

To Assess the Impact of COVID -19 in the Delivery of Professional Courses in the Faculty of Built Environment and Design: *A Case Study of the University of Nairobi*

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Abstract

Covid-19 has impacted on various sectors differently. In the education sector the impact has been largely one of interruption to the education calendar and learning delivery methods. There is much written about the effects of Covid-19 on learners at the different levels of instruction, higher education included. There is however little documentation about the pandemic effects on higher education instructors more so instructors within the realm of the professional courses. Using qualitative research methods, the study analysed 20 questionnaires administered to instructors in the Faculty of Built Environment and Design (FBED), University of Nairobi (UoN). The key finding indicates that the covid-19 has changed the way the instructors deliver their courses and undertake students' supervision. The paper recommends need for continuous improvement in the delivery of technical courses through incremental adoption of emerging technologies in the learning space.

Keywords: Covid 19 pandemic, higher education, professional courses

INTRODUCTION

This paper assesses the impacts of Covid-19 in the delivery of professional courses in the Faculty of Built Environment and Design (hereinafter FBED). FBED was established following University of Nairobi (UoN) reforms. FBED as currently constituted comprises two former independent but related Schools namely the School of the Built Environment and School of Design. The two schools were located within the College of Architecture and Engineering (CAE) which was also scrapped by the changes. Noteworthy all these UoN governance changes took place after the study had been completed.

The paper examines how Covid-19 pandemic impacted the FBED instructors/lecturers' delivery of courses tools and methods. Of particular interest is change in course delivery methods and tools and the course specific challenges encountered by the FBED instructors. Thus, the study's emphasis is on the effects of Covid-19 on the instructor's modes of course delivery and research supervision, and the challenges faced during the Covid-19 period. The focus of the study is instructors in FBED

exclusive of the Department of Design instructors. The faculty is distinctive in that it is considered the premier built environment training university where six different professions are trained namely; Architecture, Quantity Surveyors, Valuers, Estate Agents, Physical Planners, Construction Managers, and Land Administrators. FBED was closed after Covid-19 cases were identified in Kenya following a presidential directive that ordered all institutions of learning to be closed. After this closure, learning at the University of Nairobi was transferred to online platforms after staff and students were trained on the various available platforms. It is because of this shift from pre-Covid to post-Covid courses delivery that instructors in the faculty are suited to this study.

As understood in this study, a professional course refers to a degree programme that is the training prerequisite for the different built environment professions. The degree programmes taught at FBED lead to various built environment professions that are regulated by professional bodies and licensed by profession-specific

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registration boards. For example, the Quantity Surveying Degree programme produces Quantity Surveyors who are regulated by the Institute of Quantity Surveyors of Kenya (IQSK). However, their professional licensing is done by the Board of Registration of Architects and Quantity Surveyors (BORAQS). Thus, FBED degree programmes are considered professional courses.

The study informs both the international community and Kenya in the discussion on the effects of the Covid-19 pandemic on higher education in the University context where online platforms as a mode of course delivery are not well established. There is much written about the effects of Covid-19 on learners at the different levels of instruction, higher education included. There is however little documentation about the pandemic effects on higher education instructors more so instructors within the realm of the professional courses. FBED is instructive on how instructors may adjust in a context where the online platform under normal circumstances does not generally play a key role in teaching or instruction. It is also instructive on how a technical faculty might manage the situation if it is required by the University administration that it does so.

THEORY

Covid-19 is a novel infectious respiratory disease caused by SARS-COV-2 (Njenga et al., 2020). The disease outbreak began in Wuhan, China, in December 2019 (WHO.int). The WHO declared Covid-19 a pandemic on March 11, 2020. The first Covid-19 cases in Kenya were reported on 13th, March 2020 (health.go.ke).

The first university to suspend its learning in Kenya due to Coronavirus was Africa Nazarene University. It suspended its learning on March 13th, 2020. The first graduation ceremony to be impacted was Riaru University which was to be held on March 19th, 2020. It was postponed until further notice (Nyaundi, March 14th, 2020a). According to Nyaundi (2020a) the Ministry of Education suspended all learning institutions' gatherings, meetings, and events. However, as usual with institutions, they were expected to take the necessary precautions (Nyaundi, March 14th, 2020b).

