

ICT Revolution from Traditional Office to Virtual Office: A Study on Teleworking During the COVID-19 Pandemic

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Abstract: The biggest challenge of today's world is to adjust to the rapidly changing environment brought about by the COVID-19 pandemic, where uncertainty and unpredictability have become the norm. The advanced technological tools used during the pandemic have altered communication, employee motivation, and the employees' desire for personal connectivity. The main objective of this paper is to analyse the effect of professional isolation on the teleworker's job performance, motivation, and turnover intention. This study also considers the moderating role of the access to information and communications technology. In this context, a survey was carried out among the employees from the telecommunications/IT sector in Islamabad, Lahore and Karachi, Pakistan and 478 complete/usable responses were received and analysed. In this paper, the MACRO PROCESS computational procedure was employed. A confirmatory factor analysis was carried out, along with an analysis on Pearson correlation, internal consistency reliability, discriminant validity of the variables employed in this study, and hierarchical moderated regression analysis with the purpose of testing six hypotheses. The obtained results show that there is a negative relationship between professional isolation and the employees' job performance and motivation. On the other hand, professional isolation is positively associated with turnover intention. To that, professional isolation and the access to communication-enhancing technology (ACET) significantly affect employee job motivation.

Keywords: Professional isolation, Job performance, Motivation, Turnover intention, ICT, COVID-19.

1. Introduction

The COVID-19 pandemic has forced a large population to work remotely. The temporary shift from the traditional workspace to remote working has triggered significant changes in working patterns, leading to a new layer of complexity (i.e., professional isolation). The transformations related to the COVID-19 pandemic have altered the norms while diminishing the cross-cultural boundaries. The pandemic has pushed businesses and other entities to expand their operations beyond the national borders. This expansion has led to a change in working methods, especially to a flexible schedule and work from home. These changes have also been found in the application areas of communication technology and the use of information (Raišiene et al., 2020). Telework or work from home offers flexibility and independence to employees and the possibility to be close to one's family. At the same time, the impact of employees on the environment is

reduced, considering specific aspects of transport. In early 2020, many global companies made it easier for employees to work from home to avoid overcrowding. As a result, employees' interests in teleworking began to grow, and this facility came to be accepted by more and more workers (Nguyen, 2021). Over time, employees began to feel the need to socialize. As a result, employees began to return to work at low rates in some countries, feeling constrained by working from home. However, the fluctuations in COVID-19 outbreaks have made workers switch to working from home again earlier this year, 2021 (Li et al., 2020; Pulido-Martos et al., 2021). The Covid-19 period led to millions of workers in the European Union and worldwide working from home. In 2020, approximately 40% of workers in the EU carried out full-time telework (European Commission, 2020). Teleworking is positively related to firm performance (Sánchez

et al., 2007). The pandemic has changed the way companies operate, and social distancing can affect employees' motivation levels. Several risks may arise in the organizational activity, which they must adequately manage. Research shows the pandemic has significantly reshaped the global working environment, by influencing individual job performance, motivation, and turnover intention. Based on this, the study shows that the COVID-19 pandemic has led to an increase in employees' performance (Mihalca et al., 2021) and motivation (Palumbo et al., 2021).

The management team has a decisive role in employee performance and the growth of organizations. Management decisions will have consequences on turnover, employee motivation, performance, and communication. Studies show that a period of work from home can have considerable effects on productivity, communication, dynamics, and labor relations (Ruiz-Frutos et al., 2020). In this pandemic context, the present paper investigates the impact of professional isolation on the teleworker's job performance, motivation, and turnover intention. The study also considers the moderating role of access to information communication technology. The remainder of this paper is structured as follows. Section 2 presents the literature review, Section 3 sets forth the employed methodology, and Section 4 presents the results of this study. Finally, Section 5 presents the conclusion of this paper.

