COVID-19 Impacts on Architecture Educators in India- A review of gender perceptions

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Abstract

The majority of the academic institutions across the globe transitioned education delivery to alternate methods, irrespective of specializations, in response to the pandemic. However, very little is explored regarding how architecture educators perceive the Online Learning Environment (OLE) transition impacts based on gender differences. The need for such a study emerges as the literature indicates that women are more impacted than males during natural disasters, which might include a pandemic. The unit of analysis for the study was architecture educators in India. India was purposely selected as it is one of the top three countries globally from the perspective of enrolled university students. The study explored the impacts of the OLE transition among architecture educators as per gender in India. An online survey method was used to allow adequate data collection during a pandemic. The developed online instrument was hosted on Qualtrics. The developed online instrument was pilot tested by education experts in India. The instrument was emailed to the deans of more than 450 architecture colleges in India for dissemination among the educators affiliated with the institutions. In addition, the research team used interpersonal channels such as Whatsapp for instrument distribution. Two follow-up emails were sent to increase the response rate. The survey instrument was disseminated in March and April 2021, one year after the pandemic had impacted globally, also the timeframe when the pandemic started to severely impact India. The study used 165 complete responses from architecture educators. Approximately 59% of the respondents identified themselves as females. Further, most of the respondents had a Master's degree as a terminal degree. The study identified perception differences of COVID-19 impact on architecture educators. The study found that female educators had less experience with OLE and were less aware of the resources available at the University and institute levels before the impact of COVID-19. At the same time, a higher number of male educators indicated a negative productivity impact than their female counterparts. Finally, agreement among genders could be observed in the areas of administration monitoring online teaching, factors impacting the productivity of the architecture educators, and concerns about working from home.

Keywords

COVID-19 Impacts, Architecture Educators, Gender Perspective, Online Learning Environment (OLE) Transition

Introduction and Background

Although COVID-19 made its way worldwide, each country started seeing rises in cases at different times [1]. India began lockdown in March 2020 [2 and 3], with another surge occurring in April 2021 [4]. The second wave was much worse in terms of hospitalizations in India [5]. Equity concerns in education have been highlighted by the pandemic, both for students and faculty, including the availability of the internet, unobstructed work from home space, caregiving responsibilities, and mutual respect of work from home responsibilities [6 and 7]. There are instances in India where the majority of students have smartphones, but a small percentage have access to a personal computer or internet access (pre-pandemic), with cost being the biggest barrier [6]. In comparison, instructors throughout India provided content, with 67% using laptops and 22% utilizing smartphones [8]. Providing strengthened Online and Distance Learning opportunities had been identified as an expansion strategy in higher education country-wide [9], well before the pandemic. Internet growth has surged in India from approximately 27% of households in 2015-16 to 58% of households in 2019-20 [10].

While considering architectural education worldwide, it should be noted that vestiges of colonialism exist [11 and 12]. The colonialist influence on architectural education can be seen in the ideal of the "atelier" or studio [12]. While a patriarchal monarchy inserted its values in India, it overlaid those values on an existing culture [13 and 14]. The conflicted values of an underlying patriarchal system, local religious practices, and the need for women in the workforce inform how women approach and respond to their careers [15].

Limited data was publicly available regarding the gender of distribution among registered architects in India. However, using the US as the point of reference for the profession, women account for approximately 17% of registered architects [16]. While a small percentage of registered architects become faculty in the US, approximately 40% of them are women [17]. While not a direct comparison, the Open Government Data Portal of Tamil Nadu provides statistics on university enrollment overall. Female students made up approximately 55% of total enrollments [18]. While we see that female student are at equity levels in university enrollment in India overall, there is a question of whether women are attaining equity levels in engineering and architecture [13].

There are instances globally where specific population demographics (such as gender, age, income, and others) are more likely to be impacted, and in this regard, females are more likely to be impacted in than their male counterparts [19]. Therefore the research aims to determine the gender perception of architecture educators with the transition to the Online Learning Environment (OLE). The perceptions of architecture educators were analyzed by determining the baseline for online education and then determining the impacts of the transition. The baseline was determined by identifying gender experiences with OLE and identification of resources at the university or institute level. Identification of university/institute resources is critical as they play a vital role in successful online education delivery [20 and 21]. Further, the research also determined the impacts of monitoring online classes on architecture educators. Classroom monitoring may not be a worldwide phenomenon in higher education, it has been documented in Kenya and India since 2006 [22] albeit to limit instructor absenteeism in rural populations. In the US and China, there are other purposes behind class monitoring. In the US, there have been local laws to allow camera classroom monitoring by parents [23]. In China, although reporting is anecdotal, the use of video conferencing allows government officials and others to monitor the classroom [24]. Along with monitoring, the research also determines the gender perceptions in the areas of productivity impacts in response to OLE transition, concerns about working from home, and others.

