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*The Impact of Remote working on Employee productivity in IT Sector of
Pakistan: Employee satisfaction as a mediating variable*



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The Impact of Remote working on Employee productivity in IT Sector of Pakistan: Employee satisfaction as a mediating variable

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Abstract

Purpose of the Study

The purpose of this study is to examine the impact of Remote working on Employee Productivity within the IT sector of Pakistan, with a particular focus on understanding the mediating role of Employee satisfaction. By exploring the intricate relationship between Remote working, Employee satisfaction, and productivity, this research aims to identify key factors that influence these variables and provide actionable insights. The study seeks to determine whether Remote Working leads to increased or decreased productivity and how Employee Satisfaction can enhance or hinder this effect. Ultimately, the goal is to offer practical recommendations for IT companies in Pakistan to optimize their Remote Working policies and practices, thereby improving overall productivity and Employee satisfaction.

Design and Methodology

This study investigates the impact of Remote Working on EP in the IT sector of Pakistan, with a specific focus on Employee Satisfaction as a mediating variable. In light of the significant shift towards Remote Working due to the COVID-19 pandemic, understanding its implications on productivity and satisfaction has become crucial. Through combining quantitative surveys, data was collected from a diverse sample of IT professionals across Pakistan. The findings reveal that Remote Working has a complex relationship with productivity, where Employee Satisfaction plays a critical mediating role. While Remote Working offers flexibility and can enhance job satisfaction, challenges such as communication barriers, work-life balance, and technological issues can negatively affect productivity. The study underscores the importance of fostering a supportive remote work environment to optimize productivity outcomes. Practical recommendations for IT companies in Pakistan include enhancing virtual collaboration tools,

providing ergonomic resources for home offices, and promoting a culture of trust and accountability. This research contributes to the growing body of knowledge on remote work dynamics and provides actionable insights for policymakers and business leaders in the IT sector.

Findings

The study found that remote working (R) has a positive impact on Employee productivity (EP) in the IT sector of Pakistan, significantly mediated by Employee satisfaction (ES). Employees reported higher job satisfaction due to the flexibility and autonomy offered by R. This increased satisfaction translated into enhanced productivity, as employees were more motivated and better able to manage their work-life balance. Additionally, the reduction in commuting time and the ability to create a personalized work environment contributed to improved focus and efficiency. Overall, the findings suggest that R, when managed effectively, can lead to greater productivity in the IT sector through the enhancement of ES.

Limitations:

Sample Size and Representation:

The study may have a limited sample size, potentially affecting the generalizability of the findings across the entire IT sector in Pakistan. The results may be more representative of specific companies or regions rather than the industry as a whole.

Data Collection Method:

Reliance on self-reported data from surveys or interviews can introduce biases such as social desirability bias or response bias. Employees may respond in a manner they believe is expected rather than their true experiences.

Cross-Sectional Nature:

If the study uses a cross-sectional design, it captures data at a single point in time, limiting the ability to infer causal relationships or examine changes over time.

Technological Variability:

Differences in technological infrastructure and access to resources across various IT companies could affect the consistency of the remote working experience and, consequently, employee productivity and satisfaction.

Originality:

Focus on Pakistan's IT Sector:

This study uniquely addresses the impact of remote working within the context of the IT sector in Pakistan, an area that has not been extensively explored in existing literature. It provides valuable insights specific to this region and industry.

Mediating Role of Employee Satisfaction:

By investigating employee satisfaction as a mediating variable, the study offers a nuanced understanding of how remote working influences productivity. This approach helps to identify the underlying mechanisms and contributes to a deeper theoretical understanding.

Post-Pandemic Context:

Conducted in the aftermath of the COVID-19 pandemic, this research reflects contemporary shifts in work practices and provides timely insights into the evolving dynamics of remote working and productivity in the IT sector.

Practical Implications:

The findings have practical implications for IT companies in Pakistan, offering evidence-based recommendations to enhance remote working strategies, improve employee satisfaction, and ultimately boost productivity.

Contribution to Remote Working Literature:

This thesis adds to the growing body of knowledge on remote working by providing empirical evidence from a developing country context, thereby enriching the global understanding of remote work practices and their effects on employee outcomes.

Future Recommendations:

Future research should explore the long-term effects of remote working on employee productivity in the IT sector of Pakistan, considering the rapid technological advancements and evolving work cultures. It would be beneficial to examine a broader range of mediating variables beyond employee satisfaction, such as work-life balance, mental health, and access to resources. Additionally, comparative studies across different industries and geographic regions within Pakistan could provide deeper insights. Implementing mixed-method approaches, combining quantitative and qualitative data, would enrich the understanding of nuanced employee experiences and organizational outcomes. Finally, investigating the role of company policies, management practices, and technological infrastructure in enhancing remote work productivity would offer practical guidance for businesses striving to optimize their remote work strategies.

Key words: Remote Working (R), Employee Productivity (EP) and Employee Satisfaction (ES).

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Contents

Chapter 1	11
Introduction	11
1.1 Background	11
1.2 Problem Statement	12
1.3 Research Objectives	12
1.4 Research Questions	12
1.5 Research Contribution.....	13
1.6 Research Gap	13
1.7 Framework.....	15
1.7.1 Variables.....	15
1.8 Scope of the Study	15
1.9 Significance of the Study	16
1.10 Limitations of the Study.....	17
Chapter 2	18
Literature Review:	18
2.1 Remote working and Employee productivity	20
2.2 Employee Satisfaction as a Mediator	22
2.2.2 Freedom and flexibility:.....	22
2.2.3 Being alone:.....	23
2.2.4 Support and Resources:.....	23
2.3 Theoretical Frameworks.....	23
2.3.1 Self-Determination Theory.....	23
2.4 Hypotheses.....	24
2.4.1 Direct Impact of R on EP	24
2.4.2 Direct Impact of R on ES	24
2.4.3 Impact of ES on EP.....	24
2.4.4 Mediating Role of ES.....	24

