THE IMPACT OF COVID-19 ON IT EMPLOYEES' JOB PERFORMANCE – A COMPARATIVE ANALYSIS

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Abstract

The research paper examines how the job performance of IT employees changed during the pandemic when remote work was the predominant mode of operation for more than a year. The study also investigates how the different aspects of job performance have evolved during the research. Quantitative data was collected through a longitudinal survey conducted in 2019 and then repeated in 2021. In the first phase, the sample consisted of 126 international respondents working in over 25 different IT companies, while in the second phase, 149 respondents from over 60 different organisations were covered. The data for the study has been analysed by using one-dimensional mean value comparison, correlation, and regression analysis. In the first phase of the survey conducted before the pandemic, quality of work, effectiveness, and value-added performance have the strongest influence on job performance, at the same time employees' productivity and proactiveness did not show a direct impact on their overall performance. In the second phase of the study conducted in the summer of 2021, the results show that employees' perception of their value-added performance to the organisation no longer impacts their overall performance. Additionally, during the pandemic, a downward trend was observed in all the elements of job performance, with the most significant decrease in employees' overall performance, quality of work, and effectiveness. The results of the study can be compelling to different levels of the organisations, as good job performance of employees is significant for the performance results of teams, business units, and organisations. Understanding employees' job performance, its elements, and how it changes over time, especially during the pandemic, can help organisations thrive and develop a more productive workforce.

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Introduction

IT employees' job performance is a trending topic, as it is directly related to the better business results of the organisations. The present study focuses on examining the performance of IT employees and five of its aspects: quality of work, effectiveness, productivity, value added to the organisation, and proactiveness and to discover how these aspects were impacted during the COVID-19 crises. A better understanding of the job performance and how it changes over time, especially during the pandemic, can help organisations keep the momentum and nurture a productive workforce. In this journey, leadership plays a decisive role in managing the new working conditions, impacting employees' performance, motivation level, and the growth of the organisations (Sarfraz et al., 2021).

During the pandemic, remote work was enforced in many sectors, though it was already a common practice in the IT sector. Therefore, organisations need to know how to adapt to this future mode of work with a positive impact on its employees' job performance, ensuring high efficiency and quality work. Post COVID-19 pandemic, different studies revealed that flexible working arrangements reduce work-life conflict and increase productivity and efficiency (Sarfraz et al., 2021). However, COVID-19 has changed this perception, it increased the feelings of loneliness and social exclusion among employees (Sarfraz et al., 2021) and created a need for people to balance their work and life, being forced to perform both activities from their homes. Moreover, COVID-19 brought a lot of stress in an individual's life in the form of role overload, lifestyle choices, family distraction, and occupational discomfort, which started to impact job performance (Kumar et al., 2021).

Employees' job performance level is important for organisations, since it is positively related to job satisfaction (Judge et al., 2001; Yanchovska, 2021) and organisational commitment (Kumar et al., 2021; Taba, 2018). Apart from that, these associations are important for employees' well-being, as highly committed employees are more positive, energised, and hard-working. At the same time, those with low commitment are more prone to emotional distress and fatigue (Kumar et al., 2021). Moreover, high job satisfaction among employees result in lower turnover and absenteeism (Bakkal et al., 2019) and higher employee engagement (Harter et al., 2002; Ogbuanya & Chukwuedo, 2017).

Literature Review

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Various researchers have extensively examined the impact of virtual work on employees' performance and quite often, the results tend to be in favour of the benefits that remote work can have on their performance and productivity. While examining the relationship between remote work and individual performance during COVID-19, scholars discovered that depending on the occupation, individuals show significant variations in their productivity performing similar tasks (Kramer & Kramer, 2020).