2. Literature Review

Before the outbreak of COVID-19, different studies revealed a significant reduction in the family-to-work conflict by implementing family-friendly workplace practices such as flexible working arrangements and onsite childcare (Neal et al., 1993; Daniels et al., 2001). However, as the current pandemic continues to unfold, the conflict between the work and the family sphere has increased tremendously. In addition, the employees are encouraged to work due to the rapid spread of COVID-19 (Petcu et al., 2021). This situation has increased loneliness and social exclusion among employees (Kopp, 2020). The term "Teleworking" refers to the workplace practice strengthening both organizational and employee flexibility. As per definition, Teleworking refers to an organization using information and communication technology to provide access to employees in order for them to carry out labor activities from remote locations

(Nilles, 1998). Various researchers from different schools of thought have presented their empirical findings describing the relationship between teleworking and employee job performance. To demonstrate the significance of prior studies on teleworking, it was found that virtual teams operating online tend to be more productive and efficient at brainstorming than face-to-face teams (DeRosa et al., 2007). However, on the contrary, according to the argument presented by the researchers on individual job performance, virtual teammates tend to miss the creative benefits that can flow from face-to-face interactions (Allen et al., 2015).

2.1 Professional Isolation and Job Performance

Professional isolation is defined as a state of mind or belief that keeps an individual away from the workplace (Diekema, 1992). It can also be defined as a feeling of isolation from professional peers, i.e., colleagues. Professional isolation makes teleworkers fear losing the organizational reward as they think staying out of the manager's sight would limit the opportunity for their promotion and career advancement. By contrast, social isolation refers to the employees' inability to develop informal interactions with their co-workers and friends.

Consequently, due to poor decision-making, professionally isolated teleworkers are rather unable to adopt the appropriate course of action, therefore, they would experience diminished psychological and physical health, which would further reduce the employee job performance. Rook (1984) argues that professionally isolated teleworkers are less likely to understand and interpret the information accurately, which would adversely affect their task performance. However, the study concludes that teleworkers have higher chances for career advancement by demonstrating superior performance. Likewise, most researchers argue that employee productivity and work quality improve when employees work from home. On the other hand, due to increasing professional isolation, it has become difficult for the supervisors to manage and monitor teleworkers' performance (Greer & Payne, 2014). The implications of artificial intelligence in the commerce sector can help one determine customer needs. To that, there is a direct relationship between gender diversity and a firm's financial performance. Therefore,

the findings of Banciu et al. (2013) conclude that employees' work relationships provide the access to detailed knowledge about the tasks, and personalities of co-workers and managers, which may be essential for executing the job well. Bunea & Dinu (2020) investigated the relationship between the board of directors' characteristics and business operations.

Moreover, the main weakness of electronic communication is that it makes home a boring place to work, as it does not offer any physical separation between work and personal time. This disadvantage creates uncertainty, thus affecting job satisfaction. Perhaps, a decrease in job satisfaction would result in poor job performance (Nisar et al., 2019). Therefore, the current study concludes the following hypothesis:

H1: Professional Isolation is negatively related to Job Performance

2.2 Professional Isolation and Motivation

A relevant example of professional isolation nowadays is related to is the global COVID-19 Pandemic, which has forced millions of workers worldwide to work from their homes. Numerous studies have explained the impact of professional isolation on employees' motivation. As it was stated, teleworking can provide solid incentives for an individual by fulfilling the employee's needs, such as flexible working hours. This relaxation opportunity boosts employee autonomy and motivation (O'Neil et al., 2009).

Furthermore, Madsen (2003) explains that teleworking is a win-win situation for both the personnel and the organization, making it convincing to reduce costs, motivate workers, and create work-life stability. In the wake of the COVID-19 Pandemic, the environment supporting the fulfilment of individual needs and desires has drastically altered. Consequently, in response to the current Pandemic, the organizations are now supporting their business activities by implementing advanced technology, i.e. teleworking. Nonetheless, these new practices, which involve virtual socialization, develop a sense of solid affiliation among the employees, consequently affecting the worker's motivation. Hence, previous studies concluded the following hypothesis:

H2: Professional Isolation is negatively related to Job Motivation

2.3 Professional Isolation and Turnover Intention

The employee turnover intention is the employees' voluntary disengagement from employment ties (Izvercian et al., 2016). According to Park & Jung (2015), employee turnover is an individual's eagerness to leave the organization. There is a positive correlation between turnover intention and work engagement (Xiong & Wen, 2020).

