



## COVID-19 AND TRANSITION TO DISTANCE LEARNING: PERSPECTIVES OF POSTSECONDARY TEACHERS IN KENYA

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### Abstract

Several countries have transitioned to distance learning to minimize the impact of Covid-19 on education. In Kenya, schools were closed for the better part of 2020 and reopened back on relying on an online mode and/or virtual learning. However, very little is known about the impact of such transition on postsecondary educators. Therefore, this research aims to bridge this gap by investigating the impact of distance learning transition on postsecondary educators based on age, gender, location, and academic rank. Using a nationally distributed web-based survey, the study utilized data from 117 educators across Kenya who participated in the survey between August-September 2021. The results show that transition to distance learning due to Covid-19 saw a substantial impact on teaching/research, productivity, and practical lessons across both genders, all age groups, locations, and academic ranks. However, the differences observed across genders, age groups, locations, and academic ranks were not statistically different. There is a lack of empirical evidence on the impact of the transition to distance learning on educators due to Covid-19. Higher education administrators and government policymakers will find value in this paper as they work to respond to the negative effects of Covid-19 as well as opportunities in distance learning.

**Keywords:** COVID-19; Online Learning, Impact; Virtual Learning; Educators

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## 1. Introduction

### 1.1. Background of the problem

As of August 31<sup>st</sup> 2021, Kenya had approximately 235,863 confirmed Covid-19 cases (WHO, 2021). The implication of Covid-19 continues to be felt around the globe in all sectors of the economy. The same effects have also been felt in academia. To mitigate the impact of the pandemic on the education sector, countries have had to alter and adjust the way education is delivered to students. These strategies have been implemented to reduce the risk of key education stakeholders being infected with the virus. According to the CDC (2021), higher education institutions need to follow certain guidelines to slow down the spread of the virus. The reopening guidelines seem to favor the vaccinated population and encourage vaccination. This applies to more developed countries where a majority of the populations have been vaccinated. However, in developing countries such as Kenya, the rate of vaccination is still very low. As of August 31<sup>st</sup> 2021, the vaccination rate in Kenya stood at 2.95% (Our World Data, 2021). Therefore, strategies that work for Kenya largely depend on social distancing and reducing in-person meetings (MOH, 2021).

As the pandemic dragged on, higher education institutions around the world resorted to distance learning. For example, according to the World Bank (n.d.), several countries, including Egypt, Finland, France, India, Indonesia, Italy, United States, among others, used distance learning methods at the onset of the pandemic. A distance learning environment offers the lowest risk associated with the spread of the virus in an academic environment (CDC, 2021). However, early into the pandemic (March/April 2020), the Kenyan government ordered the closure of all learning institutions. Then the months that followed, the ministry of health (MOH) in Kenya shared guidelines for online or virtual learning without compromising the quality of education to mitigate the impact of the pandemic. This meant that postsecondary institutions in Kenya had to transition into a distance learning environment. Nevertheless, little is known about the impact of this transition on postsecondary educators. Furthermore, there is little information on how this impact varies among different demographics of age, sex, geographic location, and academic rank.

In addition to the challenges related to the transition to distance teaching, educators are also affected by other external factors. Some of the factors include educators showing signs of Covid fatigue (Yang, 2021). Covid fatigue can lead to decreased productivity, exhaustion, emotional distress, fear, and isolation among others (Yang, 2021). For example, research conducted in France has shown that postsecondary educators experienced mental breakdown during the lockdowns due to the Covid-19 pandemic (Baumann, et al., 2021). Given the challenges faced by educators at the professional (transition to distance teaching) and personal (work-life balance) level thus far, it makes this study a worthy undertaking.

The study aims to investigate the challenges of Covid-19 on postsecondary educators in Kenya based on age, gender, location, and academic rank. To achieve this, the authors

conducted a Kenyan national level survey to collect information that describes the respondent's views on the impact of the transition to distance learning due to Covid-19. The impact of the transition was focused on three key areas: impact on teaching/research, impact on productivity, and impact on practical lessons. These three key issues were assessed across gender, age, location, and academic ranks. Summary and descriptive statistics as well as independent t-test and Chi-square tests were used to ascertain the statistical difference between these variables. This paper provides insights into the impacts of the transition on educator teaching/research, productivity, and practical lessons. Higher education administrators and government policymakers will find value in this paper as they work to respond to the negative effects of Covid-19 as well as opportunities in distance learning.

### *1.2. Online/Virtual Learning*

The use of distance learning existed even before the Covid-19 pandemic. According to Deming et al. (2015), online learning can be traced to as early as the 1990s and was expected to grow substantially even before Covid-19. Similarly, Hosie et al. (2005) reported , an upward trend for online education demand as more people access the internet. As much as there have been reported failures in online learning, such as reports by Harris (2000), the benefits seem to outweigh such failures. For example, convenience to the learners and the educators (Muthuprasad et al., 2021; Hussein et al., 2020; Tareen & Haand, 2020), economical (cost and time) and scalability (Deming et al., 2015), safety, improved participation and convenience (Hussein et al., 2020) are some of the benefits of distance learning.