Following President Uhuru Kenyatta's speech

to the nation on March 15th, 2020 University of Nairobi was closed by the University Executive Board starting March 17th March, 2020. The closure was to be reviewed after two weeks. However, supervision of post-graduate students and distance learning was to continue through online platforms (University of Nairobi, March 16th, 2020a).

On March 20th the university informed the lecturers/instructors that it was in the process of establishing "mechanisms to facilitate staff to carry out the teaching and administrative functions using the available online platforms". The staff training on these platforms was to be done by the Directorates of ICT and ODEL (University of Nairobi, March 20th, 2020c).

On March 28th UoN provided further update and guidance on what was expected of staff. The communication reiterated the first communication's assertion that the staff was expected to continue working as usual from home as the pandemic lockdown period was "not a holiday and that the staff would be deemed to be on normal duty." (University of Nairobi, March 28th, 2020d).

On March 31st CAE, UoN issued an internal memo detailing the staff and student online training measures to actualise the 31st March 2020 senate meeting resolutions (University of Nairobi, March 31st, 2020b). On May 8th the University senate issued and approved guidelines "to ensure that the online University examinations are administered in a reliable, consistent and standard framework that ensures their integrity and validity". These guidelines were deemed necessary because i) due to the Covid-19 pandemic on campus face-to-face examinations are not possible. ii) the existing "University Examinations Policy and QMS Procedure, UON/OP/07 on examinations" did not provide for online examinations. Under these new guidelines the faculty/school was still responsible for "the setting, moderation and administration of examinations" (University of Nairobi, May 8th, 2020e).

On May 13th the Commission for University Education (CUE) requested Universities to share with them the steps they were undertaking to facilitate continuity of university learning. Relevant to this study are: the readiness and/

or capacity of faculty to teach on the developed learning platforms; availability of and access to learning materials by staff; courses being offered through the online platforms (CUE, May 13th, 2020).

In a letter to Vice Chancellors and Principals of constituent university colleges, on June 17th, the Ministry of Education advised the Universities on the probable universities reopening period. The universities were also advised to provide the minimum requirements for prevention of Covid-19 transmission, e.g., sanitisers, (Ministry of Education, 2020). The universities were required to develop mechanisms to stem/stop/slow the spread of coronavirus as the institutions are expected to open in September 2020 (Nyaundi, June 20, 2020c).

It is important to note that the preceding discussion covers the study period i.e., between announcement of Kenya's first covid cases and October 2020. It therefore does not discuss the post-October, 2020 University education developments. This was because the paper's interest is mainly on the impact of Covid-19 on University teaching at the height of the pandemic in Kenya.

Covid and Universities Teaching: Empirical Literature Review

During, the study period, the effect of Covid-19 on Universities, more so technical courses institutions, was primarily discussed in newspaper articles and as a result, there was very little on the subject in peer reviewed journal articles. A review of the literature on university teaching at the height of Covid-19 shows that universities found it difficult to cope with the pandemic (de Boer, 2021; Bebbington, 2021). In addition, the review shows that Covid-19 disruption ranged from Universities' governance i.e., examination rules, to the tutor's teaching experience and delivery approach (de Boer, 2021). Common in this disruption was the switch from face-to-face to digital delivery of courses (Eringfeld, 2021; de Boer, 2021; Bebbington, 2021; Agasisti & Soncin, 2021). However, and as it relates to this study, the authors identify several factors which made the switch to digital more effective. These factors include constant institutional support in the form of clear communication, training, and the necessary facilitation (Agasisti & Soncin, 2021). However, despite the identified switch to digital key success factors, the authors

note the switch to digital teaching more so for technical courses was hampered by unequal access to technology by students (Bolumole, 2020), multiple communication software, lack of adequate time to redesign and adapt the courses, disruption of practical training (de Boer, 2021), social factors i.e. breakdown of the socialization role of the university (Eringfeld, 2021), inadequate enforcement of examinations ethics and standards, and lack of training on online teaching pedagogy (Bebbington, 2021).