Job performance is considered the ultimate criterion for performance appraisal in human resource management. It is used for employee evaluation for different decision-making purposes like personnel selection, training, compensation, and rewards. It is a complex phenomenon that can be viewed as the compound set of employee behaviour, not the variables that determine them or their outcomes (Ramos-Villagrasa et al., 2019). Job performance also relates to the application of individual abilities, skills, and talents in performing a job (Kumar et al., 2021). Designing a valid, meaningful, and quantifiable performance measurement scale is one of the biggest management challenges. While examining job performance before and during COVID-19, the ongoing technological transformation accelerated by the pandemic was given due consideration. The so-called "smart work", which allows employees to work anytime from any location using Information and Communication Technologies (ICT) is expected to enhance flexibility and better work-life balance. The utilisation of the right ICT tools matching to the organisational needs, has a significant impact on job performance (Ko et al., 2021). Research on the job performance during the pandemic, on digital knowledge sharing means, and the creative performance of employees reveals that the increased use of digital platforms enhanced employees' creativity in job performance while working from home during the pandemic (Tønnessen et al., 2021). Also, a recent study in India on the implications of COVID-19 shows that the pandemic impacts employees' performance, especially considering the home office environment. The authors claimed that there are many positive side effects of COVID-19 like the introduction of modern technologies to enhance employee and organisational performance by reducing costs, improving work quality, flexibility, and increasing speed of the delivery (Narayanamurthy & Tortorella, 2021). The results of a two-wave survey among 1,309 Chinese employees also confirmed the positive effects of telework during COVID-19 on job performance, but in this case, job crafting played a vital role (Liu et al., 2021).

Nevertheless, it should be remembered that the pandemic has forced many companies to rapidly introduce new technology and tech-driven work practices without the proper preparation, training, or planned implementation. Carroll and Conboy (2020) support the idea of more reflective "normalisation" of remote working practices and offer directions for implementing new technology. Furthermore, the conservation of resources theory affirms that people with adequate resources are less susceptible to stress factors, which results in higher job performance (i.e., positive adaptation to stressors) through the implementation of tasks related to positive future outcomes (Chang et al., 2021). However, the situation can be much different for people with limited resources.

There is a negative relationship between professional isolation and employees` job performance and motivation (Sarfraz et al., 2021). The same negative relationship also exists between the increase in the sedentary lifestyle due to COVID-19 and employee performance (Wakaizumi et al., 2021). A study conducted among 3,223 public employees in a Swiss Cantonal administration to examine engagement, exhaustion, and perceived performance of public employees before and during the COVID-19 crisis, concluded that during the enforced telework period, the overall job performance declined and was negatively impacted, due to the self-perception of the respondents (Giauque et al., 2022). Another research conducted among individuals who worked remotely due to the pandemic, also reported decreased job satisfaction and perceived job performance due to different techno-stressors (Camacho & Barrios, 2022). Evans et al. (2021) examined several job outcomes caused by the transition to remote work enforced by the pandemic and found a significant decline in the performance of self-reporting employees. Similar results were also reported by Onubi et al., 2021, who observed a major negative impact of social distancing measures enforced during COVID-19 on the performance of construction projects.

These conflicting results call for more detailed examinations of the impact of the COVID-19 outbreak on employees' job performance. For the current research, job performance will be measured as an overall value and through five composite elements that can be categorised into two main job performance domains – task performance and contextual performance (Sackett & Lievens, 2008). The

job performance elements include quality of work, effectiveness, and productivity. Elements of value addition and proactiveness represent the contextual performance dimension.

The first element, the quality of work, directly refers to the perceived customer or company expectations of the delivered results, it usually entails the anticipation of error-free outputs, meeting business goals, and delivery at par with the best industry practices with agreed specifications. Recent research in India examines the impact of COVID-19 and its implications on employees' performance, specifically the output quality and how it is affected by the introduction of modern technologies. The findings revealed that employees' output quality is prone to improve when organisations adopt the work from home mode of operations (Narayanamurthy & Tortorella, 2021).

Effectiveness, the next performance element examined in the current research, is a combination of high performance and excellent work-life quality (Cohen et al., 1996). Some employees highly evaluate their telework effectiveness, which means that working from home will help them be more productive, improve their ability to concentrate on the job, and eventually increase their work quality and motivation (Adamovic, 2022). At the same time, the COVID-19 pandemic fostered the implementation and application of ICT, which further pressurised employees to keep their technical skills up to date and apply the latest technologies in a virtual setting (Graves & Karabayeva, 2020), which resulted in higher work stress and anxiety.

