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**Workers' Perceptions of Remote Work Productivity
and Usefulness of Virtual Collaboration Tools: A
Study within the Scope of Industrial Management**

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ABSTRACT :

The increasing adoption of remote and hybrid work models has significantly transformed the ways organizations communicate and collaborate. As employees increasingly rely on digital communication technologies to perform their roles, virtual collaboration tools have become essential for promoting interaction and coordination among teams located in different places. These tools support activities such as online meetings, sharing knowledge, and managing projects collaboratively. However, despite their widespread use, there is still a need to improve understanding of how employees perceive the impact of these technologies on collaboration and efficiency in remote work environments.

This research seeks to explore the perceived impact of virtual collaboration tools on team productivity in remote or hybrid work environments. The study looks into employees' perceptions regarding communication efficiency, personal productivity, collaboration, and the contexts in which virtual teamwork tools are deemed most effective. The research also explores the challenges employees may encounter while using digital communication tools in remote work settings.

This study utilized a quantitative research approach. Primary data were collected through a structured questionnaire distributed to individuals with experience in remote or hybrid work environments. The survey contained questions related to communication patterns, perceptions of productivity, team dynamics, and the utilization of virtual collaboration tools. The collected data were analyzed using descriptive statistics, and the results were presented through visual aids to enhance interpretation and comprehension.

The results of the study indicate that most participants consider virtual collaboration tools to be advantageous for improving communication and teamwork in remote work contexts. Many participants reported that digital communication tools facilitate effective information sharing and enhance collaboration among team members. Nevertheless, the results indicate that certain participants face challenges stemming from unclear communication, coordination issues, and limited social interaction while working remotely.

In summary, the research underscores the importance of virtual collaboration tools in enhancing teamwork within remote work settings; however, their efficacy relies on the type of communication used, support from the organization, and employees' capacity to adjust to digital work environments. The insights from this paper offer valuable information for businesses aiming to enhance communication and effectiveness among remote teams. This research emphasizes perceived productivity rather than measuring actual productivity outcomes.

KEYWORDS: Remote work, virtual collaboration tools, team productivity, digital communication, virtual teams

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1. INTRODUCTION

1.1 Background of the study

In recent times, Telecommuting has recently become an increasingly common practice in different companies around the world. Rapid development of digital technologies, globalization and transformation of the nature of the workplace resulted in increased consideration of flexible approaches in the work process where employees are provided with chances to carry out their functions outside traditional work environments.

It can be emphasized that one of the important innovative technologies allowing employees to do their job remotely relates to the emergence of virtual collaboration technologies. Such applications as Microsoft Teams, Zoom, Slack and Google Meet provide employees with necessary means for interaction and collaboration irrespective of their geographic location. The tools allow organizations to maintain operational continuity, with workers operating in different locations and are thus important components of modern workplace communication systems.

Online collaboration tools have a lot of advantages to companies and personnel. They allow real-time communication, document sharing, online meeting and help teams to collaborate on projects. The technologies help to eliminate geographical boundaries and enable employees to remain connected with their colleagues and managers. In turn, companies are increasingly relying on the use of digital communication tools to manage remote work teams and align work activities.

However, despite the benefits of the virtual collaboration tools, the environments of remote working also imply numerous challenges. The communication process in virtual teams may not be as efficient as the face-to-face interaction due to the absence of nonverbal cues, informal communication, and opportunities to collaborate on a whim. In the event that team members depend only on the use of digital communications technology, then there could be instances of miscommunication, delayed communications, and challenges in coordinating activities.

The next issue that arises in relation to remote work relates to its potential effect on the productivity of the team. Factors that determine productivity in remote environments

include communication, availability of digital technologies, employee work schedules, and organizational supports. While research has indicated that remote working environments contribute positively to employee productivity by virtue of the greater flexibility and reduction of commuting time, other research suggests that the opposite could be the case in situations where communication and coordination are inadequate. Virtual collaboration's effect on team productivity has become an important management challenge. The managers should ensure that the employees have access to reliable digital communication systems and that effective communication rituals are adopted in remote teams.

Therefore, the discussion of the role of virtual collaboration tools in remote workplaces is paramount to understanding how organizations can maintain productive and effective teams in the modern workplaces. The proposed research aims to explore the perceived impacts of virtual collaboration tools on the productivity of a team in a remote or hybrid work environment through the lenses of the experiences and perceptions of digital communication technologies among employees.

1.2 Research Problem

Adoption of remote and hybrid forms of work brought about the transformation of the interaction between employees in companies. In addition, VCTs are recognized as important tools to facilitate cooperation between team members, to communicate with each other, to plan activities, and to participate in decision making. Nevertheless, in spite of the availability of the digital communication channel, some questions still arise regarding their ability to increase team efficiency.

In spite of the use of virtual collaboration tools by many organizations in their business processes, very little has been found out about how the employees perceive the role of virtual collaboration tools in teamwork and productivity during remote work. Some problems such as those pertaining to communication, low social interactions, and technical problems may affect the productivity of the teams during remote work.

It is imperative for the organizations to know how the employees perceive the virtual collaboration tools because the organizations want to ensure maximum efficiency and

productivity among the remote work teams. This study endeavors to examine the perceptions of team members in regard to the impact of virtual collaboration tools on productivity.

Statement of the Research Problem

What is the influence of virtual collaboration technologies on the efficiency of remote and hybrid work teams?

1.3 Research Objectives

The aim of this paper is to investigate the influence of virtual collaboration technologies on the efficiency of remote and hybrid work teams. As the remote work is becoming more common in organizations, the issues of the effect of digital communication technologies on collaboration and productivity have become an essential concern in management and organizational studies.

Indeed, virtual collaboration platforms like Microsoft Teams, Zoom, Slack and Google Meet have emerged as effective communication mediums through which employees are able to arrange their activities, exchange information and work on collaborative projects despite being located miles apart. These collaboration platforms ensure efficient communication among members of a distributed team and enable organizations to remain productive despite having employees who are not co-located. However, the efficiency of such tools in promoting collaborative efforts and productivity may vary depending on various factors including modes of communication, reliability of technology and the ability of employees to adapt to virtual environments (Gilson et al., 2015).

One major issue with remote collaboration involves the relationship between communication and productivity. Communication is known to be a vital element that affects the productivity of both groups and organizations. The interaction in the remote working environment is primarily through digital platforms, which may alter the way employees interact with their colleagues and share information (Powell et al., 2004). Therefore, a study of employee perceptions of the value of virtual collaboration tools in

improving communication and teamwork can provide the necessary data on the effectiveness of the remote working practices.