To assess the impacts of the pandemic across genders, this study used the data from a survey conducted among educators in India in March and April 2021. The survey instrument was based on a previous instrument that assessed the impact of COVID-19 on educators across the US. The survey instrument developed for India was contextualized in response to the architectural educational paradigm observed in India.

Methodology

A review of gender perceptions among architecture educators in India was analyzed in this research to examine the COVID-19 impacts. An online survey method hosted on Qualtrics was used to collect the during the pandemic. The developed online instrument was pilot tested by nine education experts in India for validity and reliability. The pilot study respondents were purposively selected for their experience as architectural educators. The developed instrument was then emailed to the deans of more than 450 architecture colleges in India for dissemination among the educators affiliated with the institutions. This was done as limited information about architectural educators was publicly available. After the initial email, two reminders were also emailed to the non-responding deans. Based on the information obtained from the deans, a listserv of educators affiliated with the institutions was developed. After the listserv development, the instrument was emailed to the educators on the listserv. The survey instrument was also

emailed to the deans, who had not responded to the initial emails for dissemination among their respective colleges. Two follow-up emails were sent to increase the response rate. Further, the researcher team also shared the instrument through inter-personal channels such as WhatsApp to educators across the country to increase the response rate. The survey instrument was emailed and shared in March and April 2021, one year after the pandemic had impacted globally and the timeframe when the pandemic started to impact India severely. The survey was closed a few weeks after the second reminder. The study used 165 complete responses from architecture educators.

The designed survey instrument had numerous sections that collected information in the areas of respondent demographics, respondent baseline (pre-COVID), and COVID-19 impacts on educational delivery. Given that the research aimed to determine the gender perceptions among architecture educators, only relevant questions were selected as outlined in the Appendix, and their responses were analyzed.

Results

The study received responses from about 248 architecture educators across India. All compiled responses were reviewed, and complete responses from 165 architecture educators were used in the study. About 58.8% (97 respondents) identified themselves as females, and the remaining (41.2% or 68 respondents) as males. In addition, the majority of the respondents (78.8%) indicated a Master's degree as a terminal degree, and only 4.8% of the educators indicated that a Ph.D. was a terminal degree. When analyzing the terminal education information as per gender, it was observed that as the terminal degree became specialized, the proportion of females was higher (Figure 1). From the perspective of respondent age, the majority of female educators (38.1%) were 25–34 years old, followed by 32% of responding female educators in the category of 45-64 years. For males, the majority of the respondents (38.2%) were in the category of 45-64 years, followed by 33.8% in the category of 35-44 years. No educator was identified in the category of younger than 25 years or older than 79 years. Finally, younger educators were more females than their male counterparts (Figure 2).
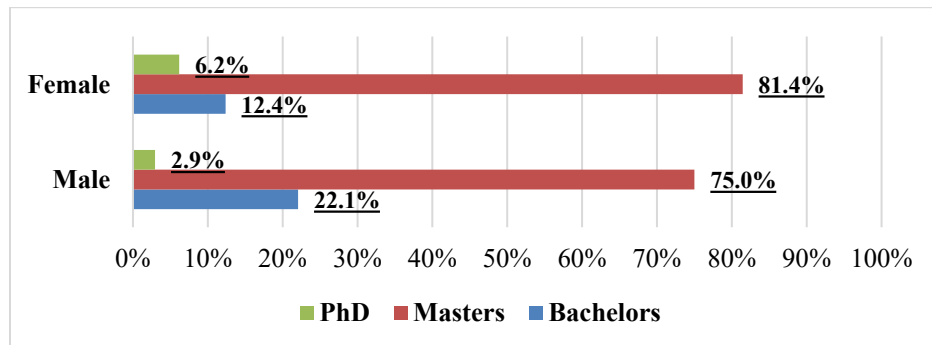