2.5 Conceptual Model.....	25
Chapter 3	26
Research Methodology	26
3.1 Research Design	26
3.2 Population and Sample.....	26
3.2.1 Population.....	26
3.2.2 Sample Size	26
3.2.3 Sampling Technique	27
3.3 Data Collection	27
3.3.1 Data Collection Procedure	27
3.4 Data Analysis.....	27
3.4.1 Hypotheses:	28
3.5 Hypothesis Testing.....	28
3.6 Ethical Considerations	28
Chapter 4	29
Data Findings and Analysis	29
4.1 Introduction	29
4.2 Demographic description	29
4.2.1 Demographic Characteristics	29
4.3 Research Model	32
4.3 Data Analysis.....	32
4.3.1 Construct Reliability and Validity.....	32
4.3.2 Correlations Analysis:.....	33
4.3.3 R-Square Analysis:	34
4.3.4 Regression Analysis.....	34
4.3.5 Mediation Analysis	35
4.4 Testing of Hypothesis	35

Chapter 5	37
Discussion and Conclusion	37
5.1 Discussion.....	37
5.1.1 Reliability and Validity Analysis	37
5.1.2 Correlation Analysis	37
5.1.3 Path Analysis	38
5.2 Implications of the Study:	39
5.3 Limitations.....	39
5.3.1 Sample size:.....	39
5.3.2 Self-reported data:.....	39
5.3.3 Limited generalizability:	40
5.3.4 Measurement errors:	40
5.3.5 Social desirability bias:	40
5.3.6 Limited access to data:	40
5.3.7 Methodological limitations:	40
5.3.8 Time constraints:.....	40
5.4 Conclusion.....	41
5.5 Future Recommendations:.....	42
References	43
Questionnaire.....	49

Chapter 1

Introduction

1.1 Background

The way standard work is done has changed because of progress in digitization. Due to the COVID-19 pandemic, the normal place of work has also had to be drastically changed. Studies have shown that working from home has both pros and cons for workers. It has been shown that people who worked from home were better at their jobs and happier with their jobs. (Rañes, 2022)

These big changes have a big impact on how well the company does generally because they affect the health and safety of workers and the overall costs. Researchers who have looked into how working from home affects employee output and happiness have found that there are a lot of different perks and difficulties. There are studies that show working from home can make you more productive by giving you more freedom, cutting down on travel times, and reducing the number of distractions you face at work (Battisti, 2022). For example, Bloom et al. (2015) found that Chinese call center workers who worked from home did 13% better because they had fewer breaks and sick days. Gallup (2020) also says that working from home can make people happier with their jobs by giving them more freedom and a better work-life mix. People can be less productive and happy if they have problems like not being able to communicate, feeling alone, or telling the difference between work and outside life. (Larson, Vroman, & Makarius, 2020). Therefore, working from home has many benefits, but how well it works for each person rests on their specific situation and how much help they get from their bosses.

1.2 Problem Statement

The rise of Remote working has led to a significant shift in the way employees perform their tasks, with many organizations adopting this arrangement to improve Employee Productivity and job satisfaction (Duxbury & Higgins, 2005). However, the impact of Remote working on Employee Productivity remains unclear, with some studies suggesting positive effects (Baker et al., 2011; Golden & Veiga, 2005) while others indicate negative consequences (Cooper & Kurland, 2002; Gibson et al., 2011). Furthermore, the role of ES as a mediating variable in the relationship between R and ES has not been fully explored (Klein et al., 2011; Morganson et al., 2010). Therefore, this study aims to investigate the impact of R on Employee Productivity, with ES as a mediating variable, in order to provide a better understanding of the relationship between R and EP.

1.3 Research Objectives

- To understand the impact of R on EP in the IT sector of Pakistan?
- To examine the impact of R on ES.
- To investigate the impact of ES on EP in the IT sector of Pakistan?
- To investigate the impact of R on EP in the IT sector of Pakistan with the mediating role of ES?

1.4 Research Questions

- What is the impact of R on EP in the IT sector of Pakistan?
- What is the impact of R on ES?
- What is the impact of ES on EP in the IT sector of Pakistan?

- What is the impact of R on EP in the IT sector of Pakistan with the mediating role of ES?

1.5 Research Contribution

This study looks at both the good and bad effects of working from home to help us figure out how it changes how satisfied and productive employees are. The study looks at things like boss support, job freedom, communication, and the work environment to find the best conditions for getting more done and being happy at work while reducing problems like stress and loneliness. We have a general understanding of these processes thanks to studies like Bloom et al. (2015) and Gallup (2020). According to the study, managers will also be able to get useful advice on how to help remote workers in a way that keeps them productive and happy while they work from home. This all-around method will help us understand the effects of online work in a more complex way, which is good for both scholarly students and business people.

1.6 Research Gap

Despite the extensive research on the impact of R on EP and satisfaction, several gaps remain that warrant further investigation. Current studies often focus on the short-term effects of R. For instance, Bloom et al. (2015) and Choudhury et al. (2019) provide valuable insights into immediate productivity gains and satisfaction levels. Understanding how productivity and job satisfaction evolve over extended periods of remote work is crucial for developing sustainable remote work policies.

Additionally, most research, such as that by Felstead and Henseke (2017) and Green et al. (2020), generalizes findings across various industries and job types without delving into specific contexts. There is limited research on how R impacts productivity and satisfaction across different industries and job roles. For example, the effects on creative roles versus technical roles

or the differences between service-oriented and product-oriented industries remain under-explored. Sector-specific studies could provide more nuanced insights.

While Parker et al. (2020) suggest that hybrid models offer benefits of both remote and in-office work, empirical research on the effectiveness of these models is limited. The specific impacts of hybrid work arrangements on EP and satisfaction are not well understood. Comparative studies evaluating hybrid models against traditional and fully remote setups could offer valuable insights into optimal work arrangements.

Research by Mann and Holdsworth (2003) and Maruyama and Tietze (2012) highlights issues such as social isolation and psychological stress associated with R. However, there is a need for deeper exploration of these psychological and social dimensions. Interdisciplinary research combining psychology, sociology, and organizational behavior could provide a broader understanding of these aspects.