Distance content development and delivery can be a challenge to educators and more so during a pandemic. For instance, Alungbe et al. (2008) reported that distance learning goes beyond transferring course content to an online course delivery platform. Concerns related to distance learning have been raised because of reduced interaction between educators and the students as well as student participation. It becomes increasingly impossible to maintain academic integrity on the content delivered (Kim, 2021). Furthermore, educators delivering education content online need labs, computer programs, or studios to prepare the content. This, therefore, means that they need administrative support in this endeavor and thus can impact the success of the entire distance learning environment (Han et al., 2018).

### *1.3. Online/Virtual Learning in Kenya*

Distance learning was not new to Kenya before Covid-19. The history of online and/virtual learning in Kenya dates back as early as 1976, when the University of Nairobi developed an interest in offering degree programs through open and distance learning (Wasike, 2019). However, the start of open and distance learning in Kenya started in 1985 when the University of Nairobi started to offer Bachelor of Education (Arts) sponsored by the British Council (Wasike, 2019). Since then, the idea of online learning in Kenya has seen tremendous transformation through the advancement of technology.

The government of Kenya ordered the closure of schools when they recorded the first case of Covid-19 on March 15<sup>th</sup>, 2020 (Parsitau & Jepkemei, 2020). The government then encouraged learning materials to be delivered on an online basis. However, there was a challenge of internet access and electronic devices to be used by the learners and, in some cases the educators. In an attempt to provide a wider internet coverage especially to rural and remote communities, the Kenya Civil Aviation Authority (KCAA) partnered with Alphabet Inc. and Telkom Kenya to support Google's Loon Balloons carrying 4G base stations to float over the Kenyan airspace (World Bank, n.d.). Moreover, this sudden and unplanned transition from face-to-face learning to online learning posed challenges to learners, teachers, and parents.

## **2. Method**

This research used a cross-sectional survey design to collect data used to understand the challenges faced by postsecondary educators during the Covid-19 pandemic. The survey was developed and administered online using Google Forms. The survey questionnaire collected demographic data and data relating to how the transition to distance learning environments affected postsecondary educators. The questions in the survey were closed-ended. In terms of survey validity, this research recognized and strived to eliminate measurement errors by using higher education professors and higher education administrators to review the survey as the first step in survey development. The survey was then pre-tested on targeted respondents in the postsecondary educator group to verify the content validity of the questionnaire. Survey responses were cleaned after the data collection process was completed.

The population for this research includes educators in postsecondary institutions in Kenya. The inclusion criteria also required that the respondents were based and working in Kenya. To develop a random sampling frame, contacts of heads of departments in postsecondary institutions in Kenya were collected from websites of these institutions. A recorded sample was drawn randomly from these lists and names, together with contact information. These heads of departments were contacted and asked if they were willing to share the survey with the teachers within their departments. The questionnaire was open for two months (August-September 2021). After the closure of the survey, 117 responses were received, which were then used for the analysis.

### *2.1. Data analysis technique*

Data analysis for this paper was twofold. First, data were summarized visually using the pivot table function in Excel worksheets and presented using bar charts. Secondly, statistical analysis using independent t-test and chi-square test were conducted. An independent t-test was used to test the difference in means of the dependent variables (i.e., experience teaching online, the impact of the transition to online and /or virtual learning on teaching/research, the impact of the transition to online and /or virtual learning on

productivity, and the impact of the transition to online and /or virtual learning on practical lessons) based on gender. This was possible because respondents identified themselves as either male or female, and thus for analysis purposes, data were divided into two groups (i.e., male and female). The independent-sample t-test was used to test the hypothesis that the true difference between this group's means is zero. If this null hypothesis is rejected, it means that the two groups are statistically different.

The Chi-square test was used to test for statistical independence of two nominal variables. Chi-square tests cannot be used to establish the causal relationship between variables and were only used in this research to establish whether there is a statistically significant relationship between the independent variables (i.e., gender, age, location, and academic rank) and dependent variables (i.e., experience teaching online, the impact of the transition to online and /or virtual learning on teaching/research, the impact of the transition to distance learning on productivity, and the impact of the transition to online and /or virtual learning on practical lessons). The null hypothesis for a chi-square test is that no relationship exists between the independent and dependent variables.

### **3. Results and discussion**

After the survey was closed, 117 postsecondary educators in Kenya had filled out the survey. The first step was to clean and filter the data. Several filters were applied to assess whether the respondents completed the survey and that their responses were within the scope of this study. Fortunately, it was discovered that all of them had completed the survey and that their positions fitted in well within the educator job description in postsecondary education institutions in Kenya.

#### *3.1. Respondent demographics*

This section discusses how the transition to distance learning due to the Covid-19 pandemic impacted different demographics. From the summaries in Figure 1, a majority of the respondents were male (61.2%). In terms of age groups, most of the respondents fall between 30-39 years (48.3%), and the last group is the over 60 years comprising less than one percent of the respondents. Additionally, people who participated in the survey lived in the city/urban areas (53.9%).

