with introduction of blended learning it means now I have access to a lot of teaching and learning resources meaning that my teaching now is more effective than there before. Even the students are finding teaching and learning to be fun, to be interesting"*

More accessible learning resources- Another outcome of online teaching for students has been more accessible learning materials. For teaching and supporting students online, lecturers used materials in a variety of formats such as videos, texts or audios which made the course content more accessible to students with different needs and learning preferences.

> *"Yes, that decision has been helpful because students now have the ability to have their content in various formats. They have it in PDF format, which is the course*

material we have online. Now they can still have it in the form of instructional videos, and that makes learning realistic and connected to real-life situations today"

"This process brings about a change or giving meaningful end product to what we actually wish to achieve. It actually did because comparing what was on ground as the text based course material and the newly produced responsive SCOM format, there was a very clear difference as this SCOM format just as was planned was able to deliver more interactive content to the student rather than having it text based as it usually is, to now it also give them the option to view it online and also view it offline, bridging that gap as it were of the need for some sort of facilitation, the need for some sort of guidance"

 In some cases, the accessibility was interpreted as students' choice of when to access the learning materials, as the below example shows:

"You post the course, the unit, the notes, on LMS portal, and the students can access it any time and they do research"

More opportunities to revisit learning materials- Participants strongly believed that one of the most important outcomes of their decisions has been enabling students to revisit learning materials as many times as required (e.g. by replay video lecturers) and to gain a deeper understanding of taught concepts; something unlikely to happen in a face-to-face setting:

"Students have the opportunity of replaying the lecture multiple times leading to deeper understanding of the course"

"In addition to that, the voice notes per se, when downloaded by the students could be played over and over again, and so students can then pick the missing things that they might have not grasped when they have face-to-face only one time"

Students' improved digital literacies- Participants also reported that their decision to teach and support students online led to improved digital literacies of students as they had to learn how to work with different digital tools, technologies or online environments.

"In delivering of the lectures online, Students become conversant in the use of the digital tools, many of them for free or cheap to create a social media marketing campaign for their own organizations and presentations for their own course work"

"… it helps students become good with technology devices and also it helps them try to learn on their own because their lecturer isn't there to help physically, but they help online"

"The impact, there was increase in awareness of online learning by students of {university Name}"

More flexible learning, but patchy attendance- Some participants suggested that because of their decisions, students were not restricted to a fixed timetable and venue for their learning and thus had more control over their learning:

> *"I record my lectures by sound as this, and then send them over to the students on the student learning management platform, or to their WhatsApp groups. Then the students would pick the lecture notes from there and listen to. It's been quite flexible, in that students and lecturers can organise their lectures at convenient times, as well as being able to also have their voice notes recorded and download them over and over again"*

> *"When you are teaching online, some of the students who get affected by the crowd have an advantage because they are studying either at home or in their room, and they can listen to you and engage with you"*

However, in some cases this led to a patchy attendance and a lack of online engagement as the below quotation suggests:

> *"The student's attendance to the online lectures is irregular and as a result of that, that could end up having an impact on their academic performance"*

Easier communications with lecturers- A group of participants believed that online education made them more accessible to students mostly due to the online communications through WhatsApp groups or discussion forums.

> *"The decision had a great impact on the students, especially because the teachers seem so close, the teacher is only a click away. The teacher is readily available through continuous chatting facilities. So that is worthy of note"*

> *"Some students, when they come to class, they don't want to interact, but I feel behind their devices they communicate better and freer, as to when they are with us on campus"*

> *"We have formed a WhatsApp group and I inform them even when I'm not able to go online at a specific time, any other time I decide on, they quickly join when I give them the notice through WhatsApp. It's making all of us happy; both myself and the students were happy"*

Happier students- Several participants pointed out that as a result of their decisions, students were overall happier since they were not required to go to campus, and they were able to learn from the comfort of their homes.

> *"The students are very, very happy about the online facilitation exercise that have been formalised. I've been doing it before, but I think more work has been to it. Our*

students are happy. They could do all this from their homes. There are testimonies everywhere"

"With the online systems I feel the students enjoyed more than the face to face, because they are not pressured to rush to school, to have a session, but you can be at the comfort of your home and have the sessions and be able to interact better. Some students, when they come to class, they don't want to interact, but I feel behind their devices they communicate better and freer, as to when they are with us on campus."