Given the preceding, as it relates to professional courses, the problem was how best to balance the flexibility brought about by the digital delivery of courses and the required standardization for these courses, more so given the course's regulated nature. The authors noted that countries with higher economic, infrastructure access and connectivity, technological development, and internet levels tended to find a compromise easily because of these factors (Levin et al., 2022). However, according to Turnbull et al. (2021) this was more so because of already established digital platforms for course delivery, which had been tried and tested for years with proper regulation criteria established. Still, achieving this balance was difficult as schools were forced to rely on third-party platforms to maintain the integrity of the courses they offered (Turnbull et al., 2021). The authors note that this in itself compromised standardization as it exposed their materials to external control, further limiting control and access rights (Dollinger et al., 2020). It was further noted that the inconsistency in access to the internet and computers further destabilized the learning of the technical courses as students could not find a way to grasp the technical aspects of the courses sustainably, eventually diminishing the value of these studies even further (Coman et al., 2020; Zamani et al., 2022).

Faculty of the Built Environment and Design (FBED)

The Faculty of Architecture, Design and Development (FADD) was created in 1970. School of the Built Environment (SOBE) was created in 2005 after the UoN Schools restructuring. SOBE was one of the four schools in the former College of Architecture and Engineering (CAE), University of Nairobi. The School was headed by a Dean who is elected by SOBE members of academic staff and students representatives every

two years. SOBE comprised of four departments, namely: Department of Quantity Surveying and Construction Management, Department of Real Estate, Department of Architecture and Building Science, and Department of Urban and Regional Planning. Each of the Department is headed by a chairperson. To reiterate SOBE is now referred to as the Faculty of Built Environment and Design (FBED).

The different departmental degree programmes represent the key built environment professions in Kenya. As a result, these degree programmes are developed in consultation with various built environment professional bodies. These professional bodies include Architectural Association of Kenya (AAK), Institution of Surveyors of Kenya (ISK), Kenya Institute of Planners (KIP), Institution of Quantity Surveyors of Kenya (IQSK), Association of Construction Managers of Kenya (ACMK), Institution of Construction Project Managers of Kenya (ICPMK) among others. The various professional bodies have in the past accredited the different degree programmes. It is because of these close relationships with the professional bodies and its long history that FBED is considered a premier built environment training institution. However, it is important to note that in 2016 through the Universities (Amended) Act of 2016, The Commission of University Education was given the legal power to manage curriculum accreditation and supervision of academic programmes (RoK 2016). This provision was affirmed in the Kenya Medical Laboratory Technicians and Technologists Board & Others, v. The Honourable Attorney General [2017] case. Under this new arrangement, professional bodies will play a consultative role at the request of CUE (Wasuna n.d). It is not yet clear how this change will affect FBED's relationship with the various built environment professional bodies.

RESEARCH METHODS

The Study adopted a case study approach as it provided the most appropriate research strategy for understanding the impact of Covid-19 on delivery of professional courses. Through this approach the study gained a rich understanding of the different dynamics at play. The population size did not warrant sampling and therefore a census approach was adopted. The study's primary data

was collected using a questionnaire circulated as a Google Survey form distributed via institutional emails to all instructors within FBED. The questionnaire contained both closed and open-ended questions to collect both quantitative and qualitative data. This tool was used because the study was interested in the instructors' course delivery experiences during the Covid-19 pandemic. Participants were selected based on their teaching status i.e., if they were academic members of staff within the school. As a result, the responses were derived from participants at different instructors' levels, i.e., Professors to Graduate Assistants. Since the different instructors are involved in teaching or assisting with teaching, the study assumed, for purposes of this study, that the effect of Covid-19 was not affected by the teaching title. The survey ran from June 2020 to October 2020. Documentary evidence included academic journal articles, UoN and FBED reports, and Newspapers. Due to the distinctive nature of the pandemic and its effects on various sectors, newspaper articles covering university education were examined. The context was also informed by the author's experience as instructors within FBED. The initial analysis of data such as the basic descriptive data in form of percentage was done using the Google survey form. However, following this we undertook a comprehensive collation, categorisation and thematic analysis of the data collected.