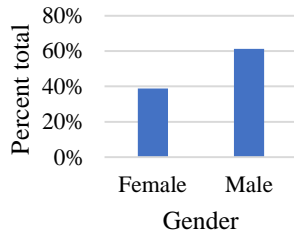


Figure 1. Respondent Gender

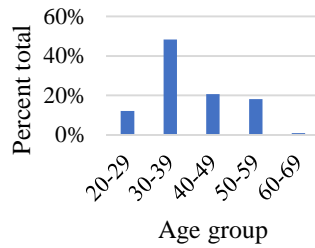


Figure 2. Respondent Age

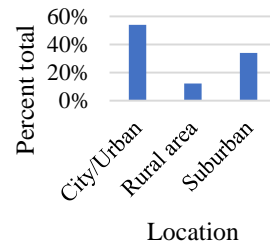


Figure 3. Respondent Location

To understand the transition, it was necessary first to understand the primary mode of content delivery before Covid-19 hit Kenya (i.e., March 2020). About 87% of postsecondary educators reported that face-to-face was their primary content delivery method, followed by 12.2% who used the hybrid method, and finally, less than 1% used distance learning methods in their content delivery. While reviewing the data, about 43.9% of the respondents had never interacted with online/virtual learning before March 2020, while 14.9% ranked their online/virtual learning experience as a novice, 19.3% as an advanced beginner, 12.3% as competent, 7.9% as proficient, and 1.8% as an expert. Despite these numbers, the educators did not receive any formal training before the transition to distance learning. This is not even with the highest level they currently teach (i.e., 12.2% of the respondents reported diploma as their highest teaching level, whereas the majority at 87.8% teach at bachelors’ level and above). These findings are helpful to understand educators’ preparation for the transition to online learning. These findings are inconsistent with research conducted by (Day, et al., 2021) who argued that for a successful transition to distance learning during a pandemic, educators needed to be trained or have some instructional designers to assist with the transition.

With the transition to distance learning due to Covid-19, the researchers aimed at exploring the respondent's proficiency in distance learning based on their academic ranks. The results (Figure 4) show that a majority of tutorial fellows (100%) were experts in distance learning. A high percentage (48%) of lecturers never interacted with distance learning, with professors (9%) only reporting to be advanced beginners. Also, “part-timers” reported a low percentage (11%) of being proficient with distance learning. What is interesting with these findings is that most of the graduate assistants and tutorial fellows were in the age group 20-29. These are fresh undergraduate and master’s students that Kenyan universities retain to assist senior faculty members. This pointed out to the understanding that young people were more proficient with technology and quick to adapt to the transition to distance learning.

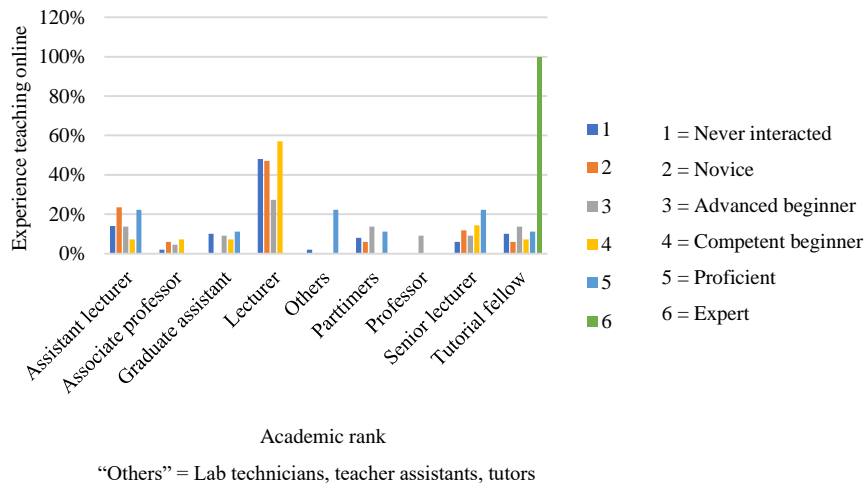


Figure 4. Experience teaching online/virtually per academic rank

### 3.2. Impact of transition to online/virtual learning due to Covid-19

#### 3.2.1. Gender

Figure 5 shows that 16% of female respondents were considerably affected while 74% of them were greatly affected. Simultaneously, 22% of the male respondents were considerably affected while 58% were greatly affected. These numbers show a slight difference in the impact of the transition to distance learning with female respondents being more affected as compared to their male counterparts.

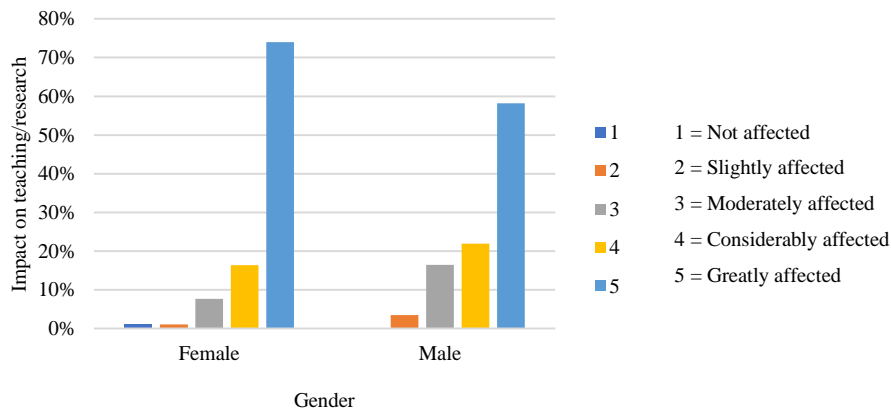


Figure 5. Impact on teaching/research per gender

Figure 6 shows the results of the impact of the transition to distance learning due to Covid-19 on productivity based on the respondents’ gender. The results show that 86% of the female respondents rated the impact on productivity at five or higher, and 81% of male respondents rated the impact at five or higher. This, therefore, means that there is a slight

difference between the impact on females as compared to the male respondents. The productivity impacts were observed across the gender, with females reporting slightly higher productivity decline than males. On an overall basis, the productivity decline could be majorly attributed to spending more time developing class content, more significant time communicating with the students, and increased mandatory training.