"The important thing is students are more engaged with their studies, they are happier because they can at least see their lecturers and interact with other students".

As the analysis shows most of staff's decisions had a positive impact on students and their learning. There were only two instances where educators reported a negative impact because of their move to online or blended teaching. Both cases are related to disadvantaging and excluding students who did not have access to the internet or technology to engage with online learning:

"Not all students were able to access the online classrooms; some students had to reschedule or had to call off semesters; those who could not access the online classrooms. But there are also those who are able to access but are attending very few classes when the infrastructure allowed them to do so"

"Yet a quarter of the students were not able to learn because of a lack of internet capability and connectivity, and also because they come from remote regions, even connecting just for a smartphone is also a challenge"

One head of department also pointed out that postgraduate research students were suffered because of the lockdowns as they were not able to continue their work and collect data. This in turn led to delay in their research projects and finishing the PhD programme.

"And in terms of research, that is for postgraduate students, one of the immediate impacts or effect is that there is a delay to finish their course, delay in research project, because some could not even collect their data, and especially the research focus of the schools, and the schools are closed"

2. Impact on teaching and course delivery

Assessing and evaluating students' learning- Several participants reported that their decision influenced the way they assessed students' work and their learning. Because of the shift to online teaching, some of them had to change or modify their assessment strategy. Instead of having an end-of-module exam for example, staff chose "continuous assessment". This led to "low-stakes online activities and supported students to cheat less". In another example, an exam coordinator who facilitated assessment for performing arts students reported a reduction in the elements of assessment.

"[I] changed my assessment plan from formative summative 40/60 to continuous assessment and used OERs instead of expensive prescribed textbooks. This had a profound impact on me when the COVID pandemic hit South Africa in 2020 and supported students really well"

"So, the context of the decisions that we made is that we have had to reduce or to modify the way in which we examine them, and one of them was to reduce the number of dances that they normally would perform"

However, a few educators stated that they were not able to assess students' work as the practical element of a course (e.g. fieldworks) was suspended.

"I was not able to examine them. For the postgraduate students specifically, when it came to time for fieldwork, they have had to suspend that and wait for a time when it is possible to organise for fieldwork"

Revising teaching methods and approaches- Several participants stated that they revised their teaching and class management methods due to moving to online or blended delivery. For example, instead of covering both theory and practice in one session, a lecturer in music history decided to use a blended approach and cover theory online and practical activities in a face-to-face session. According to him: "*you must separate the elements you want to teach. Those that can be done online will be done online, and then others will be done face to face, which of course waters down a little the quality of the teaching*". Or another lecturer explained that while he had to delivery content online which was new to him, he had to ensure his teaching is interactive and helps students meet the learning outcomes.

"Because of this blended learning, we knew that we would meet them face to face, so during the online learning, we did more of theory with them, and then when they came, then we decided to play the music that they were not able to hear. Previously, when you teach this unit, you teach both the theory and then they are also able to listen to the music, so that their learning is – they understand the whole thing. But because of COVID, so that is how we had to go"

"Some of them include … need to change the way we offer our classes, and especially at the university level, given that some of the students we have are international students"

Revising the teaching method for a few participants meant changing their approach to module writing as stated below:

"But then now with the COVID-19 pandemic, the onset, we had to fully focus on online delivery of content. So, we had to engage in module writing, writing of online modules, we were involved in a lot of trainings on how to do that. And eventually we were able to deliver those modules. So that was also a new way of doing something that we have always done, that we have always done"

On time course or degree completion- A major impact of many staff's decisions was enabling on time completion of courses by students and their graduation. In other words, their decisions allowed following of the academic calendar.

> *"And also, as a result of this, we have been able to graduate our 2020 students in November 2020"*

> *"… there was no breakage in their academic calendar, even exams were conducted online"*

3. Impact on staff

Enhanced digital knowledge and skills- Several participants reported that because of their decision to teach and support students online or in a blended way, their knowledge about online education and their digital capabilities improved. This is mainly due to their engagement with training opportunities.