Distant collaboration problems have also been addressed in the current paper. In fact, digital tools and media while providing more flexibility and convenience can turn into obstacles themselves. It is vital to acknowledge the presence of such barriers if businesses are trying to enhance remote work processes and make teams more efficient.

Taking into account all the above, the paper aims to analyze employees' perceptions and experiences regarding digital collaboration tools in remote settings. Through the examination of survey feedback from those engaged in remote or hybrid work setups, the research aims to offer empirical insights into the effects of digital communication tools on collaboration, communication standards, and productivity results.

The specific objectives of the study are as follows:

- To find out whether remote workers think that virtual collaboration software makes teams more productive.
- To determine the impact of virtual communication software on teamwork and collaboration among remote workers.
- To identify problems experienced by workers when using digital communication software in remote work scenarios.
- To find out what kind of tasks can be accomplished through virtual collaboration software.

These goals offer an organized framework for examining the impact of digital communication technologies in contemporary workplaces and assist in aligning the research issue, research inquiries, and empirical analysis carried out in the study.

1.4 Research Questions

To tackle the research issue and fulfil the study's goals, a series of research questions was created. These research queries direct the empirical study and correspond with the survey employed to gather information from participants. The inquiries centre on

workers' views regarding communication, productivity, teamwork, and how well virtual collaboration tools function in remote work settings.

This study will answer the following research questions:

RQ1: What is the perceived effectiveness of communication in remote/hybrid teams?

RQ2: What is the perceived effect of remote work on individual productivity?

RQ3: What is the perceived effect of remote work on teamwork at organizations?

RQ4: In which situations can virtual collaboration tools be perceived as being particularly effective?

RQ5: How useful do respondents find virtual collaboration tools to be in terms of productive teamwork?

RQ6: What problems do respondents have when using virtual collaboration tools during remote work?

These research questions provide the foundation for the questionnaire design and guide the analysis of the survey results presented in the Results and Discussion chapters.

1.5 Significance of the Study

Since the increasing popularity of remote and hybrid workplaces has resulted in an extensive amount of studies being carried out to explore the impact of digital communication technologies on employees' performance and interactions, the need for investigating the efficiency of these technologies cannot be denied, considering their ever-growing use in business processes. This study is an addition to the available literature about virtual teams, remote working, and digital collaboration.

Previous studies have investigated different issues regarding virtual teams, ranging from collaborative performance, trust-building processes, and communication (Powell et al., 2004; Gilson et al., 2015). Yet, with the emergence of remote work, there is a rising need for more empirical research into employee experiences with digital collaboration technologies.

In addition, the findings of this study are significant since they contribute to the existing research literature in terms of providing the results obtained from empirical data concerning how the employees perceive the impact of virtual collaboration technologies

on teamwork and productivity. In other words, based on the analysis of opinions of remote workers or workers who combine face-to-face and virtual working styles, a contemporary view on the possibilities of digital communication tools for promoting teamwork is provided.

Moreover, this research is practically important since the results it provides might prove valuable for managers and organizations that make use of remote workers' teams. It could be beneficial for such organizations to understand what kind of attitudes their employees have towards digital communication tools and use this knowledge for developing more efficient communication strategies. Such an approach will increase the efficiency of teamwork in distributed teams.

Furthermore, this study will assist organizations in gaining insights into the determinants of the productivity of their employees who telework. By identifying the strengths and limitations of virtual collaboration software, organizations will be able to devise policies and strategies that improve communication and cooperation between employees.

In summary, the importance of this research is in the sense that it will contribute significantly to knowledge regarding the influence of digital communication media on collaboration and effectiveness in the contemporary work environment. Given the increasing trend towards remote work arrangements globally, research in this area will remain essential both academically and practically.

1.6 Structure of the Thesis

There will be six chapters included in the dissertation to provide an in-depth analysis of the effect of using virtual collaboration technologies on the productivity of teams in remote settings.

Chapter 1 provides a detailed overview of the research topic and gives an introduction to the study. Specifically, Chapter 1 contains the description of the research problem, objectives, questions, and importance of the study. In addition, Chapter 1 outlines the overall structure of the dissertation.

Chapter 2 presents an analysis of the literature. The literature review focuses on recent research conducted in relation to remote work, virtual teams, virtual collaboration tools, and team performance.

As stated in chapter 3, the study involved use of the following research methodologies. These are discussed below to show how the research was designed to collect data, prepare the questionnaire, sample selection, and analyze the data.

Chapter 4 shows the results of the empirical analysis conducted. In the chapter, a general summary of the survey results using statistical and graphical presentation is provided. The chapter gives the views of participants on remote communication and its effectiveness.

In Chapter 5, the results of the research are compared to the current literature on the subject matter. Comparison and contrasts are made to show similarities and differences as well as possible reasons for such.

Finally, Chapter 6 provides the conclusion of the study. In this chapter, the main findings of the research are provided along with its theoretical and practical significance. Recommendations for future research are also included.

This paper deals with the perception of employees on productivity within remote working conditions as well as on the efficiency of virtual collaboration tools. At the same time, it is essential to understand that this paper will not evaluate the actual effect of remote working on productivity; instead, the focus will be made on how workers perceive this impact. The difference between both kinds of productivity is crucial since, even though perceived productivity may be different from actual productivity, its consequences should not be neglected.

2. LITERATURE REVIEW

The increasing use of digital technology has brought about significant transformation in contemporary workplaces and organizations. Remote and hybrid work models have become increasingly common in different industries within recent times, with workers being able to accomplish their duties outside of the typical office setting. This has been facilitated by the development of digital communication technologies that allow workers to coordinate their activities irrespective of their locations.

Remote work refers to a working arrangement whereby workers can perform their duties outside the typical office setup, from a place away from the office, usually from home or other distant places using digital communication technology to keep in touch with colleagues and management. Improvement in communication technologies such as video conferencing technology, instant messaging software, and collaboration software among others have allowed organizations to operate normally even with workers in different locations.

The evolution of collaborative technology made remote working possible. Digital collaboration technology enables instant communication, file sharing, project work, and exchange of information between the members of the group located in different places. The efficiency of digital means of communication and collaboration has gained popularity in the field of organizational behavior and industrial management as more organizations started utilizing digital technologies for their communication and collaboration purposes.

According to Gilson et al. (2015), digital communication technologies are an absolute necessity in virtual groups in order to ensure the continuation of the process of collaboration and coordination. The lack of such means may result in serious problems for remote groups when it comes to the issues of productivity and goal achievement. Martins et al. (2004) claim that technological infrastructures have a crucial influence on the effectiveness of virtual collaborations.