RESULTS

1. Academic Experience & Profession

A majority of the respondents had over 5 years academic experience with the highest being 34 years and the lowest being 2 years (**Figure 1**). Of those that replied: five were architects; five identified as either land economists, valuers, and/or land administrators; four identified as construction managers and/or quantity surveyors; one identified as an urban planner while another identified as an engineer.

2. Delivery of Courses

Pre-Covid 19

a) Mode of Courses Delivery

Prior to covid-19 the main mode of course delivery in FBED was face-to-face lectures (**Figure 2**). In addition, respondents also noted that they used

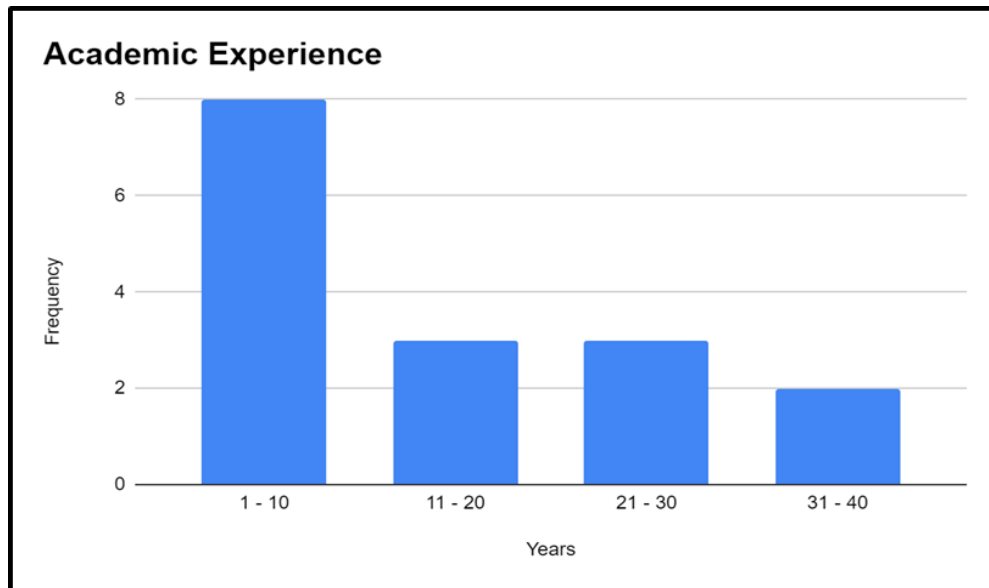


FIGURE 1
 Academic Experience
 Source: Authors, 2020

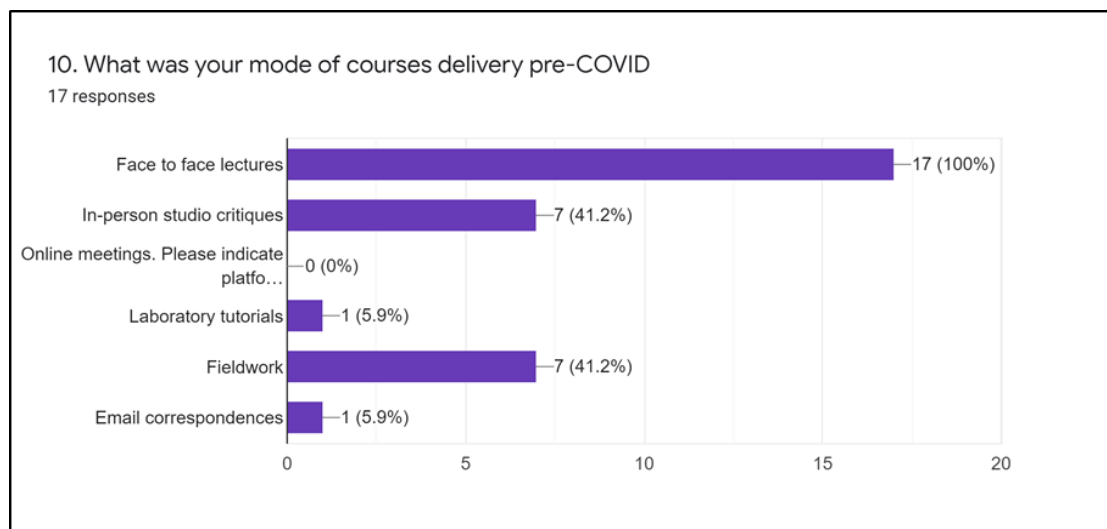


FIGURE 2
 Mode of courses delivery
 Source: Authors, 2020

in-person studio critiques and fieldwork to deliver courses. Evident in the data is that laboratory tutorials, email correspondences, and online meetings were rarely used to deliver courses.

b) Courses Delivery Tools

The main tools used to deliver courses before Covid-19 were projector (88.2%), Blackboard/ Whiteboard (70.6%), and printed notes or handouts (64.7%) (Figure 3). One respondent noted they also used practical exercises, and group

discussion while another noted they used power point lecture notes sent via email.

c) Research Project Supervision

When asked how they undertook student research project supervision pre-covid 19 pandemic respondents noted they used both one-on-one discussions and group discussions. None of the respondents said they used online meetings (Figure 4).