> *"I have participated in a number of online CPD training workshops: seminars, webinars, Zoom meetings, Teams conferences, etc. There was a lot of upskilling on my teaching and learning pedagogies, and so forth"*

> *"It has improved my ability to engage in pedagogy online"*

> *"I have gained so many experiences and learned a lot mostly about the usefulness of the technology and its effectiveness"*

> *"I have become a better facilitator with the use of blended training via YouTube."*

Recognising professional development priorities- This is closely connected to the previous theme, as shifting to online education led staff to identify their professional development needs and priorities.

> *"The experience of developing the MOOC really showed me areas that I need to also focus on my own development, areas around some technical skills, around developing my own graphics, storyboards, being able to assess the levels at which I need to peg my MOOCs, was also something that I realised was important for me to develop on my own"*

> *"I should attend training on blended teaching. I should read more about blended teaching"*

Change in workload- One of the key effects of staff decisions about online education on themselves was a change in the workload. However, participants reported mixed effects. While for some participants these decisions led to a heavier workload, for others they decreased the amount of work they had to do.

> *"Like I said, one of them is that the Chairman is overworked. I feel overworked"*

"I am presently doing six online teaching classes a week, and that impacts on time to do other things such as research"

Whereas:

"I was able to do other things, you know; carry out my research work and continue with my lectures and that has kept me in good contact with my students and I actually like that"

"The peer review activity lowered the marking load for me, and the students really had fun with the debating, and it also lowered the marking load"

4. Impact on universities

Participants' narratives suggest that their decisions had several impacts both positive and negative on their institution. There was a belief that most institutions did not have any experience of making decisions about online or blended delivery and the urgency of some decisions resulted in outcomes with mixed effects as the below statement shows:

"Digital decisions on what needs to be done is something that the institution didn't have any experience on, and some decisions or immediate decisions needed to be made, and there were positives and negatives in terms of the decisions that were made. For example, bringing on board blended learning was embraced by some students and lecturers, but on the other side, there are those who felt it is not the way to go, and it can be seen as what I would want to call a double-edged sword, where we have the good and the bad at equal measures"

Uninterrupted education- Overall, most participants believed that the key effect of their decisions has been allowing education to continue even if it was partial or not as effective as pre-pandemic.

"So, there's been a major difference in terms of online learning, and I think, as a university, we have been able to handle our students during the COVID session, and most classes are continuing, though not 100 percent effective, but most classes are being handled online"

"The additional gain is that when a school is closed by government or whatever circumstances, even our kind of structure, learning can be done uninterrupted"

*Increase in student number (in future)-*Another reported impact of staff decision was likely increase in the number of students in future and opening the institutions to a wider market because of the online provision.

"Also, it opens up the university to a wider market since students can virtually study from any part of the country and the world as a whole"

"The student base is likely to increase. The returns would mean that the university is growing the number of students and also becoming more visible in the community of universities"

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Improved institutional services/provision- A few participants stated that their institution services are improved due to the protocol they developed, changes they made to their provision, improvement they made to their systems and upskilling of their staff. They also believed that they are now prepared for any future situation that may affect their face-to-face provision.

> *"Like I said, we've been doing it [online teaching] before but it's more new things have been added, maybe innovations, we are being more creative, adding new things to it and it's better now"*

> *"We were able to stretch our systems beyond the level we're operating. We gained insight as to things we could do, you know. Now we're beyond the online lectures.*

According to participants from universities that offered only distance courses pre-pandemic, their decisions improved the "visibility and credibility" of their institution and they believed that they were leading the sector during COVID.

> *"The impact of these decisions is that it has improved the visibility and the credibility of the {university name} as an online institution, especially on our students and other stakeholders"*

> *"Being a distance university, it brought out this sense of achievement that the university is leading according to its mandate, in that it provides a flexible mode of delivery, delivering instruction, teaching, and learning at the university"*

Although participants stated that their decision had both positive and negative impacts, they did not provide examples for the negative effect of their decisions. There was only one participant that mentioned "increased cost" as the below quotation shows:

> *"The decision was finally made to be able to take the exams to the students but this, of course, impacted on the cost. It had some cost implications because the person who was to travel and administer the exams had to stay there for a longer period because of quarantine. So that meant that the university had to undergo an extra cost of maintaining that person for more days"*

RQ5: Good practices

The narrative data includes decisions made that could be representative of good practices, and it also highlights key themes where an understanding of what constitutes good practice is needed.

