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Achieving Project Performance through Work from Home during the COVID-19 Pandemic: A Mediating Role of Procrastination

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Abstract. The COVID-19 pandemic gave rise to work from home; however, its complexities, effects, and effectiveness in project-based settings have received little attention. The current study aims to test the effects of working from home on project performance, with procrastination acting as a mediator. The survey method is used to collect cross-sectional data for telecom sector-related projects, which is then analyzed using the SEM analysis in AMOS. The study's key findings are that working from home has a significant positive effect on project performance and staff procrastination. While staff procrastination has a negative impact on project performance. Furthermore, procrastination was discovered to be a mediator in the relationship between work from home and project performance. The finding implies that work from home must be properly managed in order to be effective in a project setting especially in Pakistan.

Key words: Work from Home; Procrastination; Project Performance; Telecommuting; Virtual Teams.

1 Introduction

The novel COVID-19 has changed the working style from traditional office-based to remote working and forced organizations around the world to adopt the 'new normal'. In this situation, work from home (WFH) is becoming the norm. It refers to a flexible work arrangement that empowers employees to switch their regular working hours from office to home to anywhere using proper tools (Allen et al., 2015). WFH means the complete or partly switch from a conventional office setting to working from home with or without the help of a computer through telecommunication (Barbuto et al., 2020). Under WFH arrangements, the task can be performed from home in a flexible arrangement and office visitation can be controlled with very limited or no traveling to the office and the task can be done in a remote environment, with the facility of communication through the internet or phone with other team members, supervisors, and managers (Nicklin et al., 2016).

The previous research showed that work from outside the conventional setting has a significant positive impact on task performance (Purwanto et al., 2020). Further work from home

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(WFH) is productive for individuals and organizations (Tønnessen et al., 2021). On the other hand, some empirical work suggests that WFH harms productivity due to a lack of supervision and miscommunication (Ambikapathy and Ali, 2020; Bernardino, 2017). One reason for this is that during the working from the home situation, people interaction between team member decrease, which causes a sense of isolation and loneliness among project team members. Thus, despite some positive aspects such as flexibility and comfort, studies pointed out the negative consequences associated with WFH due to employee feelings of loneliness, lack of monitoring, and lack of proper guidelines to perform the task (Aczel et al., 2021; Ambikapathy and Ali, 2020; Bernardino, 2017). Thus, there is a need to investigate the WFH in various contexts to establish its positive or negative outcomes and remedial measures. Keeping in view this literature gap, in the present study, the WFH is investigated in project-based settings. The rationale for selecting this context is that it provides a unique opportunity to investigate WFH in a situation where time and efficiency are key performance indicators. Furthermore, since the performance of the project is dependent on smooth communication and team collaboration which possibly decreases in the WFH setting and may lead to subsequent unfavorable outcomes. Therefore, the present study identifies and tests a behavioral reason namely procrastination to reduce the negative WFH outcomes in a project-based setting. Keeping in view the literature gap, in the present study, WFH and its effects are analyzed in the project setting in the context of Telecom sector projects in Pakistan.

Current study uses the cognitive-behavioral theory to develop our theoretical model. According to the theory, individuals procrastinate due to established ways of thinking. Based on the theory, procrastination reasons can be under or over-estimation of the time required to complete a task, false confidence, and inappropriate cognitions to complete the task in the absence of the necessary emotional sense (Ferrari et al., 1995). Accordingly, the individuals working in work from home setting perceive himself/herself in an environment different from the work environment resulting in a lack of ability to complete the tasks adequately. Furthermore, the other reasons include disruption at work such as family matters and domestic chores which also leads to the breakup in the work sequence leading to the increased procrastination (Sun and Kim, 2022). Thus, based on the previous literature and Cognitive-behavioral theory, we propose the following theoretical model.

This study is significant since it tests the WFH effects on project performance during the COVID19 pandemic along with mediating role of procrastination which is a human behavior leading to expected delay in task completion. The study aims to bridge the theoretical gap existing in previous literature and investigate the phenomenon of WFH and its effects on project performance in the context of the COVID pandemic situation. The other significance of the study is that it tests the WFH in a Pakistani telecom sector project-based setting thus enhancing our understanding of the WFH and its dynamics in this particular context. The findings of the study will contribute to the prevailing body of knowledge.