Notwithstanding the rapid increase in significance of communication digital tools in the remote work environment, there is some uncertainty about the effect these technologies have on the process of collaboration. Some research indicates that virtual

collaboration technologies improve communication and flexibility, while other research shows some drawbacks, including misunderstanding, decreased social interaction, and coordination issues.

As such, an understanding of the impact of virtual collaboration technologies on the productivity of a team is essential for companies that wish to implement effective remote working policies. This paper is based on a review of existing literature on remote work, virtual teams, digital collaboration technologies, and the impact of these on teamwork and productivity. Some gaps in literature have been uncovered and should be addressed with future empirical research.

2.1 Definition of Productivity and Perceived Productivity

Productivity is understood as the efficiency of converting inputs like time, energy, and resources into outputs like finished tasks, delivered services, or organizational achievements (Syverson, 2011; Tangen, 2005). Within management studies, productivity is often employed to estimate performance and effectiveness on individual, team, or organizational levels.

Within conventional workplaces, productivity may be estimated by objective means through such parameters as the volume of produced output, its quality, compliance with deadlines, or other performance indicators. Nonetheless, measuring the productivity of telecommuting professionals might become challenging in light of different job positions, digital processes, and restricted access to employees' activities.

Perceived productivity implies that workers evaluate the degree to which they are productive when working in specific circumstances. In contrast to objective productivity, perceived productivity is shaped by individuals' experience, motivation, quality of interactions, flexibility, and satisfaction (Kniffin et al., 2021; Wang et al., 2021).

Differentiating between actual productivity and perceived productivity is crucial for the current study. The research does not assess any objective performance indicators. Instead, the present work seeks to explore workers' perceptions regarding the impact of remote work and virtual collaboration technologies on their productivity, teamwork, and communication.

2.2 Remote Work and Virtual Teams

Working remotely has become more popular in today's organizations. The development of IT systems and globalization allows people to perform their work in other locations, besides traditional office environments, while being able to communicate constantly with their coworkers and bosses. Remote work allows businesses to take advantage of a broader workforce, save money, and offer their employees more freedom in terms of planning their working hours.

The term telecommuting describes remote work and implies conducting work activities in a place different from the primary workplace by means of IT. According to Allen et al. (2015), telecommuting refers to an employment structure where employees can complete their tasks without having to travel to the office setting. Telecommuting has been implemented widely because of advancements in internet connectivity and information technologies.

Also associated with remote working is the concept of virtual teaming. Virtual teams comprise individuals who collaborate towards the achievement of common goals, each one situated in a different geographical location. Unlike traditional teams that operate within the same physical space, virtual teams rely mostly on computer-mediated communication in managing their operations. Martins et al. (2004) argue that virtual teams take advantage of the communicative capabilities of technology in order to collaborate beyond the confines of spatial, temporal, and organizational barriers.

There are many advantages of remote teams in firms. The ability to bring people with different skills from diverse locations is an important feature. Such diversity could be useful in improving the creativity and innovative capacity of the teams. Gilson et al. (2015) postulate that virtual teams are likely to assist the organization in obtaining unique capabilities through unrestricted geographical barriers, thus enhancing the competitiveness of the organization.

Nonetheless, some problems arise in the virtual team that could possibly hinder teamwork and efficiency. For instance, one of the most commonly encountered problems is the lack of personal interaction, hence making it difficult to develop an

informal way of communicating and building relationships among members. Trust-building becomes much harder within virtual teams due to limited chances of socializing together. Jarvenpaa and Leidner (1999) found out that trust plays a critical role in the performance of virtual teams, and trust building in dispersed teams requires effective communication strategies.

Another difficulty associated with remote working includes the problem of collaborating with other team members. As no clear communication and teamwork methods may be in place, misunderstandings and delays in information sharing become a possibility. According to Hinds and Bailey (2003), coordination may turn out problematic because of communication and proximity barriers affecting the performance of a team.

However, despite the above challenges, more and more people tend to work remotely and use virtual teams because of an increased variety of communication tools available as well as because it is necessary to provide flexibility. The understanding of the impact of such technologies on efficiency in remote collaboration is vital for companies seeking to improve their remote work approaches.

2.3 Evolution of Remote Work

The concept of remote working has experienced dramatic changes in recent decades. Previously, many companies relied heavily on traditional office-based work systems, where all employees used to execute their duties from centralized locations. However, with time and technological development, other alternatives emerged as well, including telecommuting and remote working.

The earliest telecommuting concept originated in the 1970s when scientists and policy-makers tried to come up with methods for decreasing commuting and enhancing work flexibility. With the development of computer and internet technologies, firms began to experiment with remote work approaches and allow employees to perform some of their duties outside the office premises.

The widespread adoption of the internet in the 1990s significantly accelerated the evolution of remote work strategies. The possibility to exchange emails, collaborate via the internet, and share digital files made remote collaboration possible for companies as

their employees could communicate and collaborate regardless of their physical location. Powell et al. (2004) claim that the invention of new technologies allowed organizations to establish effective teams despite their geographical location.

The development of remote work accelerated tremendously amid the pandemic due to COVID-19. Many organizations were compelled to adopt remote working arrangements to continue with operations during the period when public health guidelines dictated a shift towards remote work. As mentioned by Kniffin et al., many workers started working remotely at this point of time and stayed working so for a long duration of time.

Organizations became highly dependent on virtual communication channels to connect their workers. They utilized tools such as video conference, messaging applications, and other cloud-based systems to hold meetings, arrange task assignments, and communicate with other employees.

Post the end of pandemic period, many companies have started adopting a hybrid work model in which remote and on-site office arrangements are blended together. The hybrid work model allows workers to divide their time between remote and office settings. According to Bloom et al., hybrid work models provide the benefits of both collaboration and flexibility by enabling employees to have remote working facilities while still allowing face-to-face encounters.

With the rapid growth of telecommuting, the significance of collaboration systems cannot be denied when it comes to teamwork. With the increase in the number of businesses adopting remote work opportunities, there is an urgent need to study the effect of virtual collaboration systems on team effectiveness.

2.4 Virtual Collaboration Tools

Increased adoption of remote and hybrid working structures has tremendously increased the significance of virtual collaboration tools in contemporary organizations. Virtual collaboration tools refer to digital technologies that provide means through which employees can interact, share information, coordinate activities, and collaborate on projects regardless of their geographic location. Such digital technologies are indispensable

for facilitating effective communication and collaboration among remotely located individuals.