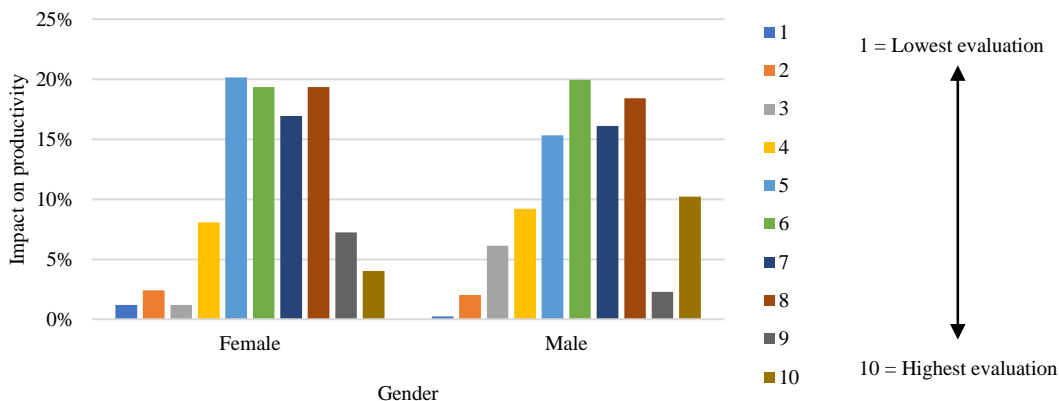


Figure 6. Impact on productivity based on gender

Figure 7 shows the results of the impact of the transition to distance learning due to Covid-19 on practical lessons based on the respondents' gender. The results show that 48% of females rated the impact of the transition on practical lessons at five or higher whereas, 61% of male respondents rated the impact of the transition on practical lessons at five or higher. What these results mean, therefore, is that the transition to distance learning had more impact on lessons led by the male as compared to those led by their female counterparts.

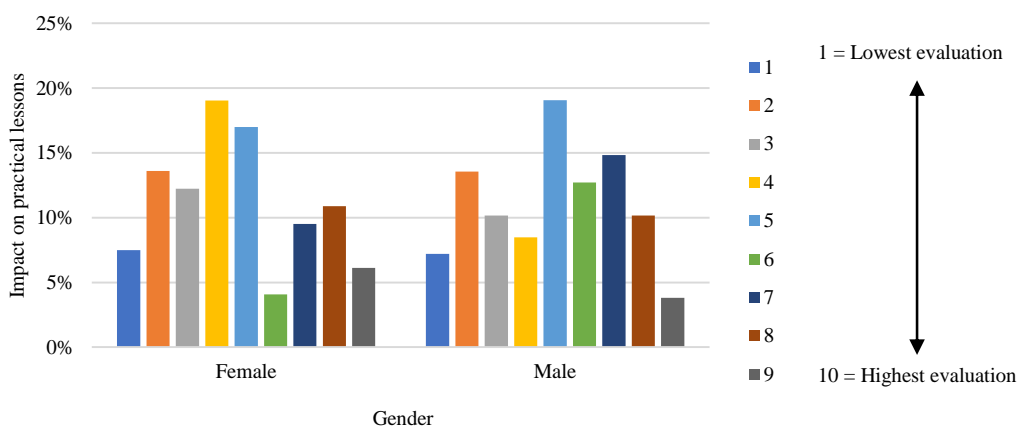


Figure 7. Impact on practical lessons per gender



Overall, the data suggest varying levels of the impact of the transition to distance learning between both male and female respondents. The female respondents’ teaching/research and productivity are more impacted than the male respondents. On the other hand, practical lessons led by male educators are more impacted than those led by female educators.

### 3.2.2. Age

Figure 8 shows the results of the impact of the transition to distance learning due to Covid-19 on teaching/research based on the respondents’ age bracket. The results indicate that a majority of the respondents were either considerably or greatly affected (87% in the age group 20-29, 86% in the age group 30-39, 74% in the age group 40-49, 90% in the age group 50-59, 100% in respondents over sixty years).