The next aspect, productivity, is one of the personal benefits to be considered when discussing work from home, along with reduced commute time, better life quality, improved work-life balance, and increased work efficiency (Ko et al., 2021). Remote work productivity depends on the work nature and individual preferences. Personality and behaviours were found to have less impact than occupational characteristics (Kramer & Kramer, 2020). The results of a recent study prove that self-perception of being a high-performing employee was associated with higher employee engagement in the new way of remote working. It is further related to the perception of being productive in the new work arrangement. Nevertheless, living with children under 18 moderated the relationship between the overall job performance and remote work productivity and engagement (Toscano & Zappalà, 2021).

Employees' self-perception of the added value to the organisation is another element that can be used to measure employee job performance and how it evolves over time. The employees' value addition to the organisation, can have different dimensions like delivering high-quality work, expert knowledge, timely and measurable results, support to the coworkers, realised savings or increased sales, etc. Some authors argue that future time orientation will be positively associated with higher work productivity and will serve as a mediator between proactiveness and perceived added value to work productivity (Chang et al., 2021).

COVID-19 has enforced the transformation to a more flexible working model, and employee proactiveness played a critical role in the adaptation to the new work conditions. A study that focuses on the work-from-home experience of employees, revealed the relationship between proactiveness and perceived work productivity, since individuals had to adjust their work arrangements swiftly, it called for a good level of proactiveness to find effective communication methods with coworkers and customers, to overcome challenges to maintain productivity and isolate home distractions (Chang et al., 2021). This adaptation is also referred to as job crafting, which is the process of individual goal setting and striving for self-improvement; it is highly related to employees' proactive approach to adjusting their work perceptions, tasks, and relationships to the new reality (Liu et al., 2021).

Research Methodology

Research Objectives and Hypotheses

To address the rising concern about the influence of the pandemic on employees' performance, the main goal of the research paper is to compare IT employees' job performance before and during COVID-19 to examine any substantial changes. In addition, the study will investigate how the impact of the different aspects of job performance (quality of work, effectiveness, productivity, added value to the organisation, and proactiveness) have evolved over the period of the research. Finally, the study will test the following three research hypotheses:

H_1: IT employees' overall job performance has declined during the pandemic.

H_2: The five job performance elements (quality of work, effectiveness, productivity, added value, and proactiveness) marked a decline during the pandemic.

H_3: The impact of the five job performance elements (quality of work, effectiveness, productivity, added value, and proactiveness) on the overall job performance remains the same before and during the pandemic.

Questionnaires and Samples

The research is based on primary data collected through a questionnaire, executed first in 2019 and then in 2021. For the first phase of the survey, 300 IT employees were contacted, out of whom only 126 responded with a filled questionnaire. The second round of survey was executed among the same target group and received 149 full responses. The questionnaire was prepared on a self-reported scale to measure IT employees' job performance. Literature review shows that job performance can be measured in numerous ways: from brief scales measuring the general employee performance to detailed instruments containing elements that examine different performance aspects. For the current study, to assess the overall employees' performance, the questionnaire asked a single question "Considering all, how do you evaluate your overall performance?", which is in line with Judge and Kammeyer-Mueller (2012), who suggested that general measures should be used to predict general behaviour. Each of the five performance elements in the study were measured with one direct question each, examining how respondents perceived their performance in terms of the specific variable. The questionnaire was based on self-reporting scale. It has numerous advantages like it is easy to obtain, has broad coverage, no halo effect etc. (Ramos-Villagrasa et al., 2019), due to which it is the preferred method among researchers (Denisi & Murphy, 2017). However, self-evaluating scales have some limitations, like it is relatively biased and may lead to overestimating the performance ratings (Edwards et al., 2008). For the second round of the survey, to measure the impact of COVID-19, additional questions were added on five different aspects of employee work-life: pay and benefits, security, level of stress, isolation from peers, and work-life balance. The responses were recorded on a 5-point Likert scales, where 5 is the highest and 1 is the lowest rating.