Examples of virtual collaboration tools include a wide range of technologies such as video conferencing applications, instant messaging platforms, cloud-based file-sharing systems, and project management platforms. Popular examples of platforms include Zoom, Microsoft Teams, Slack, Google Meet, and many other collaborative applications that provide the necessary means for interacting and coordinating projects. Such tools have helped in providing employees an avenue for conducting meetings, collaborating, communicating, and managing projects effectively in remote working environments.

As per Alavi and Leidner (2001), information technology plays a critical role in facilitating knowledge sharing and communication among organization members. Digital technologies have made it possible to quickly and effectively access information required to facilitate better decision-making and teamwork. In remote working environments, such technologies become the primary source of interaction and organizing of work activities.

Virtual collaboration technologies assist in establishing synchronous and asynchronous modes of communication. Synchronous communication refers to communication involving simultaneous interaction between individuals, which includes video calls and live chat sessions. While synchronous communication involves instantaneous message transmission through voice or video chats and instant messaging apps, asynchronous communication entails interactive processes without needing to be simultaneously done with other participants. Workers can respond to messages according to their schedule and can join the project without having to coordinate with other contributors.

Availability of synchronous and asynchronous means of communication provides flexibility to workers in remote environments. As explained by Powell et al. (2004), virtual teams generally rely on different forms of communication technologies to achieve effective communication regardless of geographic and time differences. Ability to use different forms of communication technologies helps teams alter their mode of communication depending on the nature of the tasks.

A further essential feature of these virtual collaboration tools includes their capability to support collaborative document creation and exchange of information. Virtual tools

allow various users to work on the same document concurrently, thereby facilitating collaborative editing and immediate feedback among them. This makes it possible for team members to collaborate and complete the task promptly. Martins et al. (2004) suggest that collaborative technology increases teamwork productivity because it gives employees an opportunity to quickly access and modify common information resources.

Apart from communication and document sharing, many virtual collaboration tools come with project management features that help teams manage complicated tasks. Such features may include task assignments, scheduling, workflow control, and progress tracking options. Such functions allow team members to track project progress and ensure that tasks are properly allocated.

While having certain advantages, virtual collaboration tools may cause certain challenges for employees. Overreliance on digital communication may limit possibilities for socializing that used to happen within the walls of a traditional workplace. Socialization often plays a huge role in building trust and establishing social ties between colleagues. Without such opportunities, it may be difficult for team members to build healthy relations.

Moreover, employing different communication media may sometimes cause overload with information. Employees can receive alerts on different apps at the same time, causing them to get distracted. According to Morrison-Smith & Ruiz (2020), the lack of control over the process of digital communication may lead to cognitive over-load.

In summary, virtual collaboration software is essential aspects of the modern organizational communication systems. Such systems enable employees working remotely to be connected and exchange information and tasks effectively despite physical distance.

Understanding how these technologies are perceived by workers in terms of the power that they wield would prove helpful for the firms in question.

2.5 Communication Effectiveness in Remote Teams

The role of communications is significant in making sure that a remote/hybrid work environment functions effectively. In turn, through communications, it will be possible for all workers to exchange the necessary information, cooperate, coordinate their actions

and meet organizational objectives. In a remote environment, communication is highly reliant on technology platforms, thus making efficiency of this technology a critical component influencing teamwork.

The term of effective communication implies that the communication process will be able to convey necessary information and facilitate better coordination among team members. As for traditional settings, most of all communication takes place face-to-face, which allows individuals to understand non-verbal messages conveyed during the interaction. This way, people become capable of understanding messages more precisely.

However, in the remote working environments, most communications take place using technology platforms, which limits the use of non-verbal communication. According to Hinds & Bailey (2003), distributed teams often experience challenges with communication because digital communication reduces contextual information needed to interpret a message accurately. As a result, remote communication may lead to misunderstanding and misinterpreting of messages.

According to Maznevski and Chudoba (2000), communication channels play an important role in ensuring effective teamwork, as virtual teams use different means of communication for successful collaboration. For example, it may be possible to use videoconferencing for difficult discussions, instant messaging for short messages, and emailing for full documentation. Selection of appropriate communication channels considering requirements of certain tasks will facilitate efficient communication and minimize coordination problems.

Another factor impacting the effectiveness of communication in virtual teams is the level of communication. Regular communication allows keeping team members informed about current progress, assignments, and objectives of the organization. As a result, communication becomes a motivation for coordinating activities while accomplishing various assignments.

One of the main aspects that influences communication effectiveness in virtual environments is trust between participants. Trust motivates people to exchange information and collaborate successfully. According to Jarvenpaa and Leidner (1999), trust building in virtual teams depends on communication patterns significantly, including rapid

response, explicit messages, and stimulating exchanges.

Different languages and cultures may affect how efficient the process of communication in global remote teams will be. Individuals from various cultures have distinct communication patterns and might perceive each other improperly. It is essential that communication styles are adjusted according to specific cultures.

In addition, companies should develop their own set of communication rules to ensure effective collaboration in remote teams. Such rules can be related to how fast people should reply, what agenda they have at meetings, preferred channels and other issues related to how people can communicate. Organized communication techniques help avoid confusion and ensure that people know how and when to communicate.

Even though it may pose some difficulties, effective application of digital communication tools can make collaboration easier. For instance, video conferencing technology helps people communicate effectively through engaging conversations, while collaboration technology helps employees share documents and provide feedback immediately. Thus, communication and collaboration continue throughout the day.

To sum up, effective communication plays an important role in determining whether remote teamwork will be successful. Companies that use effective communication technologies and develop clear rules for communication are expected to promote collaboration in remote teams successfully.

2.6 Team Productivity in Remote Work

Productivity in teams means the ability of a set of people to work effectively and efficiently in order to reach the desired aims. Organizational productivity often depends on performance, quality of results, efficiency of the work processes and achieving organizational goals. Remote conditions can influence team productivity through many aspects including effectiveness of communications, coordination techniques, information technologies, and motivation of employees.

Remote work might positively or negatively affect productivity of the teams. On the one hand, remote work enables employees to have more flexibility concerning scheduling of their work and saves commuting time. On the other hand, this kind of work raises

problems concerning communications and coordination and influences collaborative work negatively.

According to Bloom et al., (2015) conducted an experiment concerning remote work which showed higher productivity of employees because there were no workplace interruptions and greater focus. Workers could control their work environment better and manage their time. These results mean that there could be some productivity benefits of remote work for workers provided with appropriate tools and support.

However, remote work can present some challenges for teamwork productivity, particularly for joint activities that require frequent involvement by team members. According to Gilson et al. (2015), distributed teams might experience some coordination issues if the process of communication isn't managed well. Any delays in information exchange or miscommunication during digital communication might affect decision-making.

