

HOW DOES COVID-19 AFFECT THE PRODUCTIVITY OF REMOTE WORKERS?

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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During this time of a global pandemic, COVID-19 has negatively impacted and affected the society that we live in today with over 200 affected countries and millions of cases worldwide (Kumar et al., 2020, p. 1). Unfortunately, this global pandemic has impacted the world by more than just physical ailments. It has affected the environment, the people, and most especially the front-line workers such as doctors and nurses. It has also affected people indirectly involved as research by Montemurro illustrates that one does not need to be in the front-line medical staff to be impacted, but that “vicarious traumatization” could happen in non-front-line medical staff (2020, p. 1). This implies that there are potentially mental and psychological impacts spreading due to the virus. Khan et al. (2020) noted this when they emphasized the heightened “stress and fear of infections” which leads to major “behavioral and psychological abnormalities” in people (p. 3).

Furthermore, remote work has also shown to be more difficult as the detrimental effects of social isolation impact satisfaction in workers (Toscano & Zappalà, 2020, p. 12). One big underlying problem is that the economy of the entire United States is at stake such that there is expected to be a “long recovery process” when the pandemic is over (Tian, 2020, p.9). How the country responds to this pandemic will affect how we transition and adapt to the state after normalcy is restored. Kamal (2020, p. 312) describes how with the ongoing effects of the pandemic, “increasing productivity and resulting in delivering greater outputs, has now become critical for every business sector’s existence.” Given this, it is critical that employers strive to help ensure for the wellbeing and the productivity of their employees in these times of stress and isolation. With a global pandemic having great impacts on the way we live today, the world is searching for any ways possible to mitigate the effects of this virus.

To study this issue, the STS research paper, studies the factors that affect the productivity of remote workers and formulating what actions could best be taken to alleviate the challenging effects of remote work. This will be researched under the framework of the Social Construction of Technology (SCOT) model (Bijker & Pinch, 1987, p. 107). Along with this, the loosely coupled technical research involves using centralized data sharing to mitigate the effects of COVID-19. The primary aims of both research projects is to mitigate the damaging impacts of COVID-19.

ANALYZING THE IMPACTS OF REMOTE WORK USING SCOT

According to Kamal (2020), as society advances through the pandemic, we are “witnessing the gradual onset of the new normal - that radically instigated the surge in the use of digital technologies, communication platforms” (p. 310). In fact, Golinelli et al. (2020) talks about how health care organizations, which are slow to adopt to digital practices, have already started to rapidly adopt digital technologies (p. 2). Therefore, with the onset of remote work and

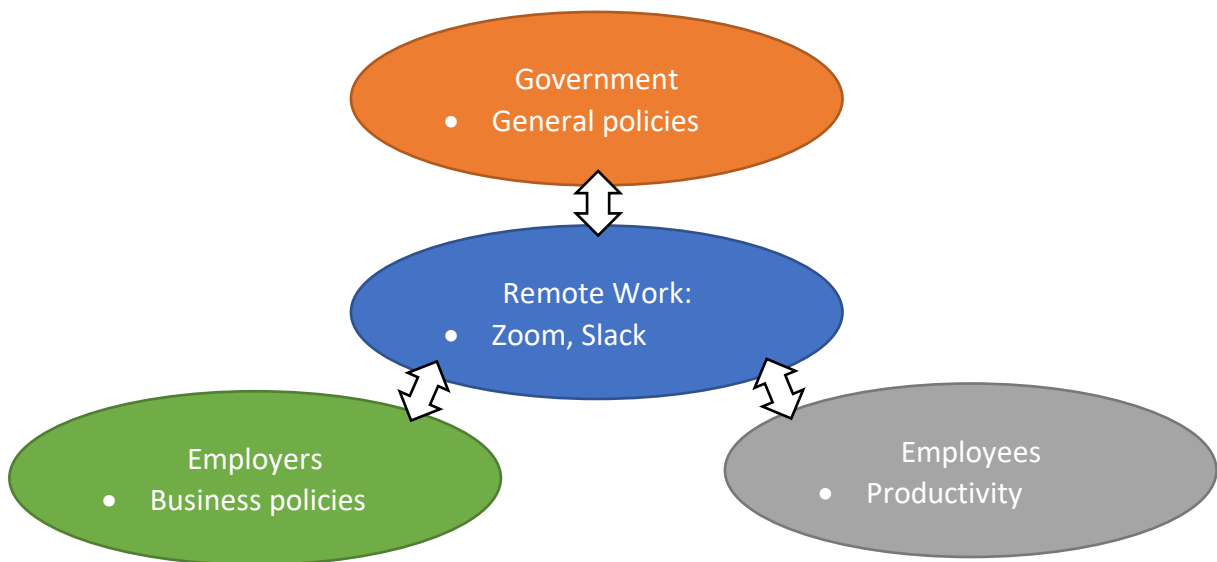


Figure 1: Remote Work SCOT model. The big transition to remote work caused by COVID-19 is responsible for affecting the policies as well as the productivity of each actor (Park, 2020).

the increased use of technology to accommodate for the loss of in-person communication, a SCOT model (Bijker & Pinch, 1987, p. 107), is created, as shown in Figure 1 below.