The demographic section of the questionnaire collects information about respondents' gender, age, education, tenure, country of work, and current employer. Table 1 presents the summary of the results:

Table 1: Demographic Distribution

	Survey 1 – 2019	**Survey 2 – 2021**
N of respondents	126	149
Men / Women	65.9% / 34.1%	55.7% / 44.3%
Age between 35 and 44 years	41.3%	50.3%
University degree	88.1%	93.9%
Country of work – Bulgaria	72.2%	67.1%
Job tenure up to 3 years	43.7%	55.7%
N of companies represented	25+	60+

For age, education, country of work and tenure the table contains data for the largest group.

Source: Authors

Data analysis was done with the help of IBM SPSS and MS Excel. The first two hypotheses were tested by comparing the mean values and frequency distributions of performance elements obtained before and during the pandemic and the third hypothesis was tested with a multiple regression, proceeded by examination of correlations.

Results

Comparative Analysis

As Edwards et al. (2008) state, performance self-reporting is often biased and leads to overestimation. The same is also visible in the study as illustrated in Table 3. During the first round of the survey, 84.2% of the respondents rated their overall performance as "above" or "far above" the average. The results in survey 2 are slightly lower, but still, more than half of the participants (75.8%) believed that they performed better than the average level. Nevertheless, since the responses from the same target group, using the same scale, are compared, the changes in the responses between the two points of time should provide credible information.

When comparing the descriptive values of the two surveys presented in Table 2, there is quite an intriguing observation; in survey 1, none of the respondent rated their performance below 2, stating that none of the participants had evaluated her or his performance as "far below average". On the contrary, in survey 2 during the pandemic, few ratings were recorded as low as 1.

Table 2: Comparison of Mean Values

		Survey 1				Survey 2			
	Δ*	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
Overall performance	-0.21	4.02	0.586	3	5	3.82	0.717	1	5
Quality of work	-0.17	4.03	0.606	2	5	3.87	0.732	1	5
Effectiveness	-0.15	3.91	0.704	2	5	3.77	0.766	1	5
Productivity	-0.14	3.89	0.707	2	5	3.74	0.815	1	5
Added value	-0.01	3.83	0.760	2	5	3.82	0.726	1	5
Proactiveness	-0.08	3.92	0.864	2	5	3.84	0.886	1	5

*Δ = Mean (Survey 2) – Mean (Survey 1)

Source: Authors

Comparing the mean values (Table 2, Δ values), it is observed that in the second phase of the study, conducted in the summer of 2021 during the pandemic, there is a decrease in the average values of all performance elements. The overall performance was most affected, reporting a decline by 0.21 points, quality of work by 0.17 points, effectiveness by 0.15 points, and productivity by0.14 points. This finding is also supported by comparing the % distributions presented in Table 3. It can be observed that the percentage of responses for "above" or "far above" the average performance level has dropped by 8.4%. The same trend is observed while comparing employees' quality of work, productivity, and effectiveness with the percentage drops in "above" or "far above" the average performance level are 11.5%, 9.2%, and 2.9%, respectively. Regarding "proactiveness" and "added value to the organisation" the decline is smaller, but still present.

Table 3: Distributions of Job Performance and Its Elements

	Survey 1					Survey 2				
	1	**2**	**3**	**4**	**5**	**2**	**3**	**4**	**5**	**2**
Overall performance	0%	0%	15.9%	65.9%	18.3%	1.3%	2.7%	20.1%	64.4%	11.4%
Quality of work	0%	1.6%	11.9%	68.3%	18.3%	1.3%	1.3%	22.1%	59.7%	15.4%
Effectiveness	0%	2.4%	22.2%	57.1%	18.3%	1.3%	4.7%	21.5%	61.1%	11.4%
Productivity	0%	4.0%	19.0%	61.1%	15.9%	0.7%	6.7%	24.8%	53.0%	14.8%
Added value	0%	3.2%	29.4%	49.2%	18.3%	0.7%	2.7%	24.8%	57.7%	14.1%
Proactiveness	0%	6.3%	22.2%	44.4%	27.0%	3.4%	2.0%	22.1%	52.3%	20.1%

