

# Remote Work Effectiveness, Quality and Efficiency: A Theoretical and Empirical Approach to Employee Performance

Siti Norayu Mohd Basir<sup>1\*</sup>, Mohd Arsad Johanis<sup>2</sup>, Nor Hafizan Habib Sultan<sup>3</sup>, Siti Balkis Mohamed Ibrahim<sup>4</sup>, Noor Salwani Hussain<sup>5</sup>, Norhudi'in Danu@Danoo

<sup>1,2,3,4,5,6</sup>Universiti Malaysia Perlis

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**Abstract:** The shift to remote work has transformed traditional workplace dynamics, necessitating an evaluation of its impact on employee performance. This study examines the relationships between job effectiveness, job efficiency, and job quality in influencing remote employees' performance. Using a quantitative approach, data were collected from 132 remote workers through a structured questionnaire and analyzed using inferential statistical methods, including correlation and regression analysis. The findings reveal that job efficiency and job quality significantly enhance employee performance, while job effectiveness does not exhibit a substantial impact. This suggests that in remote work environments, employees who manage their time and resources efficiently and produce high-quality work are more likely to maintain optimal performance levels. The study contributes to the growing body of research on remote work by providing empirical insights that can guide organizations in refining remote work policies to enhance productivity and job satisfaction. Future research should explore additional variables such as work-life balance and mental health to gain a more comprehensive understanding of remote work dynamics.

**Keywords:** Remote Work, Job Effectiveness, Job Efficiency, Job Quality, Employee Performance.

## 1. Introduction

The COVID-19 pandemic, which emerged in 2019, has significantly transformed the global employment landscape (Lucaci, Nastase & Aceleanu, 2022). Traditional job roles that previously required physical presence have evolved into flexible and remote work arrangements. Perhaps the most pronounced impact of the post-COVID-19 era on the labor force is the substantial increase in employees working remotely. Remote work also referred to as remote work, homebased work, telework, flexible working arrangements, and virtual work, has become an unavoidable phenomenon in the contemporary workforce. The workplace concept is shifting from ideas of a physical location to remote or telecommuting, where employees do not have to commute to the place of work (Sekar, Clivensen, Nadia & Sugiharto, 2021).

The initial objective of implementing remote work, particularly in developed countries, was to enhance employees' work-life balance while simultaneously mitigating work-life conflicts (Dzurizah, Oliver & Marsitah, 2022). WFH can be defined as a process of conducting job responsibilities outside the conventional workplace, involving reduced commuting and extensive use of technology. This arrangement provides employees with flexibility, autonomy, and the convenience of working from the comfort of their homes (Farooq & Sultana, 2022). Given its high degree of flexibility in terms of time

and location, employees can fulfil their professional duties from virtually anywhere, provided they have access to the necessary tools and technological support.

Despite its advantages, remote work raises critical concerns, particularly regarding employee performance and particularly on negatives side of performance (Dzurizah, Oliver & Marsitah, 2022; Thorstensson, 2020). Remote work introduces new challenges in maintaining productivity, connectivity, and engagement (Farooq & Sultana, 2022; Thorstensson, 2020). Employee performance is traditionally assessed based on measurable objective achievements; however, a comprehensive evaluation should not be limited to outcomes alone but should also consider the methods through which these outcomes are achieved.

## 2. Literature Review

### Remote Work

Remote work was not solely triggered by COVID-19. It had been introduced long before but became a primary option when the pandemic struck due to the necessity of physical distancing. The term remote work was mentioned by Jack Nilles in the 1970s (Schall, 2019). The advancement of internet technology has accelerated and strengthened the adoption of remote work, making it a viable alternative for many organizations. The shift to remote work, particularly during the COVID-19 pandemic, has redefined traditional notions of employee performance, effectiveness, work quality, and efficiency. Remote work acts as a broader concept consisting of four dimensions: work location that can be anywhere, diversity of employment relationship, time distribution, and usage of information and communication technology (Sekar, Clivensen, Nadia & Sugiharto, 2021). Remote work has become an opportunity for many workers to remote work and for companies to reshape their organizational management (Lucaci, Nastase & Aceleanu, 2022).