With the quick adoption of remote work through the use of technologies such as Zoom and Slack, remote work affects a number of different social groups such as employees, employers and the government in focus, as shown in the figure. One of the most interesting aspect of the SCOT model is the quickness of stabilization and closure of the technologies connected to remote work. In fact, Golinelli et al. (2020) explains how speed of the adoption of these technologies “demonstrates their ease of adoption and manageability” (p. 15). Ever since the government ordered a lockdown due to the pandemic, the transition to and adaptation of virtual technology such as Zoom was quickly made to stay connected. However, despite the fast adoption, there were also opposing concerns such as privacy. One form of this interpretive flexibility came from Golinelli et al. (2020) as they note how privacy is a “key challenge for designers and engineers who design digital tools for epidemic control” (p. 14). Nevertheless, remote technology has still been widely adopted. One primary reason for this could be that there were no other means to stay connected and thus, people had to look for the next immediate options by the means of virtual technology. Under the government policy, the need was dire so society had to conform to specific circumstances, as Kamal (2020) describes how government policies has “instigat[ed] the most severe destruction to the global economy” (p. 310).

With the emergence of virtual technology, it has revolutionized the communication and the work with relation to the government, employers, and the employees. In order to combat the global pandemic, the government as the policymaker, has imposed lockdowns and has encouraged other forms of digital communication. For example, according to Kamal (2020), the government has “allocate[ed] a great deal of resources to implement emerging digital

technologies” (p. 313). Those policies such as lockdowns also shaped how employers formulated their work from home business plans and strategies, as Kamal (2020) shows that the employers have no choice but to adopt digital technologies to continue their businesses. In turn, this adoption has impacted the wellbeing and the productivity of the employees in different ways. From the SCOT model, the varying and interrelated effects of remote work technologies from the onset of COVID-19 could be observed.

THE TRANSITION TO REMOTE WORK

Unfortunately, this global pandemic has impacted the workforce in different ways. One significant way was by stimulating a large transition to remote work. As shown in Figure 2 below, the proportion of workers that switched to working from home is 34.1% in addition to the 14.6% that already worked from home, suggesting that at least half of the American workforce has been working from home due to COVID-19 (Brynjolfsson et al., 2020, p. 2).

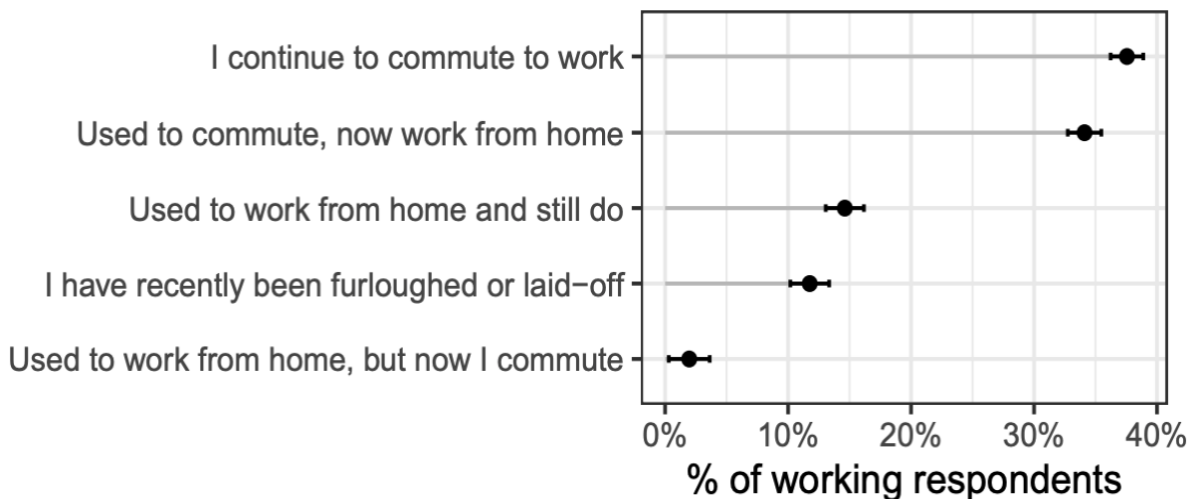


Figure 2: Statistics of Commuting and Remote Workers. The majority of American workers have transitioned to remote work due to COVID-19 (Brynjolfsson et al., 2020).

