

T.R.
GEBZE TECHNICAL UNIVERSITY
GRADUATE SCHOOL

**PRODUCTIVITY IN REMOTE WORK: A HOLISTIC VIEW AT REMOTE
WORK BY INVESTIGATING INDIVIDUAL-LEVEL ELEMENTS,
INTERPERSONAL DYNAMICS AND ORGANIZATIONAL FACTORS**

ZEKİYE ŞAHİN

**A THESIS OF MASTER OF SCIENCE
DEPARTMENT OF BUSINESS ADMINISTRATION**

ADVISOR: ASSOC. PROF. DR. FARİD HUSEYNOV

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LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ

**UZAKTAN ÇALIŞMADA ÜRETKENLİK: BİREYSEL DÜZEYDEKİ
UNSURLARI, KİŞİLERARASI DİNAMİKLERİ VE ÖRGÜTSEL
FAKTÖRLERİ ARAŞTIRARAK UZAKTAN ÇALIŞMAYA
BÜTÜNCÜL BİR BAKIŞ**

ZEKİYE ŞAHİN

YÜKSEK LİSANS TEZİ
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ABSTRACT

This study investigates the factors influencing productivity in remote work environments, a model that gained prominence during the COVID-19 pandemic. Guided by Self-Efficacy Theory, Social Exchange Theory, and the Job Demand-Control-Support (JDCS) Model, it employs a mixed-methods approach within the pragmatic paradigm. Quantitative data from 255 remote workers in Türkiye and qualitative insights from 10 in-depth interviews reveal the interplay of individual, interpersonal, and organizational factors. The findings reveal that self-efficacy significantly enhances motivation, job satisfaction, and job performance, but its direct impact on productivity is not statistically significant, suggesting a mediated relationship through motivation and satisfaction. Motivation emerged as a strong predictor of productivity, while job satisfaction demonstrated a significant but negative effect, potentially reflecting a focus on flexibility or work-life balance over productivity goals. Organizational commitment significantly influenced job performance, motivation, and job satisfaction, underscoring its role in fostering positive work outcomes. Contrary to expectations, interpersonal relationships negatively affected job performance, motivation, and job satisfaction, highlighting challenges in virtual communication, such as the lack of informal social interactions and increased miscommunication. Technostress, often considered a major barrier to remote work productivity, showed no significant direct effect, indicating that employees may have adapted to the digital tools and workflows required for remote work. Similarly, managerial control and support exhibited limited influence, suggesting that autonomy in remote settings reduces the perceived importance of direct oversight. Finally, the physical working environment emerged as a critical factor, with supportive and ergonomic workspaces positively influencing productivity. This research contributes to the theoretical extension of established frameworks in the context of remote work, offering nuanced insights into the interdependencies among individual, relational, and organizational factors. Future research should explore these dynamics longitudinally, with an emphasis on diverse sectors and managerial perspectives, to refine theoretical models and support the development of sustainable remote work practices.

Keywords: Remote Work Productivity, Self-Efficacy, Interpersonal Dynamics, Organizational Control and Support, Technostress, Physical Work Environment

ÖZET

Bu çalışma, COVID-19 pandemisi sırasında önem kazanan bir model olan uzaktan çalışma ortamlarında verimliliği etkileyen faktörleri incelemektedir. Öz-yeterlik teorisi, sosyal değişim teorisi ve iş talebi-kontrol-destek (JDCS) modeline dayanan araştırma, pragmatik paradigma çerçevesinde karma yöntem yaklaşımı kullanmaktadır. Türkiye'deki 255 uzaktan çalışanla yapılan nicel veri analizi ve 10 derinlemesine görüşmeden elde edilen nitel veriler, bireysel, ilişkisel ve örgütsel faktörlerin etkileşimini ortaya koymaktadır. Bulgular, öz-yeterliğin motivasyon, iş tatmini ve iş performansını önemli ölçüde artırdığını, ancak verimlilik üzerindeki doğrudan etkisinin istatistiksel olarak anlamlı olmadığını göstermektedir. Bu durum, öz-yeterliğin motivasyon ve tatmin gibi aracı değişkenler yoluyla etkili olduğunu düşündürmektedir. Motivasyon, verimliliğin güçlü bir belirleyicisi olarak öne çıkarken, iş tatmini beklenmedik bir şekilde negatif bir etki göstermiştir; bu durum, esneklik veya iş-yaşam dengesi gibi hedeflere odaklanmanın verimlilikten ödün verme olasılığını yansıtmaktadır. Örgütsel bağlılık, iş performansı, motivasyon ve iş tatmini üzerinde önemli bir olumlu etki yapmış ve olumlu iş sonuçlarını teşvik etmedeki rolünü vurgulamıştır. Beklentilerin aksine, kişilerarası ilişkiler iş performansı, motivasyon ve iş tatmini üzerinde negatif bir etki göstermiştir. Bu durum, sanal iletişimde resmi olmayan sosyal etkileşimlerin eksikliği ve artan yanlış iletişim gibi zorlukları öne çıkarmaktadır. Teknoloji stresi, genellikle uzaktan çalışma verimliliği için büyük bir engel olarak görülmesine rağmen, doğrudan etkisinin anlamlı olmadığı görülmüştür; bu, çalışanların uzaktan çalışmanın gerektirdiği dijital araçlara ve iş akışlarına uyum sağladığını göstermektedir. Benzer şekilde, yönetim kontrolü ve desteği, sınırlı bir etki göstermiş ve uzaktan çalışma ortamlarında özerkliğin, doğrudan denetimin algılanan önemini azalttığını öne sürmüştür. Son olarak, fiziksel çalışma ortamı, destekleyici ve ergonomik çalışma alanlarının verimliliği olumlu etkilediği kritik bir faktör olarak ortaya çıkmıştır. Bu araştırma, uzaktan çalışma bağlamında yerleşik teorik çerçevelerin genişletilmesine katkıda bulunarak bireysel, ilişkisel ve örgütsel faktörler arasındaki bağımlılık ilişkilerine dair ayrıntılı içgörüler sunmaktadır. Uygulamada, öz-yeterliğin artırılması, motivasyonun desteklenmesi ve hibrit çalışma modelleri aracılığıyla ilişkisel zorlukların ele alınması gibi pratik öneriler sunmaktadır. Gelecekteki araştırmalar, bu dinamikleri uzunlamasına tasarımlarla ve farklı sektörlerde inceleyerek teorik modellerin geliştirilmesine ve sürdürülebilir uzaktan çalışma uygulamalarının desteklenmesine katkı sağlayabilir.

Anahtar Kelimeler: Uzaktan Çalışmada Üretkenlik, Öz Yeterlilik, Kişilerarası Dinamikler, Örgütsel Kontrol ve Destek, Teknostres, Fiziksel Çalışma Ortamı

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LIST OF SYMBOLS AND ABBREVIATIONS

ILO	: International Labour Organization
TPF	: Total Factor Productivity
MFP	: Multifactor Productivity
IT	: Information Technology
MC	: Management Control
MCS	: Management Control Systems
TMS	: Top Management Support
IS	: Information System
POS	: Perceived Organizational Support
CEO	: Chief Executive Officer
JDC	: Job Demand-Control
JDCS	: Job Demand-Control-Support
ICT	: Information & Communication Technologies
SET	: Social Exchange Theory
SEM	: Structural Equation Model
R&D	: Research and Development
LP	: Labor Productivity
SE	: Self-Efficacy
IR	: Interpersonal Relationships
OC	: Organizational Commitment
MO	: Motivation
JS	: Job Satisfaction
PWE	: Physical Work Environment
TS	: Technostress
MCS	: Management Control & Support
JP	: Job Performance
PRW	: Physical Work Environment
RQ	: Research Question

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1. INTRODUCTION

The COVID-19 pandemic has spurred a monumental shift in work dynamics, propelling millions of employees into remote work setups virtually overnight. With safety measures necessitating social distancing and the closure of non-essential workplaces, organizations swiftly adapted to remote work arrangements to ensure business continuity. Originally born as a response to exceptional circumstances, remote working has been embraced by people throughout COVID-19. Even as society slowly returned to its normal rhythm, this transformation in the business world continued steadily. Traditional office models have been re-evaluated and flexible working policies that allow employees to work remotely part-time or full-time have been implemented on a longer-term basis. This transition, once deemed temporary, has now become a prolonged reality for many.

The rise of remote work presents both opportunities and challenges for individuals, organizations, and society as a whole (Hamouche, 2023; Ewers and Kangmennaang, 2023). On one hand, remote work offers benefits such as increased flexibility (Smite et al., 2023; Krajčík et al., 2023), reduced commute times (Roberto et al., 2023; Monte et al., 2023), and improved work-life balance (Prasad and Satyaprasad, 2023). It allows organizations to tap into a global talent pool (Ardi et al., 2024), enhance employee satisfaction (Buonomo et al., 2023), and potentially reduce overhead costs associated with maintaining physical office spaces (Barrero et al., 2023). However, remote work also poses unique challenges, including issues related to communication (Adisa et al., 2023), collaboration (Mitchell, 2023), work-life boundaries (Mirbahaeddin and Chreim, 2023), and the maintenance of organizational culture and cohesion (Gibson et al., 2023).

In addition to its immediate impacts on work dynamics, the COVID-19 pandemic has sparked profound discussions and inquiries into the long-term implications of remote work on productivity (Kurdy et al., 2023; Straus et al., 2023; McPhail et al., 2024). As organizations and individuals confront the complexity of remote work arrangements, as remote work practices become preferred in more sectors, and as organizations' efforts to maintain remote work policies expand into the long-term, there is a growing need to understand the factors influencing productivity in this new paradigm.

This thesis aims to contribute to this discourse by examining the multifaceted relationship between remote work, productivity, and its determinants. By exploring the opportunities and challenges associated with remote work, as well as the strategies and interventions aimed at optimizing productivity in remote settings, this study seeks to provide valuable insights for individuals, organizations, and policymakers alike.

1.1. Aims and Objectives of the Study

The aim of this investigation is to provide a comprehensive understanding of productivity in remote work settings by examining individual-level elements, interpersonal dynamics, and organizational factors. By integrating insights from Self-Efficacy Theory (Bandura, 1977), Social Exchange Theory (Homans, 1958), and the Job Demand-Control-Support Model (Karasek, 1979), the study seeks to uncover the complex interplay between individual beliefs, social interactions, and organizational structures that influence remote work productivity.

At the individual level, the study applies Self-Efficacy Theory to investigate how employees' perceptions of their abilities affect task performance and overall productivity in remote work contexts. By examining the relationship between remote workers' confidence in their skills and their effectiveness, the research aims to uncover the psychological mechanisms that drive productivity in virtual work settings.

From an interpersonal perspective, the study employs Social Exchange Theory to analyze the dynamics of relationships among remote workers, supervisors, and colleagues. By analyzing the dynamics of social exchanges within remote work teams, the investigation seeks to understand how the exchange of resources and support contributes to productive working relationships in virtual settings. Additionally, this thesis investigates the role of organizational support in enabling social exchanges and cultivating a collaborative and supportive remote work environment.

In addition to examining the interpersonal dynamics of remote work, this study also considers the structural aspects of job design and workplace conditions using the Job Demand-Control-Support Model. This model proposes that job demands, job control, and social support collectively influence employee well-being and performance outcomes (Häusser et al., 2010). By applying this model to the remote working

context, this thesis aims to evaluate the impact of management control and support on remote work productivity.

Overall, this study seeks to offer a nuanced understanding of the multifaceted nature of productivity in remote working environments. By integrating insights from Self-Efficacy Theory, Social Exchange Theory, and the Job Demand-Control Support Model, this investigation aims to provide valuable insights for individuals, organizations, and policymakers striving to optimize productivity and well-being in remote work settings.

1.2. Significance of the Study

In today's evolving work landscape, characterized by the increasing prevalence of remote work arrangements, understanding the determinants of productivity in remote working environments is of paramount importance. This study aims to address this pressing need by investigating the factors that influence productivity among remote workers, drawing upon established theoretical frameworks such as Self-Efficacy Theory, Social Exchange Theory, and the Job Demand-Control-Support Model.

This study aims to contribute to a deeper understanding of the complex interaction between individual beliefs, interpersonal dynamics, and organizational factors in remote work environments by examining in depth the psychological, social, and organizational dynamics of remote work. Such insights have practical implications for individuals, organizations, and policymakers seeking to optimize productivity, well-being, and organizational outcomes in remote work environments. Practically, the findings of this study can inform organizational practices aimed at supporting remote workers and enhancing their performance. By identifying the key drivers of remote work productivity, organizations can develop targeted interventions and policies to cultivate a conducive remote work environment, foster collaboration and social support, and promote employee well-being. Moreover, this study has implications for policymakers and governmental agencies involved in shaping remote work policies and regulations. By elucidating the factors that influence remote work productivity, this study can inform the development of policies that balance the needs of remote workers with the organizational requirements for efficiency and effectiveness.

Overall, the significance of this study extends beyond academic research, offering actionable insights and recommendations for improving productivity and well-being in remote work environments. By addressing key questions and advancing knowledge in the field, this study contributes to the ongoing dialogue on remote work practices and their implications for individuals, organizations, and society as a whole.

1.3. Assumptions

In this study, the classification of remote workers encompasses individuals who engage in either full-time remote work or adhere to a hybrid work model. Full-time remote workers are those who exclusively conduct their tasks remotely, operating from home or other off-site locations on a consistent basis. Additionally, individuals categorized as remote workers under the hybrid model are those who are physically present in the workplace on specific days as determined by the employer, while fulfilling their duties remotely on the remaining days. By adopting this inclusive definition, the study aims to capture the diverse spectrum of remote work arrangements prevalent in contemporary work settings. Data collection procedures were adapted accordingly to effectively gather insights from both full-time remote workers and those in hybrid work arrangements, thus facilitating a comprehensive analysis of remote work dynamics and their impact on productivity.

In this research, the “management control and support” variable is adapted to reflect the dynamics of remote work and virtual environments. It is assumed that in such settings, managerial support is provided following an initial evaluation or control of the employee’s work. In other words, the concept commonly referred to as “perceived support” in the literature is reinterpreted here as “perceived control and support”, aligning with the specific context of remote work.

1.4. Research Questions

RQ1: How do individual-level elements, relationships between employees, and organizational factors affect productivity in remote work?

RQ2: How do job satisfaction, motivation, physical work environment, and technostress influence employees' perceptions of their productivity?

RQ3: Will businesses continue to implement remote working practices from the perspective of employees?

RQ4: To what extent do employees feel socially isolated while working remotely, and how does this isolation impact their perceived productivity?

RQ5: When comparing an office environment and a remote working environment, which one is more productive for employees?



2. LITERATURE REVIEW

2.1. Remote Work

2.1.1. Definition and History of Remote Work

Remote work, also known as “telecommuting” or “telework” refers to employees performing their job duties and responsibilities entirely or intermittently in an alternative space outside of the traditional office environment with the help of information and communication technologies (Molino et al., 2020). According to the International Labour Organization, remote work is defined as carrying out work partially or completely in an alternative work area other than the default workplace (ILO, 2020).

The concept of remote working was first used under the name ‘telecommuting network’ in an analysis made by Jack Nilles in the U.S. state of California in the early 1970s (Nilles, 1975). The main focus of the term is reducing commuting time, which is a major problem in large metropolitan cities. In order to avoid long and costly journeys between work and home, businesses have provided employees with the opportunity to work completely or partially outside the workplace (Messenger and Gschwind, 2016). At the time Nilles wrote this investigation, personal computers were not common; they came of age in the 1980s, and their access to the internet from the mid-1990s would create the conditions for the wider adoption of remote working (Sostero et al., 2020).

The idea of remote work, which was invented not to drive employees to work but to deliver the work to employees in order to solve traffic problems and reduce energy consumption, soon turned into a project funded by the federal and state governments to examine its feasibility and effectiveness (Allen et al., 2015).

“IBM, one of the companies that pioneered remote working, carried out its first work from home movement in 1979 at the Santa Teresa Laboratory in California. A pilot project was created by the management for programmers and researchers who had difficulty accessing the main computer of the laboratory in the office and gradually lost motivation. First, online terminals were installed in the homes of five researchers. By 1983, home terminals were being replaced by home computers, and more than 2,000 IBM employees were working from home. After IBM's ThinkPad laptops were

introduced in 1992, remote working has started to increase like an avalanche (Caldow, 2009).

The growth of remote work is also linked to the development of computer technologies and the change of the economy. Following the introduction of home computers in the 1980s and laptops and mobile phones in the 1990s, remote working opportunities also increased (Allen et al., 2015). As early as 1984, Telecom Canada, one of Canada's telecommunications companies, noted an increase in the number of companies providing electronic messaging services through employees' home computers. In addition, ten percent of the individual users of Envoy 100, the same operator's electronic messaging service, were people with corporate identities and home access (Solomon, 1993).

2.1.2. Pandemic Driven Remote Work

In early 2020, the restrictions imposed by the World Health Organization to prevent the spread of Covid-19 caused the mandatory closure of many workplaces. In many sectors, employees who had never left a traditional working environment or had limited experience had to quickly adopt remote working methods to ensure business continuity (Sostero et al., 2020). For many organizations making the sudden transition to remote working, there were a number of challenges. These include: i) setting up the software and digital devices required for remote working; ii) providing secure connectivity to the business network and access to business-critical applications; iii) establishing remote working guidelines; iv) adjust supervision and communication to accommodate remote working; and v) streamlining business processes and enabling remote collaboration (Milasi et al., 2021). But companies that had digitalized infrastructure and developed ways to communicate and share information online before the pandemic may have made the immediate switch to remote work but did so without any problems (Ishii et al., 2023).

According to Tomiura and Kumanomido's research, businesses that purchase their products from more suppliers are more likely to adopt remote working due to the pandemic (Tomiura and Kumanomido, 2023). Another finding of their research is; businesses operating in data-related activities such as digital data collection, data-driven decision-making and the use of cloud computing are more likely to implement

remote working during the pandemic as a result of ICT investments (Tomiura and Kumanomido, 2023). With remote working being accepted as the new normal, the use of information technologies for communication has also increased; platforms such as Zoom, Skype, Microsoft Teams and Google Meet have become a part of people's daily lives (Kähkönen, 2023).

According to Kramer et al. (2020), economic shocks can affect the way people live and work, the way businesses do business, and the behavior of societies; shocks before Covid-19 also involved a narrow range of workers, occupations or industries (Kramer et al., 2020). But the Covid-19 pandemic has not only had a global impact, leading to the disappearance of some occupations and a dramatic increase in others, but it may also have led to changes in the status and value propositions of some occupations (Kramer et al., 2020).