The level of technological competency among workers is another factor influencing the productivity of remote teams. Workers who have competence in using digital communication tools would be able to adapt faster to the remote environment than those not experienced with such technology.

Organizational support plays a great role in the maintenance of high levels of productivity of remote teams. Companies must provide employees with appropriate technological resources, such as reliable internet access, channels for digital communication, and collaboration applications. Additionally, the development of digital communication skills among employees through organizational training programs would result in better team productivity.

In addition, management and leadership approaches also influence productivity in remote working teams. Good leaders issue clear instructions, implement communication procedures, and ensure that everyone on the team knows what they have to do. Malhotra et al. (2007) point out that good virtual leadership involves good coordination and communication skills for maintaining team performance.

According to research, remote working can both enhance and undermine team productivity. The quality of communication technologies, organizational support, and leadership greatly determines the productivity of remote working teams.

2.7 Benefits of Virtual Collaboration Tools

Virtual collaboration tools come with numerous benefits which make them useful in teamwork and increasing efficiency in remote work environments. Workers are able to communicate, coordinate, exchange information and cooperate in projects regardless of geographical location.

One of the major advantages of virtual collaboration tools is the increase in flexibility when it comes to work organization. Thus, employees have an opportunity to attend meetings, participate in discussions and collaborate in projects regardless of their physical presence in the workplace. In other words, firms will be able to introduce flexible working conditions for employees.

Another benefit of virtual collaboration tools is improved information and knowledge accessibility. Digital platforms help workers to store, access, and exchange information. According to Alavi & Leidner (2001), information management systems enabled by digital technology help workers collaborate efficiently and make sound decisions.

The use of virtual collaboration tools facilitates faster communication among team members. Messages can be sent using messaging applications while video conference applications are useful in initiating real-time communication to help solve problems collaboratively. In addition, the use of technology helps in optimizing communication process and making decisions in time.

Virtual collaboration tools facilitate efficient task management and coordination between employees. With the help of task management software, tasks are assigned to individual team members who monitor their progress and keep track of deadlines. Virtual collaboration tools facilitate better assignment of roles and responsibilities among team members.

Research shows that the use of virtual collaboration tools helps improve efficiency in organizations through reduction of travel requirements and cost reduction. Team members can engage in discussions and collaborate in projects without necessarily attending physical meetings. Thus, costs could be reduced but still maintain effective communication and collaboration.

In conclusion, we should admit that there are numerous advantages that result from the implementation of virtual collaboration tools. Nevertheless, the success of virtual collaboration will depend on whether organizations apply these tools effectively.

2.8 Challenges of Virtual Collaboration

Even though there are many advantages of using virtual collaboration tools for remote teams, there can be some obstacles while communication and teamwork is heavily dependent on technology. Such problems can affect team cooperation, effective communication, and overall efficiency of remote working processes. Knowledge about such constraints is important for those organizations which want to develop an efficient system of remote working.

One of the most common obstacles which are associated with virtual teamwork is lack of face-to-face interaction. Employees working under traditional conditions usually have a chance to communicate face-to-face and perceive non-verbal communication. Facial expressions, gestures, and voice tonality can help a person better understand the information received and improve interpersonal relations. On the other hand, during remote working processes communication may take place in the context of digital channels lacking non-verbal components.

Hinds & Bailey (2003) claim that misunderstandings are often experienced by distributed teams due to a lack of contextual information in the process of communication. It becomes difficult to understand intentions and emotions of other people if there is only text and short communication taking place between them. As a result, misunderstandings and distortions can occasionally happen.

The problem of establishing relationships and building trust is also an important aspect that should be discussed. Indeed, trust is a vital element of cooperation, as it implies the willingness to communicate, share ideas, experience and support others. Virtual workers may have fewer opportunities to socialize and build personal relations. According to Jarvenpaa and Leidner (1999), the increase in trust among geographically dispersed virtual teams mostly depends on reliable communication, quick responses, and professionalism.

One more challenge associated with working in global virtual teams can be related to the difference in time zones. The time zone disparity may cause difficulties in coordinating team activities and holding meetings. Team members may need to adjust their schedule or resort to asynchronous communication tools to collaborate. Such problems may complicate decision-making and slow down the progress of the project.

Technical problems are among critical issues associated with remote collaboration as employees rely on different technologies to communicate and cooperate with colleagues. These include software problems, poor internet connectivity and so forth. As Morrison-Smith and Ruiz (2020) observe, technical difficulties may negatively affect employee efficiency and increase frustrations.

Too much information is a common problem when it comes to teleworking. Employees may receive messages, notifications, and updates from multiple digital tools simultaneously. The incessant flow of information can cause information overload, thus preventing employees from focusing on their primary tasks. Over time, too much online communication causes stress and poor job satisfaction among employees.

Another problem that arises in this regard is the need to ensure effective communication framework among the team. Due to the lack of a communication guide, employees may have difficulties figuring out how to communicate through which channel. While some employees may prefer communicating via emails, others may find it easier to communicate using instant messaging tools.

Moreover, cultural and language differences can influence communication in international remote teams as well. In case the members of the same team hail from different cultures, their communication practices and expectations can vary significantly. Problems can occur due to the misunderstanding of messages or communication practices dictated by the norms of the culture. Thus, efficient management and special communication practices should be implemented to encourage collaboration within diverse remote teams.

Overall, remote work environment can affect workers' opportunities to engage socially. Informal interaction, such as informal conversations during breaks, is very important to develop social bonds between coworkers and improve team cohesion. In case

employees are telecommuting, the mentioned type of communication may occur rarely, which can have a negative effect on teamwork.

Despite all the problems, many firms continue adopting remote working models, as they can bring some benefits to the organization. Through recognizing the weaknesses of remote collaboration instruments and addressing them, companies can find solutions to facilitate communication and teamwork.

2.9 Digital Communication and Team Coordination

It is essential to emphasize that the effective collaboration among employees is significant in ensuring the attainment of the objectives of organizations, especially if employees are working remotely. Coordination is defined as the process of organizing, communicating, and synchronizing the activities of team members to meet common objectives. Digital communication technologies facilitate the coordination of the activities of team members working remotely.

The use of digital communication tools helps workers communicate information quickly and continuously regardless of where they are located physically. Video conference applications can be used by teams to conduct meetings and discuss the progress of projects, whereas instant message applications can be used by workers to send brief communications and coordinate daily activities.