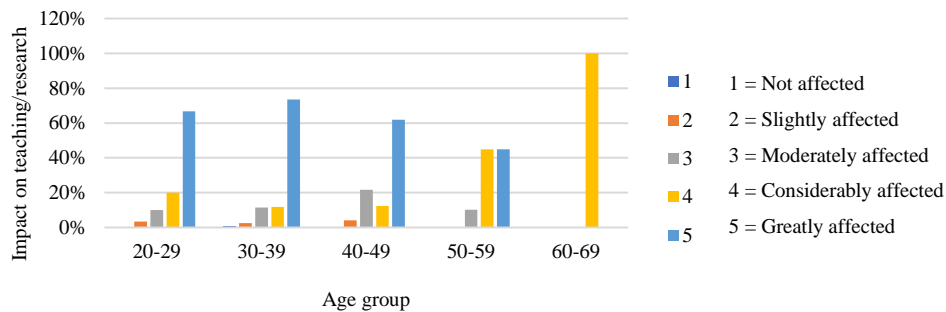


Figure 8. Impact on teaching/research per age group

Figure 9 shows the results of the impact of the transition to distance learning due to Covid-19 on productivity based on the respondents’ age bracket. The results indicate that most of the respondents rated the impacted as either a five or more (90% in the age group 20-29, 83% in the age group 30-39, 86% in the age group 40-49, 84% in the age group 50-59, 100% in respondents over sixty years).

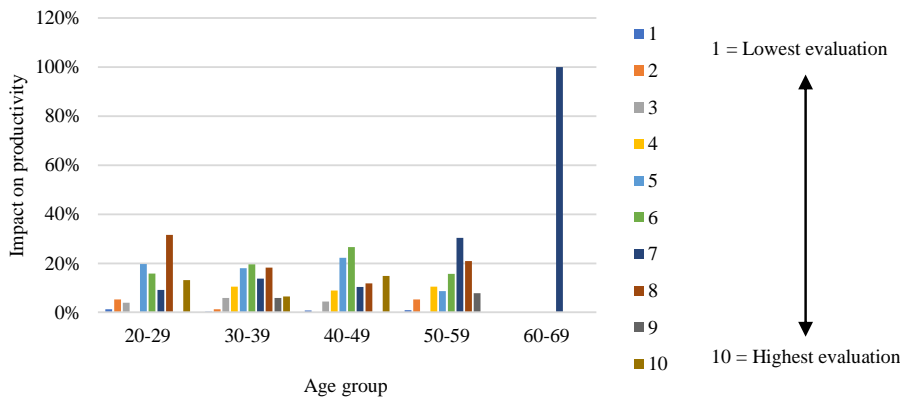


Figure 9. Impact on productivity per age group

Figure 10 shows the results of the impact of the transition to distance learning due to Covid-19 on practical lessons based on the respondents’ age bracket. The results indicate that most of the respondents rated the impacted as either a five or more (70% in the age group 20-29, 48% in the age group 30-39, 48% in the age group 40-49, 68% in the age group 50-59, 100% in respondents over sixty years).

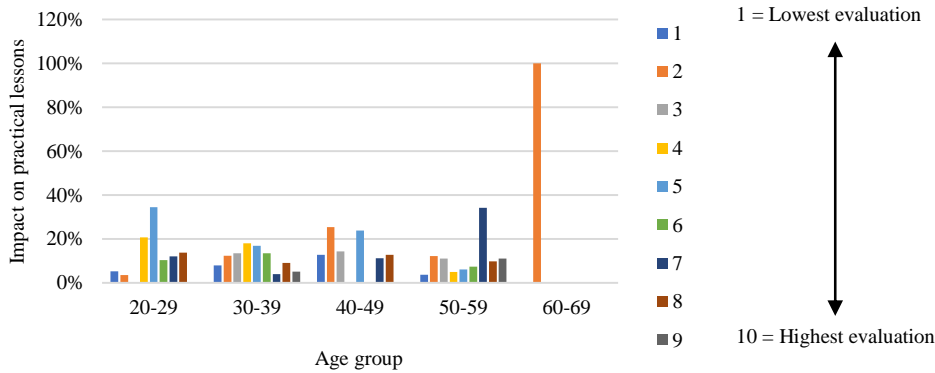


Figure 10. Impact on practical lessons per age group

3.2.3. Location

Figure 11 shows that respondents living in rural areas reported the highest percentage of being greatly affected (78%) followed by those in city/urban areas (67%), and lastly those from suburban areas (57%). Based on the geography of Kenya, rural areas are characterized by power shortages and poor internet connectivity (Wildermuth, 2021). This explains mostly the reason why those living in rural areas were greatly affected.