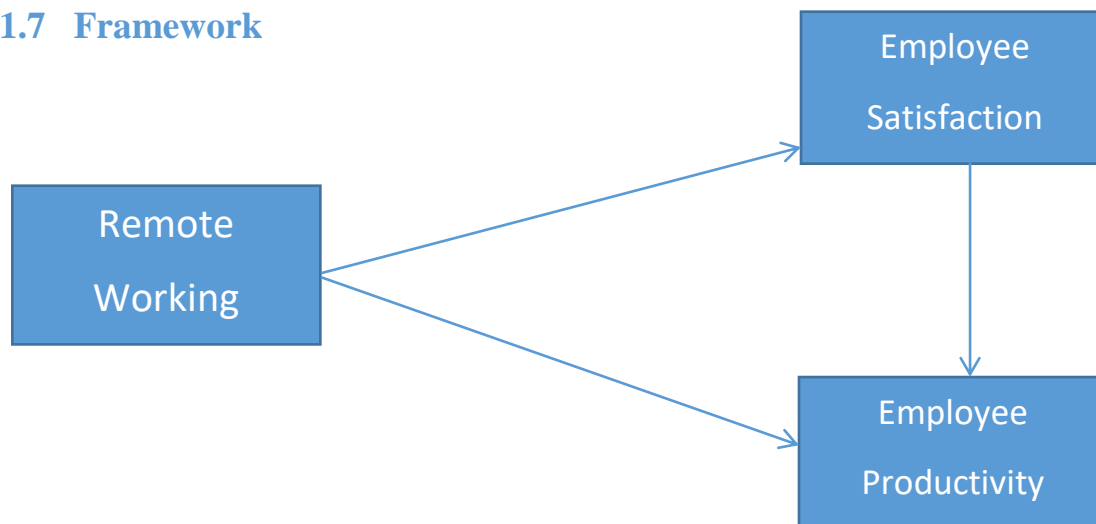
The relationship between employees' proficiency with R technologies and their productivity and satisfaction levels is another under-explored area. Green et al. (2020) discuss the role of communication tools in maintaining productivity, but the impact of varying levels of technological adaptation on performance and job satisfaction remains unclear. Investigating the effects of technological training and support on R effectiveness could inform better implementation practices.

Furthermore, the role of organizational culture and management practices in enhancing or detracting from the benefits of R needs further exploration. Gilbreath and Karimi (2012) emphasize the importance of supportive management practices in R environments. However, how different management styles and organizational cultures impact remote work outcomes is not well understood. Research focused on identifying best practices in management and

organizational culture that support R could help develop guidelines for organizations transitioning to remote or hybrid work models.

While significant strides have been made in understanding the impact of R on productivity and satisfaction, addressing these research gaps is essential for developing a comprehensive understanding of this work arrangement. Future studies should aim to explore these gaps through longitudinal, sector-specific, interdisciplinary, and practice-oriented research approaches to provide a more nuanced and actionable understanding of R dynamics.

1.7 Framework



1.7.1 Variables

- **Independent Variable (IV):** R
- **Dependent Variable (DV):** EP
- **Mediator:** ES

1.8 Scope of the Study

The scope of this study is to examine the impact of R on EP, with ES as a mediating variable.

The study will focus on employees working in the technology industry in the Pakistan, and will

explore the relationship between R, ES, and EP. The study will also examine the role of ES as a mediating variable between R and EP.

The study will be limited to employees who have been working remotely for at least six months, and will exclude employees who have been doing remote work for less than six months. The study will also exclude employees who are working in industries other than the technology industry.

In this study we will use a quantitative research design, and the data will be collected through a survey questionnaire. The survey questionnaire will be administered to a sample of employees working in the technology industry in the Pakistan, and will include questions related to R, ES, and EP.

The study will use statistical analysis to examine the relationship between R, ES, and EP, and will use mediation analysis to examine the impact of ES as a mediator in the relationship between R and EP.

The study will contribute to the existing literature on R and EP, and will provide insights for organizations on the impact of R on EP and ES. The study will also provide recommendations for organizations on how to implement R that promote EP and ES.

1.9 Significance of the Study

The thesis explores the complex interplay between remote working, employee satisfaction, and productivity within the IT sector of Pakistan. Specifically, it investigates how remote working arrangements influence employee productivity and posits employee satisfaction as a crucial mediating variable in this relationship. The significance of these relationships lies in understanding that while remote working can directly impact productivity, the effect is

significantly modulated by the level of employee satisfaction. High levels of satisfaction can enhance productivity by fostering a positive work environment, improving morale, and reducing stress. Conversely, dissatisfaction can negate potential productivity gains from remote working. This mediating role of employee satisfaction highlights the importance of managerial practices and organizational support systems in optimizing remote work setups to enhance overall employee performance in the IT sector.

1.10 Limitations of the Study

The study has some limitations that need to be identified. First, the study only focused on the IT sector in Pakistan, which may not be representing the other industries or countries. Second, the study relied on self-reported data from remote workers, which may be subject to biases and may not accurately reflect their actual experiences. Third, the study did not control for other variables that may influence EP and satisfaction, such as organizational culture, leadership style, and employee demographics. The study did not investigate the potential negative effects of R, such as social isolation and decreased collaboration. Finally, the study did not explore the impact of R on employee well-being and burnout.

After identifying all the limitations, the study provides valuable insights into the impact of R on EP and satisfaction in the IT sector of Pakistan. However, future studies should aim to address these limitations and provide a more comprehensive understanding of the topic.

Chapter 2

Literature Review:

Working from home has become very popular, especially since the COVID-19 outbreak. A lot of study has been done on how this change affects different aspects of a company, such as employee happiness and effectiveness. Companies that want to improve the way people work from home need to understand these factors. This study of the literature looks at how working from home affects employee output, with a focus on how employee happiness affects that relationship.