According to Powell et al. (2004), virtual teams depend heavily on communication technology to perform their tasks and cooperate. Efficient information exchange will be essential to help team members comprehend their tasks and be in line with the team objectives. In cases where communication works effectively, remote teams can handle complex tasks irrespective of the dispersion of the team members among different geographical locations.

The other important feature of digital communication is that it helps facilitate team-based decision-making. This is because in a digital workplace environment, team members may have to make decisions through the communication platform by evaluating options. Video conference applications provide team members the opportunity to conduct interactive discussions to solve problems and make decisions.

Collaboration applications aid team coordination because they permit employees to exchange documents, keep track of project status, and assign tasks. They offer team members the chance to monitor existing task processes and identify any issues which could affect their outcomes. As Martins et al. (2004) observe, collaborative technologies aid team coordination through provision of information environments that facilitate modification of project information.

In addition, effective leadership is necessary in coordinating the activities of remote teams. According to Malhotra et al., managers should develop clear communication systems, define the objectives of organizations, and clarify the roles played by employees. Effective leadership in virtual teams calls for constant communication and interactions between leaders and team members.

Moreover, structured communication systems may increase collaboration in distant teams. Companies typically develop regular meeting schedules, reporting systems, and communication strategies to support remote cooperation. Such systems help to reduce ambiguities and keep team members informed about organizational activities.

Lastly, digital communication technologies help team members to exchange their knowledge, thus enhancing the creativity of the teams. Team members are likely to come up with innovative solutions because of exchanging information through digital collaboration tools. The sharing of knowledge is particularly important for remote work environments where workers may have limited opportunities for informal discussions.

Coordination is impossible without proper communication systems and technologies. However, successful coordination also requires appropriate communication practices among colleagues. Every member must communicate ideas clearly and exchange relevant information. All members are supposed to respond to any form of communication promptly.

In summary, digital communication technologies have become fundamental resources that assist in coordinating remote teams. Organizations can coordinate their activities effectively without any physical presence through digital communication technologies.

2.10 Research Gap

Even after a plethora of research has been done in relation to remote working, virtual teams, and digital communication technologies, there still exist some gaps in regard to the effects of virtual collaboration tools on team productivity. While many researchers are currently engaged in studying technological infrastructure, organizational effectiveness, or telecommuting outcomes, there have been relatively few researchers studying how virtual collaboration tools affect team productivity from the perspective of employees.

For instance, bloom et al. (2015) primarily studied the outcomes of remote working practices in terms of productivity and did not pay attention to the employees' views on virtual collaboration tool usage. In a similar vein, Gilson et al. (2015) and Martins et al. (2004) were engaged in studying the features of virtual teams as well as the issues that arise when using them without concentrating specifically on the issue of collaboration tool usage perspectives.

Yet another issue with the present-day research papers is that various studies consider remote work from an organizational point of view rather than paying attention to the experiences of individual workers working in distributed teams. It is imperative to understand the viewpoint of workers because the employees use collaboration technologies on a consistent basis. This would allow one to understand their effect on communication and collaboration within teams.

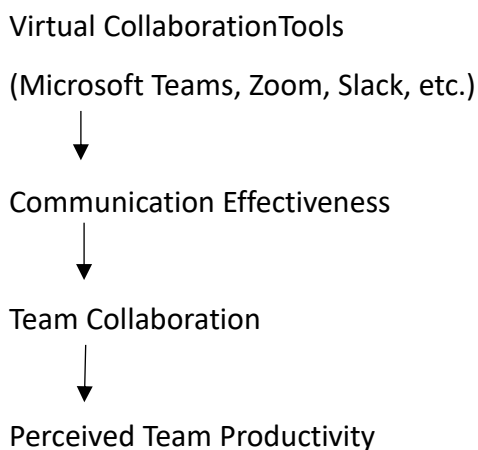
Additionally, earlier studies have mainly examined effectiveness of communication or adoption of technology separately without exploring the effects of both components on productivity in remote teams. However, communication technologies and collaboration processes are highly interrelated in this case. It is essential to understand this connection to measure the effectiveness of virtual collaboration tools.

Also, there has been a rapid growth in remote and hybrid working styles recently. The increased reliance on digital communication technologies makes it important to conduct empirical studies related to employees' opinions regarding these technologies and their ability to facilitate collaboration and productivity among workers.

Thus, this study will seek to address the gaps through exploring the effects that virtual collaboration tools have on the productivity of teams working remotely or in hybrid set-ups. It will look into perceptions about efficiency in communication, cooperation, and productivity while using virtual collaborative tools. The study will seek to collect data through surveys from individuals who work in remote and hybrid setups.

2.11 Conceptual Framework

Conceptual Framework Diagram



Moderating Factors

- Organizational Support
- Leadership Practices
- Communication Challenges
- Technical Issues

The theoretical framework used in this study illustrates the relationship between virtual collaboration tools, efficient communication, cooperation, and productivity perceived by teams when they operate remotely. Virtual collaboration tools, such as Microsoft Teams,

Zoom, and Slack, are the key communication tools through which interaction among remote team members takes place. They affect the effectiveness of team communication, which will ultimately affect team coordination and collaboration.

Effective communication is vital for enhancing collaboration in remote settings. Efficient and fast communication facilitates better coordination among team members, information exchange, and issue-solving. Therefore, improved communication and collaboration could lead to increased perceptions of team productivity.

However, several moderating factors may have an impact on this relationship. For instance, challenges such as communication difficulties, technical issues, and different experiences working remotely may affect the effectiveness of virtual collaboration tools in fostering team collaboration. This study focuses on the impact of virtual collaboration tools on team productivity, bearing in mind the role played by effective communication and collaboration in remote settings. The framework identifies some crucial perceptual elements while ignoring others, as highlighted in the literature.

3. METHODOLOGY

3.1 Introduction to the Methodology

The current chapter presents the methodology used to evaluate the effect of collaboration tools in remote and hybrid settings for team productivity. The methodology presents the research design, research approach, information gathering methods, sampling strategy, research tools, data analysis techniques, and ethical issues considered in this research. A well-defined and organized methodological approach was used in order to ensure that the findings of this research are reliable and valid.

In this study, a quantitative method was used, where the survey was carried out using a structured questionnaire administered through an online system. Data was collected anonymously from individuals who have had experience working remotely or in a hybrid setting. Methodology considerations took into account the nature of the re-search aims in terms of identifying patterns, perceptions, and links related to remote working and team productivity. Particular attention was given to ensuring the coherence between research questions and questions included in the questionnaire used in this survey.