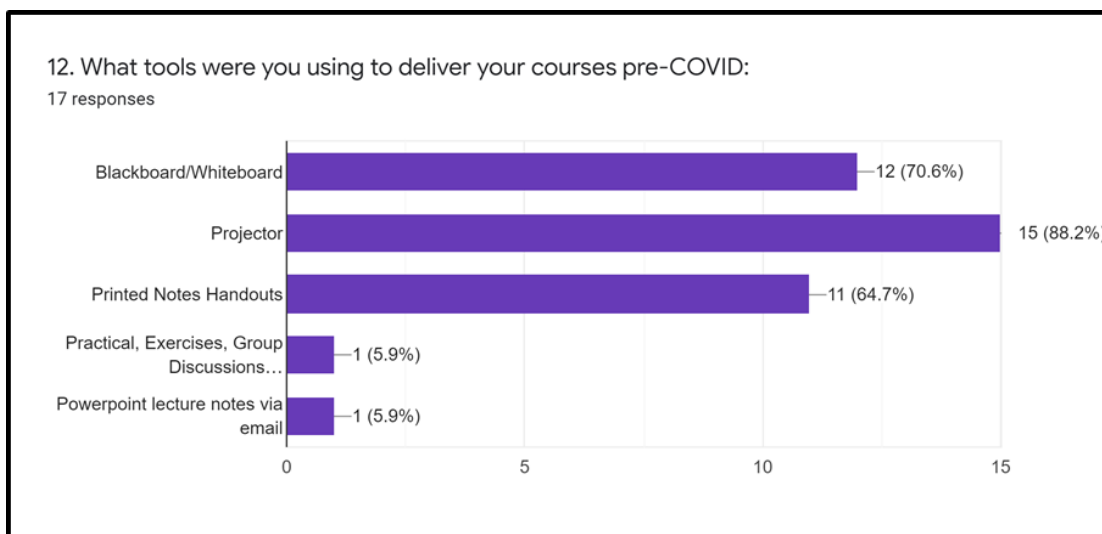


FIGURE 3
Courses delivery tools
Source: Authors, 2020

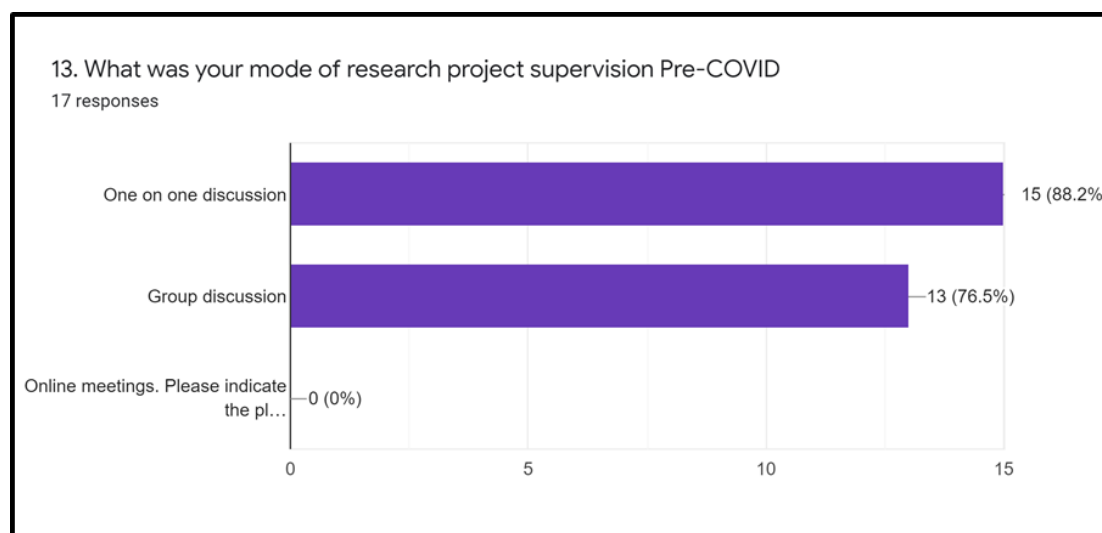


FIGURE 4
Research project supervision
Source: Authors, 2020

Covid-19 Shutdown

a) Courses Delivery During the Shutdown

A majority of the respondents i.e., 94%, noted they had been working during the Covid-19 shutdown period while one noted he/she had not (Figure 5). All those that responded said that during the Covid-19 shutdown their mode of course delivery shifted to online teaching sessions/meetings held on platforms such as Google Meet and Zoom with Google Meet being the main platform of use. One of the participants noted that the shift to online allowed for “flexibility in time and space” while another participant noted that the shift