2 Literature Review

2.1 Work from Home and Project Performance

Project performance is still debatable; however, the most common definition is the iron triangle which is time, cost, scope, and quality (Pollack et al., 2018). Achieving project goals is what the project contributes to the organization that performed the project. (Kerzner, 2017).

Project success is aligned with the project management performance as previous studies results revealed that project performance could be considered good if it meets the requirements of project success criteria, which is devised through the iron triangle, i.e. project is completed within the given schedule, as per the planned budget and with the scope, requirements are fulfilled with the achievement of required quality which meets the overall goal of the project (Kerzner, 2017; Pollack et al., 2018). Further, the project performance is related to the organization's success in the strategy, process, product, business, program, and project portfolio. In the present study, we investigate the concept of project performance by treating it as a dependent variable. Generally, research focused on positive aspects of WFH such as improvement in the business, employee feelings of satisfaction due to cost-cutting in their daily expenses, and enhanced productivity (Onyemaechi et al., 2018; Sutarto et al., 2022). However, studies show that WFH also brings some challenges (De Vries et al., 2019). For example, a study showed that there is the threat of low performance due to isolation. Furthermore, little or no cohesiveness can reduce work performance (Nicklin et al., 2016; Raffaele and Connell, 2016). Overall, findings show mixed effects of WFH on project performance means it needs to be managed adequately otherwise, it can produce unfavorable outcomes. Based on the literature, we propose the following hypothesis:

Hypothesis 1: Work from home has a significant positive impact on project performance.

2.2 Work from Home and Procrastination

Procrastination is the voluntary delay of a task exhibited by an employee. Procrastination is a form of self-regulation failure characterized by the irrational delay of tasks despite potentially negative consequences (Prem et al., 2018). In the WFH setting, procrastination is a behavioral aspect and is present due to the very nature of work from home (Sun and Kim, 2022). In a WFH setting, it can negatively affect work performance and may lead to other undesirable outcomes. Studies suggest that in a project setting, the impacts are crucial and cannot be ignored as they can affect the organization's performance drastically (Prem et al., 2018). Procrastination is a common phenomenon during working from home situations (Allen et al., 2015). Previous studies show that in work from home setting, there is a greater chance of procrastination (Metin et al., 2016; van Eerde and Klingsieck, 2018). Studies also show that employee who gets social support reported little procrastination, unlike the less self-regulated people (Sun and Kim, 2022; Wang et al., 2021). In other words, if the employee does not get facilitation from the organization in the WFH situation, the chances of procrastination increase (Cevállos-Bósquez et al., 2021). Thus, overall literature suggests that work from home has the potential of leading to procrastination unless adequate support is provided to employees. Based on the literature, we propose the following hypothesis:

Hypothesis 2: Work from home has significant positive effects on employee procrastination.

2.3 Procrastination and Project Performance

Procrastination is a behavioral problem and affects not only task performance but also other functions such as overall project performance. The procrastinators may reduce staff efforts to complete a task or project (van Eerde and Klingsieck, 2018). Procrastinator employees may waste time searching for other kinds of stuff. Because of procrastination, staff may think they

need less time, and this behavior may negatively affect their work and performance and reduce the quality of work (Sun and Kim, 2022). Procrastination also has an impact on efficiency and also cost to the organization (Singh and Dhaliwal, 2018). Thus, overall, procrastination has negative consequences on individual performance, which can lead to a reduction in project performance. Based on the negative outcomes of procrastination as reported in the literature, we propose the following hypothesis.

Hypothesis 3: Procrastination has a significant negative impact on project performance.

2.4 Mediating Effect of Procrastination

Procrastination is the irrational delaying of the task, while the project is a time-bound endeavor and required to be completed within the given timelines, and the procrastinating effect may put a delay in completion of the project. Further studies identified that procrastination is harmful in achieving goals and leads to lower performance (Sun and Kim, 2022). In the WFH setting, procrastination is described as a challenge in performing the tasks (Wang et al., 2021). Based on its nature, it is proposed that procrastination can mediate the relationship between WFH and project performance since its ability to impact the project performance and its relationship with the WFH setting. Based on its nature and related literature, we propose that it can function as a mediator variable. Our specific hypothesis is as follows:

Hypothesis 4: Procrastination mediates the relationship between work from home and project performance.