Due to the immense spread of COVID-19, the entire globe is being hit with unique challenges, making it difficult for organizations to retain their workforce. The results of the study by Kokubun, Ino & Ishimura (2020) show that companies are trying to establish a strong relationship with their employees by staying resilient. However, most researchers state that teleworking does not always produce a negative outcome. Teleworking serves as an effective management strategy in reducing organization losses, i.e. expenses. Similarly, by gaining financial and productivity advantages, teleworkers can contribute towards organizational productivity and effectiveness (Martin & MacDonnell, 2012; Banciu et al., 2017). A comprehensive study by Bailey & Kurland (2002) states that telecommuting enhances job performance by reducing employee turnover.

Gajendran & Harrison (2007) conducted a detailed meta-analysis of 46 studies and explained that teleworking allows employees to work from home, thereby reducing the turnover intention and the number of days of sick leave. Fonger & Roloff (2010) suggest that high-intensity teleworkers were found to be more satisfied than the office-based employees, thus gaining substantial benefits from remote working. Hence, the findings of the previous studies concluded the following hypothesis:

H3: Professional Isolation is positively related to turnover intention

2.4 The Moderating Role of Access to Communication-Enhancing Technology

The biggest challenge of today's world is to adjust to the rapidly changing environment brought about by COVID-19, where uncertainty

and unpredictability have become the norm. The COVID-19 had made the adoption of technology a business necessity. In relation to that, the COVID-19 had posed social and psychological implications while highlighting the utilization of digital technology and information service as a novel way of predicting employment opportunities (Baert et al., 2020). The advanced technological tools used during the Pandemic have altered communication, employee motivation, and their desire for personal connectivity (Banciu et al., 2020; Pérez et al., 2004). The digital era has brought about a booming evolution leading to the development of instant communication networks. Currently, digital communication involves highly functional telecommunication networks for ensuring social congruence. Undoubtedly, the global access to telecommunication technologies has benefited its users such as employees, clients, and the company, which led to a change from physical interactions to online connectivity. Felstead & Henseke (2017) claim that the progressive advancement of IT boosts employee morale by nourishing work-life harmony. On the other hand, individuals with weak interpersonal ties tend to leave the organization quickly (Dinu et al., 2020). For explaining this notion, the study reveals that ICT interactive functionality has shaped the workplace structure while constantly improving job performance (Tanko & Isyaku, 2020). Likewise, Davies (2021) also shows that the ICT-based technologies used during the pandemic have improved the workers' performance.

The new advancement in information and telecommunication technologies is an asset to the workplace as it enables the employee to work outside the traditional workplace setting. Above all, these advanced technological attributes contribute to employee satisfaction, which is essential for preserving the workers, and directly related to job turnover. However, new IT developments have made workers feel that their job performance is undoubtedly affected by remote working (Major et al., 2008). Morikawa (2020) explains that the unexpected evolution of COVID-19 has turned traditional business practices upside down. As a result, many organizations have begun to break the workplace's physical boundaries to establish a flexible and diverse communication network. However, as the Pandemic continues to evolve,

practical and innovative virtual communication tools need to be enhanced in order for workers to perform their obligations safely and effectively (Cybersecurity & Infrastructure Security Agency, 2020). In addition to this, Sein (2020) suggests that the specific nature of the COVID-19 Pandemic requires companies to establish a strong coordination between IT infrastructure, their people, and work practices in order to facilitate international collaborations. However, the new state-of-the-art technological tools can benefit from combating the effects of COVID-19 (Sein, 2020). Therefore, based on literature, the following hypotheses were concluded:

H4: Access to communication technology has a moderating role between professional isolation and employees' job performance;

H5: Access to communication technology has a moderating role between professional isolation and employees' job motivation;

H6: Access to communication technology has a moderating role between professional isolation and employee turnover intention.

The variables selected for this study are presented in Figure 1.