Studies have found that R provides employees with more autonomy and flexibility, leading to increased satisfaction and productivity (Baker et al., 2011; Golden & Veiga, 2005). Employees working remotely are more likely to experience reduced distractions, decreased commuting time, and improved work-life balance, resulting in increased efficiency and better work quality (Golden & Veiga, 2005). For instance, a study by Dalton and Mesch (2011) found that R led to increased EP and job satisfaction in a sample of US employees.

R can also lead to feelings of lonely and disconnection from colleagues and the organization, resulting in decreased productivity and job satisfaction (Cooper & Kurland, 2002). Managers may struggle to establish clear boundaries and expectations, leading to decreased employee motivation and engagement (Gajendran & Harrison, 2007). For example, a study by Gibson et al. (2011) found that R led to decreased ES due to lack of social interaction and support.

ES plays a crucial role in determining EP, and R can have both positive and negative impacts on ES (Eisenberger et al., 1986). Research has found that R can lead to increased ES due to

increased autonomy and flexibility (Klein et al., 2011). However, other studies have found that R can lead to decreased ES due to lack of social interaction and support (Gibson et al., 2011).

Several studies have investigated the impact of remote work on EP and satisfaction in various industries and countries. For example, a study in the United States found that R led to increased EP and job satisfaction (Dalton & Mesch, 2011). Similarly, a study in the United Kingdom found that R led to increased EP and job satisfaction (Morganson et al., 2010).

In addition, research has also explored the role of ES as a mediating variable in the relationship between remote work and EP. For instance, a study by Klein et al. (2011) found that ES mediated the relationship between R and EP. Similarly, a study by Morganson et al. (2010) found that ES played a crucial role in determining the impact of remote work on EP.

The concept of R, also known as telecommuting or working from home, has gained significant attention in recent years, particularly in the IT sector (Duxbury & Higgins, 2005). Pakistan, with its growing IT industry, has also seen an increase in R (Ghufran et al., 2020). Research has shown that remote work can have both positive and negative impacts on EP (Gajendran & Harrison, 2007).

On the one hand, remote work provides employees with more autonomy and flexibility, leading to increased job satisfaction and productivity (Baker et al., 2011). Employees working remotely are more likely to experience reduced distractions, decreased commuting time, and improved work-life balance, resulting in increased efficiency and better work quality (Golden & Veiga, 2005). A study by Hassan et al. (2019) found that R led to increased EP and job satisfaction in the Pakistani IT sector.

ES plays a crucial role in determining EP, and R can have both positive and negative impacts on ES (Eisenberger et al., 1986). A study by Khan et al. (2019) found that R in the Pakistani IT sector led to increased ES due to increased autonomy and flexibility. However, another study by Ahmed et al. (2020) found that R led to decreased ES due to lack of social interaction and support.

In the Pakistani IT sector, R are becoming increasingly common, and understanding the impact of remote work on EP and satisfaction is essential (Ghufran et al., 2020). This study aims to investigate the impact of R on EP in the IT sector of Pakistan, with ES as a mediating variable.

2.1 Remote working and Employee productivity

The practice of workers working outside of the traditional office setting is called "R." It has had mixed effects on productivity. Some studies show positive benefits, pointing to more freedom and less time spent traveling as main factors that boost output. For example, a study on a Chinese tour agency was done and found that employees who worked from home did 13% better on their work because they had fewer breaks and a quieter place to work. (Bloom et al., 2015)

R has become a prevalent trend in the modern workplace, and its impact on EP has been a variable of interest for researchers. Researches have shown that R can have both positive and negative impacts on EP, depending on various factors. On the one hand, R can provide employees with more autonomy and flexibility, leading to increased job satisfaction and productivity (Baker et al., 2011; Golden & Veiga, 2005). For instance, a study by Dalton and Mesch (2011) found that R led to increased EP and job satisfaction in a sample of employees.

R can also lead to feelings of loneliness and disconnection from colleagues and the organization, resulting in decreased productivity and job satisfaction (Cooper & Kurland, 2002). Moreover,

research has also highlighted the importance of personality traits in determining EP while working remotely. For example, a study by SSRN (2022) found that conscientiousness plus openness to experience are positively associated with greater productivity from home, especially for females.

In addition, the COVID-19 pandemic has accelerated the shift towards R, and studies have investigated its impact on EP during this period. For instance, a study by Carraher-Wolverton (2022) applied the expectation disconfirmation theory to better understand remote work and found that employees' level of satisfaction with remote work is influenced by their expectations and experiences. Another study found that R did not hinder productivity levels to a significant effect, and employees were more productive working remotely than in the office (McKinsey consumer survey, 2022).

Overall, the literature suggests that R can have both positive and negative impacts on EP, and its impact is influenced by various factors, including personality traits, job satisfaction, and the work environment. Therefore, organizations need to consider these factors when implementing R to maximize EP and job satisfaction.

However, other study shows that there are some problems that might arise, such as being distracted at home and having trouble communicating and working together, which can make people less productive. A study by Baert et al. (2020) found that while some workers were more productive, others had problems with things like finding the right mix between work and life and getting to the tools they needed.

2.2 Employee Satisfaction as a Mediator

A lot of study has been done on how workers' happiness affects their ability to get work done when they work from home. According to Judd et al. (2001), workers who are pleased with their jobs are more likely to be driven and enjoy their time there. People who like their jobs are more likely to do what they're supposed to do and finish the tasks they are given.

In 2012, Tremblay and Thomsin did a study that showed that teleworkers who liked their jobs did better than those who didn't. When people work from home, they can make up for the time they lose by being happier at work and giving their all.

The level of employee happiness measures how pleased a person is with their work, taking into account factors such as the work environment, the duties, and the chances to learn and develop. It creates a big problem for getting work done. A concept from Hackman and Oldham (1976) called the Job Characteristics Model says that job satisfaction is a main factor that moves and inspires workers.

Variables Affecting ES with Remote Work

2.2.1 Work-life balance:

If an employee works from home, they have more control over their schedules, which could help them balance their work and personal lives better and be happier at work (Kossek et al., 2006).