Most recently, the concept of mobile work (mWork) has emerged, defined as the frequency of using a smartphone or tablet with internet access to engage in work tasks during family time (Schall, 2019). This development highlights the evolving nature of work, where employees increasingly integrate technology to maintain productivity outside traditional office settings. The transition to remote work has reshaped workplace dynamics, influencing performance, work quality, and overall efficiency (Farooq & Sultana, 2022).

Performance is a multidimensional concept that includes both behaviors and outcomes also determined by their willingness and openness to complete their jobs (Brumbrach, 1988; Zhenjing, Chupradit, Ku, Nassani & Haffar, 2022). Performance planning interprets work goals, the quality of work implementation, the targets to be achieved, the period of achievement and costs needed to realize the work plan (Sri Sulistiani & Faozanudin, 2022). Effective employees not only complete tasks efficiently but also seek solutions to problems and continuously improve their work (Zhenjing, Chupradit, Ku, Nassani & Haffar, 2022). However, in a remote work environment, effectiveness is influenced by factors such as access to technology, internet stability, and home distractions (Stieg, 2020; Bendor-Samuel, 2020). The physical and behavioral aspects are the two facets of a healthy working climate (Zhenjing, Chupradit, Ku, Nassani & Haffar, 2022). While some employees demonstrate high adaptability and maintain productivity, others face difficulties that hinder optimal performance (Bendor-Samuel, 2020). From a management perspective, Scientific Management Theory, introduced by Frederick Taylor, suggests that structured task management enhances efficiency by optimizing workflows and standardizing processes (Taneja, Pryor, & Toombs, 2011). This approach remains relevant in remote work settings, where clearly defined tasks and performance metrics can help employees maintain productivity.

Work quality, which refers to how well a work environment aligns with employees' needs, plays a crucial role in job satisfaction and productivity. In a remote work model, employers must rethink job designs to maintain work quality by addressing employees' physical, social, and psychological needs. Traditional efficiency models focus on minimizing non-value-adding effort while maximizing output by optimizing workflows and reducing bottlenecks, thus enhancing overall system productivity (Lamovšek, Radević, Mohammed & Černe, (2025), but efficiency in remote work scenarios depends on individual motivation and organizational support (Prest, 2009; Sekar, Clivensen, Nadia & Sugiharto,2021). Employees with higher motivation and strong leadership skills tend to perform better, even in remote settings, as they can overcome challenges independently (Bendor-Samuel, 2020). However, efficiency is not uniform across all employees, as personal effort, home environment, and access to resources influence productivity levels. By integrating both scientific management and human relations theories, organizations can develop hybrid performance management strategies that balance structured efficiency with employee centered approaches, ensuring optimal productivity in remote work environments (Taneja, Pryor, & Toombs, 2011).

#### Performance and Job Effectiveness

The effectiveness of work performance is measured by an employee's ability to maintain a high standard of productivity. Organizations can enhance employee productivity by encouraging their workforce to establish a knowledge-sharing strategy, utilize appropriate communication channels for their messages, foster social interactions, and assess productivity based on outcomes rather than hours worked (Farooq & Sultana, 2022). Employee performance serves as a benchmark to determine whether employees meet the effectiveness standards required (Sri Sulistiani & Faozanudin, 2022). Measuring the performance of employees' remote work during requires various methodologies to assess their effectiveness (Sri Sulistiani & Faozanudin, 2022). Not all employees achieve full effectiveness while working remotely due to challenges such as a lack of office equipment, unreliable internet connectivity, and family distractions (Schall,2019; Ibrahim, Eboy & Radzi ,2022). Scientific management theory (Taylor, 1970) supports that organizational effectiveness is driven by structured task management, while human relations theory (Roethlisberger & Dickson, 1970) argues that workplace dynamics and employee relations significantly impact performance effectiveness. Combining these perspectives, organizations must integrate systematic management approaches with employee centered strategies to enhance work effectiveness.

#### Performance and Job Quality

Employee performance must also be evaluated based on work quality. There are five elements that need to be taken into account, specifically emphasis on performance and work quality, providing employees the chance to share their views, offering feedback, promoting the accomplishment of both individual and organizational objectives, and training for evaluators (Sri Sulistiani & Faozanudin, 2022). Meanwhile, employees will be motivated for a number of reasons to accomplish optimal performance and productivity inside a firm; such motivations could be endogenous or exogenous (Zhenjing, Chupradit, Ku, Nassani & Haffar, 2022). Nadler and Lawler (1983) define high-quality employees as those who actively consider their work's impact on others and the organization, demonstrating problem-solving and decision-making abilities.