had reduced his “interaction with [the] students” making it difficult to “keep them alert and inspire them”.

b) Students Attendance and Participation in Class

On average the student attendance rate under the online mode of course delivery ranged between 30% and 70%. The highest noted online class attendance rate was 70% and the lowest was 30%. A majority of the respondents (86.7%) noted that students that attended online classes were able to participate during classes and offer feedback after classes. 61% of these instructors characterised the

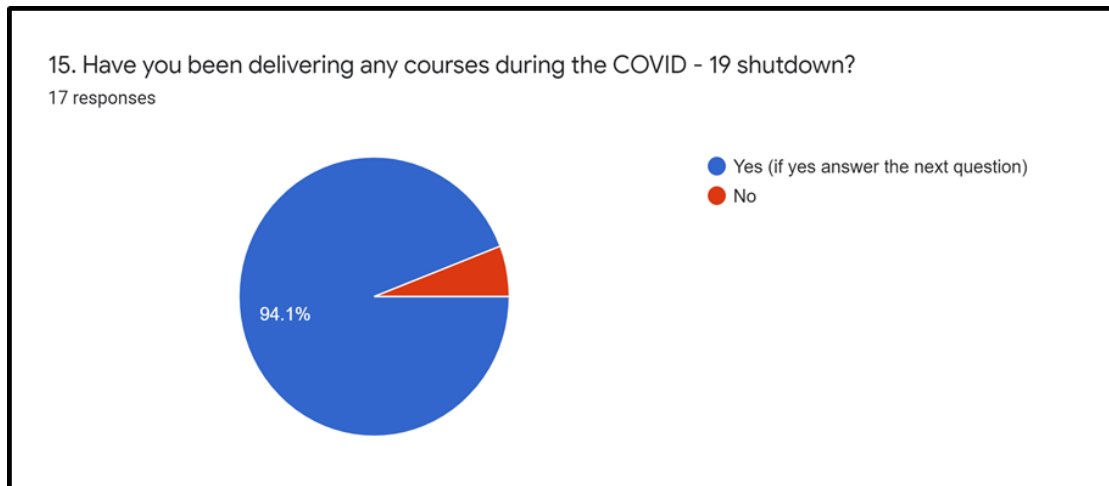


FIGURE 5
Courses delivery during the shutdown
Source: Authors, 2020

student's level of participation as either moderate or high while 39% characterised the level of participation as low.