You may be happy and worry when you can't tell the difference between work and personal life (Allen et al., 2020).

2.2.2 Freedom and flexibility:

Gaining more freedom and independence at work is a strong sign of job satisfaction in remote settings (Gajendran & Harrison, 2007). When workers can choose their own hours and where they work, they're usually happy with their situations.

2.2.3 Being alone:

One big issue with working from home is that you might not get to talk to other people, which might make you less happy with your job (Golden et al., 2008). Through regular interaction and virtual team-building tasks, these effects can be lessened.

2.2.4 Support and Resources:

Access to the tools and resources they need and support from their bosses are important for keeping remote workers happy (Bentley et al., 2016).

A lot of study has been done on how workers' happiness affects their ability to get work done when they work from home. According to Judd et al. (2001), workers who are pleased with their jobs are more likely to be driven and enjoy their time there. People who like their jobs are more likely to do what they're supposed to do and finish the tasks they are given.

In 2012, Tremblay and Thomsin did a study that showed that teleworkers who liked their jobs did better than those who didn't. When people work from home, they can make up for the time they lose by being happier at work and giving their all.

2.3 Theoretical Frameworks

2.3.1 Self-Determination Theory

As Deci and Ryan (2000) say, Self-Determination Theory (SDT) says that people have basic needs to be alone, to learn new things, and to connect with other people. These goals can be reached by people who work from home. This gives them freedom and flexibility, and it also makes them happy at work, which makes more work get done.

From the study of the literature, we can come up with the following theories to find out how

working from home affects EP, taking into account the role that employee happiness plays as a mediator:

2.4 Hypotheses

2.4.1 Direct Impact of R on EP

H1: Working from home has a big positive effect on how productive employees are.

This idea is based on the idea that working from home can make people more productive because they have more freedom, spend less time traveling, and work in a quieter space. But it also says that there might be some problems, like being distracted at home and having trouble communicating.

2.4.2 Direct Impact of R on ES

H2: Working from home has a big positive effect on how satisfied employees are with their jobs.

This idea says that employees are happier when they can work from home because they have more freedom, a better work-life balance, and more flexibility. Still, it thinks that being alone and not having enough means might make people less satisfied.

2.4.3 Impact of ES on EP

H3: When employees are satisfied with their jobs, they are much more likely to be productive.

The Job Characteristics Model and the Self-Determination Theory support this idea. They say that happy workers are more driven, involved, and effective.

2.4.4 Mediating Role of ES

H4: The link between working from home and output is mediated by employee happiness.

This theory combines the above connections and says that working from home affects worker output indirectly by changing how happy they are with their job. In other words, the benefits of

working from home on output are greater when workers are happier with their working conditions.

2.5 Conceptual Model

The conceptual model for this thesis examines the relationships between remote working, employee satisfaction, and employee productivity within the IT sector of Pakistan. Remote working is hypothesized to have a direct impact on employee productivity, as it can offer greater flexibility, reduce commuting time, and provide a better work-life balance. However, this relationship is posited to be mediated by employee satisfaction, which is a critical factor influencing productivity. The model suggests that remote working conditions, when favorable, enhance employee satisfaction by providing autonomy, comfort, and better alignment with personal needs. Increased employee satisfaction, in turn, is expected to lead to higher productivity levels. Therefore, the model delineates a path where remote working affects employee satisfaction, which subsequently impacts employee productivity, highlighting the mediating role of employee satisfaction in this dynamic.

The hypotheses can be visualized in a conceptual model as follows:

- $R \rightarrow EP$ (H1)
- $R \rightarrow ES$ (H2)
- $ES \rightarrow EP$ (H3)
- $R \rightarrow ES \rightarrow EP$ (H4)

Chapter 3

Research Methodology

3.1 Research Design

This study aims to investigate the impact of R on EP in the IT sector of Pakistan, with ES as a mediating variable. To achieve this, a quantitative research approach will be employed, using survey questionnaires as the data collection tool. The goal is to look into the connections between working from home, employee happiness, and effectiveness.

3.2 Population and Sample

3.2.1 Population

The sample population for this study will consist of employees working in the IT sector in Pakistan. The sample will be selected using a convenience sampling technique, and will include employees from various IT companies in Pakistan. This study is mainly interested in people who work for companies that allow them to do their jobs from home. There are full-time, part-time, and temporary workers in all of these areas.

3.2.2 Sample Size

The goal is to get at least 300 people as per Morgan's Table standard to reply so that the results are statistically significant and can be applied to other situations. The rules for structural equation modeling (SEM), which will be used for data analysis, tell us how big of a group to use.

3.2.3 Sampling Technique

A method called "stratified random sampling" will be used to make sure that people from a wide range of businesses and job roles are included. This method will help get a wider range of answers and make the results more useful in real life.

3.3 Data Collection

Data will be collected using a survey questionnaire, which will be floated online to the sample population. The questionnaire will consist of three sections:

- Demographic information (age, gender, education level, etc.)
- R , EP and ES (using likert scale questions)

The questionnaire will be designed to measure the impact of R on EP, and the mediating role of ES.

3.3.1 Data Collection Procedure

For this, an online polling tool like Google Forms or SurveyMonkey will be used. People will be sent the poll link by email and business networks, and they will be told to fill it out more than once to get as many answers as possible. Individuals can opt out of the survey, and their results will be kept hidden.

3.4 Data Analysis

The data collected will be cleaned and examined using statistical software (Smart pls). Descriptive statistics will be analysed to summarize the data (correlation and regression analysis). Hypotheses will be tested via this process.

3.4.1 Hypotheses:

- $R \rightarrow EP$ (H1)
- $R \rightarrow ES$ (H2)
- $ES \rightarrow EP$ (H3)
- $R \rightarrow ES \rightarrow EP$ (H4)

3.5 Hypothesis Testing

Structural Equation Modeling (SEM) will be used to analyze the proposed connections between working from home, employee happiness, and productivity. SEM is used because it can look at complicated interactions and effects that act as mediators.