Van Veldhoven, Dorenbosch, Breugelmans, and Van De Voorde (2017) conceptualize work quality as a multidimensional construct, wherein work variety is indicative of the extent to which a job encompasses diverse tasks that engage an individual's broad skill set. A higher degree of task variety not only necessitates cognitive complexity but also introduces a degree of unpredictability in job responsibilities, fostering intellectual stimulation and professional growth. Similarly, work autonomy pertains to the degree of control or discretion an employee exercises over key aspects of their employee performance, including decision-making related to work methods and task scheduling (Green, Tappin & Bentley, 2020).

From a theoretical standpoint, the Human Relations Theory highlights the importance of employee motivation and participation in decision-making to enhance work quality. Employees' motivation impacts both their performance and productivity (Uka & Prendi, 2021). Meanwhile, scientific management theory (Taylor, 1970) emphasizes structured efficiency but may overlook human-centric elements. By combining these perspectives, organizations can create a balanced approach to improving employee performance and work quality.

#### Performance and Job Efficiency

Efficiency in an organizational context refers to the optimal use of resources to maximize output (Kibirige, Kaawaase, Eduan & Franklin, 2019). Efficiency is achieved when an organization or department minimizes effort while maintaining high levels of productivity. Preast (2009) argues that efficiency directly influences employee motivation, as higher efficiency correlates with greater workplace engagement. However, efficiency varies among individuals, depending on their motivation and work strategies (Uka & Prendi 2021).

Theories of management provide insights into optimizing efficiency. Scientific management theory (Weber, 1940; Taylor, 1970) suggest that breaking down work processes into specialized tasks enhances efficiency. However, human relations theory (Roethlisberger & Dickson, 1970) contends that efficiency is also influenced by employee well-being and teamwork. Integrating these theories suggests that efficiency can be maximized through both structured work processes and supportive workplace relationships.

### 3. Research Questions and Hypotheses

1. What is the relationship between job effectiveness and performance of remote working employee?
2. What is the relationship between job quality and performance of remote working employee?
3. What is the relationship between job efficiency and performance of remote working employee?

#### Research Hypotheses

1. H<sub>1</sub> There is a significant relationship between job effectiveness and performance of remote working employees?  
H<sub>2</sub> There is a significant relationship between job quality and performance of remote working employees?

H<sub>3</sub> There is a significant relationship between job efficiency and performance of remote working employees?

#### 4. Methodology

This study employs a quantitative research design to examine the influence of job effectiveness, efficiency, and quality on employee performance in a remote work environment. A survey-based approach was adopted, utilizing a self-administered questionnaire (SAQ) to collect data systematically. This method ensures uniformity in data collection while allowing respondents to complete the survey independently, reducing potential interviewer bias (Lavrakas, 2008).

The study population consists of employees engaged in remote work arrangements. A random sampling technique was employed to enhance representativeness and reduce sampling bias. The sample size of 132 respondents was determined based on the Krejcie and Morgan (1970) formula, which provides a statistical basis for ensuring adequate sample representation from a target population of 210 remote workers. Data collection was conducted through an online survey, distributed via the WhatsApp application to facilitate accessibility. A total of 132 completed questionnaires were successfully retrieved, yielding a 100% response rate, which enhances data reliability.

To ensure the reliability of the research instrument, Cronbach's alpha coefficient was calculated, confirming strong internal consistency across all constructs. A high Cronbach's alpha value suggests that the questionnaire items were well-correlated and consistently measured the intended variables. Furthermore, content validity was established through expert review to ensure alignment with the study objectives and theoretical framework.

Table 1: Reliability test

Variables	No. of Item	Cronbach Alpha	Level
Job Effectiveness (IV1)	6	0.935	Very good
Job Quality (IV2)	6	0.948	Very good
Job Efficiency (IV3)	5	0.933	Very good
Performance (DV)	6	0.954	Very good

While the study provides information into remote work effectiveness, efficiency, and quality, several limitations must be acknowledged. The study focuses on 132 respondents from a total population of 210, limiting its generalizability to broader remote work populations across different industries, countries, or cultural contexts. While the sample is statistically justified, a larger and more diverse sample would enhance external validity.