1 = Far below average; 2 = Below average; 3 = Average; 4 = Above average; 5 = Far above average

Source: Authors

Examining the impact of COVID-19 on employees' welfare, it is noticed that though the IT sector was not severely impacted, there are still some negative consequences on employees' job performance. The negative influence of the pandemic on employees' earnings was minimum, as only 14.3% of the participants responded that their pay and benefits were negatively affected. A strong negative impact was observed on all other aspects of employees' welfare. 51.0% of the respondents feel disconnected from their peers, 46.3% have difficulties maintaining a good work-life balance, 42.9% of the respondents experience higher levels of stress and 27.9% are less secure about their jobs.

Table 4: Impact of COVID-19 on Employees' Welfare

	1	**2**	**3**	**4**	**5**
My pay and benefits were negatively affected.	34.7%	29.3%	21.8%	8.2%	6.1%
I feel less secure about my job.	15.6%	32.7%	23.8%	19.7%	8.2%
I feel higher levels of stress and frustration.	8.8%	23.1%	25.2%	31.3%	11.6%
I feel isolated and disconnected from my colleagues.	10.9%	19.0%	19.0%	34.0%	17.0%
It's more difficult to maintain a good work-life balance.	9.5%	26.5%	17.7%	31.3%	15.0%

1 = Strongly disagree; 2 = Disagree; 3 = Neither agree, nor disagree; 4 = Agree; 5 = Strongly agree

Source: Authors

Based on these results, it is concluded that research hypotheses 1 and 2 are supported, which also affirms the results of previous studies on the matter, discussed earlier in the paper.

Multiple Regression

Two regression models are constructed to examine the impact of the five performance elements on employees' overall job performance. The overall performance represents the response variable, and the individual elements are presented as the predictors. Since the performance scores were not normally distributed, a common observation while measuring employee performance (Ramos-Villagrasa et al., 2019), Spearman's correlation was used to measure the monotonic associations and in both surveys, the results showed strong positive correlations between all variables.

After removing the outliers (none in survey 1 and two in survey 2), two significant models were calculated. For survey 1, $F(5,120) = 228.55$, $p < .001$, $R^2 = .543$, $R^2_{adj} = .524$ and for survey 2, $F(5,141) = 91.49$, $p < .001$, $R^2 = .764$, $R^2_{adj} = .756$. Test for multicollinearity showed no such concerns in both models VIF < 3 and condition index < 30. Table 5 illustrate the regression coefficients:

Table 5: Regression Coefficients

	Survey 1		Survey 2	
Predictor	**Standardised β**	**Sig.**	**Standardised β**	**Sig.**
Quality of work	.177	.046	.161	.024
Effectiveness	.396	.000	.267	.000
Productivity	-.008	.920	.311	.000
Added value	.224	.012	.076	.203
Proactiveness	.121	.141	.219	.000
Output variable: overall job performance				

Source: Authors

It becomes evident that the common performance predictors in both surveys are effectiveness and quality of work. The other three show different effects before and during the pandemic. For example, the added value to the organisation has significant influence on the overall performance only in survey 1, while productivity and proactiveness are significant predictors only during the pandemic. Based on these results, research hypothesis 3 is rejected.

Conclusion

The results of the study confirmed that the overall employee performance along with its elements have marked a decline after the pandemic outbreak. Additionally, the five performance elements are found to have a different level of impact on employees' overall performance before and during the pandemic.