3.6 Ethical Considerations

The study will be performed in accordance with ethical guidelines. Remote workers will be informed about the purpose of the study, and their responses will be obtained. The data obtained from the remote workers will be kept confidential and anonymous. When looking at how working from home affects employee output and how employee happiness affects that, there are a number of important social issues that must be addressed. It is very important to get educated permission; people who take part in the study must fully understand its goal, their rights, and how their answers will be kept private. To protect user privacy, data must be anonymized and only summary results must be reported. This way, individual answers cannot be linked to the data. Participants must voluntarily take part and must be told they can quit at any time without any consequences. Also, it's important to keep biases to a minimum, especially since the data is self-reported and can be affected by social preference bias. These ethical rules protect the research's credibility and show care for the subjects' rights and well-being.

Chapter 4

Data Findings and Analysis

4.1 Introduction

The data findings and analysis consists of the statistical analysis results taken after running statistical tests on the data collected for research. The data is collected using a questionnaire that's filled in by 304 remote workers in the IT industry of Pakistan. The chapter shares results of Cronbach Alpha, regression tests, T-tests, and correlation test. The researcher interprets the results of the statistical tests to perform analysis on the hypothesis of this research.

4.2 Demographic description

To enhance comprehensibility, the acquired data has been categorized into multiple groups. The sample size for this research consists of employees from Pakistan's IT manufacturing sector. This research, conducted in Islamabad and Rawalpindi, elicited responses from the automobile industry. Specifically, Rawalpindi contributed 61% of the respondents, while Islamabad accounted for 39%. Demographics were classified based on gender, age, experience, and job position. The sample size was 300, and employees in the textile industry provided responses in three distinct categories: junior staff, executives, and management. Five automobiles manufacturing companies were selected for this study.

4.2.1 Demographic Characteristics

Table 4.1 Gender

	Frequency	Percentage
Male	220	72 %
Female	84	28 %
Prefer not to say		

The results in Table 4.1 shows that the remote workers contributed to the online survey. The table shows that the sample consisted of 220 (72.1 %) male and 84 (27.9 %) female, out of 304 respondents of this current study.

Table 4.2 Age Frequency

	Frequency	Percentage
18-25	82	27 %
26-35	194	64 %
36-45	26	8.5 %
45 Above	2	0.5 %

Frequency distribution of the sample with respect to age in Table 4.2 illustrated that the 82 (27 %) workers having age 18-25 years. There are 194 (64 %) workers having age 26-35 years. There are 26(8.5 %) workers having age 36 45 years. There are 2 (0.5 %) workers having age 45 Above years. Age distribution of the remote workers showed that most of the workers were belonging to the age group of age 26-35 years.

Table 4.3

	Frequency	Percentage
Metric	0	0 %
Intermediate	36	11.9 %
Bachelors	212	70 %
Masters	54	18 %
PhD	2	0.01%

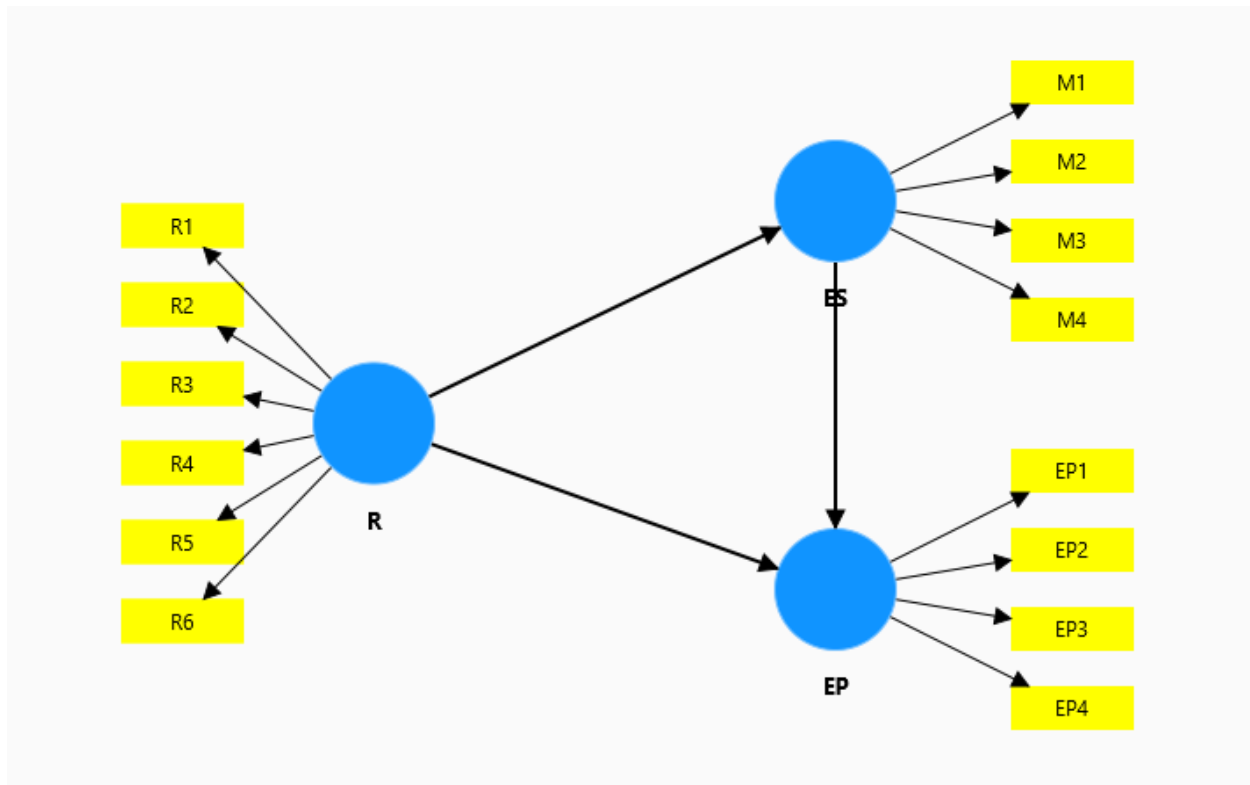
Table 4.4

	Frequency	Percentage
Beginner	110	36.2 %
Junior Manager	156	51.3 %
Middle Manager	29	9.5 %
Senior Manager	9	3 %