To build on this, the project workshops included activities that were more specifically focused on identifying good practices. The second workshop directed the themes and production of a professional development resource: Making Digital Decisions, which summarises the key topics and the practices suggested within the workshop and uses quotes and examples from this and from the narratives. This aims to provide a foundation to making greater use of digital technologies and online learning.

In addition to the co-created professional development resource, and to complete our analyses in response to all research questions, the sections below describe the key themes in good practices that arise from the data. Much of the good practice discussion mirrors themes from earlier questions, but has a more positive orientation towards what has been done.

Pedagogy-related good practices

Rethinking assessment practices - A key area for good practice is in creating assessments that are more appropriate to online learning and moving away from the widespread standard approach of assessment through a final exam. More continuous and formative assessment were agreed to be valuable because they kept students engaged and supported educators to be aware and responsive to students. In the workshop a participant summarized that:

> *"One of the good practices for online learning that I came across was to always have a constant assignment for students. You put the students always on their toes. If you give assignments, almost weekly assignments so that they can keep abreast of what you are teaching them…you keep on giving assignments and keep on making them learn... For a lecturer, you also know that as they're able to learn"*

Responding to this, another participant stated that:

> *(Moving online) "requires us to develop instructional material that are geared to what they are teaching in an online space, and one of the things that was raised (in the previous quote) was the issue of constant assignments to keep people constantly engaged. Because if you don't keep them constantly engaged, they will not do it… we need to come up with different assessment practices that will assist students to succeed, and not just to give us back what we have taught them"*

The need to have flexibility in assessments, where students had particular barriers to access, was also raised:

> *"there are times when some students, depending on where they are, cannot access the quizzes. At times we have had to give such students online assignments meaning that they don't sit for their quiz"*

A further way in which assessment was used as a driver was in encouraging student use of forums for learning activities:

"You realise that in the forums, most of our students, they will not attend to these forums. So, one of the decisions I made, I told them that participation will comprise 5% (of the marks) so that I could prompt them to perform."

When discussing the content of the professional development resource in workshop two, it was argued that rather than having a section on assessment alone, assessment should be discussed in relation to each of the topics covered (i.e. assessment as part of pedagogy, inclusive assessment practices to overcome barriers, and considering assessment in quality assurance). In this sense, assessment is embedded throughout online teaching and learning practices.

Proactive and consistent communication - Emphasis was put on the importance of clear, consistent communication with students, as a result of experiences where students did not manage to attend online sessions or needed timely support. It was noted that digital tools could make it easier to reach all students in a course:

"you must, first of all, announce upcoming activities 10 hours before the actual time the activity takes place. And on that course page, also, you (can) send a quick message to the students… all you need do is to click on that platform and type your message. The (student contact) addresses are already there"

"one good and useful practice is having contacts with these students at a specified time and the students get acquainted with your time. You give a specified time, a specified date at a particular week, the students will converge, link up to you…you train the student on how to get used to time, and that has gone a long way to add to some practices and training on the side of the students, of which they really appreciate.

Harnessing advantages of online learning in blended learning contexts- as already mentioned in response to RQ2, decisions needed to be made around how to blend in person and online teaching effectively. Good practices were described that considered how the in person time could be used to cover activities that were difficult online, and that the online dimension added scope for time to be spent learning in different ways. For example:

"when you're teaching instruments, you teach for 30 minutes, one on one, but with the blended learning, it means that you could also give students more work to go and research on, and send some recording of the song that they are playing, so that they can be able to listen to it…there is the piano accompaniment for students who take other instruments apart from the piano, so you can send them the accompaniment. They listen, and then they're able to learn more about that music, and then they're able to practice along with the accompaniment that you have sent them… I must say that it's actually better and they've learnt to practice much harder than they were, because now they know they cannot depend on a live pianist."