The degradation of different performance elements like the quality of work, effectiveness, productivity, added value and proactiveness, and the overall job performance during the pandemic is in line with the findings of other studies on the topic. The findings have important business implications. The study will help companies become aware of the negative impacts of COVID-19 and will motivate them to trace the root causes and implement new preventive measures to reduce the tech stressors, which may lead to lower job performance. To mitigate the detrimental influence of the pandemic, companies should focus on more effective adoption of new technologies to ease the challenges for the employees, which could lead to positive long-term effects on job performance. Additionally, the findings may be used to test the impact of following pandemic waves on the IT employees' performance, enhanced by the revolution of innovative information and communication technologies.

The present study adds value to the existing research by examining the impact of COVID-19 on one highly skilled target group of IT professionals, but it is not free from limitations. The first limitation is related to the small sample size and self-reporting scales. As an additional limitation, the study does not include elements for measuring counterproductive work behaviour, which has been considered a part of job performance by some authors. To fortify our findings and provide further insights, future researchers may examine the impact of COVID-19 on job performance in larger samples and in different cultural and industrial settings, with additional performance elements that may influence employee job performance.

References

Adamovic, M. (2022). How does employee cultural background influence the effects of telework on job stress? The roles of power distance, individualism, and beliefs about telework. *International Journal of Information Management, 62*. https://doi.org/10.1016/j.ijinfomgt.2021.102437

Bakkal, E., Serener, B., & Myrvang, N. A. (2019). Toxic leadership and turnover intention: Mediating role of job satisfaction. *Revista de Cercetare Si Interventie Sociala, 66.* https://doi.org/10.33788/rcis.66.6

Camacho, S., & Barrios, A. (2022). Teleworking and technostress: early consequences of a COVID-19 lockdown. *Cognition, Technology and Work*, *1*, 1–17. https://doi.org/10.1007/S10111-022-00693-4/TABLES/4

Carroll, N., & Conboy, K. (2020). Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, *55*. https://doi.org/10.1016/j.ijinfomgt.2020.102186

Chang, Y., Chien, C., & Shen, L. F. (2021). Telecommuting during the coronavirus pandemic: Future time orientation as a mediator between proactive coping and perceived work productivity in two cultural samples. *Personality and Individual Differences*, *171*. https://doi.org/10.1016/j.paid.2020.110508

Cohen, S. G., Ledford, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations*, *49*(5), 643–676. https://doi.org/10.1177/001872679604900506

Denisi, A. S., & Murphy, K. R. (2017). Performance appraisal and performance management: 100 years of progress? *Journal of Applied Psychology*, *102*(3). https://doi.org/10.1037/apl0000085

Edwards, B. D., Bell, S. T., Arthur, W., & Decuir, A. D. (2008). Relationships between facets of job satisfaction and task and contextual performance. *Applied Psychology*, *57*(3). https://doi.org/10.1111/j.1464-0597.2008.00328.x

Evans, A. M., Meyers, M. C., de Calseyde, P. P. F. M. V., & Stavrova, O. (2021). Extroversion and conscientiousness predict deteriorating job outcomes during the COVID-19 transition to enforced remote work. *Social Psychological and Personality Science*, *13*(3), 781–791. https://doi.org/10.1177/19485506211039092

Giauque, D., Renard, K., Cornu, F., & Emery, Y. (2022). Engagement, exhaustion, and perceived performance of public employees before and during the COVID-19 crisis. *Public Personnel Management*. https://doi.org/10.1177/00910260211073154

Graves, L. M., & Karabayeva, A. (2020). Managing virtual workers - Strategies for success. *IEEE Engineering Management Review*, *48*(2), 166–172. https://doi.org/10.1109/EMR.2020.2990386

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, *87*(2). https://doi.org/10.1037/0021-9010.87.2.268

Judge, T. A., Bono, J. E., Thoresen, C. J., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, *127*(3). https://doi.org/10.1037//0033-2909.127.3.376

Judge, T. A., & Kammeyer-Mueller, J. D. (2012). General and specific measures in organizational behavior research: Considerations, examples, and recommendations for researchers. *Journal of Organizational Behavior*, *33*(2). https://doi.org/10.1002/job.764