The study does not differentiate between industries, organizational structures, or job roles, which may influence how remote work dynamics impact employee performance. Future research should consider sector-specific variations. The reliance on a survey-based quantitative method limits the depth of insights into employees' subjective experiences. A mixed-methods approach incorporating qualitative interviews could provide richer contextual understanding. The study relies on self-reported responses, which may be subject to social desirability bias or misinterpretation of survey items. Triangulating survey findings with performance metrics or managerial assessments could strengthen validity.

Given these limitations, while the findings offer important empirical contributions, generalization beyond the specific study population should be approached cautiously. Future studies should expand the sample size, include diverse industries, and employ a mixed-methods approach to enhance the robustness and applicability of findings across broader remote work settings.

## 5. Results and discussion

The results findings will explain the demographic data of the study involving gender, age and level of education. Next, descriptive analysis is used to see the distribution of respondent scores by looking at the mean, average and standard deviation. Pearson correlation coefficient analysis is used to examine the relationship between three independent variables, namely job effectiveness, job quality and, job efficiency with the dependent variable which is employee performance. Finally, multiple regression analysis is used to analyze the relationship between positive variables and continuous variables.

### Demographic Data of the Study

A total of 132 questionnaires were given to respondents, namely employees who remote work. The main elements discussed here include gender, age, and academic level. It also shows the frequency and percentage of each demographic variable of the respondents.

Table 2: Gender

	Frequency	Percentage
Female	94	71.2
Male	38	28.8
Total	132	100

The total number of respondents was divided into males and females, namely 38 male respondents with a percentage of 28.8 and 94 female respondents with a percentage of 71.2 who participated in this survey.

Table 3: Age

	Frequency	Percentage
20 – 25	8	6.1
25 – 30	17	12.9
30 – 35	55	41.7
36 above	52	39.4

Next, the dominant age of respondents among the respondents involved was 30 to 35 years old with a total of 55 respondents with 41.7%. The second highest range was 35 years old and above with a total of 52 respondents with a percentage of 39.4, followed by 25 to 30 years old with a total of 17 respondents with a percentage of 12.9%. Finally, followed by the fewest respondents, 20 to 25 years old with a total of 8 and a percentage of 6.1%.

Table 4: Level of Education

	Frequency	Percentage
Malaysian Certificate of Education	7	5.3
Malaysian Higher Certificate of Education/Diploma/Matric	93	70.5
Degree	31	23.5
Master	0	0
PhD	1	0.8
Total	132	100

The dominant academic level of respondents was Malaysian Higher Certificate of Education/Diploma/Matric with a total of 93 respondents with 470.5%. The second highest range was Degree with a total of 31 respondents with a percentage of 23.5%, followed by SPM with a total of 7 respondents with a percentage of 5.3%. Finally, followed by the least number of respondents, namely PhD with a total of 1 and a percentage of 0.8%.

This descriptive analysis aims to understand the pattern of respondents' scores based on three independent variables, namely job effectiveness, job quality and job efficiency, as well as one dependent variable, namely employee performance. The statistics used include mean and standard deviation to provide an overview of the distribution of respondents' scores.

Table 5: Scores on Job Effectiveness, Job Quality, Job Efficiency and Employee performance

Score	Job Effectiveness		Job Quality		Job Efficiency		Employee performance	
	Mean	<i>Sd.</i>	Mean	<i>Sd.</i>	Mean	<i>Sd.</i>	Mean	<i>Sd.</i>
	3.053	0.590	3.583	0.535	3.118	0.620	3.560	0.578
1-2	5		0		5		0	
2-3	56		18		51		21	
3-4	64		85		66		81	
4-5	7		29		10		30	

Job effectiveness showed a mean value of = 3.053 and a standard deviation of = 0.590. Most respondents were in the range of 3-4 (64 people) and 2-3 (56 people), indicating that the majority of respondents rated their work effectiveness at a moderate level. Only 7 people scored high (4-5), indicating that few respondents rated their job effectiveness as very good. Job effectiveness was rated at a moderate level with only a small number of respondents giving high scores.