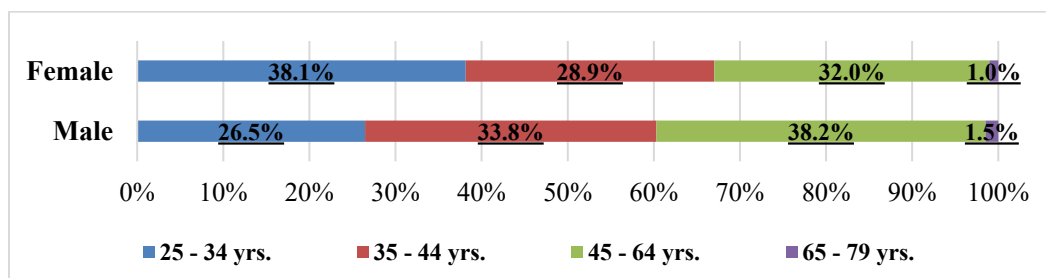Figure 1: The highest level of educational attainment as per gender

Figure 2: Respondent age distribution as per gender

Architecture education can be imparted in different institution types such as public, private, and others. The majority of the respondents (both male and female) identified themselves as being affiliated with private institutions (Figure 3).
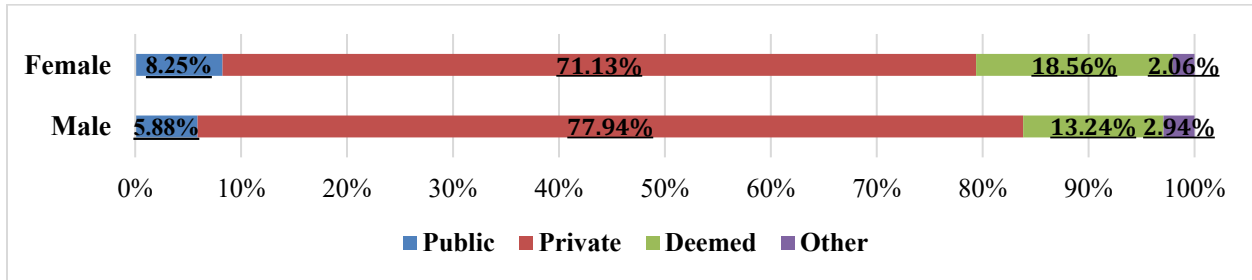

Figure 3: Respondent's affiliation with institution type

Concerning experiences with teaching in an OLE, the majority of the male educators (23.5%) indicated having taught in an OLE, whereas only 9.3% of the female educators indicated having experienced it before March 2020 (Pre-COVID) (Figure 4).
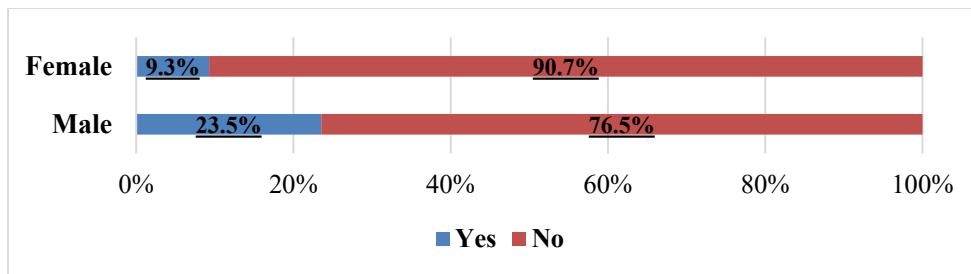