3.2 Research Questions

This study seeks to assess the impact of virtual collaboration on teamwork, efficiency in communication, and productivity. The research questions were formulated in such a way that they would correspond with the questionnaire questions used during the study to ensure consistency between the research objectives, the means of collecting data, and the analysis of findings.

The study seeks to answer the following research questions:

RQ1: What is the perceived effectiveness of communication within remote or hybrid teams?

RQ2: What is the perceived impact of remote work on individual productivity?

RQ3: What is the perceived impact of remote work on teamwork within organizations?

RQ4: In which work situations are virtual collaboration tools perceived to be most effective?

RQ5: To what extent do respondents believe that virtual collaboration tools support productive teamwork?

RQ6: What challenges do respondents experience when using virtual communication tools in remote work environments?

Whereas previous studies point to organizational support systems and leadership styles as important factors that determine the efficiency of teams working remotely, this research does not include them in its framework. Instead, it concentrates on the opinions of workers regarding the effectiveness of communication, cooperation, and the use of software for virtual teamwork.

This research questions correlate precisely with the questions included in the questionnaire used in the study and help analyse survey results that will be presented in the Results chapter.

These research questions are dedicated to employees' opinions on the application of tools for virtual cooperation and its impact on communication, efficiency, and teamwork in remote work environments.

3.3 Research Design

The methodology employed in this study is based on surveys and uses a cross-sectional research design. Cross-sectional research design was used in this study because the data was collected from participants at a certain period of time, rather than over an extended period. It is quite common in organizational, or management research intended to analyse the existing beliefs or behaviour in a certain population.

Cross-sectional research design is perfect for this study because the goal is to find out how remote work influences team productivity. The trend towards remote work and hybrid models has been developing and getting more popular recently. Therefore, collecting data about participants' experience at a certain time allows capturing the essence of the contemporary situation.

As per the definition given by John W. Creswell (2014), “cross-sectional research designs can be appropriate when the purpose is quantitative and seeks to describe a trend or opinion in a population as indicated by a sample of the population at one point in time.”

This statement perfectly fits the goals of the proposed study.

Moreover, the cross-sectional study technique has many advantages as well. It is time-saving, money-saving, and suitable for collecting information from people who are scattered across different geographic locations, and this is especially important because remote workers may hail from diverse geographic locations around the world.

3.4 Research Approach

The research employed a quantitative approach. Quantitative research involves collecting numbers that can then be statistically analysed to reveal any patterns, relationships, and trends. The choice of using a quantitative approach was influenced by the objectives of the research, which required a measure of people’s opinions about productivity, communication effectiveness, working together, and problems related to remote work.

Some advantages of adopting the quantitative approach include:

Analysis of responses systematically

Comparing differences among the respondents’ perception

Reporting results in terms of statistics like frequency and percentage

According to Creswell (2014), the strength of quantitative approaches lies in the generalizability of the findings from the sample to the entire population. In this research, the adoption of the quantitative approach facilitates analysis of common trends on how remote work affects productivity in teams.

3.5 Research Strategy: Survey Method

The approach used in this study is the use of a survey where an online survey questionnaire is used. Among the most popular data gathering tools is a survey since it allows the researcher to effectively collect data from a large number of respondents.

A survey is chosen because:

It ensures anonymity ensuring truthful responses.

It helps collect data uniformly.

It is useful for examining opinions and attitudes.

It makes it easy to share data electronically.

The online survey was administered using Google Forms, making it quick for the collection of data automatically. The online tool was particularly suitable because of the nature of the target population.

Research conducted in remote telework contexts, such as the research conducted by Ravi S. Gajendran and David A. Harrison in 2007, has relied on data collection through surveys.

3.6 Population and Sampling

The intended population for this research was people who have worked under remote or hybrid working conditions. Due to the nature of anonymity in this survey and widespread dissemination through social media channels, it was impossible to identify the specific occupations of the participants.

3.6.1 Sampling Technique

A convenience sampling approach was adopted. The questionnaire link was distributed via:

WhatsApp groups

Facebook channels

Convenience sampling was selected since it offers rapid participation from individuals satisfying the generic requirements of having worked in remote or hybrid work setups. Convenience sampling is commonly adopted in exploratory and perceptions-based studies where a complete sampling frame is not readily accessible.

3.6.2 Inclusion and Exclusion Criteria

Inclusion criteria:

Persons with experience in remote/hybrid work

Individuals at least 18 years old

Voluntary participation.

Exclusion criteria:

People with no experience in remote/hybrid work

Inadequate responses to questionnaires

The above mentioned inclusion/exclusion criteria will enhance the internal validity of the study as well as ensure that the sample reflects the research objectives.

3.7 Questionnaire Development

The main tool for data collection in this study was a structured questionnaire created specifically to focus on the research goals concerning the use of virtual collaboration tools and their perceived effects on team productivity in remote work settings. The survey aimed to gather respondents' views, experiences, and beliefs in a clear, organized, and quantifiable way.

The creation of the questionnaire adhered to a systematic procedure. The research goals were first examined to pinpoint the important aspects related to remote work and team effectiveness. Utilizing these dimensions, questions were developed to guarantee consistency between the research goals and the survey questionnaire items included.

The phrasing of the research questions was intentionally crafted to align closely with the questions found in the questionnaire. Rather than employing vague analytical language, the research questions address the precise issues evaluated in the survey instrument. This alignment guarantees that the outcomes shown in the findings chapter relate directly to the items from the questionnaire, thus enhancing the clarity and consistency of the research design.

John W. Creswell (2014) states that well-constructed questionnaires are crucial in quantitative research because they improve the reliability and validity of the data gathered. In accordance with this guidance, the questionnaire was designed with straightforward language, explicit instructions, and sequentially arranged questions to reduce confusion for respondents.

3.7.1 Structure of the Questionnaire

The survey employed in this research was divided into four primary sections, with each section addressing a distinct facet of remote work and virtual cooperation concerning team productivity.

Section A: Background Information

This section contained fundamental screening questions intended to verify that respondents possessed experience in remote or hybrid work settings. The inquiries posed to participants focused on their existing work setup and the length of their experience with remote work. This data confirmed that every participant satisfied the study's inclusion criteria.

Section B: Use of Virtual Collaboration Tools

This segment concentrated on recognizing the main communication tools employed by participants in their professional settings. Participants were requested to specify the virtual communication platform they used most often for work-related interactions. This inquiry offered context for comprehending how digital tools are incorporated into practices of remote work.

Section C: Effectiveness and Productivity

This segment analysed participants' views on the effectiveness of communication, personal productivity, and collaboration in remote or hybrid work environments. The inquiries investigated the effectiveness of communication in remote teams, the impact of remote work on individual productivity, its influence on teamwork within organizations, and the work scenarios where virtual collaboration tools are viewed as most effective.