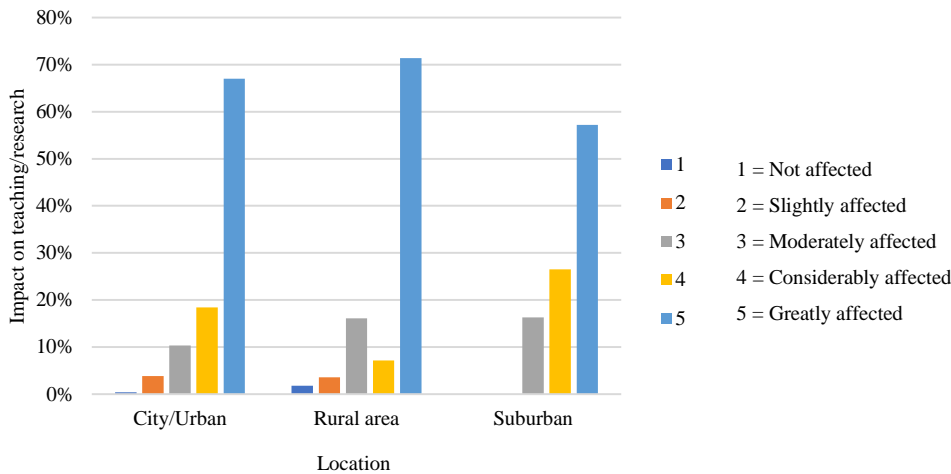


Figure 11. Impact on teaching/research based on location

Figure 12 shows the impact of the transition to distance learning due to Covid-19 on productivity based on the location of the respondents. The results show that 84% of the respondents living in suburban areas rated the impact on productivity at five or higher, 76% of those living in urban areas rated the impact at five or higher, and those living in rural areas rated the impact on productivity at five or higher. Movement in urban areas especially around Nairobi metropolitan and Mombasa was restricted for the better part of the early days of the pandemic (Kithiia et al., 2020; Brand, et al., 2020). This was reflected on the impact on educators as some could not access their offices and had to contend working from home. The balance between private life and working from home has been well studied (AbuJarour et al., 2021; Galanti, Guidetti et al., 2021); Krukowski, Jagsi, & Cardel, 2021), and it is consistent with our findings here.

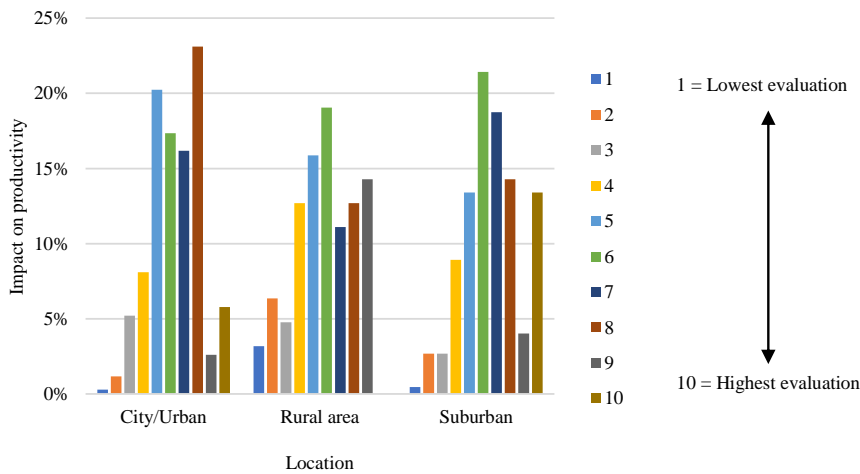


Figure 12. Impact on productivity based on location

Figure 13 shows the results of the impact of the transition to distance learning due to Covid-19 on productivity based on where the respondents live. The results indicate that practical lesson classes led by educators living in the city/urban areas were the most impacted, followed by those in the rural areas then those in suburban areas.

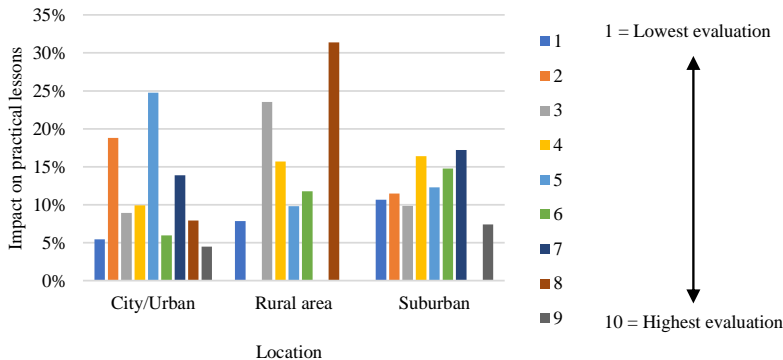


Figure 13. Impact on practical lessons based on location

### 3.2.4. Academic rank

Figure 14 shows the impact of the transition to distance learning due to Covid-19 on teaching/research based on the academic rank of the respondents. The results show that lecturers were greatly affected, followed by assistant lecturers, and tutorial fellows. Professors were reported to be the least affected by the transition to distance learning due to Covid-19.

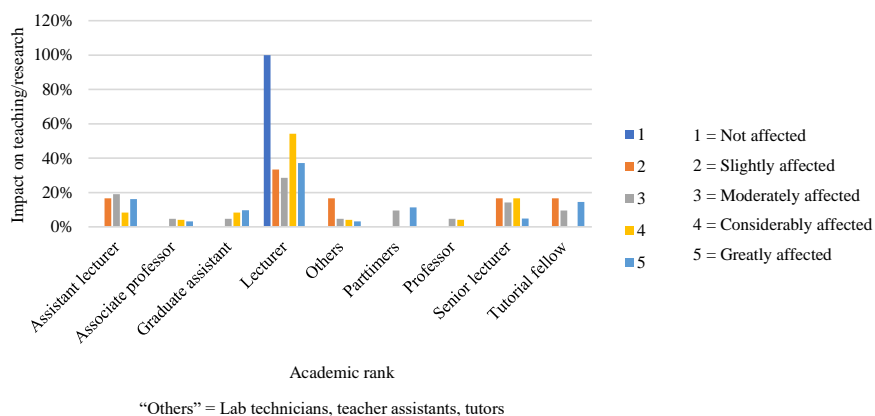


Figure 14. Impact on teaching/research per academic rank

Figure 15 shows the impact of the transition to distance learning due to Covid-19 on productivity based on the academic rank of the respondents. The results indicate that lecturers’ productivity was more impacted followed by tutorial fellows. Professors’ and associate professors’ productivity were the least impacted. The data show that there was a clear distinction indicating that lower cadre ranks in academia were more impacted as compared to senior ranks. This can partly be attributed to more expectations for lower cadre educators to rise through the ranks (Day, et al., 2021). Therefore, they need to work more as compared to their senior counterparts.