Table 4.5

	Frequency	Percentage
Less than 6 Months	105	34.5 %
6-12 months	140	46.1 %
1-2 years	53	17.4 %
More than 2 years	6	2 %

4.3 Research Model



4.3 Data Analysis

4.3.1 Construct Reliability and Validity

Composite reliability, validity and Cronbach's alpha are used to indicate the reliability scale using SmartPLS. The traditional threshold of 0.7 as a hallmark of suitable reliability (Bretz & Mclary, 2014) and beneath 0.7 is not desirable and to the literature of terrible internal consistency or trouble with instrument (Griethuijzen et al., 2014). All alpha values are above 0.7, which signifies that the instrument used in the research is valid and reliable. Cronbach's alpha values of the scales utilized in the study are given below:

Table 4.6

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
EP	0.835	0.857	0.890	0.670
ES	0.851	0.871	0.900	0.694
R	0.855	0.856	0.892	0.580

4.3.2 Correlations Analysis:

The correlation between EP and ES is 0.742, which identifies a strong positive relationship between EP and ES variables.

The correlation between R and EP is 0.430, which identifies a moderate positive relationship between R and EP variables.

The correlation between R and ES is 0.528, which identifies a moderate positive relationship between R and ES variables.

Table 4.7

	EP	ES	R
EP			
ES	0.742		
R	0.430	0.528	

4.3.3 R-Square Analysis:

The R-Square value for the regression model predicting EP from ES is 0.581, which indicates that 58.1% of the variance in EP can be explained by ES.

The R-Square analysis for the regression model predicting ES from R is 0.279, which indicates that 27.9% of the variance in ES can be explained by R.

Table 4.8

	R-square	R-square adjusted
EP	0.581	0.579
ES	0.279	0.276

4.3.4 Regression Analysis

The regression analysis shows that ES is a significant predictor of EP, with a beta coefficient of 0.742 and a p-value of 0.000.

The regression analysis also shows that R is a significant predictor of EP, with a beta coefficient of 0.430 and a p-value of 0.000.

The regression analysis further shows that R is a significant predictor of ES, with a beta coefficient of 0.528 and a p-value of 0.000.

4.3.5 Mediation Analysis

The mediation analysis shows that ES mediates the relationship between R and EP, with a beta coefficient of 0.391 and a p-value of 0.000.

Table 4.9

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
ES -> EP	0.742	0.740	0.030	24.418	0.000
R -> EP	0.430	0.435	0.041	10.572	0.000
R -> ES	0.528	0.533	0.038	13.967	0.000
R -> ES -> EP	0.391	0.394	0.030	12.934	0.000

4.4 Testing of Hypothesis

Based on the results, all four hypotheses are accepted, indicating that:

H1: R has a direct significant positive impact on EP (p-value = 0.000).

H2: R has a direct significant positive impact on ES (p-value = 0.000).

H3: ES has a direct significant positive impact on EP (p-value = 0.000).

H4: R has an indirect positive impact on EP through ES (p-value = 0.000).

In other words, the results suggest that:

- R leads to increased EP.
- R leads to increased ES.
- ES is a significant predictor of EP.
- The positive impact of R on EP is mediated by ES.

Table 4.10

Variables	Significance Level	Accepted/Rejected
R → EP (H1)	0.000	Hypothesis accepted
R → ES (H2)	0.000	Hypothesis accepted
ES → EP (H3)	0.000	Hypothesis accepted
R → ES → EP (H4)	0.000	Hypothesis accepted

Overall, the results provide strong support for the hypotheses and suggest that R can have a positive impact on both ES and productivity, and that ES plays a key role in the relationship between R and EP.

Chapter 5

Discussion and Conclusion

5.1 Discussion

The main objective of this study was to assess the impact of R on EP and ES, using a reliable and valid measurement scale. The reliability of the scales was confirmed through composite reliability, validity, and Cronbach's alpha, analysed using SmartPLS. The results demonstrated that all alpha values were above the threshold of 0.7, indicating strong internal consistency and supporting the validity of the instruments used in the research (Bretz & McClary, 2014; Griethuijzen et al., 2014).

5.1.1 Reliability and Validity Analysis

The analysis confirmed the robustness of the scales used in this study. Specifically, the Cronbach's alpha values for EP, ES, and R (reliability) were 0.835, 0.851, and 0.855, respectively. These values exceed the recommended threshold of 0.7, indicating a high level of internal consistency and reliability (Griethuijzen et al., 2014). Additionally, the composite reliability (ρ_c) values for EP, ES, and R were 0.890, 0.900, and 0.892, respectively, further confirming the reliability of these constructs. The average variance extracted (AVE) values also support the validity of the scales, being well above the minimum acceptable level of 0.5.

5.1.2 Correlation Analysis

The correlation analysis revealed significant positive relationships among the variables. The correlation between ES and EP was 0.742, suggesting that higher ES is associated with higher

EP. This finding aligns with existing literature indicating that job satisfaction is a crucial determinant of employee performance (Bretz & McClary, 2014).

Additionally, the correlations between R and both EP (0.430) and ES (0.528) highlight the importance of reliability in influencing these outcomes. This suggests that improving the reliability of R conditions can enhance both ES and productivity. These findings underscore the importance of providing stable and reliable R environments to optimize employee performance and well-being.

5.1.3 Path Analysis

The path analysis provided further insights into the relationships between the variables. The results indicated that ES has a significant positive effect on EP (path coefficient = 0.742, $p < 0.000$), supporting the hypothesis that ES significantly influences productivity. Furthermore, R significantly influenced both ES (path coefficient = 0.528, $p < 0.000$) and EP (path coefficient = 0.430, $p < 0.000$), suggesting that enhancing the reliability of remote work conditions positively impacts ES and productivity.