Figure 4: Respondent's experience with teaching online pre-COVID

University and institution resources play a vital role in the educator's successful content delivery [20 and 21]. In India, in many cases, multiple institutions having an architecture program are affiliated with a single university. Therefore, the educators can avail resources either at the university or institution level. The respondents were asked about support for improving online content delivery Pre-COVID at the university and institution level separately (Figures 5 & 6). As indicated, a higher percentage of male respondents indicated the existence of resources both at the university and institutional levels. In contrast, most of the females indicated either "no knowledge" or "no" resources to improve online content delivery before COVID-19. One of the reasons that could explain the perceptual differences could be attributed to male educators having more experience teaching online pre-COVID than females, as depicted in Figure 4. At the same time, future studies need to examine if the perceptual differences were due to the lack of experience or the existence of gender bias with the allocation of resources.
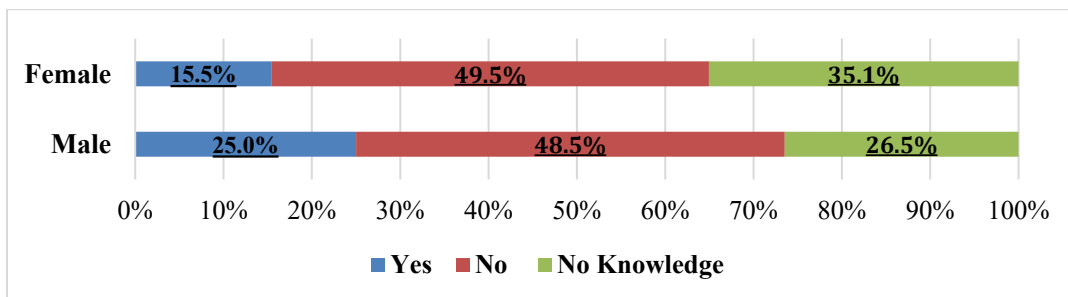

Figure 5: Respondent perception of University support pre-COVID to improve online content delivery
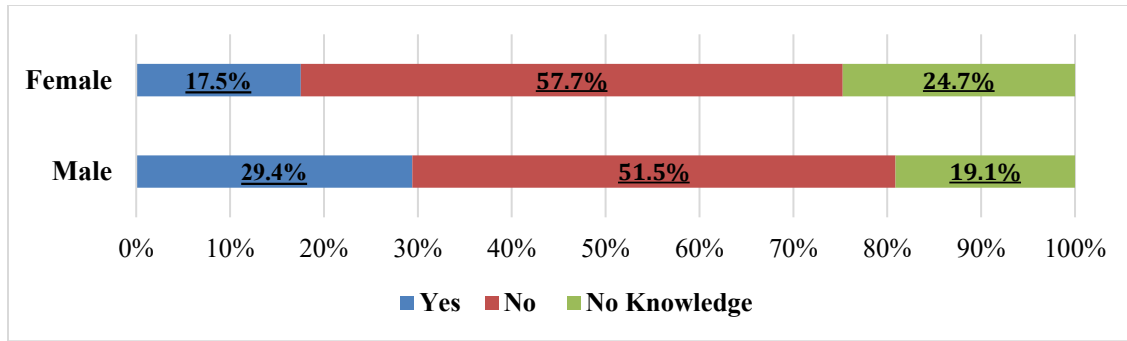
Figure 6: Respondent perception of Institution support pre-COVID to improve online content delivery

Transition to OLE

Almost all the respondents had indicated that they had transitioned to OLE at the time of the study. Only 29.1% of the total respondents (48 out of 165) indicated that the transition to OLE impacted productivity negatively. Of those 48 educators, 25 respondents (out of 97) were females, and 23 respondents (out of 68) were male educators. When reviewing the data from the perspective of gender groups, a higher proportion of male architecture educators (33.8%) indicated their productivity was negatively affected than their female counterparts (Figure 7).
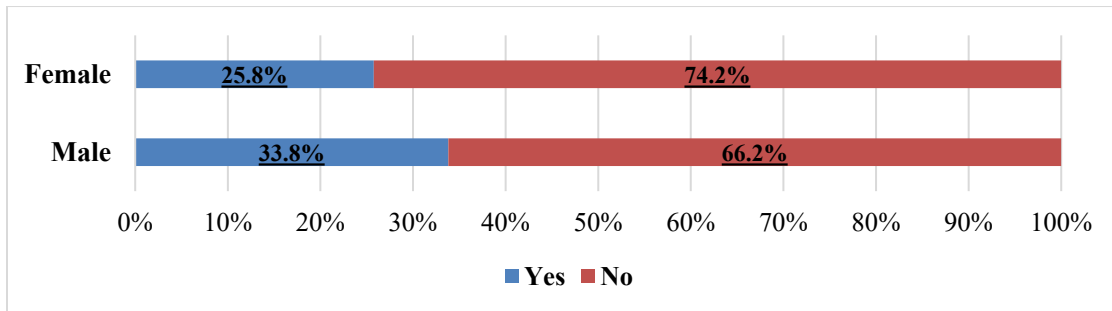

Figure 7: Transition to OLE impacting productivity negatively

When asked about the areas impacted by the transition to the OLE, teaching emerged the highest, followed by research and then service (Table 1). Respondents could select more than one area as the transition could have impacted more than one area for the educator. When reviewing the negatively impacted areas, both male and female educators indicated teaching to be most impacted, followed by research and then service. Male educators also indicated that all three areas (teaching, research, and service) were more impacted by the OLE transition than their female counterparts.