Remote working has increased significantly post-Covid-19 compared to the pandemic period, including in Asia, Europe and the United States (Mouratidis and Papagiannakis, 2021). Although there has been a dramatic shift to remote working across most industries in many countries, some industries differ in their adoption of remote working due to the nature of the work. For example, while service industries such as restaurants and hotels have adopted remote working at a rate of 7%, this rate rises to 71% in knowledge-based industries (Dingel and Neiman, 2020). In their research, Bamieh and Ziegler (2022) examined whether businesses provide employees with the opportunity to work remotely in open positions on Austria's largest job board and found that although many restrictions due to the pandemic have been lifted, remote working has increased significantly, and this effect is long-lasting.

2.1.3. A Look at Remote Working in Türkiye Before and After the Pandemic

The COVID-19 pandemic brought about a rapid and unprecedented transition to remote working in Türkiye, transforming the traditional office-based work culture almost overnight. With the implementation of social distancing measures and quarantines, organizations across various industries quickly adopted remote working arrangements to ensure business continuity and protect the health and safety of employees. Remote working methods facilitated by digital technologies and communication platforms have minimized the risk of virus transmission in the

workplace by allowing employees to carry out their work from the safety of their homes.

Although discussions on flexible working hours and models in Türkiye started in the 1990s, the practices were only partially possible with the Labor Law adopted in 2003. With an amendment made in 2016, remote working was included in the legislation as an alternative work form (Hekimler, 2022). As defined in the legal framework, remote working in Turkish law refers to an employment arrangement where the employee performs their duties at home or outside the traditional workplace using technological communication tools, in line with the work organization established by the employer (Şakar and Şahin, 2021).

The importance of the Home Office model has only been fully understood in our country, as well as around the world, with the impact of COVID-19 (Hekimler, 2022). Remote working has been widely practiced in Türkiye, as in the world, since March 2020, when the pandemic intensified, partial quarantine practices were observed, and physical commutes began to be disrupted (Başol and Çömlekçi, 2022). In her study, Ertürk (2023) emphasized that according to the data obtained from Google Trends, the index of the word "remote work" before the pandemic was quite low in 2018 and 2019, but this index increased significantly with the pandemic. In addition, Bozkurt (2020) found in his research that the decrease in the productivity of women who switched to remote work during the pandemic period was much greater than that of men. This situation can be explained by the significant increase in the burden on women working from home (Bozkurt, 2020).

2.1.4. Cons and Pros of Remote Working

There are many studies in the literature about the advantages and disadvantages of remote working. One of the advantages of remote working is that it provides flexible working opportunities that allow employees to better coordinate their professional work life and family responsibilities (Grzybowski, 2008; Thompson, 2019; Kippola, 2022; Ferreira, 2020). Working from home provides unparalleled flexibility, a feature that is highly appreciated by a significant majority of employees across different industries and job roles (Waizenegger et al., 2020; Ferreira et al., 2021). One of the primary advantages of remote work is the reduction in travel time and expenses (Al-

Habaibeh et al., 2021; Battisti et al., 2022). Remote workers save time and money that would otherwise be spent commuting to the office.

Kahn (2022) highlights that the option to telecommute introduces a heightened sense of freedom and flexibility, enabling individuals to balance their life goals and responsibilities more effectively. This adaptability extends beyond conventional office hours, allowing employees to align their work schedules with personal preferences, obligations, and lifestyles (Blades and Fondas, 2010; Rishi et al., 2021). It means that employees work under self-organized conditions, making their use of all their time easier and increasing their job satisfaction, organizational performance and motivation (Kippola, 2022; Chatterjee et al., 2022; Flores, 2019). Additionally, numerous studies have demonstrated that remote work can lead to increased productivity levels (Toscano and Zappalà, 2021; Hernández et al., 2021; Tleuken et al., 2022; Flores, 2019). These findings show that the flexibility and autonomy provided by remote work environments often allow employees to optimize work processes, minimize distractions, and focus on delivering high-quality results (Flores, 2019).

Extensive research in the literature has explored the manifold advantages of remote employment for employers. These studies delve into a wide range of benefits, including increased employee productivity, reduced overhead costs associated with maintaining physical office spaces (Kahn, 2022; Barrero et al., 2023), expanded access to a global talent pool (Ardi et al., 2024), enhanced employee satisfaction and retention rates (Ali et al., 2023), and greater organizational resilience in the face of unforeseen disruptions such as the COVID-19 pandemic.

There are also numerous negative consequences of remote working arrangements. These include challenges with maintaining effective communication and collaboration among team members (Ilag, 2021; Wang et al., 2021), feelings of isolation and disconnection from colleagues and the organizational culture (Ferreira et al., 2020; Grönkvist and O'Mahony, 2021), difficulties in establishing clear work-life boundaries (Grant et al., 2019; Shirmohammadi, 2022), and potential problems with managing distractions and maintaining productivity in home environments (Franken et al., 2021).

Remote work also causes technostress due to over-reliance on technology (Hurbean et al., 2022; Di Dalmazi et al., 2022), mental fatigue due to long screen time and digital interactions (Marsh et al., 2022; Elbogen et al., 2022), conflicts spilling over from

personal life to work (Zhang et al., 2020a), difficulty disconnecting from work due to constant stress (Charalampous et al., 2022), cyber vulnerabilities due to remote access to sensitive data (Alexei and Alexei, 2021; Nurse et al., 2021), isolation and loneliness due to limited social interactions (Tahir, 2021). It also brings with it various challenges, such as reduced synergy and collaboration potential among team members due to decreased face-to-face contact (Como et al., 2021).

2.2. Productivity

“Productivity is defined as the relationship between input and output in a production system, and this relationship is often expressed as the ratio of output to input (Bakhtiar et al., 2018; Hoffman and Mehra, 1999; Solow 1957).” Obtaining more output with the same input and similarly obtaining the same output with less input can be considered as productivity increase. Hoffman and Mehra (1999) also stated in their research that “time” is an important element in today's global competition and that achieving the same amount of output in a shorter time can be described as increasing productivity.

Productivity measures are essential tools for evaluating and improving the efficiency and effectiveness of various processes, businesses, and economic systems. These measures help organizations and individuals assess how effectively they are using their resources to produce goods and services. There are several key productivity measures commonly used in different contexts. Here are some of the most important ones (Mohanty and Rajput, 1988);

-Single Factor Productivity (SFP): The productivity of each resource can be measured separately; such a measurement would provide single-factor productivity (ILO, 2017). For example, to measure single-factor productivity in a business, total output can be divided by the total number of employees or the total working hours. Njuki and Bravo-Ureta (2019) emphasize that while single-factor productivity measures are straightforward to understand and implement, they can be misleading as they overlook the contributions of other inputs involved in the production process.

-Labor Productivity (LP): Labor productivity is an important component of economic performance and measures how efficiently a system or economy's resources are used (ILO, 2015). The best measure of labor input for labor productivity, found by dividing

total output by total labor hours, should be "the total annual hours actually worked by all employees"; however, in many cases this input is difficult to measure or estimate reliably. (ILO, 2015).

-Multifactor Productivity (MFP): Multifactor productivity is a measurement model that reflects overall productivity by using labor and capital inputs together (OECD, 2023). According to Apostolides' definition, MFP is a productivity measurement model that expresses the efficiency of all inputs used in the production process, measures the output per unit of combined input, and shows the overall production efficiency of the industry (Apostolides, 2008).

-Total Factor Productivity (TFP): Total factor productivity, driven by technological advancements and efficiency improvements, is a critical component of output growth and a fundamental driver of sustainable economic development within endogenous growth theory (Zhou et al., 2023). In the study examining the effect of digital transformation on total TFP, Wang (2023) stated that digital technology innovation is one of the channels that increases the total factor efficiency of enterprises (Wang, 2023).

Many productivity models exist and can be applied to different types of organizations. In their study in 1988, Mohanty and Rajput (1988) argued that a lot of effort has been made to measure and quantify productivity at the macro level, but there are fewer efforts to implement it at the company level, and stated that most of the literature focuses on labor productivity. A study published in 2023 examined the effects of management talent on labor productivity and found that there was a positive effect between them. (Ahn et al., 2023). There are also studies in the literature suggesting that high-cost start-ups established by avoiding funds that increase technology and labor productivity lead to productivity losses, that economies with appropriate financing environments tend to be more productive on a sectoral basis (Haruna and Ackah, 2023).

2.2.1. Remote Work and Productivity

The increase in remote working arrangements caused by the COVID-19 pandemic has brought the study of its impact on productivity into the spotlight. As the interplay between remote work and productivity gains increasing traction, it becomes imperative for both employers and employees to grasp this connection. The existing literature paints a somewhat contradictory picture.

On one hand, Awada et al. (2021) discovered that employees' perceptions of remote work's impact on productivity were often consistent with their previous office experiences. They also found that increased communication with colleagues and the presence of a dedicated physical workspace had a positive influence on productivity. In a similar vein, Mustajab et al. (2020) recognized the dual nature of remote work, with its advantages and disadvantages affecting both companies and employees. Their research suggested a decrease in employee productivity associated with remote work.

However, another perspective emerges from different studies. Hopkins and McKay (2019) demonstrated that remote work could yield greater productivity compared to traditional office environments. Bailey and Kurland's (2002) study supported this perspective by revealing a positive relationship between remote work and productivity. Carillo et al. (2021) highlighted that employees with prior remote work experience often possessed a richer skill set and more resources, contributing to their effectiveness when working remotely. Tsukamoto (2021) expanded upon this by discerning that experienced employees tend to be more productive in remote work settings.

Moreover, contrasting views emphasize the role of organization size and skill levels. Research by Monteiro et al. (2021) suggests that the negative impact of remote work on company labor productivity, approximately 3.3%, is primarily attributed to smaller companies that do not engage in R&D (Research and Development) activities and employ a workforce with below-average skill levels. These mixed findings underscore the complexity of the remote work and productivity relationship and the significance of considering factors like communication, workspace, experience, and organizational context in understanding this connection.

2.3. Self-Efficacy Theory

Self-efficacy, which has many studies in the literature, especially in psychology, was a concept first used in an article published by Bandura (1977). Staples et al. (1998) identify self-efficacy as a core element within Bandura's social cognitive theory, highlighting its significance in understanding individual behavior and motivation.

Bandura (1994), who had many studies on self-efficacy in the literature, explained self-efficacy as "people's beliefs about their capabilities to produce signed levels of performance that exercise influence over events that affect their lives." Again in the same article, it is stated that people's beliefs about their competence have four main sources of influence, and they are expressed as follows (Bandura,1994):

1. **Mastery Experiences:** Performing a task masterfully is the best way to build a strong sense of competence. While successes enable people to believe in their own competence, failures weaken them if they occur before the feeling of efficacy is formed.
2. **Vicarious Experiences:** Observing the experiences of others is the second important factor that affects one's self-efficacy. When people witness the success of people they liken to themselves, they begin to believe that they too have the ability to succeed and to engage in similar activities.
3. **Social Persuasion:** People who are convinced by the social environment that they will master activities and achieve success will make more efforts to be successful and try to make this permanent. On the contrary, people who are convinced that they lack talent tend to give up quickly in the face of difficulties.
4. **Somatic and Emotional States:** In order for self-efficacy to be strongly formed, stress reactions should be reduced, and negative emotional tendencies and physical conditions should not be misinterpreted. While a positive mood increases self-efficacy, a negative mood decreases it.

2.3.1. Self-Efficacy in the Context of Remote Work

Various studies have shed light on the multifaceted role of self-efficacy in the context of remote work. A study from 1998, conducted by Staples et al., underscored the critical importance of teleworkers' self-efficacy in determining the effectiveness of

remote work, as well as its impact on perceived productivity and job satisfaction. Their research revealed that self-efficacy judgments of remote workers are strongly linked to factors such as work experience, education, computer anxiety, and IT skills. In a more recent investigation by Lathabhavan and Griffiths (2023), the role of technology, manager support, and peer support in enhancing the self-efficacy of remote workers was explored. This study found a positive relationship between self-efficacy and perceived audit effort and performance, highlighting the empowering effects of self-efficacy in remote work environments.

Conversely, Lange and Kayser (2022) delved into the dual nature of remote work. They reported that while remote work can lead to increased autonomy and self-efficacy, it also has the potential to elevate work-related stress levels, which, in turn, may negatively impact the mental and general health of employees.

Kondratowicz et al. (2022) explored the relationship between remote work and job satisfaction. Their findings indicated that one mediating factor contributing to higher job satisfaction among remote workers is self-efficacy. Additionally, their study underscored the significant influence of employees' self-efficacy and self-esteem on job satisfaction.

Furthermore, Virtaneva et al. (2021) conducted a study to investigate the effect of remote work on employee productivity. Their research established a positive link between self-efficacy and productivity, emphasizing how self-efficacy not only enhances individual productivity but also fosters high-quality group interactions and cooperation among employees, ultimately contributing to an overall increase in perceived productivity. These studies collectively highlight the pivotal role of self-efficacy in shaping the remote work experience, encompassing aspects of effectiveness, well-being, and productivity.

2.4. Interpersonal Relationships

Interpersonal relationships at work refer to the connections, interactions, and associations that employees establish with their colleagues, superiors, subordinates, and other individuals within the workplace. These relationships encompass a wide range of interactions, from casual conversations and collaborations to more formal interactions, such as reporting to a supervisor or managing a team (Reich and

Hershcovis, 2011). It is important for employees to be able to talk and communicate with people in the workplace, where they spend most of their time. For instance, Özmen and Hanımoğlu (2023) researched the effect of empathy, an important factor in interpersonal communication, on workplace happiness and found that this form of communication had a positive effect on workplace friendships and workplace-related happiness. Çalışkan's (2011) research also supports this. According to the study, increased communication and information sharing in workplace friendships also increase perceptions of psychological empowerment. Psychological empowerment means more autonomy, sense, right to choose, and perception of self-efficacy in employees and is an important factor for the individuals to feel more competent and powerful (Çalışkan, 2011).

Communication is the cornerstone of a productive workplace, enabling the exchange of ideas, coordination of tasks, and alignment of goals. According to Ajala (2012), good communication affects employee well-being, morale, efficiency and productivity. Constructive interactions play a crucial role in building strong interpersonal relationships, which often serve as a source of satisfaction and fulfillment for many employees. (Reich and Hershcovis, 2011).”

With the onset of the pandemic, many organizations implemented remote working policies to comply with social distancing rules. This shift has dramatically changed the way coworkers interact, as face-to-face communication has been replaced by virtual meetings, emails, and instant messaging. While technology has enabled remote collaboration, it has also created challenges for maintaining personal connections and effective communication.

With remote working, the frequency and quality of communication between people at work decrease. Dwivedi et al. (2020) argue that social communication with people at work should be maintained to reduce remote workers' feelings of professional isolation. Additionally, Van Zoonen et al. (2023) indicate that due to reduced communication, remote workers' trust in their colleagues and managers at work is affected; moreover, trust in managers is more likely to be affected. Moreover, employee loyalty can be improved by trust and respectful communication between co-workers, especially in remote work (Harjanto et al., 2023).

2.5. Organizational Commitment

Organizational commitment is a psychological concept that defines the level of dedication and loyalty of employees to the organization of which they are a part and requires a long-term interaction (Vuong et al., 2020). It also represents an individual's enduring dedication to the organization, as it signifies more than a personal choice; it forms an integral link in the chain of collective efforts to achieve the organization's goals (Vuong et al., 2020).

Researchers have offered a multitude of diverse perspectives and viewpoints in their attempts to define employee commitment to the organization, reflecting the complexity and evolving nature of this crucial organizational concept. Porter et al. (1974) describe organizational commitment as an individual's strong alignment with the organization's goals, a willingness to contribute their best efforts, and a desire to maintain membership within the organization. Meyer and Allen (1997) suggested that organizational commitment revolves around a determined choice to stay in the organization, actively fulfill daily job responsibilities, constantly make special efforts, protect the organization's assets and support its general goals.

Meyer and Allen (1991) identified three different themes to define organizational commitment. These encompass commitment as an emotional attachment to the organization, commitment driven by the perceived costs of leaving, and commitment rooted in a sense of obligation to stay (Meyer et al., 1993). This model, which they call "Three-Component Model of Commitment", is defined as affective, continuance and normative (Meyer and Allen, 1997). All three perspectives on commitment share the understanding that it reflects a psychological state defining the employee's connection to the organization, influencing their decision to remain with or leave the organization (Meyer et al., 1993).

According to Wasti (2002)'s definition, affective commitment develops from work experiences such as job satisfaction and organizational justice and is linked to desired outcomes such as lower levels of absenteeism and tardiness in employees and higher levels of organizational citizenship behaviors. In the same study, continuance commitment was defined as a type of commitment with two basic priorities; lack of business alternatives and "side-bets" (Wasti, 2002). Continuance commitment can be anything such as time, money, and effort that increases the cost of investing in and

leaving the job, and is a psychological bond driven by the employee's thoughts of cost avoidance (Wasti, 2002; Gottschalck et al., 2023). Finally, normative commitment is a psychological commitment resulting from subordination norms that develop before or after entering the organization and is defined as the feeling of obligation to stay in the organization (Wasti, 2002; Meyer et al., 2012). While it is anticipated that these three commitment types will foster employee attachment to the organization and decrease turnover, each component exerts distinct influences on on-the-job conduct (Meyer and Allen, 1991).

Deschênes (2023) argues that the shift to remote work has minimal impact on employees' affective organizational commitment, indicating that those with a strong emotional bond to their organization typically sustain this attachment regardless of their work environment. Similarly, Wang et al. (2020) found that psychological isolation among remote workers is associated with reduced affective commitment, while continuance commitment tends to increase in response to both psychological and physical isolation.

The connection between organizational commitment and productivity is complex and integral to employee performance and organizational success. Promoting affective commitment through a supportive and positive work environment is essential for boosting productivity. Furthermore, research indicates that employees who perceive a strong commitment from their organization are more likely to demonstrate higher levels of organizational commitment (Fuller et al., 2003).

Numerous studies within the existing body of literature consistently assert that organizational commitment exerts a distinctly positive influence on employee productivity, highlighting the pivotal role played by the strength of an employee's attachment to the organization in enhancing their performance and output in the workplace (Osa and Amos, 2014; Phipps et al., 2013; Hanaysha and Majid, 2018; Dixit and Bhati, 2012). Moreover, numerous empirical studies have consistently demonstrated that the depth of one's organizational commitment not only enhances their performance within traditional workplace settings but also exerts a substantial and affirmative impact on the productivity of individuals engaged in remote work arrangements (Balusji et al., 2022; Silva and Dias, 2016; Kasemsukprakarn and Dowpiset, 2020).