2.5 Theoretical Model

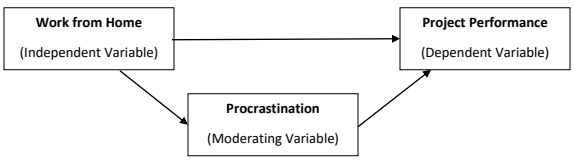

Figure 1: Theoretical Model

3 Research Methodology

The present study lies in the quantitative domain. The study is also cross-sectional, which refers to observational studies in which data is collected completely to study the variable at hand at a single point in time. The study is explanatory as we are concerned about the explanation of the relationship between our independent and dependent variables. We measure the impact of work from home on project performance with the mediation role of procrastination.

The focus of the study is project employees in the telecom sector, so the population for our study includes all individuals who recently worked on the telecom sector project as a team member in Pakistan. We used a random sampling technique and generated a response of 93

participants. Though the sample size was small; however, the author's followed Barclay et al. (1995), which states that if the sample size is as large as n > 5*10, the results can be inferred.

For this study, data is collected from individuals working in the telecom sector of Pakistan by using a 5-point Likert scale questionnaire. Measure for work from home is adapted from Susilo (2020) and consists of 5 items. Measure for procrastination is adapted from Svartdal et al. (2020), consisting of 12 items. Measure for project performance consists of 8 items and is adapted from (Gu et al., 2014).

Data, once collected, is checked for consistency and missing values. Further, data is analyzed using the covariance-based structural equation modeling approach through AMOS version 20. The CB-SEM analysis is chosen since it enables testing the reliability, validity, and subsequently, hypotheses testing as well as its robust nature and widespread acceptance.

4 Results

4.1 Measurement Model

The study utilized the covariance-based structural equation modeling CB-SEM for analysis. The analysis consists of two stages. The first stage consists of performing confirmatory factor analysis for establishing reliability, convergent validity, and discriminant validity. The second stage consists of hypotheses testing through path analysis. Following are the results of the first stage.

Table 4.1: Convergent Validity and Reliability

Variable	Items	Standardized Factor Loading	Cronbach Alpha	Composite Reliability	Average Variance Extracted
Work from Home	WFH1	.767	.877	.875	.591
	WFH2	.712			
	WFH2	.813			
	WFH4	.942			
	WFH5	.562			
Procrastination	Pr1	0.567	.930	.928	.527
	Pr2	0.656			
	Pr3	0.767			
	Pr4	0.872			
	Pr5	0.662			
	Pr6	0.892			
	Pr7	0.911			
	Pr8	0.912			
	Pr9	0.567			
	Pr10	0.612			
	Pr11	0.626			
	Pr12	0.501			
Project Performance	PP1	.561	.899	.898	.532
	PP2	.804			
	PP3	.677			
	PP4	.591			
	PP5	.580			
	PP6	.890			
	PP7	.884			
	PP8	.762			

Model Fitness: X2=876, df=324, X2/df= 2.70, RMSEA=.078, RMR=.037, GFI=.904, CFI=.906

The CFA result shows good model fitness without any deletion of items or modification indices. All model fitness indicators including χ^2/df (<3); RMSEA (<.08); RMR (<.05); GFI (>.90); and CFI (>.90) are within acceptable limits based on the guidelines of Hu and Bentler (1999) and (Browne and Cudeck, 1992). Furthermore, all standardized factor loadings are above 0.60 and AVE is also above 0.50 so it is an indication of satisfactory convergent validity (Hair Jr et al., 2017). Furthermore, all variables have Cronbach alpha and Composite Reliability of above 0.70 so it shows satisfactory reliability. Based on these results, we can say that our model and measure have satisfactory convergent validity and reliability. Next, we test the discriminant validity.

Table 4.2: Discriminant Validity

	1	2	3
Work from Home	**.769**	.321	.642
Procrastination	.432	**.527**	.121
Project Performance	.642	.121	**.729**

We tested the discriminant validity using the Fornell and Larcker (1981) criteria. The diagonal bold values represent the square root of AVE and the other values are inter-variable correlation. The square root of AVE is greater than all other inter-variable correlations in the respective rows so it shows that the criteria are met and we can argue that our model has satisfactory discriminant validity.

4.2 Hypotheses Testing (Structural Model)

After testing the reliability and validity, the next step is the measurement of the structural model for hypothesis testing purposes. In the model, we tested the effects of WFH on procrastination and project performance; as well as the procrastination effects on project performance.