Table 1: Areas negatively impacted by the transition to OLE

Areas negatively impacted by the transition to the OLE	Respondent Gender		Total
	Male (n=23)	Female (n=25)	
Teaching	22	22	44
Research	10	11	22
Service	9	11	20

The respondents were also provided a list of 21 factors, with an ability to select more than one response to determine the factors impacting the eductor's negative productivity. Negatively impacting top-seven

factors as per gender were identified (Table 2). The green cells (Rank 1 & 7) highlight factors ranked the same by gender categories. "*Spend more time assessing the submissions*" emerged as the top-most factor across the gender groups that negatively affected their productivity, indicating that the time spent by educators exceeded significantly, thereby negatively impacting their productivity.

Table 2: Top-seven factors impacting the productivity of the architecture educators as per the gender

Ranking of concerns (out of 21)	Male educators (% of gender selection)	Female educators (% of gender selection)
Rank 1	Spend more time assessing submissions *(20.6%)*	Spend more time assessing submissions *(16.5%)*
Rank 2	Spend more time developing content for the classes *(20.6%)*	Less interactions with my peers *(15.5%)*
Rank 3	Spend more time communicating with students enrolled in the classes *(17.6%)*	Spend more time developing content for the classes *(14.4%)*
Rank 4	Interactions with students conducting research with me is reduced *(17.6%)*	Spend more time delivering the class content *(12.4%)*
Rank 5	Spend more time delivering the class content *(16.2%)*	Unreliable internet access *(12.4%)*
Rank 6	Unreliable internet access *(16.2%)*	Spend more time communicating with students enrolled in the classes *(11.3%)*
Rank 7	Lack of dedicated work environment *(14.7%)*	Lack of dedicated work environment *(11.3%)*

While educators were imparting education from a remote environment, the researchers aimed to determine if the administration was monitoring online teaching as the literature indicates its use in various other countries [22-24]. About 83% (137 out of 165) of the respondents indicated that the administration monitored their online teaching. When reviewing the data from a gender perspective, about 88.2% of the respondents were males, and 79.4% were females who indicated that their online teaching was being monitored. For the respondents who indicated their teaching was monitored, about 56.9% indicated that teaching performance was not impacted, whereas 43.1% of the respondents indicated that their teaching performance was affected by administration tracking it. From the perspective of gender, both male and female educators depicted somewhat similar responses. Approximately 56.9% of male educators and 57.1% of female educators indicated that monitoring does not impact their teaching performance (Figure 8).
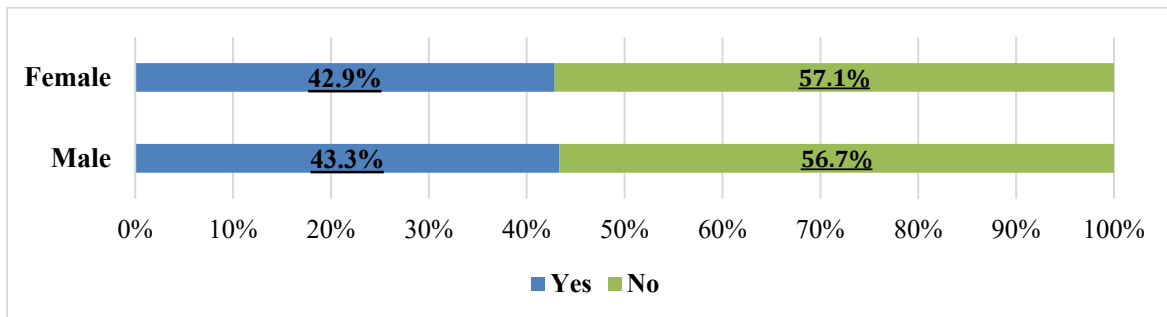

Figure 8: Monitoring of teaching impacting educator's teaching performance

The research identified the primary concerns while working from home for the architecture educators. Respondents were provided 19 statements that could be translated as concerns, and the respondents had

the ability to select more than one. The respondents made a total of 1,241 selections. Female educators selected 764 (61.6%) statements, whereas males selected the remaining 477 (38.4%) statements. Table 3 indicates the top seven concerns for both male and female architecture educators while working from home. The top two concerns for both genders were the same (highlighted green) and pertained to limited student interactions and background noises.