2.6. Management Control and Support

2.6.1. Management Control Definition and Its Impact on Remote Working

Management Control (MC) is the managerial process ensuring the effective and efficient acquisition and utilization of resources to achieve the organization's objectives (Anthony, 1965; Langfield-Smith, 1997; Das and Teng, 2001). It involves a set of mechanisms, tools, and processes that help managers monitor and regulate the activities of individuals and units within an organization. Management control encompasses the tools and systems utilized by leaders and managers to guide employee behavior and decision-making in alignment with organizational goals and strategies (Merchant and Van der Stede, 2012; Malmi and Brown, 2008). In this context, Management Control Systems (MCS) must be compatible with the sustainability goals and strategies of the organization. According to the literature, MCS play an important role in guiding the organization towards sustainability (Malmi and Brown, 2008; Traxler et al., 2020).

Merchant and Van der Stede (2007) argue that employees play a central role in driving organizational outcomes, making management controls essential. These controls are designed to mitigate the risk of employees acting against the organization's interests or neglecting their responsibilities. They suggest that if employees consistently acted in the organization's best interest, management control systems would be unnecessary. Malmi and Brown (2008) developed a framework identifying five key components of management control: planning, cybernetic controls, reward and compensation systems, administrative controls, and cultural controls. They further categorized cultural controls into three types: value-based controls, symbol-based controls, and clan controls, emphasizing their role in shaping organizational behavior.

The proliferation of remote work has revolutionized traditional concepts of management control, requiring new strategies and approaches to ensure productivity, accountability, and alignment with corporate goals. One of the main challenges of organizational control in remote work environments is the lack of direct physical supervision. Unlike traditional office environments where managers can observe employee behavior and performance firsthand, remote work introduces a level of distance that makes monitoring more challenging.

Businesses have recognized the importance of maintaining organizational control during remote work, and they have implemented various strategies to achieve this goal. One approach that many organizations have taken is to increase the frequency of online meetings and leverage technology to remotely monitor employees (Delfino and Van der Kolk, 2021). Online meetings serve as a crucial tool for maintaining communication, collaboration, and accountability among remote teams. By scheduling regular video conferences, team check-ins, and project status updates, organizations can ensure that remote employees stay connected, aligned, and engaged. Delfino and van der Kolk (2021) stated in their study that remote workers participate in such practices by working overtime to be noticed by their superiors. In addition, the findings of the study show that employees' stress levels increase, there are changes in their autonomy, their perception of hierarchy changes and their commitment to people in the organization weakens (Delfino and Van der Kolk, 2021). Noto et al. (2023), who examined the effects of remote working on management control - especially cultural control - in their study, stated that managers had to design and change MC systems when implementing remote working. Additionally, they found that managers observe and act on the interaction between mechanisms by applying or eliminating formal or informal controls.

2.6.2. Management Support

This concept, commonly referred to in the literature as Top Management Support (TMS), is a critical determinant of Information System (IS) project success, particularly for complex and large-scale IS projects (Boonstra, 2013). Top Management Support (TMS) emphasizes the importance of senior leaders, such as CEOs, actively engaging in monitoring, reviewing, and addressing managerial challenges while ensuring the provision of necessary resources to resolve these issues (Paley, 2017; Shafique et al., 2024). A study examining how remote working flexibility affects business performance stated that the top management system plays an important role in increasing organizational performance (Chatterjee et al., 2022). However, this study refers to the support that managers provide to employees, and this is expressed as Perceived Organizational Support (POS) in the literature.

Perceived Organizational Support (POS) refers to employees' belief that their organization recognizes and values their well-being, contributions, and overall

interests (Eisenberger et al., 1986). It reflects the degree to which employees feel that the organization is dedicated to supporting their welfare and fostering their success. POS serves as a crucial mechanism for organizations to strengthen their relationships with employees and enhance their motivation and performance (Sun, 2019). Settoon et al. (1996) suggest that higher levels of POS generate a sense of reciprocity, where employees feel obligated to contribute positively to the organization. Additionally, POS is closely linked to trust in the organization's commitment to fulfilling its responsibilities, such as providing rewards and meeting expectations during periods of change.

Management support refers to the backing, encouragement, and assistance provided by organizational leaders or managers to their subordinates or employees. This support can come in various forms and is aimed at enabling employees to perform their roles effectively, achieve organizational objectives, and contribute to the overall success of the organization. Although there are not many studies in the literature, according to a study examining the effect of job control on employee behavior in remote work; employees with higher perceptions of management control experienced better work-life balance and reduced emotional exhaustion, whereas limited job control was associated with forced change and diminished well-being (Becker et al., 2022).

2.6.3. Job Demand-Control-Support (JDCS) Model

The Job Demand-Control (JDC) model, introduced by Robert Karasek in the 1970s, provides a framework for analyzing how job characteristics influence employee health and overall well-being (Karasek, 1979). Karasek asserted that the balance between the demands placed on employees and the level of control afforded to them is critical for fostering well-being, motivation, and productivity, while also reducing psychological and physiological strains (Fila, 2016). The JDC model suggests that a work environment characterized by high demands and limited control over tasks can result in heightened stress levels, contributing to adverse effects such as psychological strain, reduced job satisfaction, and various health issues (Karasek, 1979; Fila, 2016; Lee et al., 2022). This combination, commonly referred to as "job strain," arises when individuals face high job demands paired with low levels of control, often resulting in significant cognitive effort to meet those demands. Karasek (1979) proposed that such conditions lead to increased physiological arousal and heightened activity in the

cardiovascular and nervous systems. In contrast, roles with high control and low demands are linked to positive outcomes, including greater job satisfaction, higher motivation, and improved well-being. Karasek and Theorell (1990) noted that even in demanding professional roles, optimal performance can be achieved without causing psychological strain. Furthermore, the model highlights the protective role of job control in buffering the adverse effects of high demands, reducing the impact of stressors on employee health and performance.

Karasek and Theorell (1990) introduced the Job Demand-Control-Support (JDCS) model, which is a more expanded version of JDC - that also includes dimensions of social support. The Job Demand-Control-Support (JDCS) model provides a framework for analyzing how various job characteristics influence employee health and overall well-being (Karasek and Theorell, 1990). Based on this model, factors such as heavy workloads, fast-paced environments, uncertainty in roles, and psychological pressures stemming from interactions with customers, patients, or clients, are identified as primary impediments to worker well-being (Karasek, 1979). Nevertheless, the impact of job demands on well-being can be mitigated when individuals possess autonomy in decision-making or receive support from colleagues or supervisors (Karasek and Theorell, 1990).

2.7. Physical Work Environment

The work landscape is experiencing a profound shift driven by the rapid evolution of technology, which is reshaping business models, operational approaches, organizational structures, and the labor market (Lindeberg et al., 2022). The physical work environment in the context of remote work encompasses the tangible surroundings and conditions in which remote employees perform their job duties. It extends to various elements, including the room temperature of the workplace, the adequacy of natural light, noise level, and the accessibility of ergonomically designed items, etc. An optimized physical work environment can significantly enhance remote workers' productivity (Shobe, 2018; Atmaja and Puspitawati, 2018). By minimizing distractions, providing a dedicated workspace, and ensuring access to essential tools and equipment, remote employees can maintain focus and complete tasks efficiently (Peter et al., 2023; Hayta, 2007). In addition, there are studies in the literature that the

physical environment significantly affects creativity and innovation (Lee and Lee, S., 2023; Dul and Jaspers 2011; McCoy, 2005).

Göktepe (2020) conducted a study to determine the perceptions of people working from home after the pandemic about this new working model and found that the working from home environment (in terms of criteria such as sound insulation, lighting, and ventilation system) is more productive than the office working environment. Other findings of the study include that the remote working model contributes positively to employees' family roles and that perceptions of role conflict are positive (Göktepe, 2020).

2.8. Job Performance

Job performance is defined as role-determined behavior that advances organizational goals and is a function of knowledge, ability, skill, and motivation (Campbell et al., 1993). As per Meyer and Peng (2005)'s definition, job performance pertains to the outcomes generated by an individual's behavior within the organization, which the organization may interpret as either productive or counterproductive. Achieving good performance entails employees meeting the employer's expectations and contributing to the company's success (Jalagat, 2016). Motowidlo (2003) defines job performance as the overall contribution an individual makes to an organization through their actions and behaviors over a specified period of time, reflecting the expected value of their efforts. These behavioral episodes encompass a spectrum of activities, including task completion, problem-solving, decision-making, interpersonal interactions, and adaptation to changing circumstances.

A comprehensive definition of job performance is essential to inform the diverse array of strategies and interventions utilized within the field of industrial and organizational psychology aimed at enhancing human performance within work organizations (Motowidlo, 2003). These strategies encompass recruitment and selection processes to ensure alignment between job requirements and individual capabilities, training and development initiatives to enhance skills and competencies, and motivational approaches to foster engagement and commitment.

A study by Farah and Aydoğan (2023) highlighted that remote work positively influences employees' task performance. This outcome is consistent with existing

research suggesting that remote work enhances productivity by allowing employees increased autonomy and flexibility in organizing their tasks and schedules (Hopkins and McKay, 2019; Carillo et al., 2021; Tsukamoto, 2021). Additionally, it has been stated in the literature that employees with higher levels of work experience have better job performance than those who are inexperienced or have less experience (Farah and Aydoğan, 2023; Güzel and Aydın, 2021). Güzel and Aydın (2021) also found that working from home has a positive effect on work performance.

2.9. Motivation

The literature review explores the concept of motivation, its various types and theories, recent research on motivation, and its connection to remote work. Motivation is recognized as a key factor in initiating, guiding, and sustaining behavior (Tovmasyon and Minasyon, 2020). For organizational managers, understanding motivation is essential, as effective performance relies on both the willingness and the ability to complete tasks. Without either element, achieving desired outcomes becomes challenging (Tovmasyon and Minasyon, 2020). Myers and Cox (2020) emphasize that motivation serves as an intrinsic drive for employees to fulfill their responsibilities, making it a crucial aspect of job engagement. Shkoler and Kimura (2020) describe motivation as a dynamic energy derived from both internal and external sources, influencing employees' work-related behaviors, including their direction, duration, and intensity. It also encompasses the psychological mechanisms shaping an individual's actions in pursuit of workplace objectives and responsibilities. Motivation represents a dynamic force impacting various facets of the work environment, including working conditions, communication patterns, productivity levels, consistency in performance, employee commitment, and emotional well-being (Mensah, 2011). Work motivation plays a key role in enhancing employees' commitment and satisfaction by making their tasks more engaging and meaningful. It contributes to increased productivity and improved job performance (Popoola and Fagbola, 2023).

Motivation theories provide valuable frameworks for understanding the driving forces behind human behavior in various contexts, including the workplace. These theories aim to elucidate the fundamental factors that influence why individuals are motivated to engage in certain actions and behaviors. Within the realm of motivation theory, two prominent categories emerge: content theories and process theories.

Content theories, also known as need-based theories, delve into the intrinsic factors that fuel and direct behavior. These theories center on identifying specific needs, desires, or goals that serve as primary motivators for individuals (Zafarullah and Pertti, 2017). Content theories of motivation, such as Maslow's hierarchy of needs, Alderfer's ERG theory, Herzberg's two-factor theory, and McClelland's theory of needs, provide essential frameworks for understanding what motivates individuals in the workplace (Lynne, 2012; Patterson, 2010). These theories operate on the premise that employees have a common set of needs, enabling organizations to identify and incorporate job features that effectively address these needs and enhance employee satisfaction (Lynne, 2012).

Process theories, on the other hand, shift the focus from the content of motivation to the cognitive processes underlying it. These theories seek to elucidate how individuals perceive, interpret, and evaluate their environments, as well as how they make decisions regarding their actions (Tovmasyon and Minasyon, 2020). Additionally, motivation is divided into two: intrinsic and extrinsic motivation. While intrinsic motivation refers to participating in an activity for the natural satisfaction or pleasure obtained from the activity; extrinsic motivation involves participating in an activity to obtain a separable outcome or extrinsic reward (Bandhu et al, 2024).

A cornerstone of motivational theory is Abraham Maslow's hierarchy of needs, introduced in the 1940s. This influential framework categorizes human motivation into five levels: physiological needs, safety, love and belonging, esteem, and self-actualization. Maslow's model posits that individuals must satisfy lower-level needs before progressing to higher-level aspirations, highlighting a sequential pathway to fulfillment. As one of the most widely recognized and enduring theories in the field, Maslow's hierarchy continues to serve as a foundational concept in understanding the drivers of human behavior and motivation (Bandhu et al., 2024).

Research conducted by Tuna and Türkmendağ (2020) highlights the nuanced impact of remote work on motivation. They identify negative effects such as the absence of a formal workspace at home, increased workloads, and a decline in the quality of the working environment. Conversely, they note positive outcomes including cost and time savings, increased flexibility for household tasks, and the promotion of a healthier work environment. Similarly, a study examining the influence of remote work on motivation and work ability finds that employees express high satisfaction with remote

work and express a desire to continue it in the future. Additionally, the research underscores that remote workers report enhanced efficiency, improved concentration, better work-life balance, and heightened motivation (Virtanen, 2020). However, another study in the literature by Hedström and Gonzalez Munoz (2021) concludes that employee motivation remains relatively stable between remote and traditional work setups.

2.10. Job Satisfaction

Job satisfaction and its impact on productivity have been extensively researched since the 1900s (Vrontis et al., 2019). It describes the degree of contentment and sense of fulfillment an individual derives from their job role (Top and Ali, 2021). Job satisfaction can be understood as the outcome of how individuals perceive the alignment between their job expectations and what they believe their job provides or entails (Locke, 1969). Additionally, job satisfaction is defined as the positive emotional state resulting from the evaluation of one's job or job-related experiences (Locke, 1976). It reflects employees' attitudes toward the organization, shaped by their unique perspectives and interactions within the work environment (Spector, 1997). Importantly, job satisfaction has been linked to increased productivity among employees (Alrawahi et al., 2024, Halkos and Bousinakis, 2010).

The rise of remote work has revolutionized traditional work arrangements, offering employees the flexibility to work from anywhere, anytime. As remote work becomes increasingly prevalent, understanding its impact on job satisfaction is essential for both employees and organizations. According to the research, that comparatively examined the effect of remote working and working in the workplace on job satisfaction, it was determined that the satisfaction level in remote working was generally higher than in working from the workplace (Kanberoğlu, 2023). On the contrary, another study emphasizes that remote working has a negative effect on job satisfaction (Çakan, 2021). Feng and Savani (2020) touched on a different point and stated that before the Covid-19 period, when remote working was not as common as it is today, there was no gender difference in work productivity and job satisfaction, but women had lower work productivity and job satisfaction than men during the home working process. This may be because women working from home negatively affects their work-life balance (Karlankuş and Burçin, 2023).

2.11. Technostress

In the modern digital era, remote work has emerged as a common practice, enabling employees to perform their duties from virtually any location. This work model provides significant advantages, including greater flexibility and independence, but it also introduces distinct challenges that organizations and individuals must navigate. One such challenge is technostress. Following the epidemic, technology has become indispensable in facilitating remote work and streamlining daily tasks for employees (Dutta and Mishra, 2023). While the concepts of technology and stress are distinct, the rapid integration of technology has sparked interest in the phenomenon of technostress and prompted research on its effects (Daneshfar et al., 2023). Technostress describes the adverse psychological effects arising from the extensive use of modern information and communication technologies (ICT) in both professional and personal spheres (Weil and Rosen, 1997).

With the rise in remote work, researchers have once again turned their attention to the concept of technostress, with numerous studies in the literature exploring its association with remote working (Ewers and Kangmennaang, 2023; Taser et al., 2022; Tahir, 2021; Bahamondes-Rosado et al., 2023). It has been found in the literature that there is a connection between technological complexity and excessive workload in the online labor market (Umair et al., 2023). According to Molino et al. (2020), both workload and working remotely were considered antecedents of technostress for employees. A study utilizing similar variables to ours found that despite organizational support in remote work, excessive technostress and work-family conflicts have a negative impact on work engagement (Harunavamwe and Kanengoni, 2023). According to a study examining the technostress of remote workers and its impact on job satisfaction, technology and job characteristics increased the technostress of remote workers, resulting in decreased job satisfaction (Suh and Lee, 2017). A more recent study did not obtain different results from this study conducted before Covid, and argued that technostress increases tension and reduces job satisfaction (Khedhaouria et al., 2024). Additionally, scholars have explored the role of digital mindset in mitigating technostress, finding that individuals with a high level of digital mindset are less prone to negative reactions to perceived technostress factors. (Valta et al., 2024).

2.12. Social Exchange Theory

Social Exchange Theory (SET) stands out as one of the most influential conceptual frameworks for comprehending behaviors within the workplace (Cropanzano and Mitchell, 2005). Social exchange involves individuals taking actions based on the expectation of positive responses from others, leading to mutually beneficial transactions and the development of rewarding relationships over time (Cropanzano and Mitchell, 2005). First in the literature, the work of Edward C. Tolman, particularly his 1932 article "Purposeful Behavior in Animals and Humans," contains elements that foreshadow the tenets of Social Exchange Theory. In this article, Tolman introduced the concept of "purposeful behavior," emphasizing the idea that organisms, including humans, take goal-directed actions to achieve desired outcomes (Tolman, 1932). However, George C. Homans introduced a concept of social behavior based on exchange to the literature in 1961 (Cropanzano and Mitchell, 2005, Muldoon et al., 2018). Homans' seminal paper, 'Social Behavior as Exchange' (Homans, 1958), marked the inception of Social Exchange Theory (SET) as a prominent theoretical framework. Within this work, Homans introduced foundational propositions, including behavioral concepts, economic rationality, and the exchange of both material and non-material goods (Muldoon et al., 2013).

After Homans's contribution to the literature, other theorists (Peter M. Blau and Richard M. Emerson) continued to write about social exchange in addition to Homans. Blau (1964), who is considered one of the main developers of the exchange perspective in sociology, came to the fore by using more economic terms while developing a theory similar to Homans. He contributed to the understanding of the structure of exchange and power in social life by analyzing the social processes that drive relationships between individuals and groups (Wyleżalek, 2021). In his works, Blau generally focused on how social life could be organized. He emphasized the importance of reciprocity, trust, and interdependence in social exchanges and explored how power dynamics influence these exchanges (Blau, 1964).

Blau's theory of social exchange suggests that social relationships are governed by the exchange of resources, whether material or intangible. According to Blau (1964), individuals engage in social interaction with the expectation of receiving rewards and benefits in return. These rewards may include material goods, emotional support,

knowledge, or status. Central to Blau's theory is the concept of reciprocity, in which individuals reciprocate favors and gestures of goodwill to maintain balance in their relationships. Trust plays a crucial role in social exchange, as individuals must believe that their investments in the relationship will pay off in the future (Blau, 2017).