Good practices related to university policies and procedures

The challenges created by policies were described in response to research questions 1. However there were also policies developed, and flexible approaches taken to compliance with policies, which can be considered as good practices:

Policies to overcome barriers to learning – Institutions could take on some of the role of supporting students with equipment and data:

> *"there are policies like decisions taken earlier by management to support users with electronics, computers and internet connection"*

And where online learning was not possible, the disruption to learning could be reported and responded to by giving students more time:

> *"it is a disadvantage to students who are coming from remote regions, although the university made a point that when they report it now, virtually we will cover for the lost time which students were not able to attend"*

Financial support and incentives for staff – It was notable that staff faced workload, skills and practical challenges in delivering online teaching. Recognition of this led to the provision of further support to staff. This could be to incentivize work:

> *"The position that my institution took on the issue of online learning was that every academic staff must take at least one course online, and for them to do that so that they would be motivated to do it, management decided to make a payment for every academic staff that engaged their students online"*

Also, to provide the staff with data and devices so that they could remove barriers to working online:

> *"to support lecturers to be able to be online, they were able to provide lecturers with data to ensure that they can work from home"*

Flexibility around following policy - As well as proactive policy-making, it was noted that staff could prioritise support for learners over following older policies that did not reflect the circumstances they were now in:

> (There was a) *"risk that academics took, irrespective of what the policies were saying, they continued to use WhatsApp, Gmails, to ensure that learning occurs, irrespective, and these things are not within policies."*

Of course, such an approach may not always be a good practice and policies would ideally support teachers rather than be perceived as a barrier. But some degree of flexibility and willingness to prioritise students was viewed positively. Other narratives showed that, after a time, policies had been adapted such that they allowed further forms of communication with students.

Staff support and collaboration

New ways of collaborative working, communication and sharing were considered important practices in moving to online teaching.

Adopting new ways of working and sharing - Workload has been raised in the previous sections as a challenge and area where there has been a mixed positive and negative impact. Good practices focused on the ways in which teaching at a distance allowed better sharing of resources and different ways of completing tasks:

(we made) "a saving in terms of time, because all the activities now are integrated, and people can work collaboratively to teach, whereas in the past, it was only individual teaching"

"when we moved into the digital space, we were able to share resources…in some centres, there are limited resources, and those who have the advantage of having more resources are able to share… we're able to share tutors, we're able to share facilitators. If I don't have it in one side of the country, and then we can just meet online and the students are able to be supported. And that also increased collaborations a lot because we could see that and realise that we can no longer work in silos"

Sharing and reviewing experiences of online teaching and learning – In many institutions there are some staff who are more experienced with online teaching and technologies than others. It is seen as a good practice to create space for these people to share their experiences:

"those who were well-versed with online learning or online teaching and learning were invited in certain meetings… to come and share his or her experience of online teaching and learning"

There were also positive views of observing online teaching by joining sessions, which could improve awareness and support quality assurance and enhancement:

"lecturers would share their links and from these I was able to join several classes just to monitor how the teaching was going on and this provided some feedback that was then again shared with the digital school. This information, the feedback was shared with them so that they could use it for future planning and for improvement."

Adjusting to change

Recognising and facing change was perceived as an attitude and quality which underpins behaviours such as effective planning and reskilling.

Positive attitude to change - Related to several of the above quotes is the importance of proactively welcoming and adjusting to the changes that come. The following quote represents this well:

"It is very important that when a change comes, one has to adjust to it, lest the change will change the person. So, self-adjustment… finding advantage to that change. COVID-19 has taught us a lot of good things.. We are now orientated more to technological teaching and working. Indeed, any change has both advantages and disadvantages… I am determined to continue. Indeed, when the going becomes tough, it is the tougher that gets going. We are all prepared to change with that change and to move on with life"

Ideally, this attitude will grow and extend through encouraging experiences and results:

"now I want to do more online things. In fact even I have set as one of my goals this year to learn more about the use of digital technologies and especially for make

presentations to my class and even to my audience, whatever audience, and even in research because even in research things we also did online."

There was also practices that were used to encourage students and staff to develop these positive attitudes:

"I invited some young former students to come to discuss online with the students and I think the students found them very valuable to realise that young people, almost of their age, were capable using the various tools and demonstrated their understanding of the applications. This helped the students then to connect very well with the course and to help them mobilise themselves and to be able to utilise the various tools that we wanted to expose them to."

"some people had... the mistaken belief or attitude that with time… they might then be replaced sometime in the future by machines, which is a fear that I believe personally is unfounded because even when you're using the virtual mode of teaching, there has to be (a) lecturer behind all this. And what I did was to try and convince them that they would always remain as the facilitator. We're just using some mediated technology… and what we need now is to sharpen our skills and competence in this mode of teaching."