c) Acquisition of New Tools for Course Delivery

When asked whether they had acquired new tools to facilitate their courses delivery during the Covid-19 shutdown 58.8% of the respondents said yes while 41.2% said No. Of those that said yes, seven participants noted that due to the shift to the online mode of courses delivery they had newly subscribed to home internet service providers. In addition to this new subscription, they purchased Wi-Fi routers, additional data capacity, and sim cards. Three respondents said they acquired new laptops while two purchased software applications to use while teaching. Other noted purchases included a power back up equipment and external hard disk for data storage. When asked who had purchased the different tools 26% of the respondents said the institution while 68% of the respondents said they had made the purchases themselves.

d) Course Delivery Challenges

Respondents identified the following general challenges in their course delivery.

Electric power outage - electric power outage at home was identified as one of the key challenges by 24% of the respondents. This they noted interfered with their course delivery especially when it occurred during class presentations. The instructors added that this was a challenge for

students too.

Poor internet connectivity - according to 65% of the respondents poor internet connectivity is one of the main challenges they face. The poor internet connectivity manifested in either low band with/ inadequate data bundles and/or complete internet outage. As a result, the instructors found it difficult to deliver lessons on the university platforms. The poor internet connectivity also made it difficult to assess students' visual presentation of their studio work.

Low student participation - poor class attendance and participation by students were identified as key challenges with online course delivery by 82% of the respondents. This, they noted, was caused by students' lack of tools such as laptops and proper audio equipment. In addition, students' participation was affected by the students' delayed logging in and inaudible audio communication.

Inability to control and manage the online classes - inability to control and manage students during the online class was identified as of the key challenges that 47% of the respondents faced. For example, one respondent noted that due to their minimal experience with the online system they were unable to control students log in and off after the initial admission into the class. According to these respondents the constant logging in and off by the students disrupted the ongoing class in the same way that their inability to mute students that were not talking (contributing to the class) did.

Furthermore, despite being trained on how to use the university e-class platform and class delivery platforms instructors also noted that the online approach was challenging as it also required them to redesign/reorganise their class materials to fit the new platform.

Home distractions - One participant also noted that distractions at home were a key challenge too.

e) Profession Specific Course Delivery Challenges

When asked to name their profession specific course delivery challenges 65% of the respondents noted that the lack of strong internet bandwidth to handle their course illustrations, two noted the lack of fieldwork and/or site visits, and four did not respond. These respondents noted that it has been difficult to teach practical courses that require strong internet bandwidth to display illustration and images e.g., design drawings or pictures. Similarly, it is difficult to undertake online studio criticism as there is no appropriate interface. Furthermore, it is difficult to write or draw comments on students' work. In addition, one of these respondents noted that due to the use of the online platform it was difficult to follow up with students who are unable to keep up with the class discussion. Consequently, as one participant noted, "online teaching will benefit keen and bright students. The average student that was being pulled through interaction with the lecturer and fellow students will be seriously disadvantaged."

Two respondents (or 12% of the respondents) noted that fieldwork and site visits are essential in their instructions. However, due to the transfer to online classes these fieldworks were not possible to implement. This in their view impeded the students on the ground visualisation of them in-class theories.

DISCUSSION

The study sought to establish the pre-Covid-19 course delivery mode. The findings show that digital approaches to course delivery were not so common prior to Covid-19. During the pre-Covid era face-to-face delivery of courses was the preferred mode of course delivery. Similarly, student research projects supervision was primarily undertaken via face-to-face meetings and discussions. The foregoing supports de Boer (2021), Bebbington (2021), and Agasisti & Soncin

(2021) who indicate that prior to the Covid-19 disruption much of the university courses delivery was undertaken face-to-face. Of interest is that instructors had not attempted to structure their delivery in line with digital delivery despite the relevant infrastructure being available through ODEL and several trainings on the same being carried out.