As the workforce is gradually adapting to the “new norm” of remote work with a “surge in the use of digital technologies (Kamal, 2020, p. 310),” there were mixed responses. While

Adisaputri et al. (2020, p. 2) show that remote workers have been known to experience negative effects on their wellbeing and productivity, Kamal (2020, p. 312) offers a different perspective stating that the majority of the remote workforce did not experience loss in productivity, with 28% reporting increased productivity with remote work.

There are differing perspectives on remote work but the transition to remote work has shown to have significantly affected the productivity of employees and the team dynamics which are critical for the organizational success of a company. Unfortunately, a good majority are still struggling with wellbeing and productivity in their work hours. This emphasizes the need to explore what factors could be affecting the productivity and wellbeing of remote workers today.

WHAT FACTORS COULD BE IN PLAY

According to Adisaputri et al. (2020), quantifying productivity is difficult as it is not explicitly quantifiable, but job satisfaction or emotional state were found to be very good indicators of productivity as they were shown to have close relations (p. 5-6). Unhappiness “leads to low cognitive performance ... and low motivation” (Adisaputri et al., 2020, p. 6). Given that information comes the question that adds the first layer of complication: what factors affect the satisfaction or the wellbeing of remote workers? Which ones affect them the most?

According to different studies by Adisaputri et al. (2020) and Russo et al. (2020), there are a number of factors that could affect the wellbeing of remote workers: autonomy, stress, daily routines, social contacts, competence, extraversion, quality of sleep, home office ergonomics, to name a few. Chief Executive of the Silicon Valley startup, Chef Robotics, also mentioned some of the problems regarding remote work. One of the big underlying problem for the startup was lack of social interaction, as it made it harder to connect, get to know other

employees, and ask for help (Cutter, 2020). “It is just not the same. You just cannot get the same quality of work” and on top of this Cutter (2020) mentioned, “people are [were] getting fatigued.”

If employers want their businesses to thrive, they will have to find solutions to these issues so that they may invest long-term into the wellbeing of their employees. For example, suppose social interaction is the affecting factor for wellbeing, then perhaps employees could be given the flexibility to have both remote and in-person working hours that may be safe and under regulations for the global pandemic. This leads to the second layer of complication. There are a number of factors affecting remote work: which factors are important for creating effective workspaces and how can they best be implemented?

THE POTENTIAL SOLUTION

As Toscano & Zappalà (2020) mention that an effective workspace involves fostering stronger connections with colleagues and the tasks at hand given that it “sustains the feeling of working to the best of one’s ability” (p. 12). With that, Rahaman et al. (2020) analyzes different factors in workplaces with respect to seating preferences, which reinforces those connections with colleagues. This study, which surveyed employees from varying disciplines and results, showed a preference for a social setting over isolation, as shown in Figure 3 below.