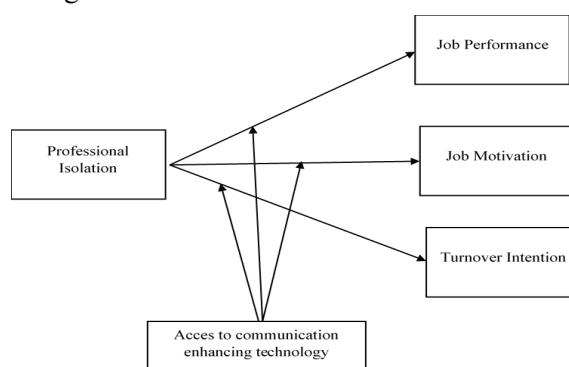


Figure 1. The theoretical framework

3. Methodology

A quantitative research was conducted. Data was collected at two time points from employees of the telecommunication/IT companies in Islamabad/Lahore/Karachi, Pakistan. A gap of one month between each measurement point, i.e. time-1 and time-2, was kept. Participants responded with regard to independent and moderating variables at time-1 and dependent variables, namely: job performance, turnover intentions, and employees' motivation at time-2. To keep track of whether

the participants responded at both time points, participants were requested to mention their employee ID/contact number, which could have helped the researchers match their responses at time-1 and time-2.

Initially, 600 teleworkers were requested to participate in the survey, from which 478 complete/usable responses were received, with a response rate of 80%. They were asked about their age, gender, qualification, work experience, independent and moderating variables. After a period of 1 month, the 478 participants who responded at time-1 were contacted again and requested to participate in the time-2 survey; however, this time 430 complete responses were received. The overall response rate was 72%.

3.1 Measures

The seven-item scale of Golden, Veiga & Dino (2008) was employed to assess Professional Isolation. The five-point Likert Scale was used for measuring professional isolation, ranging from “strongly disagree” to “strongly agree”. To measure Access to communication-enhancing technology the four-item scale suggested by Golden, Veiga & Dino (2008) was used. The four-item scale of Wayne & Liden (1995) was used in this study for measuring employees’ job performance. Supervisors were also requested to rate teleworkers’ (subordinates’) job performance, and it was measured using a five-point Likert scale from 0 (not effective) to 4 (very effective). The two-item scale of Schaubroeck, Cotton & Jennings (1989) was used for measuring employees’ turnover intention and it was also measured using a five-point Likert scale ranging from “strongly disagree” to “strongly agree”.

Further on, the job motivation scale of Mahaney & Lederer (2006) was implemented in this study. The scale consists of 16 items, and these were measured by using a five-point Likert scale. After applying a data cleaning and screening procedure, i.e. missing data analysis and outlier detection technique, confirmatory factor analysis (CFA) was conducted to check the validity of the results. The results of the five-factor model are Comparative Fit Index (CFI) = 0.935; Goodness-of-Fit Index (GFI) = 0.867; Adjusted Goodness-of-Fit Index (AGFI) = 0.814; Normed Fit Index (NFI) = 0.845, and Root Mean Square Error of Approximation (RMSEA) = 0.05, that is, they are within the acceptable range in comparison with the results of the one-factor model, namely: CFI = 0.750; GFI = 0.647; AGFI = 0.630; NFI = 0.660 and RMSEA = 1.20, which confirms the discriminant validity of the variables employed in this study.

4. Results

Table 1 illustrates descriptive statistics, mean, standard deviation, correlation among variables, internal consistency reliability (Cronbach alpha), and composite reliability, and average variance extracted, which are within range as it was suggested by Hair et al. (2010) and Lowry & Gaskin (2014).

Professional isolation is significantly associated with job satisfaction ($R = -0.48, p < .05$), turnover intention ($R = -0.46, p < .05$), job motivation ($R = -0.39, p < .05$) and access to communication-enhancing technology ($R = 0.53, p < .05$).

In this study, the MACRO PROCESS computational procedure was employed

Table 1. Mean, Standard Deviation, Internal Consistency Reliability, Composite Validity, Average Variance Extracted, and Correlation

	Mean	SD	ICR	CR	AVE	1	2	3	4	5
Professional Isolation	3.87	1.77	0.820	0.87	0.51	(0.71)				
Job Satisfaction	3.95	1.98	0.835	0.79	0.52	-0.48**	(0.72)			
Turnover intention	2.98	1.93	0.842	0.81	0.54	0.46**	-0.30**	(0.74)		
Job Motivation	4.39	1.76	0.950	0.92	0.50	-0.39**	0.43*	-0.34*	(0.70)	
Access to communication enhancing technology	3.72	1.85	0.808	0.78	0.58	0.53*	0.27*	-0.56*	0.48**	(0.76)