Richard M. Emerson, on the other hand, approached the theory of exchange from a perspective similar to Blau; both of them focused on the relationship of power to the process of exchange in their work (Blau, 1964; Emerson, 1972). According to Emerson, the theory of exchange provides the opportunity to present both power and equality within a single analytical framework (Cook and Emerson, 1978).

Public discourse commonly portrays remote work as a mutually beneficial arrangement, where both employees and employers stand to gain (Felstead and Hendseke, 2017). Employers benefit from a more productive workforce, requiring less physical space and being more cost-effective to accommodate; meanwhile, workers enjoy the potential for a better work-life balance, leading to increased job satisfaction and organizational commitment (Felstead and Hendseke, 2017). Felstead and Hendseke (2017) also argue that Social Exchange Theory, which is based on the idea that parties must comply with certain rules and norms that create reciprocity, means that employees may exhibit behaviors such as doing unpaid work to gain opportunities, doing extra work to be noticed, and making more effort in their obligations to colleagues.

3. RESEARCH MODEL AND HYPOTHESES

This study delves into the intricate relationship between various factors influencing productivity in the realm of remote work, a phenomenon that has experienced unprecedented adoption across numerous sectors and institutions following the onset of the COVID-19 pandemic. These factors, collectively considered, encompass individual, interpersonal, and organizational dimensions, reflecting the multifaceted nature of remote work productivity.

Drawing upon a rich array of scholarly sources, including articles, theses, and publications specifically focused on remote work and its determinants, a comprehensive theoretical framework and conceptual basis were constructed. Through an exhaustive review of existing literature, insights were gleaned to inform the formulation of hypotheses and the development of a robust research model.

In this study, a model was meticulously crafted to empirically examine the hypothesized relationships derived from the synthesis of extant literature. Within this model, a constellation of variables was identified as pivotal determinants of productivity in remote work settings. These variables include self-efficacy, interpersonal relationships, organizational commitment, management control and support, physical work environment, job performance, motivation, job satisfaction, and technostress.

By systematically analyzing these variables and their interconnections, this study aims to provide a nuanced understanding of the dynamics at play within remote work environments. Through empirical research and hypothesis testing, this study attempts to elucidate the mechanisms by which these factors affect productivity outcomes and offers valuable insights to organizations trying to navigate the complexities of remote work arrangements.

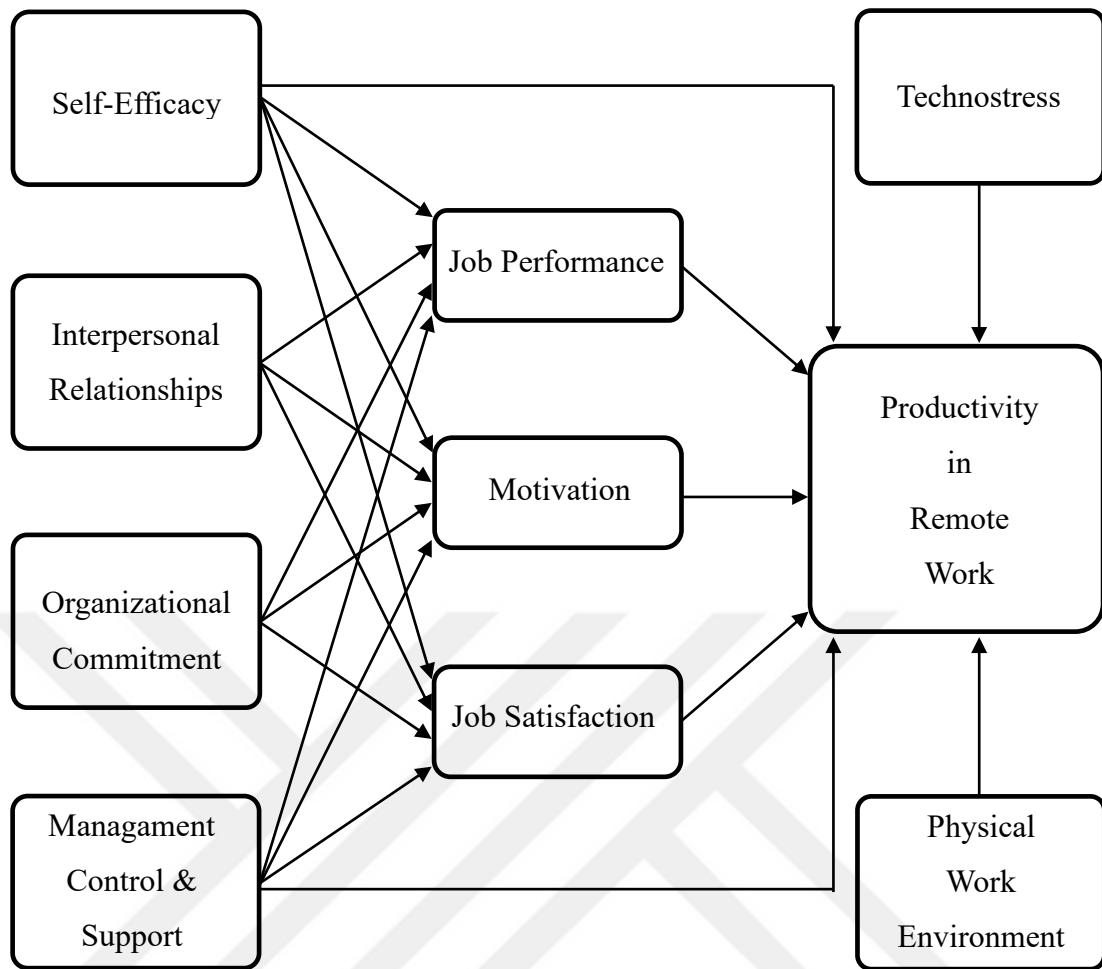


Figure 3.1: Conceptual Model

3.1.The Impact of Self-Efficacy on Productivity in Remote Work

This study seeks to examine the impact of self-efficacy on productivity in remote work settings, drawing on Albert Bandura's Self-Efficacy Theory (1977). Self-efficacy refers to an individual's assessment of their capability to successfully perform specific behaviors or tasks (Bandura, 1978).

When individuals have high levels of self-efficacy in remote work environments, they demonstrate greater confidence in their capacity to effectively manage their workload, overcome obstacles, and adapt to changing circumstances (Lange and Kayser, 2022). This confidence enables remote workers to take proactive steps to organize their tasks, set achievable goals, and persevere in the face of challenges, ultimately increasing their productivity levels (Tramontano et al., 2021; Cherian and Jacob, 2013; Lange and Kayser, 2022). Additionally, individuals with high self-efficacy are more likely to

exhibit proactive behaviors such as searching for resources, using available technology efficiently, and managing their time and priorities effectively (Li et al., 2020). These proactive behaviors contribute to increased task engagement, problem-solving ability, and overall performance in remote work environments (Espedido and Searle, 2020; Arifin et al., 2021). Moreover, self-efficacy can serve as a buffer against the negative effects of stress and uncertainty commonly experienced in remote work environments (Lange and Kayser, 2022; Tsang et al., 2023). Remote workers with strong self-efficacy beliefs are better equipped to maintain a positive outlook (Yada et al., 2022), regulate their emotions (Xiyun et al., 2022), and cope effectively with the demands of remote work (Tramontano et al., 2021), thus reducing potential disruptions to their productivity.

In summary, individuals with high self-efficacy demonstrate higher productivity in remote work environments due to their confidence in their ability to manage tasks, their proactive approach to challenges, and their resilience in the face of adversity (Virtaneva et al., 2021). Accordingly, the first hypothesis is as follows:

H1: Self-efficacy positively affects productivity in remote work.

Albert Bandura (1977)'s Self-Efficacy Theory posits that individuals with high self-efficacy beliefs are more likely to engage in behaviors that lead to successful performance outcomes (Lai and Chen, 2012; Espedido and Searle, 2020; Cherian and Jacob, 2013). Job performance, on the other hand, reflects the extent to which individuals effectively execute their job responsibilities and achieve desired outcomes (Motowidlo, 2003).

Individuals with high self-efficacy are more likely to demonstrate superior job performance in remote work environments. Studies in the literature also emphasize the positive impact of self-efficacy on job performance (Lai and Chen, 2012; Rahayu et al., 2018; Downes et al., 2021; Abun, 2021; Yagil et al., 2023; Hadi, 2023). According to Singh et al. (2009), self-efficacy is related to a person's confidence in his ability to solve various problems that remain or will be encountered. Singh et al. (2009), who examined the effects of athletes' self-efficacy on their performance, suggested that the self-efficacy of athletes at the national level was significantly better than those at the regional level. For this reason, emphasis has been placed on the relationship between self-efficacy and performance. In the study conducted by Rahayu et al. (2018), it is

stated that self-efficacy, together with job satisfaction and work culture, has a positive and significant effect on increasing the performance of employees in the banking sector. There are a number of studies in the literature investigating the effect of self-efficacy on performance in various sectors. Therefore, this thesis aims to examine the effect of self-efficacy on employee performance in remote work and defends the following hypothesis:

H2a: Self-efficacy positively affects job performance in remote work environments.

Motivation involves the internal cognitive and emotional processes that drive and maintain actions aimed at achieving specific goals and outcomes (Schunk and DiBenedetto, 2021). Motivation regulation strategies depend not only on the problem that causes lack of motivation but also on individual tendencies such as cognitive abilities and goal orientations (Trautner and Schwinger, 2020). Additionally, an important individual tendency may be associated with self-efficacy in dealing with difficult or new situations by considering one's own competencies (Bandura, 1977; Trautner and Schwinger, 2020; Honicke and Broadbent, 2016). Just like Trautner and Schwinger (2020), Kryshko et al., (2022) also linked the beliefs that individuals have with their self-efficacy so that they can effectively regulate their motivation, and suggested that individuals with high self-efficacy can consciously influence their motivational states.

In light of existing literature, self-efficacy is a critical determinant of human motivation. Self-efficacy increases intrinsic motivation by encouraging a strong belief in one's abilities, encourages effective task strategies, and interacts positively with extrinsic motivation. Therefore, this study advocates the following hypothesis:

H2b: Self-efficacy positively affects motivation in remote work environments.

Job satisfaction refers to the positive emotional response individuals have toward their job or work-related experiences (Locke, 1976). It reflects the degree to which employees feel fulfilled and content in their roles and within their work environments (Belias and Koustelios, 2014).

The literature has consistently shown that self-efficacy is related to job satisfaction (Bargsted, 2019; Burić and Moè, 2020; Türker and Kahraman, 2021; Maha and Babu, 2024). Since employees with high self-efficacy will feel more competent while performing tasks, the sense of success they will feel as a result of their work will be

more intense, which will increase their job satisfaction. In other words, employees who believe in their ability to perform well are more likely to be proud and satisfied with their accomplishments, this directly contributes to their overall job satisfaction. Therefore, this thesis proposes the following hypothesis:

H2c: Self-efficacy positively affects job satisfaction in remote work environments.

3.2. The Impact of Interpersonal Relationships on Productivity in Remote Work

This study aims to examine the impact of interpersonal relationships on productivity in remote work environments, drawing on the insights of Social Exchange Theory. When Social Exchange Theory is applied to the hypotheses, interpersonal relationships in remote work serve as the first stage of the exchange process. When remote workers engage in positive social exchanges with colleagues, they accumulate social resources and experiences that contribute to their overall job performance, motivation, and job satisfaction (Chernyak-Hai and Rabenu, 2018; Gould-Williams and Davies, 2005). These social exchanges involve acts of reciprocity in which individuals invest in building relationships, cultivating trust, and encouraging collaboration within virtual teams (Torro and Pirkkalainen, 2023; Torro, 2023; Chen and Sriphon, 2022).

Interpersonal relationships, characterized by the quality of interactions, collaboration, and social support among workers, are recognized as crucial determinants of work outcomes (Hager, 2018; Guinot and Chiva, 2019; Newman et al., 2020; Abe and Mason, 2016; Beckel and Fisher, 2022). Interpersonal dynamics affect job performance (Bulińska-Stangrecka and Bagieńska, 2021; Beckel and Fisher, 2022); because individuals who experience strong interpersonal connections are more likely to engage in effective teamwork, share information, and leverage collective resources to accomplish tasks (Zajac et al., 2021; Muresan et al., 2024). Drawing upon social exchange theory, which emphasizes the importance of social interactions in shaping individuals' behavior and outcomes (Cropanzano and Mitchell, 2005), this study posits that positive interpersonal relationships foster a conducive work environment (Achaya, 2020), characterized by trust, communication, and cooperation. This, in turn, enhances job performance by facilitating effective teamwork, knowledge sharing, and problem-solving (Purnantara et al., 2023). Therefore, this study defends the following hypothesis:

H3a: Interpersonal relationships positively affect job performance in remote work environments.

Positive interpersonal relationships are associated with increased collaboration, communication, and social support among team members (Jolly et al., 2021; Agbaria and Mokh, 2022). Additionally, interpersonal relationships among remote team members influence individuals' motivation levels (Morrison-Smith and Ruiz, 2020), which, in turn, affects their productivity (Masriah, 2020; Zhang et al., 2020b; Kamaruddin et al., 2023; Shahzad et al., 2023; Allo et al., 2024). When individuals feel valued and supported by their colleagues, they are more likely to experience higher levels of motivation to contribute to the team's goals and objectives. According to the study investigating the role of interpersonal relationships in students' motivation, participation and success, it supports that high quality interpersonal relationships in individuals' lives contribute to their motivation and success in social and academic fields (Martin and Dowson, 2009). In conclusion, this thesis suggests that interpersonal relationships play an important role on motivation in the remote working environment and proposes the following hypothesis:

H3b: Interpersonal relationships positively affect motivation.

As remote workers experience positive interactions and accumulate social capital through exchanges with their colleagues, they develop a sense of fulfillment, belongingness and engagement in their work (Tapani et al., 2022; Durakovic et al., 2022). According to Zuhra (2022), strong interpersonal relationships provided in the work environment create a corporate culture that will differentiate the company to which employees are affiliated from other companies. Continuous maintenance of these habits and their common acceptance will greatly affect job satisfaction (Zuhra, 2022). Poljašević et al. (2021) also added to the literature in their study that positive interpersonal relationships are effective on job satisfaction. Eventually, this article aims to find out how the relationship between employees in remote work affects job satisfaction and defends the following hypothesis:

H3c: Interpersonal relationships positively affect job satisfaction in remote work environments.

3.3. The Influence of Organizational Commitment on Remote Work Productivity

Numerous studies have extensively explored the impact of organizational commitment on job performance, consistently demonstrating a positive relationship (Loan, 2020; Ridwan et al., 2020; Nguyen and Ngo, 2020; Yandi and Havidz, 2022; Erlangga and Erlangga, 2021; Kiprawi et al., 2020; Nisan et al., 2023; Menekşe and Yılmaz, 2023; Demir et al., 2023). This body of research underscores the notion that employees who exhibit a strong commitment to their organization tend to display higher levels of dedication, engagement, and motivation in their work roles.

Geographical separation from the workplace can influence the dynamics of organizational commitment among remote employees, yet a strong sense of loyalty to the organization often endures despite the physical distance. Research by Taboroši et al. (2020) found that remote employees often exhibit a higher level of organizational commitment compared to their counterparts in traditional work settings. They concluded that loyalty and commitment to work are not determined by the nature of the work arrangement, whether remote or traditional. Similarly, Alshibly and Alzubi (2022) indicated that remote work, when implemented within an appropriate framework, enhances job satisfaction and fosters greater organizational commitment. Additionally, Tariq et al. (2022) explored the effects of work-life balance and organizational commitment on the productivity of remote employees, identifying a moderately positive relationship between commitment and productivity. They also recommended further research incorporating additional variables and diverse organizations to strengthen the findings. Building on these studies, this thesis examines how organizational commitment among remote employees impacts job performance and proposes the following hypothesis:

H4a: Organizational commitment positively affects job performance in remote work environments.

A strong organizational commitment and high work motivation in employees are important elements that companies should pay attention to in order for employees to achieve maximum performance and job satisfaction (Muktamar et al., 2023). Especially since there is a distance between employees and managers in remote working environments, their measurement is of critical importance for businesses.

Sahoo and Das (2011) explain that employees who exhibit strong organizational commitment tend to form an emotional bond with their organization and demonstrate a strong willingness to contribute meaningfully to its success. Moreover, the importance employees place on their jobs enhances not only their work experience and productivity but also boosts their motivation by providing psychological stability (Jung and Yoon, 2016). Employees with high organizational commitment identify themselves more with the organization and attach more meaning and value to their work (Yousf and Khurshid, 2024). This allows them to work in a more motivated way. The effects of organizational commitment on work motivation have been introduced into the literature by many researchers and it has been repeated many times that it has a positive effect (Jufrizen et al., 2022; Nurlina et al., 2023; Hadi et al., 2023; Çivit and Köse, 2024). In addition to the studies on traditional work environments in the literature, this study aims to find the effect of organizational commitment on work motivation in remote working environments and defends the following hypothesis:

H4b: Organizational commitment positively affects motivation in remote work environments.

Ćulibrk et al. (2018) describe organizational commitment as an extension of job satisfaction, focusing on an employee's positive attitude toward the organization as a whole rather than just their specific role. Employees who are committed to their organizations have a greater sense of belonging and are more likely to embrace the company's goals (Mohammed and Rashid, 2023). Therefore, this makes their work more meaningful and satisfying. Empirical studies consistently show that organizational commitment and job satisfaction are related to each other (Loan, 2020; AlKahtani et al., 2021; Al-Refaei et al., 2023). Therefore, this thesis defends the following hypothesis:

H4c: Organizational commitment positively affects job satisfaction in remote work environments.

3.4. The Impact of Management Control & Support on Job Performance, Motivation and Job Satisfaction

This chapter aims to investigate the impact of management control and support in remote working on job performance, motivation and job satisfaction, and therefore productivity. The Job Demand-Control-Support (JDSCS) model was used to develop

the hypotheses for this analysis. This model provides a comprehensive framework for understanding how various factors in the work environment affect employee well-being (Ariza-Montes et al., 2018). By integrating "Management Control and Support" into the support section of the JDCS model, it is aimed to examine how these elements especially affect remote working dynamics. According to Karasek and Theorell (1990), "there is generally beneficial social interaction in the workplace among both coworkers and managers." Additionally, for the "Support" part of the model, another variable of the research, interpersonal relationships, can be considered together with the management control and support component.

Effective management control and support play a critical role in improving job performance, especially in remote work environments. As Flamholtz (1996) stated in his book "Effective management control", feedback is of two types: corrective and evaluative. Corrective feedback refers to information provided about the performance of an operational system, aimed at making adjustments to enhance its effectiveness and improve overall outcomes (Flamholtz, 1996). Moreover, as mentioned earlier, according to the JDCS model, the balance between the demands placed on employees and the level of control given to them is critical to promoting well-being, motivation and productivity, while also reducing psychological and physiological tensions (Fila, 2016). This also applies to remote work.