Proactive and continued training opportunities – While responsive upskilling was also experienced, recognizing and planning training for both students and staff was seen as an essential good practice:

"there was a prior orientation. The management gave the student(s) an orientation, basically, dedicated to virtual learning, using of all the technologies we have at our disposal"

"moving into a different platform makes all of us to go through the reskilling of a new system that you'll be using. So, all of us will have to go through the training for that particular platform. So, it's reskilling at a scale."

Course or module delivery

Finally, as well as pedagogical considerations in the design of learning activities, there were also good practices that reflect practical issues of technology use and resources.

Understanding technologies that support interactions – Participants noted the breadth of interactions that should be supported within a course and the value of understanding how these can be supported with technology:

"one of from our group mentioned that they did research on appropriate digital devices that would enable them to deliver their lessons. And research… on how to deliver content, …the interactions. Because when we are supposed to do online, now it means communication, interaction has to take place, and then there has to be student-student interaction, student-content interaction, facilitator-student interaction, all this supposed to be included in the learning environment system"

Providing materials in advance and recordings afterwards – Practices that support flexibility in study were exemplified by participants.

"there have been other cases where the students …miss a class and then they are able to listen to the recorded classes. Sometimes I have (suggested) to a student a class that he or she never attended. And I think this is very encouraging even after COVID. I think it will be very important for us to be recording our classes. So that in case a student has got a genuine reason why he or she should miss a class, then they can always listen to the recording."

"I had to make sure that I prepared my slides before meeting the student and I had to make sure that I post this slide, lecture slides, online for them prior to the time of our meeting."

Conclusion: Contextualising research to develop good practices for digital decision making

This research has explored decision making towards greater use of technology and online learning, with a focus on how individual decisions across multiple staff roles combine with institutional and national contexts to impact on teaching and learning.

One way in which the findings of this research can be applied and have impact is to use the understanding of decision-making actions in context and relate this to a wider body of literature that describes good practices in online and technology enhanced learning.

Ideally, good practices would be identified that are both contextually relevant and evidenced. The [Making Digital Decisions](#) professional development resource provides a starting point in this regard by highlighting standards, guidance and research findings, some of which were highlighted by workshop participants. Participants noted sources such as the High Impact Educational Practices (AAC&U, 2013), which they found fulfilled both qualities of being evidence-driven and applicable to their context of moving teaching online in an inclusive way.

To conclude this report, we highlight some of the relationships between literature and our findings, from three of the six themes found in the Making Digital Decisions resource.

Working together

The analysis showed how collaborative work practices needed to adapt to online teaching, and that improved working across locations and units could be one of the benefits of increased use of technology. Decisions were both ground up and individual (subject to constraints of rules, tools and community) or strategic policies and initiatives intended to support a consistent approach to learning across an institution.

One form of collaboration raised by workshop participants was the need for subject specialists to collaborate with technology experts, reducing the need lecturers to make all the decisions on tools and activities that would be appropriate online. Similar practices that emerge in online course creation have been analysed in US and UK settings (Xu and Morris, 2007; Hixon, 2008; Coughlan & Goff, 2019). The literature recognises that collaboration is expected to ensure that subject, technological and pedagogical expertise can be engaged effectively in the process. An important challenge and space for good practice highlighted in this literature is that roles and expectations in course development need to be clearly established within these teams for them to work effectively. It was notable that roles varied across the four institutions involved in this research. Good practice should entail formalising responsibility in roles such as instructional designer and responsibilities such as management of Learning Management Systems.

Upskilling staff and students

Reviewing the development of eLearning in Kenya, Nyerere (2016) highlights investment in training of staff as an essential good practice. They find that there has been some effective investment in areas such as module development, but still a desire for much greater training opportunities in interactive module design and online teaching techniques. Ambitious strategic decisions to increase training across an institution, and individual staff decisions to pursue personal development, are to be encouraged.

Upskilling for students and staff could be addressed systematically through Digital Literacies frameworks. Reviewing a range of frameworks, Adams Becker et al., 2017 show common areas across these such as

communication, tech skills and content creation, which are well connected to the issues raised by educators in this research. Participants also mentioned that students could be engaged with developing their digital skills if this was shown to be valuable to their employment prospects. Linking digital literacy in HE to employment is internationally recognized as important, given the shifts towards knowledge work and digital economies (Adams Becker et al., 2017).