Ko, E. J., Kim, A. H., & Kim, S. S. (2021). Toward the understanding of the appropriation of ICT-based Smart-work and its impact on performance in organizations. *Technological Forecasting and Social Change*, *171*. https://doi.org/10.1016/j.techfore.2021.120994

Kramer, A., & Kramer, K. Z. (2020). The potential impact of the Covid-19 pandemic on occupational status, work from home, and occupational mobility. *Journal of Vocational Behavior*, *119*, 103442. https://doi.org/10.1016/J.JVB.2020.103442

Kumar, P., Kumar, N., Aggarwal, P., & Yeap, J. A. L. (2021). Working in lockdown: the relationship between COVID-19 induced work stressors, job performance, distress, and life satisfaction. *Current Psychology*, *40*(12). https://doi.org/10.1007/s12144-021-01567-0

Liu, L., Wan, W., & Fan, Q. (2021). How and when telework improves job performance during COVID-19? Job crafting as mediator and performance goal orientation as moderator. *Psychology Research and Behavior Management*, *14*, 2181–2195. https://doi.org/10.2147/PRBM.S340322

Narayanamurthy, G., & Tortorella, G. (2021). Impact of COVID-19 outbreak on employee performance – Moderating role of industry 4.0 base technologies. *International Journal of Production Economics*, *234*. https://doi.org/10.1016/J.IJPE.2021.108075

Ogbuanya, T. C., & Chukwuedo, S. O. (2017). Job crafting-satisfaction relationship in electrical/electronic technology education programme: Do work engagement and commitment matter? *Revista de Psicología Del Trabajo y de Las Organizaciones*, *33*(3). https://doi.org/10.1016/j.rpto.2017.09.003

Onubi, H. O., Yusof, N., Hassan, A. S., & Bahdad, A. A. S. (2021). Forecasting the schedule performance resulting from the adoption of social distancing in construction projects. *Engineering, Construction and Architectural Management*. https://doi.org/10.1108/ECAM-07-2021-0632

Ramos-Villagrasa, P. J., Barrada, J. R., Fernández-Del-Río, E., & Koopmans, L. (2019). Assessing job performance using brief self-report scales: The case of the individual work performance questionnaire. *Revista de Psicologia Del Trabajo y de Las Organizaciones*, *35*(3), 195–205. https://doi.org/10.5093/jwop2019a21

Sackett, P. R., & Lievens, F. (2008). Personnel selection. In *Annual Review of Psychology*, 59. https://doi.org/10.1146/annurev.psych.59.103006.093716

Sarfraz, M., Ivascu, L., Khawaja, K. F., Vevera, A. V., & Dragan, F. (2021). ICT revolution from traditional office to virtual office: A study on teleworking during the COVID-19 pandemic. *Studies in Informatics and Control*, *30*(4), 77–86. https://doi.org/10.24846/V30I4Y202107

Taba, M. I. (2018). Mediating effect of work performance and organizational commitment in the relationship between reward system and employees' work satisfaction. *Journal of Management Development*, *37*(1). https://doi.org/10.1108/JMD-11-2016-0256

Tønnessen, Ø., Dhir, A., & Flåten, B. T. (2021). Digital knowledge sharing and creative performance: Work from home during the COVID-19 pandemic. *Technological Forecasting and Social Change, 170*. https://doi.org/10.1016/j.techfore.2021.120866

Toscano, F., & Zappalà, S. (2021). Overall Job performance, remote work engagement, living with children, and remote work productivity during the COVID-19 pandemic: A mediated moderation model. *European Journal of Psychology Open, 80*(3), 133–142. https://doi.org/10.1024/2673-8627/a000015

Wakaizumi, K., Yamada, K., Shimazu, A., & Tabuchi, T. (2021). Sitting for long periods is associated with impaired work performance during the COVID-19 pandemic. *Journal of Occupational Health, 63*(1). https://doi.org/10.1002/1348-9585.12258

Yanchovska, I. (2021). The relationship between job satisfaction and individual performance of IT employees. *Proceedings of CBU in Economics and Business, 2*. https://doi.org/10.12955/peb.v2.267