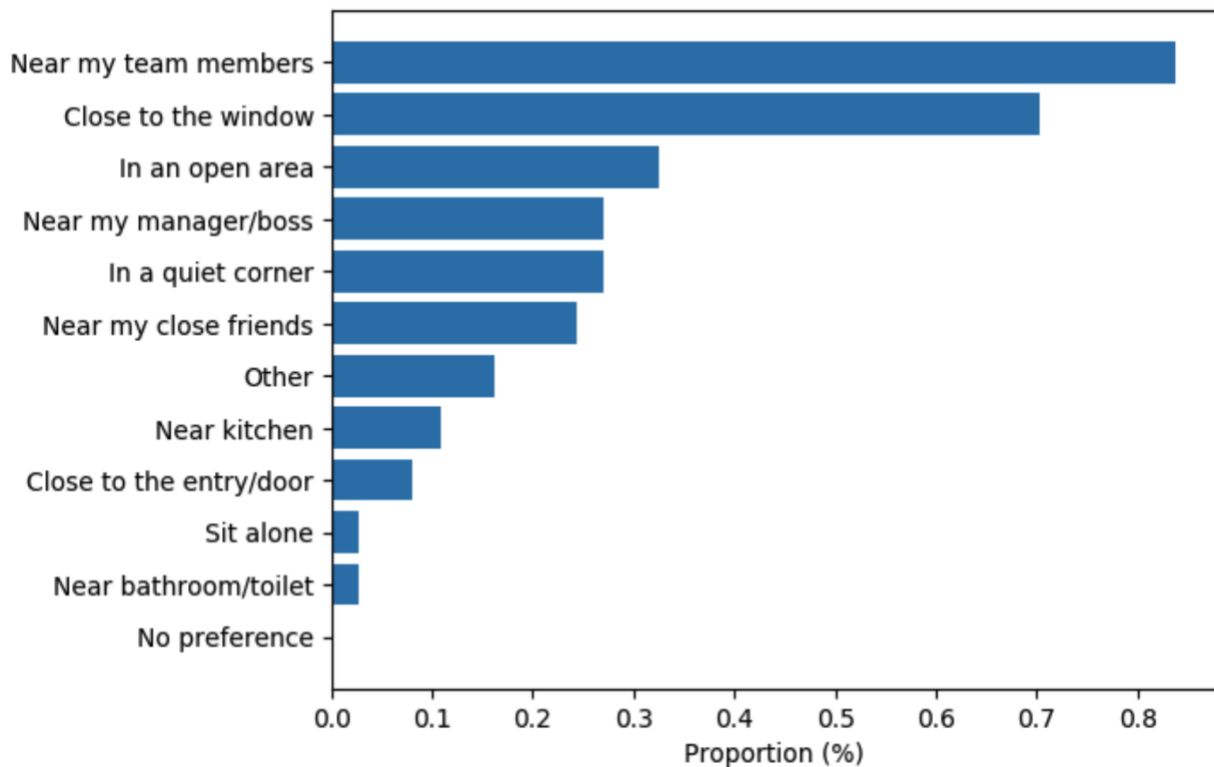


Figure 3: Distribution of Productivity Indicators in Workplaces. Study participants indicated their seating preferences, which is shown in decreasing order (Rahaman et al., 2020, p. 2).

The study emphasized the importance of effective exchange of communication with colleagues at work, with 78.38% of surveys supporting this finding (Rahaman et al., 2020, p. 3). Being close to the window was also highly preferred as well, with approximately 70% of the responses indicating it (Rahaman et al., 2020, p. 2) which indicated the significance of the presence of nature in work. Meanwhile, open space offices were not as preferred as there was more noise associated with the office style (Rahaman et al., 2020, p. 3). This showed that people wanted to be relatively near each other and be accessible while simultaneously having their own private space, which showed that finding this balance was important. All in all, Rahaman et al. (2020) showed that employees did not want to be alone as less than 5% preferred sitting alone (p.

2). This suggested the employee's potential dispreference for remote work, implying the need for a social setting for work.

This need for a social setting in workplaces leads the research to the potential proposed solution for hybrid remote working model, where a certain proportion of employees could work at the office for a certain number of days of the week. Since with COVID restrictions offices will need to be more spaced out, not all employees should use the office building at once, but rather in certain proportions which could help to offset the challenging effects of full remote work under the safety of government regulations.

THE PROS AND CONS OF REMOTE WORK

Nevertheless, remote workplaces also provide their own stated benefits that physical workplaces cannot provide. For example, according to Orrell & Leger (2020, p. 3), employers could enjoy easier talent recruitment and retentions as remote work “allows companies to broaden their talent pool beyond the geographic boundaries of their central office location.” While many companies struggle with recruiting the right talent that fit their requirements, the transition to remote work not only allows businesses to have greater diversity in their talent, but also reduce the skills gap by having a more global talent pool. As for employees, they could enjoy a more professional autonomy as remote work gives the opportunity to “design their working space to their needs,” with more comfortable working conditions as they are not necessarily constrained by business hours or location (Orrell & Leger, 2020, p. 8). Very importantly, employees are free from long commute hours and are able to pursue other hobbies and interests which could lead to increased personal satisfaction and wellbeing for remote employees.