This study argues that employees are more motivated to perform their tasks effectively when managers provide clear guidance, constructive feedback, and emotional support. Additionally, remote work presents unique challenges, such as isolation, communication barriers, and difficulties in maintaining work-life balance. In this context, management control and support become essential in providing structure and stability. Therefore, this study aims to investigate the effects of management control and support on employees in remote working and proposes the following hypothesis:

H5a: Appropriate levels of perceived management control & support in remote work settings positively impact job performance.

When managers provide structured yet flexible control, employees feel a greater sense of autonomy and authority, which can increase their intrinsic motivation (Van der Kolk et al., 2019). According to Malmi and Brown (2008), the focus of management control is "to motivate and increase the performance of individuals and groups within the

organization by ensuring harmony between their goals and activities and the goals and activities of the organization." Additionally, Qammar et al. (2007) argue that organizational support enables employees to behave in a more motivated manner and increases productivity. Basamalah (2021) emphasizes that motivational factors and the work environment play an important role in creating job satisfaction. The motivation in question is intrinsic motivation, which is related to feedback from superiors and appreciation of the work done by the person. By providing the right balance of control and support, managers can create an environment that nurtures and sustains remote workers' motivation. Therefore, this thesis proposes the following hypothesis:

H5b: Appropriate levels of perceived management control & support in remote work settings positively impact motivation.

As employees work away from traditional offices or are geographically dispersed, companies expect their employees to align with the company's vision, goals, and values (Pianese et al., 2023). The extent to which these expectations are met can be understood through effective organizational control. This study argues that when managers offer a balanced approach to control, employees feel more empowered and satisfied. In remote working environments, where all communication occurs within a virtual framework, it is crucial for employees to know that their work is being monitored and that they will receive feedback from their managers. This assurance is essential for their job satisfaction. Therefore, this study proposes the following hypothesis:

H5c: Appropriate levels of perceived management control & support in remote work settings positively impact job satisfaction.

Management control and support play a critical role in increasing productivity for employees in both traditional office environments and remote working models (George et al., 2022; Chatterjee et al., 2022). Effective management ensures that goals, expectations, and performance metrics are clearly communicated to employees (Kalogiannidis, 2020), which helps employees to progress in line with corporate goals despite the physical distance in the remote working model. Supportive management strengthens trust and cooperation by providing employees with the necessary resources, clear guidance and emotional support (Newman and Ford, 2021; Saleem et al., 2024; Einwiller et al., 2021). This alleviates feelings of isolation and uncertainty

that are common challenges in remote work. Additionally, consistent check-ins, positive feedback, and recognition of employee achievements boost morale and motivation, which are essential for increasing productivity (Lind and Mishchenko, 2024; McCall, 2024; Begum et al., 2023). Studies also indicate that employees who view their managers as approachable and understanding tend to be more proactive, exhibiting greater motivation and improved performance levels (Raina, 2022; Khairy et al., 2023). As a result, combining control with support creates a remote work environment that is both structured and adaptable, thus maximizing productivity. Therefore, this thesis argues for the following hypothesis.

H6: Perceived management control & support has a positive impact on productivity in remote work.

3.5. The Influence of Job Performance on Productivity in Remote Work

Considering the previously mentioned definitions, job performance in remote work environments is an important determinant of productivity as it directly affects the quality and efficiency of results. Moreover, Inayat and Khan (2021) emphasize that an organization's overall productivity and success are inherently tied to the performance of its employees. This perspective aligns closely with the dynamics of remote work, where individual performance becomes even more critical due to the autonomous nature of the work environment. In remote work environments, where employees operate with increased autonomy, individual performance becomes a critical factor in determining productivity. High-performing employees are more effective at managing their time, prioritizing tasks, and adapting to challenges, all of which contribute to delivering quality work efficiently. This efficiency ensures that organizational goals are met, even in decentralized and virtual settings. High-performing employees are better equipped to manage their time, prioritize tasks, and adapt to challenges, ensuring that work is completed efficiently and effectively. This autonomy, while empowering, also places greater responsibility on employees to self-motivate and maintain productivity without constant supervision. As a result, this thesis underscores the positive relationship between job performance and productivity, particularly within the context of remote work, and seeks to evaluate this connection through the following hypothesis:

H7: Job performance positively affects productivity in remote work.

3.6. The Effect of Motivation on Remote Work Productivity

As many studies in the literature have already stated (Johari and Jha, 2020; Kalogiannidis, 2021; Kamaruddin et al., 2023; Herpfer et al., 2024; Getselova, 2024), motivation is one of the critical determinants of productivity in any work environment, and its importance increases even more in the context of remote working. Individuals who work motivated show higher levels of engagement, commitment and efficiency, all of which directly contribute to productivity. Remote work environments, characterized by increased autonomy and reduced physical supervision (Leonardi et al., 2024), need heightened levels of self-regulation and intrinsic motivation from employees to sustain their performance and dedication, comparable to that observed in traditional workplace settings. Motivational factors such as recognition from managers, goal clarity, and meaningful work help maintain high performance levels of individuals working remotely (Tovmasyan and Minasyan, 2020). Building on these considerations, this thesis proposes and advocates for the following hypothesis:

H8: Motivation positively affects productivity in remote work.

3.7. Job Satisfaction and Its Effect on Remote Work Productivity

Job satisfaction is one of the fundamental drivers of employee performance and productivity (Alrawahi et al., 2024, Halkos and Bousinakis, 2010), particularly in remote work environments. Employees who are content with their roles and working conditions are more likely to perform their tasks effectively, demonstrate higher levels of motivation, and exhibit greater commitment to their organizations. This satisfaction fosters a positive attitude towards work, which not only enhances individual productivity but also contributes to overall organizational success. Therefore, based on the preceding explanation and the supporting literature, this thesis presents the following hypothesis:

H9: Job satisfaction positively affects productivity in remote work.

3.8. The Impact of Technostress on Productivity in Remote Work

Research has shown a clear connection between the use of digital technologies and platforms and heightened stress levels among workers (Singh et al., 2022; Marsh et al., 2022; Mariani et al., 2023), commonly referred to as technostress. The demands of remote working require employees to use technology extensively for communication, task management and collaboration (Lal et al., 2023). But this requirement can also bring its own unique challenges that hinder productivity (La Torre et al., 2020; Pothuganti, 2024; Atrian and Ghobbeh, 2023). Frequent notifications, constant availability pressures, and challenges with complex software can overwhelm employees and make it harder for them to concentrate on their work (Salo et al., 2022). Additionally, trying to use and manage many different digital tools and platforms at the same time can be mentally exhausting for employees (Ragu-Nathan et al., 2008). This heavy mental effort, often called cognitive load, can make workers feel tired and less efficient. When they have to switch between various programs and systems throughout the day, it can slow them down and make it harder to stay productive. When employees struggle to manage technological demands, it can disrupt their performance, create challenges in completing tasks effectively, and lower overall productivity. For these reasons, this thesis defends the following hypothesis:

H10: Technostress negatively affects productivity in remote work.

3.9. The Effect of Physical Work Environment on Productivity in Remote Work

A suitable working environment is crucial for remote workers, as individuals naturally seek spaces that meet their needs and align with their characteristics to adapt effectively (Mura et al., 2023). Key elements such as ergonomic furniture, proper lighting, minimal noise, and an organized workspace significantly impact an individual's ability to concentrate and complete work efficiently. When employees have access to a comfortable and distraction-free environment, they can focus better on their tasks, maintain higher levels of energy, and reduce the cognitive strain caused by poor physical conditions. Furthermore, a sense of crowding, whether physical or psychological, can directly or indirectly impact remote workers' satisfaction, well-being, and job performance, highlighting the importance of creating a comfortable and

spacious workspace (Park et al., 2023). Given these considerations, it is clear that favorable physical working environment conditions play a critical role in supporting productivity in remote work. That's why this thesis supports the following hypothesis:

H11: Favorable physical working environment conditions positively influence remote work productivity.

Table 3.1: Hypotheses

No	Code	Hypothesis
H1	H1	Self-efficacy positively affects productivity in remote work.
	H2a	Self-efficacy positively affects job performance in remote work environments.
H2	H2b	Self-efficacy positively affects motivation in remote work environments.
	H2c	Self-efficacy positively affects job satisfaction in remote work environments.
	H3a	Interpersonal relationships positively affect job performance in remote work environments.
H3	H3b	Interpersonal relationships positively affect motivation in remote work environments.
	H3c	Interpersonal relationships positively affect job satisfaction in remote work environments.
	H4a	Organizational commitment positively affects job performance in remote work environments.
H4	H4b	Organizational commitment positively affects motivation in remote work environments.
	H4c	Organizational commitment positively affects job satisfaction in remote work environments.
	H5a	Appropriate levels of perceived management control & support in remote work settings positively impact job performance.
H5	H5b	Appropriate levels of perceived management control & support in remote work settings positively impact motivation.
	H5c	Appropriate levels of perceived management control & support in remote work settings positively impact job satisfaction.
H6	H6	Perceived management control & support have a positive impact on productivity in remote work.
H7	H7	Job performance positively affects productivity in remote work.
H8	H8	Motivation positively affects productivity in remote work.
H9	H9	Job satisfaction positively affects productivity in remote work.
H10	H10	Technostress negatively affects productivity in remote work.
H11	H11	Favorable physical working environment conditions positively influence remote work productivity.

4. RESEARCH DESIGN AND METHODOLOGY

This thesis, titled *Productivity in Remote Work: A Holistic View at Remote Work by Investigating Individual-Level Elements, Interpersonal Dynamics, and Organizational Factors*, adopts a comprehensive two-study approach. The research combines quantitative survey methods with qualitative in-depth interviews to provide a nuanced understanding of remote work productivity. This section details the research methodology, including the design of the two studies, the participant demographics for each phase, the tools and techniques employed for data collection, and the procedures followed during implementation. It also summarizes the key findings obtained through the analysis of both datasets.

4.1. Research Design

This thesis employed a mixed-methods approach, integrating in-depth interviews and surveys as data collection methods. Conducted as two complementary studies, it combined quantitative and qualitative methodologies within a pragmatic paradigm framework. The pragmatic paradigm is grounded in key principles, including the application of the scientific method to test and validate solutions and its alignment with democratic values (Miller et al., 1996). Therefore, the research adopted Morgan's (2007) pragmatic approach, which emphasizes methodology as a connecting center between the abstract levels of epistemology and the practical levels of methods. Data were collected simultaneously, leveraging techniques from both research traditions to provide a holistic understanding of remote work productivity.

The quantitative study utilized measures to evaluate various factors influencing productivity in remote work. These included self-efficacy, team relationships, organizational commitment, motivation, job satisfaction, physical work environment, technostress levels, management control and support, job performance, and perceived productivity levels. Additionally, demographic characteristics such as gender and educational status were assessed to contextualize the findings.

The qualitative study utilized open-ended questions to explore various aspects of employees' remote work experiences, including their daily routines, communication

with managers and supervisors, perceived advantages and disadvantages, work oversight mechanisms, and, most critically, their perceptions of efficiency. These questions aimed to gather detailed insights into remote work practices.

Quantitative data were analyzed using regression analyses to test the study's hypotheses, while the qualitative data provided richer, more nuanced context to complement the quantitative findings. Understanding that remote work experiences vary greatly among individuals, qualitative in-depth interviews were conducted to capture participants' distinct views on their work practices and home office setups. The study focused on remote workers actively employed across various sectors in Türkiye. To gather a diverse sample, convenience and snowball sampling methods were utilized, ensuring a wide range of perspectives. Participants were fully briefed on the purpose of the research, and their involvement in both the survey and interview phases was entirely voluntary.

4.2. Sampling, Participants, and Data Collection

The target population for this study consisted of remote workers actively engaged in the labor force in Türkiye. Data collection employed convenience and snowball sampling techniques to reach a diverse range of participants. All participants were thoroughly informed about the aims of the research and willingly took part in both the survey and in-depth interviews on a voluntary basis.

4.2.1. Quantitative Study

The quantitative study utilized an online survey as the primary method for data collection, distributed through various social networks and web-based platforms to reach a broad audience of participants. The survey included questions designed to gather demographic information and measurement items related to key variables in the study. Responses were captured using a 5-point Likert scale to assess levels of agreement or frequency. Many of the survey scales were originally in English and were carefully translated into Turkish to ensure accuracy and clarity. The survey was conducted over a one-year period between January 2024 and December 2024, with a total of 274 participants representing various sectors completing it. However, following a screening process to ensure the reliability of the survey, 19 responses were

excluded, leaving 255 valid responses for the final analysis. Each participant took approximately 10–12 minutes to complete the survey, making it manageable and accessible for respondents. To facilitate the data collection process, the online platform Surveyey was employed, offering a user-friendly interface and secure data handling capabilities. Once the data were collected, it was analyzed using SPSS software, which provided robust tools for statistical analysis and hypothesis testing.

4.2.2. Qualitative Study

The qualitative aspect of the study involved in-depth interviews to explore participants' remote work experiences. Conducted online or face-to-face based on participant preferences, the sampling combined convenience and snowball techniques to ensure a diverse and relevant participant pool. The interviews featured open-ended questions to allow for a comprehensive exploration of the remote working process. Participants were asked about various aspects of remote work, including their work routines, communication and relationships with colleagues and supervisors, company policies and support systems, and their perceptions of productivity while working remotely. This open-ended approach encouraged participants to share their personal experiences, providing a deeper understanding of the nuances involved in remote work practices. The qualitative phase targeted a total of 10 participants from diverse professional backgrounds. Each interview was designed to last approximately 15–20 minutes, ensuring an efficient yet thorough discussion. Data collection for this phase took place over the course of a year, from January to December 2024, and was carefully structured to complement the findings from the quantitative analysis. This qualitative approach was integral to the study, as it provided nuanced perspectives that enriched the understanding of remote work dynamics, offering context and depth that could not be captured through quantitative methods alone. The study aimed to better understand remote working by focusing on the lived experiences of the participants and how it affects employee productivity, while also providing a holistic perspective on its challenges and opportunities.

4.3. Measurement for Quantitative Study

4.3.1. Self-Efficacy

To assess the self-efficacy levels of remote workers, this study used a scale developed by Schwarzer and Jerusalem (1995) that has been proven to be reliable and valid in measuring self-efficacy. Five carefully selected items were included from the original scale, adapted to suit the remote work context. These items were designed to assess participants' confidence in their ability to perform tasks, overcome challenges, and effectively achieve goals while working remotely. Participants responded to these items using a 5-point Likert scale ranging from "strongly disagree" to "strongly agree," allowing for a detailed measurement of their self-efficacy levels. The items included in the scale are presented in Table 4.1.

Table 4.1: Measurement Items of Self-Efficacy

Measurement Items (5-point scale)	Source
I can remain calm when facing difficulties because I can rely on my coping abilities.	Schwarzer and Jerusalem (1995)
Thanks to my resourcefulness, I know how to handle unforeseen situations.	
I am confident that I could deal efficiently with unexpected events.	
I can usually handle whatever comes my way.	
I can solve most problems if I invest the necessary effort.	

4.3.2. Interpersonal Relationships

To assess the levels of interpersonal relationships, six items were selected from the scale developed by Szostek and Łapińska (2020). These items were measured using a 5-point Likert scale, providing a structured approach to capture variations in participants' perceptions of their interpersonal dynamics. The selected questions are detailed in Table 4.2.

Table 4.2: Measurement Items of Interpersonal Relationships

Measurement Items (5-point scale)	Source
In the team we can predict each other's behavior and reactions.	Szostek and Łapińska (2020)
In the team we respond to each other's needs.	
We have direct contact with each other in the team.	
In the team, we are not afraid to voice opinions critical of the company.	
In the team, we help each other solve private problems	
The team has social contact after work (e.g. we go to the cinema, to the pub).	

4.3.3. Organizational Commitment

To measure organizational commitment, six items were selected from the scale developed by Demirel and Göç (2013), a tool recognized for its reliability and relevance in assessing commitment within organization. These items were chosen to evaluate the degree to which participants feel emotionally attached to, involved with, and loyal to their organization while working remotely. Participants responded to the selected items using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." This format allowed for the collection of detailed and graded responses, offering insights into the varying levels of organizational commitment among remote workers. The selected questions are presented in Table 4.3.

Table 4.3: Measurement Items of Organizational Commitment

Measurement Items (5-point scale)	Source
I'd be happy to spend the rest of my professional life in this organization.	Demirel and Göç (2013)
I like to talk to my friends about the organization.	
I consider the problems of the organization as my own problems.	
I can't easily commit to another organization as I've done to this organization.	
I feel an emotional bond with this organization.	
I feel loyal to this organization.	

4.3.4. Motivation

Motivation levels were assessed using six items adapted from the scale developed by Gagné et al. (2010), a widely recognized tool for measuring workplace motivation (Fishbach and Woolley, 2022; Li and Yao, 2022; Mitchell et al., 2020). These items were specifically chosen to capture various dimensions of motivation, including intrinsic and extrinsic factors, as they relate to the remote work context. Participants rated their responses on a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree," enabling a detailed analysis of their motivational drivers and patterns. This approach provided valuable insights into how motivation influences productivity in a remote working environment. The specific items used for this measurement are outlined in Table 4.4.

Table 4.4: Measurement Items of Motivation

Measurement Items (5-point scale)	Source
Because I enjoy this work very much.	Gagné et al. (2010)
Because I have fun doing my job.	
I chose this job because it allows me to reach my life goals.	
Because this job fulfills my career plans.	
Because this job fits my personal values.	
Because this job affords me a certain standard of living.	

4.3.5. Job Satisfaction

Job satisfaction was measured using items from the scale developed by Macdonald and MacIntyre (1997), a reliable and widely utilized instrument in organizational research. This scale was chosen for its ability to capture various dimensions of job satisfaction effectively. Participants responded to the items using a 5-point Likert scale, allowing for a nuanced understanding of their satisfaction levels in the context of remote work. The specific items used can be seen in detail in Table 4.5.

Table 4.5: Measurement Items of Job Satisfaction

Measurement Items (5-point scale)	Source
I receive recognition for a job well done.	Macdonald and MacIntyre (1997)
I feel close to the people at work.	
I feel secure about my job.	
On the whole, I believe work is good for my physical health.	
All my talents and skills are used at work.	
I get along with my supervisors.	
I feel good about my job.	

4.3.6. Physical Work Environment

The physical work environment conditions in remote work were assessed using seven survey items adapted from the study by Tleuken et al. (2022). This scale was selected for its comprehensive approach to evaluating factors that influence the functionality, comfort, and overall suitability of workspaces for remote employees. Participants were asked to respond to these seven items using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." This approach facilitated a detailed analysis of how the physical work environment impacts remote workers' experiences and productivity. The specific questions used for this measurement are presented in detail in Table 4.6.