Good practices in upskilling should also address the attitudes of students and staff. Our findings highlight attitudinal barriers to harnessing online learning. Participants overcame these through adopting new practices, such as inviting digitally literate alumni and experienced online teachers to share their understanding with students and staff. Mixed or negative attitudes towards online learning have been linked with limited engagement in prior studies of online learning in African contexts (Asunka, 2008; Mutisya & Makokha, 2016). There is a need to address attitudes proactively and some of the practices described in this research could be used to do this.

Changing the pedagogy

This research identified the objective of decisions made to be a continuity of teaching, mitigating the potential loss of education due to the pandemic. There is, however, a pervasive sense in the narratives of taking this as an opportunity to improve, and a recognition that teaching online is different, such that old practices and policies do not suffice.

An obvious area for this was found in the consistent desire to embed continuous assessments as a means to improve engagement of students, who might otherwise withdraw, or whose difficulties with a course would not be evident to staff. There was also a desire to encourage deep learning through ensuring that rote learning behaviours would no longer be encouraged by the assessment strategy.

The desire to move beyond assessment strategies that focus on high stakes final examinations may not only be due to moves to online learning, but it is seen as a driver that prompts institutions to achieve this. Literature suggests that continuous assessment is a more practical approach in online settings, where increased importance needs to be placed on structured activities to gain formative feedback and develop critical thinking skills (Gikandi et al., 2011). A wide range of literature could be drawn on to enhance decisions around changing assessment practice, for example to consider how the differing purposes of formative and summative assessment can lead to tensions with student attitudes and learning strategies (e.g. Winstone et al., 2017; Hernández, 2012). Motivating students to engage with formative assessments and develop their skills through feedback could promote a more equitable future for universities (Shepard et al., 2018). Use of wider strategies such as ePortfolios and capstone projects are noted as high-impact practices that evidence suggests are beneficial for a wide range of students (AAC&U 2013).

In conclusion, this project has developed a contextualised understanding of decision making for staff in diverse roles across four distinct African institutions. It has supported the development of contextually-relevant good practice guidance through the stories that staff shared, and their further input into workshops. Next steps could build on this and go further, to link more of the identified areas of decision-making to a wider body of educational research findings, and to explore the longitudinal impacts of recent decisions to move online. For now, we hope that these findings and the professional development resource are a useful contribution to the wider body of research emerging as part of the Digital University in Africa initiative.

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Appendix A: Narrative reflection prompts

Dear Participant,

We would like to invite you to share your reflections about the experience of making decisions about delivering online or blended learning.

We have offered some prompts below, to help you get going, but please feel free to expand on what you think is relevant to you and your context or anything else you think it would be useful for us to know in terms of the decisions you had to make. We would be grateful if you could record and share your reflections with us through <u>one</u> audio recording. Please aim to record between 2 - 5 minutes of yourself talking about this. You may use and go through all the prompts below or choose some that you would like to focus your recording on. Options for recording are provided at the end.

Indicative Prompts:
- **Context of your decision**: Can you tell us briefly about your role and two to three typical activities you do (i.e., about your role or major activities, the people you worked with, and physical tools or processes that you use for the work)?

- **Your decision**: Please describe two or three of the most important decisions you have had to make since the beginning of pandemic, which relate to your online or blended teaching and how you have delivered this to students. For each decision, please use the following prompts:
    - How did you make the decision? What did you have to consider? What was significant for you about them and why?
    - Did anything facilitate your decision? If yes, what was it?
    - Were there existing policies or choices that had been made that influenced your decision?
    - What challenges did you face?
    - What good or useful practices have you identified as a result of making these decisions?

- **Impact of your decisions**: Did these decisions have any impact? If yes, what kinds of impacts did they have? On whom?

Recording options:
You have several options for recording your narrative. Please choose the one that is most suitable for you.
1. You can use your mobile or any other recording device and send us your audio recording by emailing to [Co-I in partner institution email address]

2. You can write your narrative down and email it to [Co-I in partner institution email address]. If you do not wish to type, you can write it on paper and send us a photo of it.

3. You can use a recording app (such as Vocaroo or any other) and send us your recording. If you decide to use the app Vocaroo but have never used the app before, please follow the link https://www.youtube.com/watch?v=IqXDqmfv46M which presents a step by step guide on how to record your voice online and share it with other people.