Note: Sample Size = 430, SD = Standard deviation, ICR = Internal Consistency Reliability (Cronbach's alpha), CR = Composite Reliability, AVE = Average Variance Extracted, Significance Level = * $p < .05$, ** $p < .01$, *** $p < .001$

(Model 1 developed by Hayes (2017)) for testing the moderation analysis. Table 2, 3 and 4 illustrate (H1), (H2), (H3), and moderation analysis. Hypothesis (H1) points to a negative relationship between job performance and professional isolation. There is a negative relationship between professional isolation and job motivation according to (H2) and a positive relationship between the former and turnover intentions, according to (H3). The results revealed that there are significant relationships among these hypotheses with a standardized beta coefficient value (β), where $\beta = -0.327$, $p < 0.01$, $\beta = -0.582$,

$p < 0.05$ and $\beta = 0.268$, $p < 0.05$, respectively. Hence hypotheses 1, 2, 3 were statistically proved.

Table 2 represents the interaction term related to professional isolation and ACET for job performance (H4) was found to be significant with ($\beta = -0.215$, $p < 0.05$). Moreover, the conditional direct effects illustrated in Table 2 show the relationship between professional isolation and employees' job performance weakens when teleworkers have higher ACET ($\beta = -0.458$, $p < .05$). Thus, hypothesis (4) is proved. Figure 2 shows the graphical representation of the moderating effect of ACET on employees' job performance.

Table 2. Hierarchical Moderated Regression Analysis for ACET between Professional Isolation and Job Performance

Predictors	Job Satisfaction					
	R	R ²	Estimate	SE	LLCI	ULCI
Step 1	0.46***	0.22				
Constant			6.733***	1.745	1.135	3.568
PI			-0.327**	0.498	0.325	1.265
ACET			0.204***	0.426	5.658	4.568
Step 2	ΔR^2	0.19				
PI x ACET			-0.215**	0.325	1.758	2.554
Conditional Direct Effects of X on Y for Values of Moderator (i.e. ACET)						
Moderator	Job Performance					
			Effect	Boot SE	LLCI	ULCI
ACET -1SD (-.185)			-0.458***	0.029	0.297	0.325
ACET mean (0.00)			-0.409***	0.032	0.145	0.225
ACET +1SD (1.85)			-0.365*	0.035	0.025	0.110

Note: PI = Professional Isolation, ACET = Access to communication-enhancing technology, Correlation coefficient=R, Coefficient of Determination= R², Change in Coefficient of Determination= ΔR^2 , Standard Error (SE), LL = Lower Limit, CI = Confidence Interval, UL = Upper Limit, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Hierarchical Moderated Regression Analysis for ACET between Professional Isolation and Job Motivation

Predictors	Job Motivation					
	R	R ²	Estimate	SE	LLCI	ULCI
Step 1	0.55*	0.35				
Constant			2.334**	3.548	5.256	11.856
PI			-0.582*	0.756	0.014	0.754
ACET			0.365*	.556	1.745	3.254
Step 2	ΔR^2	0.30				
PI x ACET			-0.124**	0.220	0.965	2.015
Conditional Direct Effects of X on Y for Values of Moderator (i.e. ACET)						
Moderator	Job Motivation					
			Effect	Boot SE	LLCI	ULCI
ACET -1SD (-.185)			-0.356**	0.235	0.032	0.124
ACET mean (0.00)			-0.301*	0.324	0.112	0.325
ACET +1SD (1.85)			-0.288*	0.125	0.425	0.564

Table 4. Hierarchical Moderated Regression Analysis for ACET between Professional Isolation and Turnover Intention

Predictors	Turnover Intention					
	R	R ²	Estimate	SE	LLCI	ULCI
Step 1	0.37*	0.28				
Constant			4.485**	1.635	7.896	9.256
PI			0.268*	0.895	0.248	0.658
ACET			-0.146**	0.354	-1.245	-0.554
Step 2	ΔR^2	0.26				
PI x ACET			0.216*	0.196	0.245	5.478
Conditional Direct Effects of X on Y for Values of Moderator (i.e. ACET)						
Moderator			Turnover Intention			
			Effect	Boot SE	LLCI	ULCI
ACET -1SD (-.185)			0.235***	0.399	0.480	0.582
ACET mean (0.00)			0.201*	0.312	0.356	0.425
ACET +1SD (1.85)			0.145*	-0.458	0.025	0.149