Table 4.6: Measurement Items of Physical Work Environment

Measurement Items (5-point scale)	Source
The level of natural light at my home is comfortable and sufficient for working at home.	Tleuken et al. (2022)
The noise level at my house is comfortable for working at home.	
The temperature level at my home is comfortable for working at home.	
The air at my home is healthy and comfortable.	
There is a personal table at my home for comfortable working.	
There is an office space separated from the living space at my home.	
The ergonomic design of the furniture in my home does not cause me any pain or discomfort	

4.3.7. Technostress

Technostress levels among remote workers were measured using a six-question survey. Four items were adapted from the study by Fernández et al. (2023), and two items were drawn from the study by Ragu-Nathan et al. (2008). These questions were selected for their relevance in capturing the stressors associated with the use of technology in remote work settings. Participants responded to these six items using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." This method provided valuable insights into the extent and impact of technostress experienced by remote employees. The specific questions included in this measurement are detailed in Table 4.7.

Table 4.7: Measurement Items of Technostress

Measurement Items (5-point scale)	Source
I feel forced to work faster because of the use of digital platforms in teleworking.	Fernández et al. (2023)
I feel forced to do more work than I can cope with because of the use of digital platforms in teleworking.	
I feel forced to work on a very tight schedule because of the use of digital platforms in teleworking.	
I don't know enough about digital platforms in telework to manage my work satisfactorily.	
I am forced to change my work habits to adapt to new technologies.	Ragu-Nathan et al. (2008)
I have a higher workload because of increased technology complexity.	

4.3.8 Perceived Management Control & Support

Perceived management control and support were measured using six items adapted from the study by Eisenberger et al. (1990). These questions were selected for their ability to effectively capture employees' perceptions of the control and support provided by their organization, particularly in the context of remote work. Participants responded to these six items on a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." The specific items utilized in this measurement are detailed in Table 4.8.

Table 4.8: Measurement Items of Perceived Management Control & Support

Measurement Items (5-point scale)	Source
My immediate supervisor gives me more recognition when I get a lot of work done.	Eisenberger et al. (1990)
If I get my job done on time, I have more influence with my immediate supervisor.	
My immediate supervisor pays added attention to the opinions of the best workers.	
It is more likely that I will be given a pay raise or promotion if I finish a large amount of work.	
It is more likely that I will be given a pay raise or promotion if I do high quality work.	
When I finish my job on time, my job is more secure.	

4.3.9 Perceived Job Performance

Perceived job performance levels were measured using six items selected from the study by Na-Nan et al. (2018). Items were chosen for their effectiveness in evaluating employees' perceptions of their job performance, particularly within the remote work context. Participants responded to the six items using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." This method provided valuable insights into how remote workers evaluate their own performance in fulfilling their job responsibilities. The items used for this measurement are outlined in Table 4.9.

Table 4.9: Measurement Items of Perceived Job Performance

Measurement Items (5-point scale)	Source
I perform my duties and responsibilities carefully and accurately.	Na-Nan et al. (2018)
I complete my duties and responsibilities in accordance with specifications and standards.	
The output units under my responsibility meet organizational expectations.	
The output units under my responsibility correspond to my skills and abilities.	
I normally complete my duties and responsibilities as planned.	
I fulfill my duties and responsibilities on time.	

4.3.10. Perceived Productivity

For the dependent variable of the study, perceived productivity, a six-item scale was selected from the study conducted by Akman et al. (2023). This scale was chosen because of its ability to effectively measure how remote workers perceive their productivity in relation to their job duties and responsibilities. Participants responded to the six items using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” This approach allowed for a detailed analysis of perceived productivity levels among remote workers. The specific items used for this measure are presented in Table 4.10.

Table 4.10: Measurement Items of Perceived Productivity

Measurement Items (5-point scale)	Source
I can better focus on my work tasks when I work remotely.	Akman et al. (2023)
Working remotely makes me more effective in achieving my key goals and results.	
I meet the expectations of my line manager even when my work is interrupted by my family or other responsibilities when working from home.	
My overall work efficiency has increased thanks to my ability to work remotely/from home.	
I am happy with my work-life balance when I work remotely.	
I know when to take a break/stop work when I work from home to rest.	

4.3.11. Demographics

In addition to questions related to the components of the conceptual framework, the survey also included socio-demographic questions that provided background information about the participants. These questions gathered data on gender (female, male), age, marital status (married, single), educational background (primary/middle school, high school, associate degree, bachelor’s degree, master’s degree, doctoral degree), profession, and monthly income. Income was categorized into the following ranges: 0-9,999 TL, 12,000-17,001 TL, 17,002 TL (wage floor), 17,003-23,999 TL, 24,000-30,999 TL, 31,000-38,999 TL, and 39,000 TL or higher. These socio-demographic questions, the responses to which are shown in Table 4.11, helped to gain

a more detailed understanding of the characteristics of the participants and allowed for the analysis of possible differences between responses based on various demographic factors.

Table 4.11: Characteristics of Quantitative Data Sample (N= 255)

Variable	Frequency	Percentage (%)
Gender		
Male	96	37.6
Female	159	62.3
Age		
24 or less	37	14.5
25-34	175	68.6
35-44	34	13.3
45 or more	9	3.5
Marital Status		
Single	172	67.4
Married	83	32.5
Education		
High School	10	3.9
College	27	10.5
Bachelor	188	73.7
Master	28	10.9
PhD	2	0.7
Income		
17.002	14	5.4
17.003-23.999	34	13.3
24.000-30.999	43	16.8
31.000-38.999	48	18.8
39 or more	116	45.4

The in-depth interviews with remote workers involved 6 women and 4 men, mostly from the software industry. The participants have an average age of 28, and all hold a bachelor's degree, with 3 currently pursuing postgraduate studies. Additionally, two of the participants—one female and one male—are married and both manage remote work while balancing family responsibilities with young children. Finally, six participants work fully remotely, while four follow a hybrid model, with only occasional office visits required.

5. DATA ANALYSIS

This thesis adopted a dual-study approach to investigate the conceptual model (illustrated in Figure 3.1) within the framework of a pragmatic paradigm, integrating both quantitative and qualitative data collection and analysis. Quantitative data were subjected to statistical analysis to test hypotheses, identify patterns, and uncover relationships among critical variables. In contrast, qualitative data were examined through content analysis, offering rich insights into participants' experiences and perceptions. This complementary integration of methodologies provided a holistic perspective, ensuring a deeper and more nuanced understanding of the research problem.

5.1. Analysis of Quantitative Data

5.1.1. Reliability and Validity Assessment

Reliability and validity are key measures to ensure the rigor and trustworthiness of research processes and findings (Roberts and Priest, 2006). For research to be meaningful and effective, it must provide accurate and reliable evidence that avoids misleading stakeholders. For example, if an organization implements a new policy based on research findings, decision makers and employees must have confidence that these decisions are based on sound, strong evidence rather than flawed methodologies. Moreover, for the integrity of the research, the factors in the model must have sufficient validity and reliability (Mohajan, 2017). Proper evaluation of these metrics helps to confirm that the constructs are both consistent and meaningful, providing a solid foundation for any subsequent causal analysis.

In this thesis, AMOS software from the SPSS suite was used to assess the reliability and validity of the measurement scales. These analyses aimed to ensure that the constructs used in the research were both internally consistent and capable of accurately measuring the intended theoretical concepts. The validity analysis, summarized in Table 5.1, evaluates Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and the maximum reliability of

constructs ($\text{MaxR}^2[H]$). Additionally, correlations between constructs and their square root of AVE are presented for discriminant validity testing. According to Hair et al. (2010), the thresholds for assessing key measurement properties are as follows: For reliability, a Composite Reliability (CR) value greater than 0.7 is considered acceptable. Convergent validity is supported when the Average Variance Extracted (AVE) exceeds 0.5. Additionally, discriminant validity is established when the Maximum Shared Squared Variance (MSV) is less than the AVE, and the square root of the AVE is greater than the inter-construct correlations. These thresholds are essential for ensuring the robustness and validity of the measurement model.

Reliability: $\text{CR} > 0.7$

Convergent Validity: $\text{AVE} > 0.5$

Discriminant Validity: $\text{MSV} < \text{AVE}$

Table 5.1: Validity Analysis

	CR	AVE	MSV	MaxR(H)	SE	IR	OC	MO	JS	PWE	TS	MCS	JP	PRW
SE	0,909	0,667	0,523	0,915	0,817									
IR	0,862	0,560	0,541	0,887	0,714***	0,749								
OC	0,781	0,641	0,511	0,783	0,404***	0,575***	0,801							
MO	0,912	0,722	0,712	0,920	0,641***	0,636***	0,542***	0,850						
JS	0,887	0,569	0,712	0,893	0,710***	0,735***	0,715***	0,844***	0,754					
PWE	0,903	0,609	0,466	0,911	0,673***	0,561***	0,417***	0,668***	0,679***	0,781				
TS	0,894	0,632	0,107	0,918	0,166*	0,179*	0,291***	0,111	0,141*	0,060	0,795			
MCS	0,852	0,539	0,378	0,875	0,352***	0,479***	0,479***	0,451***	0,615***	0,394***	0,327***	0,734		
JP	0,939	0,722	0,523	0,947	0,723***	0,585***	0,393***	0,601***	0,713***	0,683***	0,156*	0,424***	0,849	
PRW	0,913	0,642	0,367	0,943	0,508***	0,384***	0,238**	0,492***	0,437***	0,606***	0,133†	0,307***	0,482***	0,801

(SE: Self-Efficacy, IR: Interpersonal Relationships, OC: Organizational Commitment, MO: Motivation, JS: Job Satisfaction, PWE: Physical Work Environment, TS: Technostress, MCS: Management Control & Support, JP: Job Performance, PRW: Productivity in Remote Work)

As shown in Table 5.1, all constructs demonstrated strong reliability, with CR values exceeding the threshold of 0.7, indicating internal consistency. Convergent validity was also confirmed, as AVE values for all constructs were above 0.5. Malhotra and Dash (2011) explain that AVE serves as a stricter measure compared to CR. They note that relying solely on CR may lead researchers to assume adequate convergent validity for a construct, even when a significant portion of the variance—over 50%—is attributed to error. Discriminant validity was largely supported, with MSV values lower than AVE for most constructs, except for "Satisfaction," which showed a marginal overlap with other constructs, warranting further review. Overall, the constructs meet the necessary thresholds, confirming the robustness of the model's measurement properties.

5.1.2. Structural Equation Modeling (SEM): Confirmatory Factor Analysis (CFA)

Structural Equation Modeling (SEM) is a robust statistical technique used to test hypotheses about the relationships between observed and latent variables (Hoyle, 1995). One of the primary advantages of SEM is its ability to evaluate complex models that encompass a network of theoretical relationships (West et al., 2012). Confirmatory Factor Analysis (CFA), a specific form of SEM, focuses on the measurement model by investigating the relationships between observed indicators—such as test items, scores, or behavioral ratings—and their underlying latent variables or factors (Brown and Moore, 2012, p. 261). According to Hoyle (2000), Confirmatory Factor Analysis (CFA) is a statistical method specifically designed to identify and examine hypothetical constructs as reflected in imperfect indicators. What distinguishes CFA from other approaches to studying these constructs is its ability to test precise hypotheses in a deductive manner (Hoyle, 2000). In this study, CFA was conducted using SPSS's AMOS 26 software, which provides an efficient platform for estimating and testing these models. The CFA model is as seen in Figure 5.1.

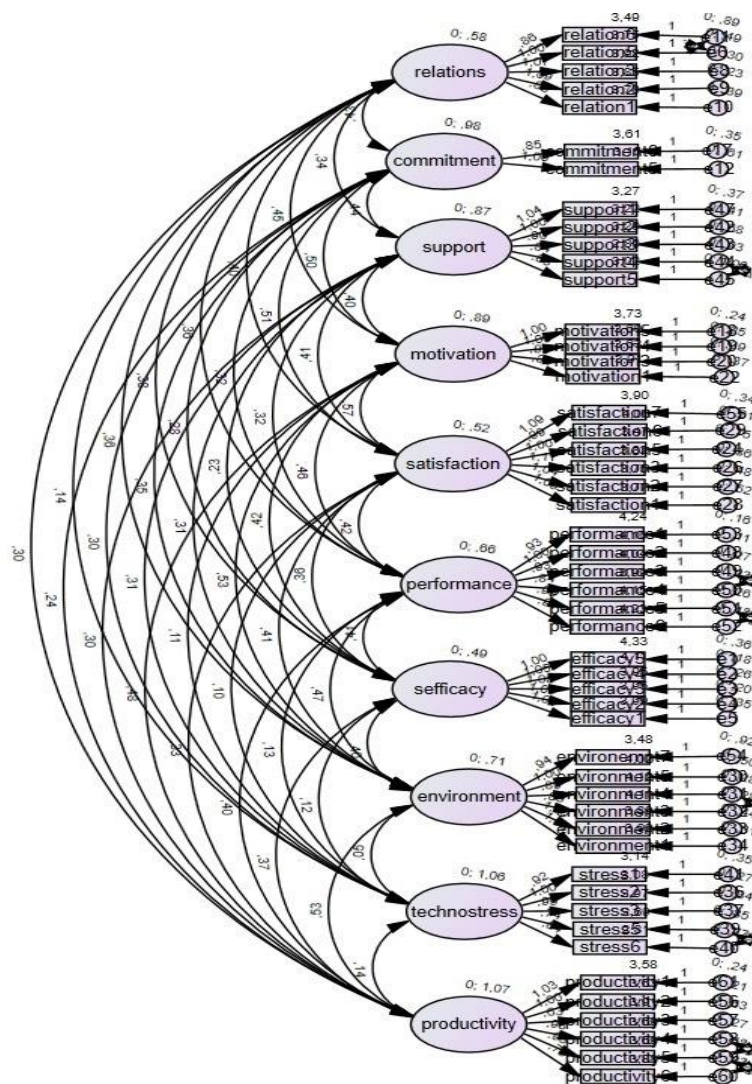


Figure 5.1: CFA Model

To enhance the model's meaningfulness and accuracy, certain items were removed based on the results of the standardized regression analyses. The final version of the model, as shown in Figure 5.1, reflects these adjustments. A total of 11 items were excluded, including 4 items related to organizational commitment, 1 item measuring interpersonal relations, 2 items from motivation, 1 item related to job satisfaction, 1 item from the physical work environment, 1 item from technostress, and 1 item measuring organizational control and support. This refinement ensures that the model is more focused and effectively captures the key constructs influencing remote work productivity. All regression weights for the CFA model are provided in Appendix 5. The results of the CFA analysis indicate that all factor loadings are highly significant,

confirming the strong relationships between the observed indicators and their respective latent variables.

Moreover, model fit assesses how well the relationships and structures proposed in the model align with the data collected in the study (West et al., 2012). Therefore in this thesis, the model fit was assessed using Amos software to evaluate how well the hypothesized model aligns with the observed data. This assessment is crucial for determining the accuracy and validity of the proposed relationships within the model. The following table presents the key fit indices used to assess the model's performance:

Table 5.2: Model Fit Measures, AMOS

Measure	Estimate	Threshold	Interpretation
CMIN	2129,719	--	--
DF	1122,000	--	--
CMIN/DF	1,898	Between 1 and 3	Excellent
CFI	0,901	>0.95	Acceptable
SRMR	0,065	<0.08	Excellent
RMSEA	0,059	<0.06	Excellent

The evaluation of model fit for the structural equation model demonstrates a strong alignment with the observed data. The CMIN/DF value of 1.898 falls within the "excellent" range, indicating minimal discrepancy between the hypothesized model and the data. The SRMR and RMSEA values, at 0.065 and 0.059 respectively, also meet the "excellent" thresholds, reflecting a low level of residuals and a good approximation of the model to the population data. While the CFI value of 0.901 is slightly below the ideal threshold (>0.95), it remains within an "acceptable" range, suggesting a reasonable explanation of the variance-covariance structure. Overall, the model fit is robust, and most indices suggest that the hypothesized model is a good representation of the observed relationships. The interpretation of model fit was conducted using AMOS software, adhering to the guidelines outlined by Hu and Bentler (1999). The table (5.2) below summarizes the fit indices and their corresponding acceptable thresholds for evaluating model adequacy.

Table 5.3: Cutoff Criteria from Hu and Bentler (1999)

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06

To enhance understanding, it is essential to focus on and analyze the fit indices in detail. The chi-square (χ^2) value, calculated in Amos and represented as "CMIN," tests the discrepancy between the observed data and the model's expected data. It measures how well the model fits the data by evaluating the difference between the observed and expected values, with a higher χ^2 indicating a greater discrepancy (Yaşlıoğlu and Yaşlıoğlu, 2020). Essentially, the CMIN value reflects the degree of independence between the observed and predicted values in the model. A lower CMIN suggests a better fit, meaning the model closely matches the data. The "DF" refers to the degrees of freedom, which represent the number of independent data points available to estimate the parameters in the model. The CMIN/DF ratio provides an absolute value for the model's fit (Yaşlıoğlu and Yaşlıoğlu, 2020). In this thesis, the calculated CMIN/DF value is 1.898, which falls within the "acceptable" range (between 1 and 3). This indicates that the model provides a reasonable fit to the data, suggesting that the hypothesized relationships are generally supported by the observed data. Since the CMIN/DF value is well above the threshold of 1 and below the maximum acceptable value of 3, it indicates that the model fits the data well, and the relationships specified in the model are adequately supported by the data, without significant misspecifications. In addition, the SRMR, which measures the mean absolute correlation residual, and the RMSEA, which assesses the "badness of fit," both serve as indicators of model fit, with smaller SRMR values and lower RMSEA values suggesting a better fit (Kline, 2023).

5.1.3. Evaluation of Hypotheses: Testing the Relationships Between Constructs

The path analysis results reveal several significant and nuanced insights into the relationships between the hypothesized factors and productivity in remote work environments. The regression weights corresponding to the hypotheses are presented in Table 5.4. According to the results; self-efficacy (H1, H2a, H2b, H2c) demonstrates

strong positive effects on job performance ($.832$; $p < .001$), motivation ($.711$; $p < .001$), and job satisfaction ($.530$; $p < .001$), suggesting that individuals who feel confident in their abilities tend to perform better, feel more motivated, and experience greater satisfaction in remote work contexts.