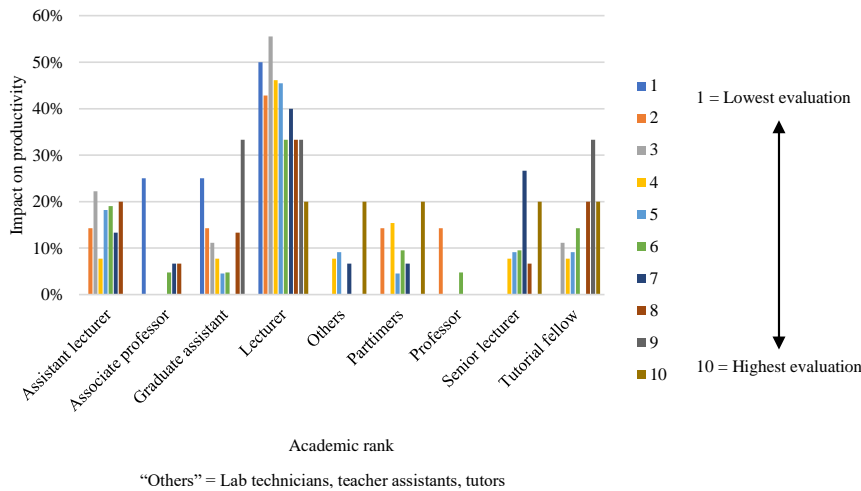


Figure 15. impact on productivity per academic rank

Figure 16 shows the impact of the transition to distance learning due to Covid-19 on practical lessons based on the academic rank of the respondents. The results show that lecturers were greatly impacted, followed by assistant lecturers, associate professors, and tutorial fellows. Practical lessons for professors and part-timers were reported to be the least impacted by the transition to distance learning due to Covid-19.

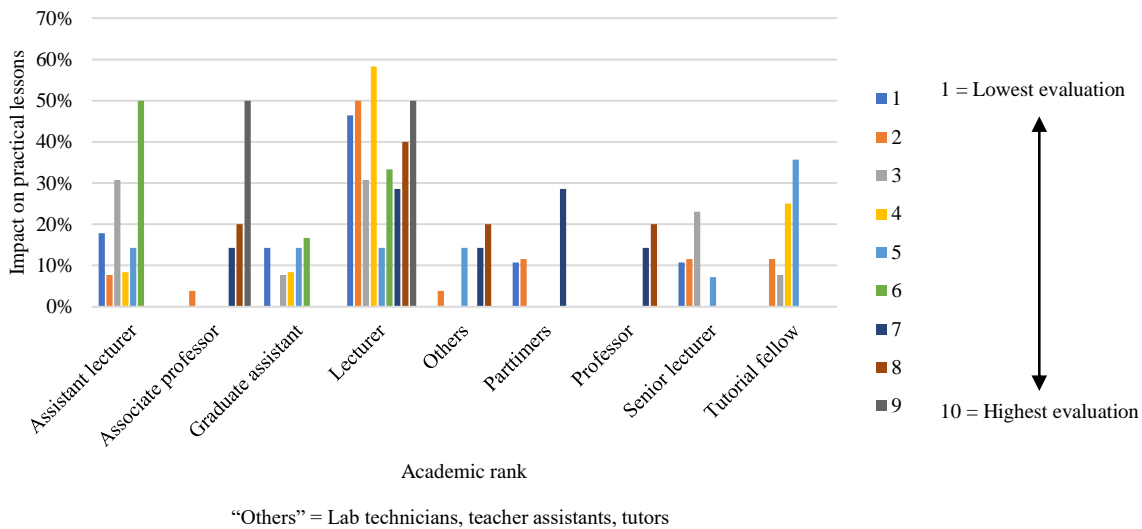


Figure 16. Impact on practical lessons per academic rank

The impacts of the transition to distance learning analyzed so far show varied results based on gender, age, location, and academic rank. It was therefore prudent to analyze these variables statistically to ascertain whether these variables are statistically different.

### 3.3. Independent sample t-test

The purpose of the independent sample t-test is to establish whether there is a statistical difference on the impact of the transition to distance learning due to Covid-19 between male and female respondents. Table 1 shows the independent sample t-test results for impact on teaching/research, productivity, and practical lessons. With equal variances assumed, the results show a p-value greater than 0.05. Therefore, the null hypothesis that the impact of the transition to distance learning due to Covid-19 on teaching/research, productivity, and practical lessons have equal means on the gender variable is not rejected. The findings indicate that the impact is the same across both genders and that the variables are not statistically different. The findings are inconsistent with those of Cui, Ding, and Zhu (2021), who reported a 13.2% drop in research productivity in females.