For job quality, the mean value was = 3.583 and the standard deviation was = 0.535. The majority of respondents gave scores in the range of 3-4 (85 people) and 4-5 (29 people), indicating that most individuals rated the quality of their work as good to very good. No respondents rated the quality of their work in the range of 1-2 (low). Respondents generally had a positive view of the quality of their job, with most giving scores between medium-high to high.

Next, job efficiency showed a mean value of = 3.118 and a standard deviation of = 0.620. Most respondents were in the range of 3-4 (66 people) and 2-3 (51 people), indicating that job efficiency was at a moderate level. Only 10 people gave a score of 4-5, while 5 people were in the range of 1-2. Job efficiency can still be improved because more respondents were at a moderate level than high.

For the dependent variable, employee performance recorded a mean value of = 3.5606 and a standard deviation of = 0.57818. The majority of respondents were in the range of 3-4 (81 people) and 4-5 (30 people), indicating that most of them assessed their work performance as good to very good. No respondents were in the range of 1-2, indicating that almost all respondents had a satisfactory or higher level of performance. Overall employee performance was at a positive level.

Pearson correlation analysis is used to see the relationship between the independent variables, which are job effectiveness, job quality, and job efficiency with the dependent variable, which is employee performance.

Table 6: Correlation Analysis on Job Effectiveness, Job Quality, Job Efficiency and Employee Performance

Variables	Job Effectives	Job Quality	Job Efficiency	Employee Performance
<b>IV</b>				
Job Effectiveness	1	.893**	.965**	.925**
Job Quality	.893**	1	.897**	.916**
Job Efficiency	.965**	.897**	1	.937**
<b>DV</b>				
Employee Performance	.925**	.916**	.937**	.1

\*\* Correlation is significant at the 0.01 level (2-tailed)

All relationships are very strong and significant ( $p < 0.01$ ). This indicates that all four variables are positively related to each other. Job efficiency has the highest correlation with work effectiveness ( $r = 0.965$ ), indicating that job effectiveness depends a lot on a person's level of efficiency. Job performance is highly correlated with all independent variables, especially with job efficiency ( $r = 0.937$ ), indicating that employee performance is strongly influenced by their level of efficiency.

Regression analysis aims to see the effects of job effectiveness, job quality, and job efficiency on employee performance.

Table 7: The Effects of Job Effectiveness, Job Quality and Job Efficiency on Employee Performance.

Variables	Beta	t - Ratio	Significance
Job Effectiveness	.159	1.511	.133
Job Quality	.365	5.885	.000
Job Efficiency	.456	4.260	.000

The beta coefficient ( $\beta$ ) shows the strength and direction of the relationship between the independent variable and employee performance where job efficiency ( $\beta = 0.456$ ) has the greatest impact on employee performance. Job quality ( $\beta = 0.365$ ) has a moderate impact on employee performance and job effectiveness ( $\beta = 0.159$ ) shows the lowest and non-significant impact on employee performance. As for the t-ratio value reading, with a significant value ( $p < 0.01$ ) only work efficiency and job quality have a significant impact on employee performance, while job effectiveness does not show a significant impact.

Table 8: Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.806	3	13.269	425.945	.000 <sup>b</sup>
	Residual	3.987	128	0.031		
	Total	43.793	131			

For the ANOVA test, it was used to determine whether the overall regression model was significant in explaining the variance of employee performance. The overall regression model was highly significant ( $f = 425.945$ ,  $p < 0.01$ ). Most of the variance in employee performance could be explained by the model (regression  $ss = 39.806$  compared to residual  $ss = 3.987$ ). This shows that this model is very suitable for predicting employee performance based on effectiveness, quality, and efficiency of work.