Table 4.3: Hypotheses Testing

H. No.	Paths	Estimate	S.E.	C.R.	P	Remarks
H1	WFH > Project Performance	.315	.121	2.60	.003	Supported
H2	WFH > Procrastination	.365	.117	3.06	.001	Supported
H3	Procrastination > Project Performance	-.176	.087	2.02	.004	Supported

Model Fitness: X2=29.39, df=12, X2/df= 2.44, RMSEA=.269 RMR=.027, GFI=.972., CFI=..936

The result shows that WFH has significant positive effects on project performance (β=.315, P<.05); and procrastination (β=.365, P<.05). Furthermore, procrastination has negative and significant effects on project performance (β=-.176, P<.05). Based on these results, we accepted H_1, H_2, and H_3.

4.3 Mediation Testing

For testing the mediation hypothesis, we analyzed the direct and indirect effects calculated using the bootstrap procedure (5000 samples) and bias-corrected bootstrap confidence interval (90%). The result is as follows:

Table 4.4: Mediation Analysis

H.No.	Path	Total Effects	Direct Effects	Indirect Effects	Remarks
H4	WFH > Procrastination > Project Performance	.443	.315	.128*	Supported

*** $_i$.001, ** $_i$.01, * $_i$.05

The result shows that the WFH has significant positive indirect effects on project performance while mediated by procrastination (β=.128, P<.05). Based on significant indirect effects, we accept H_4.

5 Discussion

The focus of the study was to test the effects of WFH on project performance and mediating role of procrastination. First, our findings indicate significant positive effects of WFH on project performance which is similar to previous studies (Onyemaechi et al., 2018; Sutarto et al., 2022). These findings also contradict the earlier findings which reported negative outcomes of WFH (Koech et al., 2021; Nicklin et al., 2016). Thus, our findings show that WFH in a project-based setting possibly leads to favorable outcomes. The second finding is that WFH has a significant positive influence on procrastination which is also similar to previous studies (Metin et al., 2016; Sun and Kim, 2022). These findings also show that the WFH setting can increase staff procrastination and hence need better management to avoid its negative outcomes. Finally, we found that procrastination influence project performance and mediate the relationship between WFH and project performance. These findings are also similar to previous studies' findings (Koech et al., 2021; Singh and Dhaliwal, 2018; Sun and Kim, 2022). Overall, our findings highlight that WFH can be effective in project settings but procrastination remains a challenge and can distort the performance unless a suitable support mechanism is devised to reduce it.

5.1 Theoretical and Practical Contributions

The theoretical contribution of the study is that it enhances the available literature on WFH and project performance and adds the behavioral dimension of procrastination into the equation. The study also adds to the literature on WFH in the Pakistani work environment context which has its unique socio-cultural factors and thus enhances our understanding of how workers can be managed in the WFH setting in this context. The findings can be used to devise a suitable mechanism to improve the positive effects of WFH on project performance and avoid unfavorable outcomes.

The practical contribution of the study is that its results indicate that WFH is good for project performance. As evident from the literature individual performance is positively impacted by

telecommuting or working from home since individuals feel better and safe because of reduced exposure. Further, our study results identified that WFH is significantly associated with procrastination which is also evident from the previous literature. So, the manager has to control procrastination in the WFH situation. Procrastination has known as an issue as revealed by the previous research in working from home situations (Allen et al., 2015).

5.2 Limitations and Future Directions

The study's limitations include low response rates because we were unable to physically reach participants due to COVID-19, so we created a Google form for them to fill out; however, we only received a limited number of responses. The results cannot be generalized due to the small sample size. Future researchers can increase the sample size to improve the generalizability of their findings. Second, due to time constraints, the study only included major telecom operators. Future researchers can replicate this model in other industries and compare the role of work from home in various industries. Third, for the current study, we only use cross-sectional data collected from respondents at a single time. Future researchers can use time lag to collect data.

6 Conclusion

The current study aimed to find the relationship between WFH and project performance with the mediating role of procrastinating. For this purpose, survey forms were shared with employees working in the telecom sector of Pakistan on various projects. The result shows that all of the four hypotheses of our study are accepted, which shows that WFH has a significant positive effect on project performance and procrastination. Furthermore, findings indicate that WFH can lead to procrastination which leads to a decrease in project performance. This study enhanced existing literature on WFH and its effect on project performance which is negatively mediated by procrastination. In literature, there are limited studies on WFH in project management literature. This study verified the impact of WFH on project performance. Overall, it can be concluded that in WFH, procrastination is a genuine problem and can lead to unfavorable consequences. Therefore, it needs to be managed adequately.

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