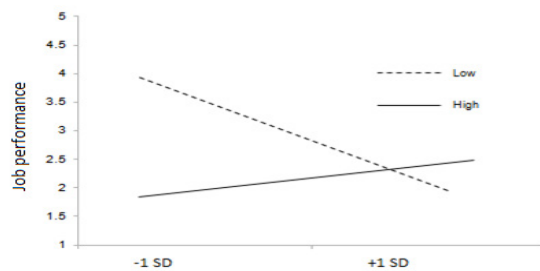
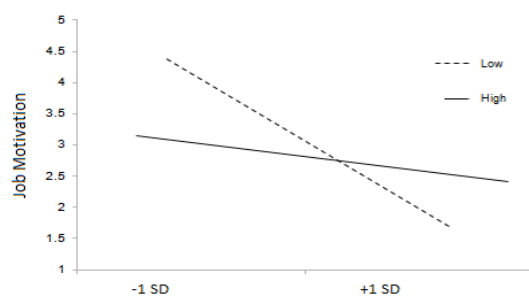
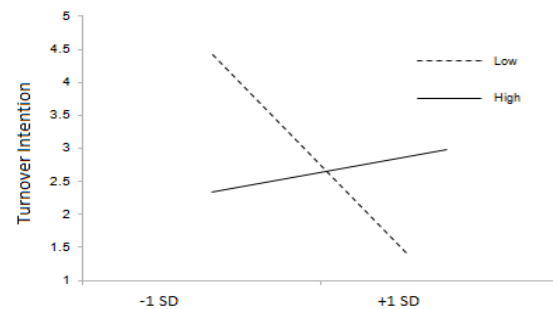
**Figure 2.** Moderating effect of ACET on employees' Job Performance

Table 3 also shows the results for hypothesis (H5). According to hypothesis (5), the interaction term related to professional isolation and ACET for job motivation (H5) was found to be significant with ($\beta = -0.124$, $p < 0.05$). Moreover, the conditional direct effects illustrated in Table 3 show that the relationship between professional isolation and job motivation weakens when teleworkers have higher ACET ($\beta = -0.356$, $p < .05$, see Figure 3). Thus, hypothesis (5) is proved.

**Figure 3.** Moderating effect of ACET on Job Motivation

Similarly, the interaction term related to professional isolation and ACET for turnover intention (H6) was found to be significant with ($\beta = 0.216$, $p < 0.05$). Moreover, the conditional direct effects illustrated in Table 4 show the connection between professional isolation and employees' turnover intention. The relationship weakens when teleworkers have higher ACET ($\beta = 0.235$, $p < .001$). Thus, hypothesis (6) is proved. Figure 4 represents the moderating effect of ACET on turnover intention.

**Figure 4.** Moderating effect of ACET on Turnover Intention

5. Conclusion

The current situation provides deep insight into how organizations are adopting teleworking for constructing effective communication networks. Hence, the literature concludes that the COVID-19 pandemic has made remote working become a new reality. The advanced technological tools which came to be used intensively as a result of the COVID-19 Pandemic have drastically altered

the business communication structure. Indeed, ICT-based technologies have gained considerable attention during the pandemic. As a result, businesses should adopt ICT-based technologies for achieving favourable outcomes.

The COVID-19 pandemic has generated changes in the way companies operate, and social distancing can affect the employees' levels of motivation, job performance, and mental well-being. Teleworkers are facing several challenges during the global pandemic. The organizations are reducing onsite staff and encouraging employees to work online. The employees have been professionally isolated. The role of information and technology has increased. This study analysed the effect of professional isolation on the employees' motivation, job performance, and turnover intentions. It revealed

that professional isolation had affected employees' job performance in the telecommunication and information technology industry. In this context, the employee's motivation level is low which also led to a lower job performance. On the other hand, employees' turnover intention got higher because of professional isolation. Communication-enhancing technology is playing a moderating role with regard to professional isolation and job performance. If organizations provide better information communication technology services to their employees, then job performance can be increased. Future studies could consider other different moderating variables such as COVID-19 Vaccines and satisfaction with organization COVID-19 responses? Authors may also carry out cross-national studies while implementing the theoretical model proposed in this paper.

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