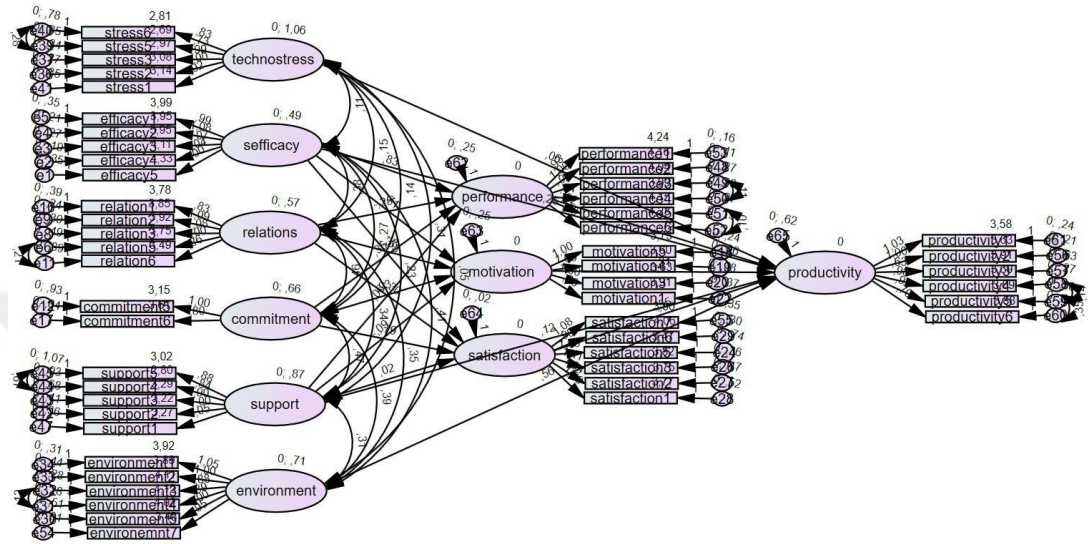


Figure 5.2: Structural Equation Model

However, in response to the issue addressed by RQ1, the direct effect of self-efficacy on productivity ($.250$; $p = .114$) was not statistically significant, suggesting that the effect of self-efficacy on productivity may be mediated by other factors such as motivation or job satisfaction. Unexpectedly, interpersonal relationships (H3a, H3b, H3c) negatively affect job performance ($-.250$; $p = .044$), motivation ($-.384$; $p = .029$), and job satisfaction ($-.301$; $p = .026$), which contradicts the hypotheses predicting positive effects. This could indicate challenges unique to remote work, such as difficulties in communication, feelings of isolation, or conflict in virtual collaborations. On the other hand, organizational commitment (H4a, H4b, H4c) significantly and positively impacts job performance ($.354$; $p < .001$), motivation ($.930$; $p < .001$), and job satisfaction ($.795$; $p < .001$), aligning with the hypotheses and highlighting the critical role of employees' emotional and psychological attachment to their organizations in achieving better outcomes.

Perceived management control & support (H5a, H5b, H5c, H6), surprisingly, does not have significant effects on job performance (,056; $p=.369$), motivation (-,088; $p=.324$), or job satisfaction (,022; $p=.735$). Its direct effect on productivity which pertains to RQ1 (H6; ,125; $p=.183$) is also not significant. In addressing RQ2, the analysis reveals that motivation (H8) has a significant positive impact on productivity (,312, $p=.017$), highlighting its crucial role as a key driver of productivity in remote work settings. Conversely, job satisfaction (H9) has a significant negative effect (-,546; $p=.025$), a surprising result that may indicate complex dynamics where high satisfaction might not necessarily translate into efficient output, possibly due to complacency or satisfaction with lower work expectations.

Table 5.4: Regression Weights

			Estimate	S.E.	C.R.	P
performance	< ---	sefficacy	,832	,106	7,845	***
motivation	< ---	sefficacy	,711	,139	5,103	***
satisfaction	< ---	sefficacy	,530	,107	4,942	***
performance	< ---	relations	-,250	,124	-2,014	,044
motivation	< ---	relations	-,384	,176	-2,183	,029
satisfaction	< ---	relations	-,301	,135	-2,225	,026
performance	< ---	commitment	,354	,104	3,406	***
motivation	< ---	commitment	,930	,159	5,848	***
satisfaction	< ---	commitment	,795	,142	5,601	***
performance	< ---	support	,056	,063	,899	,369
motivation	< ---	support	-,088	,089	-,986	,324
satisfaction	< ---	support	,022	,066	,339	,735
productivity	< ---	sefficacy	,250	,158	1,581	,114
productivity	< ---	support	,125	,094	1,332	,183
productivity	< ---	performance	,119	,118	1,009	,313
productivity	< ---	motivation	,312	,131	2,387	,017
productivity	< ---	environment	,561	,117	4,790	***
productivity	< ---	technostress	,062	,060	1,033	,302
productivity	< ---	satisfaction	-,546	,243	-2,249	,025

Physical working environment (H11), which addresses RQ2, emerges as the most influential factor for productivity (,561; $p<.001$), emphasizing the importance of ergonomic and supportive workspaces for employees' efficiency in remote settings. Lastly, technostress (H10; ,062; $p=.302$) and job performance (H7; ,119; $p=.313$) do not have significant impacts on productivity, indicating these factors may be less critical than others in this specific context.

Table 5.5: Hypotheses Testing Results

No	Code	Hypothesis	Statu
H1	H1	Self-efficacy positively affects productivity in remote work.	Not Supported
	H2a	Self-efficacy positively affects job performance in remote work environments.	Supported
H2	H2b	Self-efficacy positively affects motivation in remote work environments.	Supported
	H2c	Self-efficacy positively affects job satisfaction in remote work environments.	Supported
	H3a	Interpersonal relationships positively affect job performance in remote work environments.	Not Supported
H3	H3b	Interpersonal relationships positively affect motivation in remote work environments.	Not Supported
	H3c	Interpersonal relationships positively affect job satisfaction in remote work environments.	Not Supported
	H4a	Organizational commitment positively affects job performance in remote work environments.	Supported
H4	H4b	Organizational commitment positively affects motivation in remote work environments.	Supported
	H4c	Organizational commitment positively affects job satisfaction in remote work environments.	Supported
	H5a	Appropriate levels of perceived management control & support in remote work settings positively impact job performance.	Not Supported
H5	H5b	Appropriate levels of perceived management control & support in remote work settings positively impact motivation.	Not Supported
	H5c	Appropriate levels of perceived management control & support in remote work settings positively impact job satisfaction.	Not Supported
H6	H6	Perceived management control & support have a positive impact on productivity in remote work.	Not Supported
H7	H7	Job performance positively affects productivity in remote work.	Not Supported
H8	H8	Motivation positively affects productivity in remote work.	Supported
H9	H9	Job satisfaction positively affects productivity in remote work.	Not Supported
H10	H10	Technostress negatively affects productivity in remote work.	Not Supported
H11	H11	Favorable physical working environment conditions positively influence remote work productivity.	Supported

5.2. Analysis of Qualitative Data

In addition to the quantitative data collected through the survey, the qualitative data obtained through in-depth interviews provide valuable insights into key topics such as the advantages and disadvantages of remote work, organizational communication, work control mechanisms, and productivity. Participants shared detailed feedback on factors such as the work environment, communication challenges, and work-life balance, offering a deeper understanding of how remote work is experienced in practice.

5.2.1. Advantages & Disadvantages

Most participants highlighted the absence of commuting challenges and the elimination of time wasted in traffic as key advantages of remote work. They also noted that working remotely allows them to engage in more personal and leisure activities, contributing to a better work-life balance and providing a comfortable working environment. One female participant, who works entirely remotely, shared that she enjoys starting her day at her preferred time, emphasizing that the preparation process for traditional office settings can be particularly burdensome for women. Another participant with flexible working hours appreciated the ability to set her own schedule, working during the hours that suit her best. Additionally, one participant stressed that the most significant advantage of remote work is the enhanced ability to focus at home compared to a crowded office environment.

Participants identified feelings of social isolation and difficulties in communication with colleagues as significant disadvantages of remote work. These findings provide valuable insights for addressing RQ4. A supervisory remote worker who also cares for his 3-year-old child noted that tasks often completed quickly in an office environment tend to take longer remotely. A software developer expressed a contrary opinion and exemplified his idea with the following observation: "Even when I go to the office as a software developer, collaboration often looks the same as it does remotely. My colleagues and I stay at our respective desks, working individually on our computers, without sitting side by side, leaning in together, or sharing a screen. In that sense, there's no real difference between working from home and working in the office when it comes to completing tasks. However, I prefer working from home

because the office environment consumes significantly more time and energy while also impacting my social life. For instance, when I worked from the office, I couldn't make it to the gym because I spent so much time stuck in traffic. Now that I work from home, I can go to the gym and still have plenty of time for myself, which helps me feel more motivated overall."

Another participant working entirely remotely shared: "I can say that working remotely makes you feel a bit antisocial. Yes, we work with people, but many of us have never seen each other's faces. Communication happens exclusively online, mostly through verbal exchanges, which creates a more negative impact on communication compared to face-to-face interactions."

A third participant highlighted a broader concern: "As a disadvantage, although it isn't immediately noticeable when starting remote work, I've observed that work friendships gradually weaken over time, leaving only work-focused dialogues. Communication during remote work is limited to audio or video meetings, which are always centered around work tasks. This eliminates opportunities for socialization, one-on-one interactions, and mutual mood analysis throughout the day, leading to monotonous and impersonal exchanges." He further elaborated: "Another challenge lies in performance evaluation. Since not all tasks can be accurately measured or monitored at the managerial or executive level, monthly and annual performance assessments can become problematic. For instance, a difficult but single task might take excessive hours to complete, while another employee's shorter, multitasked efforts may yield greater results. This discrepancy complicates the analysis of work productivity and outcomes."

5.2.2. Control

In remote work settings, managers employ various mechanisms to ensure control, as highlighted by the participants' responses. One of the most frequently mentioned methods is organizing daily or weekly meetings to track whether employees are completing their assigned tasks on time. For instance, a participant stated, "Control is maintained through daily and weekly meetings, ensuring tasks are completed and delivered on time." Additionally, technological tools and software play a crucial role in facilitating task monitoring. As one respondent pointed out, "It's very clear whether

tasks are completed or not in our sector through tools like Jira and GitHub, which track the progress of coding tasks with precision." Goal-oriented and task-based management practices also emerge as a prominent strategy. Managers assign specific objectives to employees, monitor their progress through regular meetings, and evaluate outcomes. One participant explained, "They set clear goals aligned with project objectives, allocate tasks accordingly, and hold regular meetings to assess progress and coordinate team efforts." In some sectors, a more flexible approach to management is observed. A participant highlighted this by stating, "We don't have strict management, but we follow the agile methodology with daily stand-ups, which are a soft form of accountability."

Furthermore, reporting and log monitoring are utilized as tools to oversee employee activities. One participant shared, "They check the computer logs to see what we've been working on." Time-tracking tools and task management applications like Jira or time sheets are also widely implemented. For example, a participant working on a major project described the process: "We track tasks using Jira and document our daily hours spent on each task in time sheets, providing transparency for managers."

Overall, these insights reveal that remote work management relies on a combination of communication strategies, technological solutions, goal-setting practices, and periodic assessments. Managers tailor these methods to the specific needs of their industry and workforce, balancing oversight with flexibility to maintain productivity and engagement.

5.2.3. Adequate Communication with the Team and the Leader

Participants largely reported adequate communication with their teams and leaders in remote work settings, often facilitated through frequent online meetings. For instance, one participant explained, "We actually meet for everything; on busy days, we have online short meetings 2-3 times a day, sometimes even more." Another shared a similar sentiment, noting, "We are in constant communication, talking at least 4-5 times a day in online environments." These examples underscore how digital platforms enable seamless and frequent collaboration despite physical separation.

One participant pointed out a significant drawback of remote work in terms of leader-employee communication, particularly emphasizing the challenges of hybrid working.

They described their routine, stating, “We meet with our manager weekly. Due to hybrid working, every Thursday is our office day.” However, participants also raised concerns about the limitations of remote communication, emphasizing its negative implications and providing insights relevant to RQ4. “The inability to establish adequate communication with the manager is a net negative impact of remote work. In face-to-face settings, workflows happen directly in front of the manager. However, during remote work, the problems and stress experienced throughout the process are not visible, making it difficult for the manager to analyze these issues. Therefore, employees who feel that their labor is not being rewarded may experience a decrease in both motivation and productivity.” Additionally, the participant elaborated on how these challenges extend to the personal relationship between employees and managers, explaining: “Since personal dialogue with the manager cannot be developed adequately, the levels of mutual initiative are also not clarified.”

Social and informal interactions were also emphasized, with some participants noting opportunities for team bonding outside formal work settings. One respondent explained, “There are events every 3-4 months where we can meet and have fun. If there is a sense of camaraderie within the team, I even meet some colleagues outside of work every 2-3 weeks.” Another valued online social meetings, sharing, “We have weekly coffee meetings where we can chat and socialize, and we can reach everyone online whenever needed.”

Overall, participants recognized that while digital tools and structured practices facilitate effective communication, personal connections and face-to-face opportunities remain vital for fostering team cohesion and stronger leader-employee relationships.

5.2.4. Stick to a Work Routine

Participants' responses to the question about adhering to a work routine revealed a wide range of experiences, reflecting both the advantages and challenges of remote work. Many participants expressed their efforts to maintain a routine, with some achieving consistency in their schedules, while others struggled due to the flexibility or demands of remote work.

Some participants noted the importance of adhering to traditional working hours for productivity and collaboration. One participant shared: “I try to stick to an 8-to-5 schedule. I’ve adapted to that rhythm, and while working from home, I actually end up working more intensely. I barely leave my desk except for my lunch break from 12 to 1. In the office, we’d have informal chats outside of lunch breaks, which felt like short 15-minute breaks.” Similarly, another participant emphasized the need for consistent hours in collaborative settings, stating: “Of course, I have a work routine—it’s essential. Since we work as a team, someone can’t just say, ‘I’ll start at 3 PM and finish at night,’ because others might need them during standard hours.” However, several participants described challenges in adhering to a routine, often citing the blurred boundaries of remote work. For instance, one participant highlighted the difficulty of stepping away from their desk: “This is the most negative impact of remote work. You don’t even realize when it’s past lunchtime because working at home creates an illusion of endless tasks. You keep telling yourself, ‘I’ll stop after I finish this,’ but it’s hard to stick to set working hours.” Another echoed similar sentiments, pointing out that their company is now working on policies to encourage breaks and enforce end-of-day routines to address this challenge. Flexibility in remote work was also seen as both a benefit and a barrier to routine. A participant with a preference for nighttime productivity remarked: “I can’t really stick to a set routine, but that’s the beauty of flexibility. I prefer working at night because I’m not very productive in the mornings. Our company allows us to connect through VPN even on weekends or late at night, which suits my working style perfectly.” This flexibility, while appreciated, was contrasted with stricter policies in previous workplaces where connections were automatically severed at the end of the workday.

Finally, some participants highlighted how remote work disrupted traditional routines, particularly around breaks and meal times. One participant reflected: “At the office, we’d have lunch breaks together, but at home, I don’t have that kind of structure. Sometimes I realize I’ve skipped lunch altogether and think, ‘If I were in the office, I would’ve taken a break with my colleagues.’” Overall, participants’ experiences suggest that while remote work provides the flexibility to adapt schedules to individual preferences, it also poses challenges in maintaining structured routines, which can affect productivity and work-life balance. These insights underscore the need for organizational support in creating sustainable remote work practices.

5.2.5. Technical Equipment and Cost Incurred Due to the Performance of the Work

Participants expressed a wide range of experiences regarding the technical support and cost reimbursements provided by employers for remote work. Most respondents reported receiving basic equipment, such as computers, while additional support varied significantly. One participant mentioned that their company provided a computer but did not cover internet expenses, explaining, “The company provides a computer, but internet costs are not covered. However, the continuation of meal vouchers is a plus for me. If such expenses were covered, it might seem like a small thing, but it would be a significant motivation for employees.” Another participant highlighted partial support, noting that their company covered internet bills and planned to provide equipment assistance at the year’s end, although similar needs had not been met at their previous workplace.

Several participants described receiving more comprehensive support packages. One respondent shared, “Internet bill assistance, a large screen, desk, chair, and a company phone were provided,” reflecting a proactive approach by their employer. Similarly, another participant praised their company for offering a computer, phone, SIM card, and internet services, demonstrating a thorough effort to meet remote work requirements. Another individual mentioned receiving a specific allowance for “office, internet, and electricity expenses,” indicating a structured support system for utilities and equipment. In contrast, some participants expressed dissatisfaction with inadequate support. One participant shared, “The employer did not provide basic technical equipment, so I had to meet my own needs,” underscoring a lack of resources. Another highlighted a nuanced perspective, explaining that only computer support was provided because remote work was optional at their company, leaving other costs, such as internet and utilities, to employees.

5.2.6. Sustaining and Expanding Remote Work Practices

Participants overwhelmingly believe that their organizations will continue to adopt and expand remote working practices, citing various reasons supporting this trend. Many highlighted that remote work positively impacts employee productivity and satisfaction, with one respondent noting that “working remotely seems to have enhanced both efficiency and morale among employees.” Another participant

emphasized cost-saving measures as a driving factor, explaining that "our organization transitioned permanently to a hybrid model, redesigning workflows to support this approach. This shift resulted in significant savings on office, transportation, and meal expenses."

Moreover, several participants acknowledged that remote work aligns with modern workforce demands, enabling access to a broader talent pool and fostering employee retention. One participant observed, "To retain top talent, organizations are increasingly accommodating remote work preferences, especially as people have grown accustomed to this model." Overall, participants view the continuation of remote work as a strategic and inevitable adaptation to modern workplace needs, driven by cost efficiency, employee well-being, and organizational flexibility. The responses provided by participants contributed to addressing RQ3, offering valuable insights to support the research findings.

5.2.7. Productivity Perceptions in Remote Work

To address RQ5, participants shared diverse perspectives on the differences in productivity levels between working from home and working in the office, highlighting the significant influence of personal circumstances and work environments. Some participants expressed equal or greater productivity at home, citing the absence of workplace distractions as a significant advantage. For instance, one participant shared, "I progress better with full focus, without people around to chat with," indicating that a focused environment without social interruptions enhances their efficiency. Another participant echoed this sentiment, stating, "I feel more productive at home," and emphasized how home-based work allows greater flexibility and concentration.

On the contrary, several participants reported feeling less productive at home due to various challenges. For instance, one participant with caregiving responsibilities mentioned, "I am responsible for taking care of my young child, so I may not be as productive as in the office environment," emphasizing how additional support, such as daycare or a babysitter, could enhance productivity. Another participant cited the lack of a dedicated workspace, stating, "If I had a separate workspace from my bedroom, I

could be more productive," highlighting how the physical environment at home can impact focus and efficiency.