Table 1. Independent t test results with confidence intervals, standard errors, and p values

	F	p-value	t	df	S.E.	95% CI	
						Lower	Upper
Impact on teaching/research	.031	.860	-1.245	114	.195	-.629	.143
Impact on productivity	.000	.988	.180	113	.414	-.745	.895
Impact on practical lessons	.840	.361	.361	112	.426	-.690	.998

### 3.4. Chi-square tests

The purpose of the chi-square test was to establish the statistical independence between the variables. The results are presented under each of the three independent variables (i.e., age group, location, and academic rank).

#### 3.4.1. Age group

Table 2 shows the chi-square results with the age group as the dependent variable. The results show that the variables are not statistically significant. Therefore, the null hypothesis that there is no relationship between age group and impact on teaching/research, productivity and practical lessons is not rejected. What these results mean, therefore, is that no relationship exists between these variables.

Table 2. Chi-square test results with age group as the dependent variable

	Value	df	<i>p</i> -value
Impact on teaching/ research	21.418 <sup>a</sup>	16	.163
Impact on productivity	28.139 <sup>a</sup>	36	.822
Impact on practical lessons	31.523 <sup>a</sup>	32	.491

### 3.4.2. Location

Table 3 shows the chi-square results with location as the dependent variable. The results show no statistical significance. Therefore, the null hypothesis that there is no relationship between where individuals live and the impact of the transition to distance learning on teaching/research, productivity, and practical lessons is not rejected. What these results mean, therefore, is that no relationship exists between these variables.

Table 3. Chi-square test results with location as the dependent variable

	Value	df	<i>p</i> -value
Impact on teaching/ research	9.815 <sup>a</sup>	8	.278
Impact on productivity	14.547 <sup>a</sup>	18	.693
Impact on practical lessons	22.092 <sup>a</sup>	16	.140

### 3.4.3. Academic rank

Table 4 shows the chi-square results with academic rank as the dependent variable. The results show no statistical significance between academic rank and impact on teaching/research and productivity. Therefore, the null hypothesis that there is no relationship between an individual's academic rank and the impact of the transition to distance learning on teaching/research and productivity is not rejected. What these results mean, therefore, is that no relationship exists between academic rank and impact on teaching/research and impact on productivity. On the other hand, results show a statistical significance between academic rank and impact on practical lessons. Therefore, the null hypothesis that no relationship exists between academic rank and impact on practical lessons is rejected. The results show that the impact of the transition to distance learning due to Covid-19 depends on the academic rank. These results can be explained by the fact that lessons are scheduled based on the academic ranks and experience levels. These results concurrently with the grouped data, show that practical lessons led by educators with high levels are the least impacted. This, therefore, means that as educators move up the education level, they are scheduled to teach fewer practical classes.

Table 4. Chi-square test results with academic rank as the dependent variable

	Value	df	<i>p</i> -value
Impact on teaching/ research	30.455 <sup>a</sup>	32	.545
Impact on productivity	62.729 <sup>a</sup>	72	.774
Impact on practical lessons	106.681 <sup>a</sup>	64	.001*

Overall, these findings show that all educators across both genders, all age groups, locations, and academic ranks were challenged during the transition to combine technology and new ways of teaching. These findings were consistent with research conducted by Naylor and Nyanjom (2020), who looked at the emotions of educators in higher education during the online transition. Furthermore, the impact on productivity resulted from the educators needing more time to teach in the new environment. Indeed, as revealed by the respondents, most educators spent more time learning through the new environment before delivering the content. These results were also consistent with those of Sword (2012), who studied nursing education.

#### 4. Conclusions

Teaching distance is a challenge on its own. It even becomes more challenging to learners, educators, and even parents when the transition to distance learning is sudden and abrupt due to disruptions such as a pandemic. Therefore, the purpose of this research was to investigate the impact of the transition to distance learning due to Covid-19 on postsecondary educators. To achieve this aim, the impact was assessed on three main areas: teaching/research, productivity, and practical lessons. These three key areas were compared across four variables (i.e., gender, age, location, and academic ranks). The study found that before Covid-19, even though an overwhelming majority (87%) of responding educators indicated face-to-face delivery as the primary content delivery method, at the same time, nearly 57% of the responding educators indicated possessing some experience teaching in an online environment. The transition to distance learning due to Covid-19 saw a substantial impact on teaching/research, productivity, and practical lessons across both genders, all age groups, locations, and academic ranks. However, the varied differences noted across genders, age groups, locations, and academic ranks were not statistically different except for the impact of the distance learning due to Covid-19 on practical lessons based on academic rank.

This research is among the first few studies in developing countries, specifically Kenya, investigating the impact of the transition to distance learning due to Covid-19 among postsecondary educators. Therefore, more research needs to be conducted in this area specifically, on the impacts on the students and upper administration, who are integral stakeholders and whose perspective is equally important in the postsecondary institutions. Furthermore, further studies need to be conducted to assess the effectiveness of distance learning in relation to student learning outcomes.



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