Table 9: Result of Research Hypothesis

Hypothesis	Statement	Result
H <sub>1</sub>	There is a significant relationship between job effectiveness and performance of remote working employee	Reject
H <sub>2</sub>	There is a significant relationship between job quality and performance of remote working employee	Accept
H <sub>3</sub>	There is a significant relationship between job efficiency and performance of remote working employee	Accept

The results of the inferential analysis conducted on test H<sub>1</sub> showed that job effectiveness had no significant relationship with the performance of employees working remotely. This means that the way a person performs tasks effectively does not directly affect the performance of workers in the context of working remotely. As for test H<sub>2</sub>, the results showed that the quality of work had a significant relationship with the performance of remote working employee. This situation illustrates that workers who produce quality work are more likely to achieve higher performance even when working from home. Test H<sub>3</sub> showed that job efficiency had a significant relationship with the performance of remote working employee. The ability to complete tasks quickly and use resources effectively plays an important role in ensuring that worker performance remains high in a work from home environment. Overall, it can be stated that job effectiveness did not have a significant impact on the performance of remote working employee, but the quality of work and job efficiency are the main factors that contribute to the performance of remote working employee.

### Discussion

Quality of work was found to have a significant influence ( $\text{sig.t} = 0.000$ ) on employee performance among employee who work remotely or working from home. Quality employees refer to individual characteristics that are associated with successful work performance (Bendor-Samuel, 2020). Other researchers see employee quality as intelligence that is shown as behavior or skills that can affect work performance. Employees who produce high work performance are employees who focus on customer needs, are fluent in communication, are team-oriented, have technical expertise, can lead, are adaptable and innovative. Quality employees as individuals who perform effectively and excel in work situations. They identified five characteristics of quality employees, namely motivation, attitude, self-concept, knowledge and skills

It is clear that the quality of work will affect employee performance, namely the presence of high motivation, attitude, self-concept, knowledge and skills among employees working remotely. Therefore, if employees are able to provide good quality when working, their performance will increase. This is because, work will be carried out efficiently and employees will be able to endure with the enthusiasm and extra effort needed to complete their own tasks, volunteer to perform unofficial tasks, comply with organizational rules and procedures and support and maintain the organization's goals.

Job efficiency has a significant influence with ( $\text{sig.t} = 0.001$ ) on employee performance among government employees working from home. Working remotely was found to be able to help employees fulfill their work responsibilities (Ibrahim, Eboy & Radzi, 2022). The positive relationship between employee performance and job efficiency are subtle with individual attitude, the level of individual

efficiency will influence motivation in doing a job also touches on an individual's attitude and efficient service delivery can be achieved if there are dedicated employees. Moreover, attaining a work-life balance is essential for workers to feel at ease and satisfied in both their careers and personal lives and this aligns with the flexibility concerning the timing and location of remote work, which has contributed to enhancing job productivity to a certain degree (Ibrahim, Eboy & Radzi ,2022) .

Efficiency can be known if a person's level of achievement is measured through performance and productivity (Sekar, Clivensen, Nadia & Sugiharto,2021). The level of a person's achievement depends on a person's attitude in achieving it. In conclusion, work efficiency will affect employee performance, namely with high motivation among employees working from home. The level of competence in an individual will influence a person's motivation in doing something. If an individual's level of competence is high, then of course the individual's motivation is also high. This leads to increased employee performance in completing tasks and trusts that have been given in their jobs.

## 6. Limitation of Study and Conclusion

This study has a limitation of the study involving a limited sample size of only 132 respondents. This limited sample size may not be sufficient to represent the actual population of remote workers in the private and government employment sectors. The second limitation involves the study method that only focuses on quantitative methods. To evaluate and explain the study more deeply, it is suggested that in the future, studies be conducted using a combination of quantitative and qualitative methods to enrich empirical data.

There are many other independent variables that need to be studied to see the effectiveness of working remotely. This study only focuses on effectiveness, efficiency, and quality of work as independent variables. Through the literature review, in fact other factors such as work-life balance, mental health, and leadership may also affect employee performance.

As conclusion, this study examines the relationship between effectiveness, efficiency, and job quality on employee performance in a remote work environment. The findings show that efficiency and work quality have a significant influence on employee performance, while effectiveness does not show a significant relationship. This indicates that employees working from home are more likely to achieve high performance when they can manage time and resources efficiently and produce high quality work. Therefore, organizations that practice remote work should adopt specific strategies to enhance employee efficiency and work quality. For efficiency, time-management tools such as Trello or Microsoft Planner, as well as outcome-based Key Performance Indicators (KPIs), should be implemented. To improve quality, feedback systems including regular virtual check-ins and 360degree reviews alongside training in virtual collaboration tools like Microsoft Teams or Slack, are highly recommended to ensure optimal productivity.

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