Regarding course delivery and student's participation in class during the Covid-19 shutdown the evidence shows that Covid-19 disrupted the way a majority of the instructors deliver their courses as it forced them to switch from face-to-face digital delivery of courses. This is similar to what observed in other jurisdictions see for example, de Boer (2021), Eringfeld (2021) among others. This delivery shift meant that instructors delivered their courses on online platforms such as Google Meet and Zoom, that were accessible to them then. Being third party platforms that they were not in charge of meant that they did not have prior experience with their use for learning and they also ran the risk of being vulnerable to 3rd party regulation of these platforms. Further, the impact of this shift on instructors was noteworthy. For the instructors it allowed for flexibility in delivering courses but at the cost of socialisation with their students. This as Eringfeld (2021) noted meant that the university's socialisation role was disrupted to the detriment of students' growth in areas other than academia. The effect of this breakdown was evident in the student's attendance and participation in online classes was at best moderate. This suggests there was a risk that student's level of participation could further deteriorate if factors leading to their -seeming dissatisfaction with online learning-lacklustre participation in class were not addressed. This in our view would require a student centric study to understand their experiences at the height of the pandemic.

Instructors opted to acquire new tools at their own cost to facilitate their courses delivery. The findings show that instructors acquired, at own cost, both hardware and software to aid in their delivery of courses. In contrast, instructors in developed economies were facilitated by their respective universities (Levin et al., 2022). In our view, these purchases were essential as they did not know how long the disruption would last and it was unlikely that the university would facilitate

them immediately and where it did, it would probably do so by providing either software or hardware but not both. The consequence is that though instructors had increased flexibility in their work and readiness to work, they had to balance this with additional personal costs incurred due to the inability of their universities to reimburse these costs or cover these costs from the start.

Courses delivery at the height of the pandemic was characterised by several challenges: infrastructural requirements (power, internet connectivity), student participation, online classes management, and distractions at home challenges. These challenges are not unique to these instructors as they were also encountered in other jurisdictions (Bolumule, 2021). The challenges were impactful to learning because unlike physical classes where the instructors had full control on matters such as class access on the digital platforms, they could not simply stop students logging on and off because they could not entirely tell whether the logging on and off was as a result of power failure or fluctuation of internet bandwidth on the student's end. This lack of classroom control coupled with home distractions and the demand that the lecturer's redesign their courses made the instructor's work more challenging.

As it relates to professional courses challenges the study found that the key ones were lack of adequate internet bandwidth and fieldwork or site visits impediments. The low internet bandwidth challenge impacted on the extent to which the instructor's could undertake practical lessons that required high-tech visualisation. The lack of fieldwork impacted on the on-field visualisation of ongoing projects. Virtual or on the field visualisation is particularly important in professional courses like construction management because it provides simulation of the students' after school work environment allowing them to best understand theoretical concepts and their applicability.

CONCLUSION AND RECOMMENDATIONS

This study was done at the height of the Covid-19 pandemic in Kenya. The authors sought to understand the impact of Covid-19 in the delivery of professional courses in the Faculty of the Built Environment and Design. The study conclusively illustrates that Universities had to substantively

change the way professional courses in the built environment were delivered to the students at the height of the Covid-19 pandemic. There was great investment in new teaching resources to both the universities and the instructors such as purchase of software and hardware that could accommodate both students and instructors from traditional black/white board and projection of coursework. These technologies may have existed before the pandemic on an optional basis, but the pandemic made it compulsory. Teaching practices also had to be re-learned as was understood by both instructors and learners. Traditional face-to-face instruction with full control of the classroom by instructors changed to virtual interaction with limited control. Exercises that were easily done before the pandemic such as fieldwork had to be exempted from study requirement or in some cases done as virtual simulations. New challenges such as home distractions were substantial and needed to be addressed. In conclusion, the pandemic greatly impacted the delivery of professional courses in the Faculty of the Built Environment and Design. The study recommends that there is a need for continuous improvement in the delivery of technical courses through incremental adoption of emerging technologies in the learning space. This will enable technical schools such as FBED to better handle disruptions, such as the Covid-19 Pandemic, better in the future.

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