The mediating effect of ES on the relationship between R and EP was also significant (indirect effect = 0.391, $p < 0.000$). This finding implies that improving the reliability of R conditions indirectly boosts EP by enhancing ES. This mediation effect highlights the interconnectedness of these variables and emphasizes the importance of a holistic approach to improving R conditions.

5.2 Implications of the Study:

The study's findings have important implications for organizations considering implementing R. The results suggest that R can lead to increased EP and satisfaction, which can ultimately benefit the organization.

The study's results also highlight the importance of ES in the relationship between R and EP. Organizations should prioritize ES and well-being when implementing R.

The study's results can also inform policies and practices related to remote work, such as providing training and support for remote workers, establishing all the communication channels, and fostering a sense of harmony and connection among remote workers.

5.3 Limitations

Here are the limitations of the study:

5.3.1 Sample size:

The study only includes a limited sample size of employees from the IT sector in Pakistan, which may not be representing the entire industry.

5.3.2 Self-reported data:

The study will be dependent on self-reported data from employees, which may be subject to biases and may not accurately reflect their real life experiences.

5.3.3 Limited generalizability:

The study only focuses on the IT sector in Pakistan, and the results may not be generalizable to other industries or countries.

5.3.4 Measurement errors:

The study uses a likert scale survey questionnaire, which may be subject to measurement errors and may not accurately capture the complex nature of EP and satisfaction.

5.3.5 Social desirability bias:

Employees may answer in a way that they think is ethically acceptable, rather than their actual experiences.

5.3.6 Limited access to data:

The study may not have access to all relevant data, such as objective measures of EP.

5.3.7 Methodological limitations:

The study uses a quantitative approach, which may not capture the nuances and complexities of employee experiences.

5.3.8 Time constraints:

The study is effected by time constraints, which may not allow for a more comprehensive and in-depth exploration of the research questions.

By acknowledging these limitations, the study can provide a more nuanced and accurate understanding of the research findings and their implications. This technique describes a thorough way to look into how working from home affects employee output, with job happiness playing a role in the process. The study uses a strong sample method, tried-and-true measure tools, and advanced data analysis techniques to find out useful things about online work and what it means for businesses.

5.4 Conclusion

This study provides robust evidence that R, when managed effectively, can enhance EP and satisfaction. The reliability and validity analysis confirmed that the measurement scales used in this research are sound and dependable, providing a solid foundation for the findings. The correlation and path analysis revealed strong positive relationships between the variables, indicating that ES and reliability are key drivers of productivity in a R environment.

The findings have significant implications for organizations seeking to optimize R conditions. Ensuring high reliability in remote work processes and systems can significantly enhance both ES and productivity. Organizations should invest in reliable technology, provide adequate support, and foster a supportive remote work culture to achieve these outcomes.

Future research should address identified gaps, such as the long-term effects of R, industry-specific impacts, and the effectiveness of hybrid work models. Longitudinal studies, sector-specific research, and comparative analyses of different work arrangements will provide deeper insights into the dynamics of R and inform better policy and practice.

5.5 Future Recommendations:

Future studies should investigate the impact of R on EP and satisfaction in different industries and contexts.

Researchers should research on the role of other variables, such as organizational culture, leadership style, and remote workers demographics, in the relationship between R and EP and satisfaction.

Studies should also examine the impact of R on employee well-being, stress, and burnout.

Organizations should consider implementing R as a way to increase EP and satisfaction, and should prioritize ES and well-being when doing so.

Policymakers should consider the study's findings when developing policies related to remote work, such as providing support for remote workers and establishing guidelines for R.

By exploring the impact of R on EP and satisfaction, this study makes us able to understand the benefits and challenges of remote work and provides insights for organizations and policymakers seeking to promote employee well-being and productivity.

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Questionnaire

The impact of Remote working on Employee Productivity with a mediating role of Employee Satisfaction

Demographic Information

1. Age:
 - 18-25
 - 26-35
 - 35-45
 - 45 above
2. Qualification:
 - Metric
 - Bachelors
 - Masters
 - PhD
3. Gender:
 - Male
 - Female
 - Prefer not to say
4. Job Role:
 - Beginner
 - Junior Manager
 - Middle Manager
 - Senior Manager
5. Duration of Remote work:
 - Less than 6 months
 - 6-12 months
 - 1-2 years
 - More than 2 years

Remote Working:

Please indicate your agreement with the following statements about your R experience:

1 to 5 indicates Strongly disagree to Strongly agree.

	1	2	3	4	5
1) I have access to all the necessary tools and resources to effectively perform my job remotely.					
2) My home working environment is conducive to productivity.					
3) Communication with colleagues is efficient and effective while working remotely..					
4) I can easily access technical support when needed while working remotely.					
5) I have a dedicated workspace at home for my remote work.					
6) I am able to maintain a good balance between work and personal life while working remotely.					
7) R allows me to be more flexible with my work schedule.					
8) I experience fewer distractions at home compared to the office.					

Employee Satisfaction

Please indicate your agreement with the following statements about your job satisfaction while working remotely:

	1	2	3	4	5
1) Overall, I am satisfied with my job while working remotely.					
2) The flexibility provided by Remote working has made					

me more productive.					
3) The autonomy in Remote working has positively affected my productivity.					
4) The reduction in stress from Remote working has increased my productivity.					
5) My improved work-life balance has positively impacted my productivity					

Employee productivity

Please indicate your agreement with the following statements about your productivity while working remotely:

	1	2	3	4	5
1) I am able to complete my tasks more efficiently while working remotely.					
2) My productivity has increased since I started working remotely.					
3) I am able to meet my deadlines more effectively while working remotely.					
4) I feel that Remote working has improved the quality of my work.					
5) I am more focused and less distracted while working remotely.					
6) I believe the quality of my work is higher when I work remotely.					
7) I feel more productive when working from home compared to the office.					

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