However as mentioned previously, remote work also comes with its downsides. As Orrell & Leger (2020, p. 7) mentions one of the downsides is that it blurs boundaries between work and life. As the line between work and life fade, remote employees are more likely to have longer working hours and linger in communication channels longer, which could potentially lead to burnouts and stress (Orrell & Leger, 2020, p. 9). Another downside is isolation and loss of social ties. For most people, work involves social interaction, collaboration, and as Orrell & Leger (2020, p. 9) states, opportunities to “rub elbows with others,” which could make remote work feel isolating. With remote work, communications are restricted, as it becomes harder to read the body language or the social cues of a colleague (Orrell & Leger, 2020, p. 10). These led to challenges such as coworkers talking over each other on video and audio lags making it more difficult to anticipate when a colleague is finished talking (Orrell & Leger, 2020, p. 9). Studies also show that within the duration of extended working hours, employees often suffer from feelings of loneliness and isolation which often took a toll on their physical and mental wellbeing (Orrell & Leger, 2020, p. 9). Finally, another downside was constraint on career advancement. With restricted communication with colleagues and superiors, studies from MIT Sloan School of Management found that remote workers had lower performance evaluations, lower raises and fewer promotions than their colleagues in offices (Orrell & Leger, 2020, p. 10). Boland et al. (2020, p. 4) also testified to this finding, mentioning how although with remote work, talent sourcing became easier but upskilling new talents became more critical than ever.

However with the COVID-19 regulations, remote work is necessary to keep businesses and the economy moving. With that, what could best be done to alleviate the challenging effects of remote work yet also be able to reap the necessary benefits of remote work?

THE BEST OF BOTH WORLDS

With the increasing transition to remote work due to the effects of the global pandemic, there is a growing number of employees that are seeking opportunities that will allow them to work from home (Orrell & Leger, 2020, p. 4). Nevertheless, a good majority of the employees are still struggling to perform their best most productively, in the “new normal” of remote work which has prompted this research project.

In quantifying productivity, wellbeing was found to be a strong indicator (Adisaputri et al., 2020, p. 5-6) and the presence of social activity with colleagues was found to be a critical part in workplaces (Rahaman et al., 2020, p. 2). However in remote workplaces, communications are restricted and there is lack of social interaction, which could make remote work feel isolating (Orrell & Leger, 2020, p. 9). It can also lead to blurring of work and life balance which can lead to longer working hours and contribute to higher burnouts and stress, and make career advancement more difficult (Orrell & Leger, 2020, p. 9). Yet, there are benefits to having remote work. One is easier talent recruitment as employment is not geographically limited (Orrell & Leger, 2020, p. 3). Another benefit is freedom to redesign their own workplaces and work without location or hour constraint, which gives flexibility to employees (Orrell & Leger, 2020, p. 3). Finally, employees are free from commute hours which they can use to pursue their personal interests to their satisfaction and wellbeing. Despite differences between the two, this shows that both remote and physical workplaces provide unique advantages.

This leads to the potential proposed solution of creating a hybrid remote working model, where employees could reap the benefits of both worlds, balancing between social interaction and flexibility. To support this, a study was also done by “The Advantages of the Hybrid Working Model” (2021) where it conducted a survey on 1000 UK based full-time employees

distributed across those who were working in a hybrid remote model, work-from-home model, and the work-from-office model. The goal of the survey was to understand the effects of hybrid remote work over the other working models. The survey showed good support for the hybrid remote model, showing at least 3%, 8%, and 4% increase in productivity, job satisfaction, and wellbeing respectively, over the other two models. It concluded that a flexible hybrid remote model may be the optimum working condition as it offers a flexibility that helps employees to do their jobs well where they best see fit.

In addition, Orrell & Leger (2020, p. 11) supported this where they note that few businesses will be neither likely to have fully remote workplaces or on-site workplaces, but a hybrid remote model. McGregor (2021) so emphasized this as it was found that some of the major corporations such as Citigroup, Ford, TIAA and Target were also intending to pursue a hybrid remote model to conduct their businesses. The specific policies of hybrid remote model will vary depending on the particular needs and preferences of the company in the post-COVID-19 era. For example, the working environment could be potentially required for new recruits for upskilling priorities while employees that have tenured at the company for a certain amount of time or after their training could use it as an option.

Although finding the appropriate balance between remote and physical workplaces will prove to be a challenge to discover for each company, the hybrid remote model will help to maximize the benefits of both remote and office work while aiming to minimize the downsides. This leads me to believe that building a hybrid remote workplace where employees can choose to come to the office could be most helpful for improving the productivity and wellbeing of employees.

Nevertheless, the aspect of providing a hybrid remote model is still new and novel to many businesses today and more studies on the model may be necessary to help provide stronger support and deeper analysis for it in the future. To explore this STS research further, as society transitions to post-COVID-19 era the next steps of this study could involve research in finding this balance between remote and physical workplaces. How much and how would the current remote workplaces change after COVID-19? What variations of the hybrid remote workplaces would be used? How would this be changed based on the different business models of the company?

Through the current and future prospective of this research in exploring how COVID-19 has affected the productivity of remote workers, my STS research paper will continue to find the best actions that could be taken to alleviate the challenging effects of remote workplaces.

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