Table 3: Top seven concerns while working from home as per the gender

Ranking of concerns (out of 20)	Male educators (% of gender selection)	Female educators (% of gender selection)
Rank 1	Limited interactions with students (*11.3%*)	Limited interactions with students (*8.6%*)
Rank 2	Background noise while participating in virtual meetings (*9.4%*)	Background noise while participating in virtual meetings (*8.2%*)
Rank 3	Internet Issues (*8.2%*)	Too many conference calls/virtual meetings (*8.1%*)
Rank 4	Too many conference calls/virtual meetings (*7.3%*)	Limited work/life separation (*7.9%*)
Rank 5	Difficulty in finding a healthy work-life balance (*5.9%*)	Internet Issues (*7.6%*)
Rank 6	Limited work/life separation (*5.7%*)	Limited interactions with my peers (*7.2%*)
Rank 7	Digital miscommunication (*5.3%*)	Difficulty in finding a healthy work-life balance (*7.1%*)

Conclusion

While there were some identifiable differences in perceptions on how COVID-19 impacted Architecture educators, it is perceived by the researchers that the female educators were more impacted in some areas due to the fact the majority of female educators had less experience with OLE and were less aware of the resources available to improve. At the same time, a higher number of male educators indicated that their productivity was impacted more negatively than their female counterparts. After the 165 complete responses from the architecture educators from across India were analyzed, it is observed that females are a significant component of the architectural education system in India. Female respondents possess higher academic qualifications at both the Master's and Ph.D. levels. On analyzing the age of the educators in academia as per the gender, it observed that with the increase in age, the proportion of female participation in the education system is reduced. A majority of the female educators were unaware or had no knowledge of the existence of resources both at the university and institutional levels compared to male educators. The male educators were more aware of OLE Pre-COVID and also that resources existed both at the university and institutional levels.

The transition to OLE was observed by almost all respondents, with only 29.1% being negatively impacted. Analysis indicates that more males indicated that the transition negatively impacted their productivity as compared to their female counterparts. Further analyzing negative impacts, we can conclude that teaching was the most impacted and equally impacted both male and female educators. Based on the results, online classroom monitoring was impactful on male and female educators. After analyzing the factors impacting the educator's negative productivity, we can conclude that for both genders, the most negatively affected their productivity was the time spent on assessing submissions. Analyzing the response on primary concerns while working from home, it is observed that the area of most concern for both genders was limited interaction with the students, followed by background noise

while participating in virtual meetings. Other common concerns were internet issues, too many conference calls/virtual meetings, limited work/life separation, and others. Thus, the researchers determined that perceptions and impacts varied with gender Pre-COVID and during COVID-19.

Acknowledgment

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Appendix (Questions analyzed in the research)

1. How do you self-identify? (Gender values)

2. Highest level of educational attainment. (Educational levels)

3. Age (years). (6 categories)

4. Institution type. (4 categories)

5. Have you ever taught using an Online method before January 2020? (Yes/No).

6. Before March 2020, did your University offer resources that improved the delivery of content in an Online medium? (Yes/No/No Knowledge).

7. Before March 2020, did your Institute/College offer resources that improved the delivery of content in an Online medium? (Yes/No/No Knowledge).

8. Is your Online teaching being monitored by the administration? (Yes/No).

9. Does the monitoring of the teaching impact your teaching performance? (Yes/No).

10. Has the transition to an online medium impacted your productivity negatively? (Yes/No).

11. Please select the areas that have been impacted by the transition to the online learning environment. (Please select all that may apply): (Teaching; Research; Service)

12. Which of the following statements can be attributed to the impact on productivity? (21 statements with the ability to select multiple that reflect the respondent's perceptions).

13. During this time of COVID-19 impact, what are the primary concerns you have while working from home? (20 statements with the ability to select multiple that reflect the respondent's perceptions).