Interestingly, some participants acknowledged a paradox in their experiences. For example, one stated, "I work more at home, but I feel more productive in the office," suggesting that the structure and accountability of the office foster a sense of accomplishment despite potentially longer hours at home. Similarly, another participant reflected on the motivational aspects of an office, saying, "In an office environment, you inevitably feel more obligated to get things done," while also recognizing the comfort and flexibility of remote work.

Lastly, while most participants expressed a preference for continuing remote work, there were some who noted the negative consequences it had on their work experience. One participant, for instance, strongly indicated that they did not want to continue with remote work due to its adverse effects. On the other hand, many of those who favored remote work suggested that a hybrid model would be more beneficial than working fully remotely. They emphasized that a working arrangement where employees are required to come into the office at designated times would strike a good balance between flexibility and collaboration. Some participants also pointed out that for newcomers, fully remote work might pose challenges in understanding the organization's structure, building relationships, and adapting to the company culture. They suggested that a hybrid model could offer a better solution for those just starting out, as it would provide them with the opportunity for in-person interactions that are crucial for a smoother integration into the workplace.

6. CONCLUSION AND DISCUSSION

6.1. Conclusion

This study set out to examine the multifaceted factors influencing productivity in remote work environments, guided by the pragmatic paradigm that integrates both qualitative and quantitative methods. By combining statistical analysis with rich thematic insights, the research provided a holistic understanding of how individual confidence, organizational support, interpersonal dynamics, and structural conditions shape productivity. Grounded in Self-Efficacy Theory (Bandura, 1977), the Job Demand-Control-Support (JDCS) Model (Karasek, 1979), and Social Exchange Theory (Homans, 1958), the study explored remote work through a nuanced lens, addressing the opportunities and challenges it presents for individuals and organizations alike.

The quantitative findings of this study provide a nuanced understanding of the factors influencing productivity in telecommuting environments. The results confirmed that self-efficacy significantly enhances motivation, job satisfaction, and job performance, supporting the hypotheses regarding its critical role in fostering positive remote work outcomes. However, its direct impact on productivity was not statistically significant, suggesting that its influence is mediated through intermediary variables such as motivation, job satisfaction, and job performance. Among these mediators, motivation demonstrated a significant and positive effect on productivity, aligning with existing research (Johari and Jha, 2020; Kalogiannidis, 2021; Kamaruddin et al., 2023; Herpfer et al., 2024; Getselova, 2024) and reinforcing its role as a key driver of efficiency in remote work contexts. In contrast, the relationship between job performance and productivity was not significant, highlighting the complexity of translating individual task effectiveness into overall productivity in virtual environments.

One particularly unexpected finding was the significant but negative effect of job satisfaction on productivity. This result, contrary to the research hypothesis and much of the existing literature (Alrawahi et al., 2024, Halkos and Bousinakis, 2010), suggests that while employees may feel content with aspects of their remote work, such satisfaction might lead to complacency, reduced urgency, or a focus on non-productivity-related factors, such as work-life balance or flexibility. The role of organizational commitment was more straightforward, with findings confirming its

strong positive effects on job performance (Loan, 2020; Ridwan et al., 2020; Nguyen and Ngo, 2020; Yandi and Havidz, 2022; Erlangga and Erlangga, 2021; Kiprawi et al., 2020; Nisan et al., 2023; Menekşe and Yılmaz, 2023; Demir et al., 2023), job satisfaction (Loan, 2020; AlKahtani et al., 2021; Al-Refaei et al., 2023), and motivation (Jufrizen et al., 2022; Nurlina et al., 2023; Hadi et al., 2023; Çivit and Köse, 2024), providing robust support for the associated hypotheses.

Additionally, the analysis revealed the critical importance of a supportive physical work environment, which emerged as the strongest predictor of productivity in remote working settings (Mura et al., 2023; Park et al., 2023). This underscores the need for ergonomic and well-equipped remote workspaces to optimize performance. In contrast, the effects of technostress and managerial control and support on productivity were found to be negligible, challenging the widely held assumptions about their pivotal role in managing remote work environments effectively. These findings suggest that while managerial oversight may be less critical in autonomous remote environments, the physical and environmental context in which employees operate plays a far more significant role. Surprisingly, interpersonal relationships were found to have a negative effect on job performance, motivation, and job satisfaction, contradicting expectations grounded in Social Exchange Theory. This unexpected result likely reflects the unique challenges of remote communication, where the absence of informal, face-to-face interactions can lead to weakened social bonds, miscommunication, and difficulty in resolving conflicts. These findings highlight the limitations of virtual collaboration tools in replicating the depth and quality of in-person interactions, emphasizing the need for strategies to address these shortcomings.

In summary, this study confirms the multifaceted nature of productivity in telecommuting environments, shaped by a dynamic interplay of individual, structural, and interpersonal factors. It highlights the importance of fostering self-efficacy, leveraging motivational drivers, and providing supportive physical work conditions while addressing the challenges posed by social dynamics and virtual communication. These insights contribute to the growing discourse on remote work by offering actionable guidance for optimizing productivity and well-being in increasingly flexible and distributed work models.

The qualitative findings offered valuable insights into the nuanced experiences of remote workers, highlighting both the advantages and challenges of this evolving work

model. Consistent with the literature (Grzybowski, 2008; Thompson, 2019; Kippola, 2022; Ferreira, 2020; Al-Habaibeh et al., 2021; Battisti et al., 2022), participants consistently emphasized the benefits of flexibility, autonomy, and the elimination of commuting, which enhanced work-life balance and personal well-being. However, the data also revealed significant challenges, particularly the social and relational impacts of working completely remotely. Many participants expressed feelings of social isolation and noted that the lack of face-to-face interaction made it more difficult to build and sustain strong interpersonal connections. This weakening of social bonds extended to organizational dynamics, with some participants highlighting that maintaining loyalty to the institution and fostering a sense of belonging were more challenging in remote environments.

Flexibility and autonomy emerged as key drivers for employees' willingness to continue working remotely. The elimination of commuting, greater work-life balance, and opportunities for personal productivity were consistently highlighted as advantages. However, participants noted that fully remote arrangements could amplify challenges such as social isolation and a lack of clear organizational integration. Hybrid models, which blend remote work with periodic in-office interactions, were suggested as an ideal solution, providing the best of both worlds—enhanced autonomy alongside opportunities for collaboration and relationship-building. Ensuring access to ergonomic workspaces and adequate technical support further emerged as critical conditions for employees to sustain their productivity and satisfaction in remote work environments.

Additionally, the findings indicate strong employee support for the continuation and expansion of remote work practices, emphasizing its alignment with modern workforce demands. Participants acknowledged that remote work has become a strategic necessity for many organizations, offering benefits such as cost savings on office spaces, improved employee satisfaction, and access to a broader talent pool. The transition to hybrid models, in particular, was viewed as a sustainable approach that balances flexibility and collaboration. Employees' perspectives suggest that businesses investing in technology, communication strategies, and supportive policies are better positioned to retain top talent and maintain productivity in the long term.

Social isolation also was a significant challenge, as participants highlighted the weakening of workplace relationships and reduced opportunities for informal

interactions. The lack of face-to-face communication often led to feelings of disconnection, affecting motivation, job satisfaction, and perceived productivity. While some employees reported enhanced focus and efficiency in the absence of workplace distractions, others struggled with the absence of direct collaboration and emotional support. These findings underscore the importance of addressing relational and emotional needs in remote work settings through regular virtual check-ins, team-building activities, and hybrid arrangements that allow for periodic in-person interactions.

Moreover, the absence of informal interactions and real-time feedback hindered team cohesion and communication, leading to task-focused relationships that often felt impersonal and transactional. These findings underscore the importance of adopting hybrid work models that combine the autonomy and efficiency of remote work with opportunities for in-person collaboration and social engagement. By addressing these challenges and fostering stronger connections among employees, organizations can create a more supportive and productive work environment, ultimately ensuring that both individual and organizational goals are achieved.

Lastly, the findings reveal that productivity in office versus remote working environments is highly context-dependent, shaped by individual circumstances and work settings. Many participants reported greater productivity at home, attributing this to reduced workplace distractions, enhanced focus, and flexibility. However, others found the office environment more conducive to productivity, particularly due to its structured setting and the absence of home-related responsibilities or spatial constraints.

6.2. Theoretical Implications

This study contributes to theoretical discourse by extending the application of established frameworks—Self-Efficacy Theory (Bandura, 1977), the Job Demand-Control-Support (JDCS) Model (Karasek, 1979), and Social Exchange Theory (Homans, 1958)—to the unique context of remote work. Through this integration, the research addresses gaps in understanding how remote work conditions interact with individual, organizational, and social dynamics to shape productivity.

One key implication lies in the adaptation of the JDCS model to remote work environments. Traditionally applied to in-office settings, the model's components—job demands, control, and support—require reinterpretation in light of the distinctive characteristics of remote work. The findings suggest that while organizational support remains important, its impact in remote contexts may be moderated by factors such as the physical working environment and the challenges of virtual communication. This indicates a need to refine the JDCS framework to incorporate environmental and technological variables as essential moderators in remote settings.

Additionally, the integration of Social Exchange Theory with the JDCS model highlights the nuanced role of interpersonal relationships in remote work environments. While Social Exchange Theory emphasizes the importance of reciprocity and mutual benefit in workplace interactions (Torro and Pirkkalainen, 2023; Torro, 2023; Chen and Sriphon, 2022), this study reveals that the absence of informal, face-to-face communication may weaken the perceived value of these exchanges in remote settings. These findings suggest that relational dynamics, such as loyalty and trust, require deliberate cultivation in virtual environments, challenging existing assumptions about the universality of social exchange processes. Further, the significant but negative relationship between job satisfaction and productivity introduces a critical dimension to Self-Efficacy Theory. While confidence in one's abilities fosters motivation and performance, satisfaction with remote work conditions—such as flexibility and work-life balance—may paradoxically reduce urgency and focus on productivity goals. This underscores the need for future theoretical exploration of how psychological satisfaction interacts with performance drivers in non-traditional work arrangements.

Lastly, this study highlights the value of integrating multiple theoretical perspectives to comprehensively understand the complexities of remote work environments. By combining the Self-Efficacy Theory's focus on individual confidence, the JDCS model's emphasis on structural and environmental conditions, and the relational insights of Social Exchange Theory, the research offers a holistic framework for examining productivity in remote settings. This integration underscores how individual agency, organizational support, and interpersonal dynamics interact to shape employee outcomes. The findings suggest that future research should continue to explore these intersections, refining and expanding theoretical models to better

capture the evolving dynamics of work in digital and remote contexts. This multidimensional approach paves the way for a deeper understanding of how personal, structural, and relational factors jointly influence productivity and well-being in modern work environments.

6.3. Practical Implications

The findings of this study offer several actionable insights for organizations, managers, and policymakers aiming to optimize productivity and employee well-being in remote work environments. Firstly, fostering self-efficacy among remote workers emerges as a key strategy. Organizations should invest in training programs, mentorship opportunities, and tools that empower employees to build confidence in their abilities. This, in turn, can enhance motivation, job satisfaction, and performance, which are critical drivers of productivity in remote work settings. Secondly, the study underscores the importance of creating a supportive physical working environment. Employers can play a proactive role by providing ergonomic equipment, reliable technological resources, and financial support for home office setups. These investments not only enhance productivity but also demonstrate a commitment to employee well-being, fostering loyalty and satisfaction.

The negative impact of job satisfaction on productivity highlights the need for a balanced approach to promoting work-life integration without undermining performance goals. Managers should establish clear expectations, set measurable objectives, and ensure regular feedback to keep employees engaged and focused. Additionally, policies that encourage structured routines, such as setting boundaries around working hours and promoting regular breaks, can help mitigate blurred work-life boundaries. The findings also reveal that interpersonal relationships and organizational support require deliberate cultivation in remote settings. Managers should prioritize building team cohesion and strengthening communication through regular virtual check-ins, team-building activities, and hybrid work arrangements. Hybrid models, which combine remote and in-office work, can address the challenges of social isolation and weakened organizational loyalty by creating opportunities for in-person collaboration and relationship-building.

Finally, the negligible effects of technostress and managerial control suggest that organizations should avoid micromanaging remote employees. Instead, they should focus on empowering workers through goal-oriented management practices and providing access to collaborative tools that facilitate autonomy. This approach aligns with the findings that autonomy and flexibility are highly valued in remote work environments, contributing positively to employee satisfaction and engagement.

In summary, this study provides practical guidance for designing remote work policies that balance autonomy, structure, and support. By addressing the unique challenges of remote work while leveraging its benefits, organizations can create sustainable work environments that optimize both employee productivity and well-being.

6.4. Limitations

While this study provides valuable insights into productivity in remote work environments, it is not without limitations. First, the use of convenience and snowball sampling methods, while effective in reaching a diverse participant pool, may limit the generalizability of the findings to the broader population of remote workers. Second, the quantitative data, collected through self-reported surveys, is subject to potential biases such as social desirability or respondents' subjective perceptions, which may not fully capture objective measures of productivity. Similarly, the qualitative component, while rich in detail, relied on a relatively small sample size of 10 participants, with the majority working in the software industry, which may limit its ability to fully represent the experiences of remote workers in other sectors. Additionally, the study's cross-sectional design provides a snapshot of remote work practices at a single point in time, making it challenging to assess changes or trends over time. Finally, while the integration of quantitative and qualitative methods under a pragmatic paradigm offers a holistic perspective, the reliance on voluntary participation may have excluded individuals with differing perspectives or experiences, particularly those facing significant challenges in remote work. Future research could address these limitations by employing longitudinal designs, expanding the sample size and sectoral diversity, and incorporating objective productivity metrics to validate self-reported data.

6.5. Future Research

Building on the findings and limitations of this study, future research offers ample opportunities to expand and refine our understanding of productivity in remote work environments. First, adopting longitudinal research designs could provide valuable insights into how remote work practices and their associated factors—such as self-efficacy, organizational support, and interpersonal relationships—change over time. Such studies would be particularly useful for understanding the long-term implications of remote and hybrid work arrangements on productivity, motivation, and job satisfaction as these practices become increasingly entrenched in modern work cultures.

Second, future research could benefit from expanding the sample size and diversity across multiple sectors, industries, and cultural contexts. While this study primarily focused on remote workers in Türkiye, incorporating participants from other regions would enable a cross-cultural comparison of remote work dynamics, revealing how factors like cultural norms, organizational practices, and industry-specific demands influence productivity. Similarly, exploring the experiences of workers in non-digital sectors, where remote work is less prevalent, could shed light on unique challenges and adaptations in these environments. Additionally, the unexpected finding of a negative relationship between job satisfaction and productivity warrants further exploration. Future studies should investigate the underlying psychological and organizational mechanisms driving this dynamic, examining whether satisfaction with non-work-related factors (e.g., flexibility, reduced commuting) detracts from productivity-oriented behaviors. Experimental or mixed-methods approaches could help disentangle these relationships and identify interventions that promote both satisfaction and productivity.

Objective measures of productivity, such as task completion rates, performance evaluations, or time-on-task data, should also be integrated into future research to complement self-reported data. Combining these metrics with employee perceptions can offer a more balanced and accurate understanding of productivity outcomes. Additionally, further exploration of technostress and its interaction with job demands, control, and support could provide critical insights into how digital tools and workflows impact employee well-being and efficiency in remote work contexts. The

rise of hybrid work models presents another important area for future study. Research could examine how hybrid arrangements affect collaboration, team cohesion, and organizational commitment compared to fully remote or in-office setups. Investigating the optimal balance between remote and in-person workdays, as well as the policies and tools needed to support these models, would provide actionable guidance for organizations navigating this transition.

Finally, qualitative research could focus on capturing the experiences of underrepresented groups, such as employees with caregiving responsibilities, individuals with disabilities, or those working in atypical remote setups. These perspectives could reveal unique challenges and highlight opportunities for creating more inclusive and supportive remote work environments. Additionally, exploring the perspectives of managers and organizational leaders tasked with overseeing remote teams could offer valuable insights into the strategies and challenges associated with managing distributed workforces effectively.

By addressing these areas, future research can refine theoretical frameworks, enhance our understanding of remote work practices, and provide evidence-based recommendations for optimizing productivity and employee well-being in increasingly flexible and dynamic work environments.

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BIOGRAPHY

Zekiye Şahin graduated with a Bachelor's degree in Business Administration from Gebze Technical University in 2021. She continued her academic journey at the same institution, beginning her Master's degree in Business Administration in 2022. In 2025, she started her academic career as a research assistant in the Management Information Systems department at Gedik University. This role enables her to integrate her expertise in business administration with emerging technologies, contributing to innovative research and teaching. Zekiye aims to advance her academic career by making meaningful contributions to her field through research, teaching, and collaboration.



PUBLICATIONS FROM THE THESIS

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Şahin, Z., Huseynov, F., (2024), “The Effect Of Remote Working Model On Employee Productivity”, 6. Baskent International Conference On Multidisciplinary Studies, 24-26 July, Ankara, Turkey.



APPENDICES

Appendix 5: Standardized Regression Weights

			Estimate
efficacy5	<---	sefficacy	,759
efficacy4	<---	sefficacy	,866
efficacy3	<---	sefficacy	,828
efficacy2	<---	sefficacy	,860
efficacy1	<---	sefficacy	,764
relation5	<---	relations	,734
relation3	<---	relations	,831
relation2	<---	relations	,865
relation1	<---	relations	,709
relation6	<---	relations	,567
commitment5	<---	commitment	,784
commitment6	<---	commitment	,818
motivation5	<---	motivation	,889
motivation4	<---	motivation	,893
motivation3	<---	motivation	,832
motivation1	<---	motivation	,780
satisfaction5	<---	satisfaction	,642
satisfaction3	<---	satisfaction	,802
satisfaction2	<---	satisfaction	,736
satisfaction1	<---	satisfaction	,736
satisfaction6	<---	satisfaction	,790
environment5	<---	environment	,766
environment4	<---	environment	,818
environment3	<---	environment	,814
environment2	<---	environment	,785
environment1	<---	environment	,846
stress2	<---	technostress	,893
stress3	<---	technostress	,869
stress5	<---	technostress	,635
stress6	<---	technostress	,700
stress1	<---	technostress	,847
support2	<---	support	,826
support3	<---	support	,711
support4	<---	support	,631
support5	<---	support	,624
support1	<---	support	,848
performance2	<---	performance	,924
performance3	<---	performance	,827
performance4	<---	performance	,764
performance5	<---	performance	,827
performance6	<---	performance	,865
performance1	<---	performance	,881

Appendix 5: Standardized Regression Weights, Continued

environemnt7	<---	environment	,639
satisfaction7	<---	satisfaction	,805
productivity2	<---	productivity	,914
productivity3	<---	productivity	,634
productivity4	<---	productivity	,889
productivity5	<---	productivity	,785
productivity6	<---	productivity	,621
productivity1	<---	productivity	,908