While the main emphasis of the research is on team productivity, individual productivity was also analysed since personal performance can impact overall team results in remote work settings.

Additionally, participants were requested to assess if virtual communication tools occasionally hinder productivity because of communication issues or interruptions in workflow. These inquiries were intended to gauge participants' views on the impact of remote

work and virtual communication tools on personal productivity and the performance of the entire team.

Section D: Experience-Based Question

The concluding section featured an open-ended question enabling participants to provide extra comments or experiences regarding remote work and collaboration. This question allowed respondents to share views that might not have been reflected in the closed-ended questions.

3.7.2 Types of Questions Used

The survey mainly included closed-ended questions, such as Likert-scale and multiple-choice items, to facilitate quantitative analysis. Furthermore, an open-ended question was added to enable respondents to provide further comments or insights about remote work and team efficiency. Nonetheless, because of the small number of answers obtained for the open-ended question, the qualitative responses were utilized solely to offer extra contextual insight and were not analysed in depth qualitatively. Certain questions in the survey permitted participants to choose multiple options. Consequently, the overall count of answers for those items could surpass the total number of participants. This multiple-choice format aimed to gather a wider perspective on participants' experiences and views regarding remote work and digital communication.

3.8 Data Collection Procedure

Data were gathered via an online questionnaire conducted through Google Forms. The process of gathering data adhered to multiple organized steps to guarantee precision and ethical adherence.

3.8.1 Survey Distribution

The link to the survey was shared via:

Groups on WhatsApp

Facebook services

These platforms were chosen for their accessibility and large user base, allowing the researcher to efficiently connect with individuals experienced in remote or hybrid work settings.

Participation was completely voluntary, and participants were made aware that their answers would be kept confidential. No rewards were provided for taking part.

3.8.2 Duration of Data Collection

The survey was available for a set duration to ensure ample opportunity for respondents to engage. Responses were regularly checked to maintain data completeness and relevance.

By the conclusion of the data collection phase, 31 valid responses were documented and incorporated into the final dataset for analysis.

3.9 Data Preparation and Management

Following the data collection phase, responses were transferred from Google Forms to Microsoft Excel for preparation and analysis. Data cleansing was performed to guarantee precision and uniformity.

The subsequent actions were carried out:

Responses that were incomplete were discarded.

Response categories were examined for uniformity.

Data were assigned numerical codes where necessary to aid analysis.

Excel was chosen as the main tool for data management because it is well-suited for managing small to medium datasets and can efficiently create tables, charts, and summary statistics.

3.10 Data Analysis Method

The research mainly utilized descriptive statistical methods to evaluate the survey data. Descriptive statistics summarized the perceptions and experiences of respondents regarding remote work and team productivity.

The analysis included:

Frequency distributions

Percentage analysis

Visual representations such as bar charts and pie charts

Descriptive analysis was selected since the aim of the study is to discover patterns and trends instead of determining causal links. This method aligns with survey-driven investigations in organizational research.

The findings are displayed through tables and graphs to improve clarity and understanding. Every graphical display comes with a thorough description in the Results section.

Alongside descriptive statistics, the analysis examines potential comparisons between participants employed in entirely remote environments and those engaged in hybrid work setups. These comparisons could offer further understanding of whether views on communication efficiency, collaboration, or output vary between people working entirely remotely and those in hybrid setups. Nevertheless, because the overall number of participants is quite limited ($n = 31$), the research primarily emphasizes descriptive statistical trends instead of intricate statistical analyses.

3.11 Reliability and Validity

Ensuring the reliability and validity of the research instrument was a key consideration in this study.

3.11.1 Reliability

Reliability pertains to the stability of the measurement tool. The survey showed consistency by:

Utilization of uniform question structures

Lucid and straightforward phrasing

Uniform Likert-scale assessments throughout sections

The survey's anonymous format also promoted truthful answers, minimizing response bias.

3.11.2 Validity

Content validity was achieved by directly linking all questionnaire items to the research objectives. Every question was assessed to ensure it evaluated factors pertinent to remote work and team efficiency.

The application of recognized ideas from earlier remote work studies enhanced the instrument's validity

3.12 Ethical Considerations

Ethical guidelines were diligently adhered to during the entire research process. Participants were told about the study's aims and their option to leave at any moment.

Crucial ethical factors encompassed:

Participation is voluntary.

Confidentiality of participants

Discreet management of information

Utilization of data exclusively for scholarly objectives.

No personal or confidential data was gathered. The data were kept safely and only the researcher accessed them.

3.13 Summary of the Methodology

This chapter detailed the methodological framework utilized in the study, covering research design, research approach, sampling strategy, questionnaire creation, data collection processes, data analysis techniques, and ethical considerations. The approach

was crafted to guarantee the dependability, accuracy, and openness of the research procedure, establishing a solid basis for understanding the findings discussed in the following chapter. The methodological framework guaranteed that the research inquiries, survey questions, and data analysis methods stayed closely connected. This alignment enhances the link between the gathered data and the outcomes shown in the next chapter.

4. RESULTS

4.1 Introduction to the Results Section

This chapter presents the research results that have been obtained based on the information collected through an organized online survey. In this part of the paper, the intention is to analyse and present the information about the feedback received from the participants in an objective manner. Data collection was carried out using Google forms and distributed over social media such as WhatsApp and Facebook.

The total number of collected responses amounted to 31; all of them were used in the analysis. Results have been presented in the order of questions presented in the questionnaire in order to make sure that there is coherence between the research questions, the questionnaire and the analysis. The data collected has been exported into Microsoft Excel in order to perform analysis, coding, and data cleaning. Frequencies and percentages have been utilized as descriptive statistical approaches for quantitative data analysis. Results are presented in tabular form, as well as charts and figures to enhance comprehension.

Only results will be provided in this chapter with no interpretation or comparison with literature in any way. The next discussion chapter will provide an analysis of the results.

4.2 Profile of the Respondents

Here, the profile of the respondents who participated in the survey is briefly discussed. The survey was conducted online, and feedback was collected from professionals who worked in different professional environments. Since the survey was an anonymous one, there was no way to find out the identities of the respondents. Due to the anonymous nature of the survey conducted through social networking sites like WhatsApp and Facebook, it was difficult to determine the exact professional profiles of the respondents. All of the respondents had experience in working with virtual teams; thus, participation in the study was contingent on their having the experience. Some of the respondents were foreign nationals, whereas others belonged to Finland.

The diversity of respondents helps gain different perspectives regarding virtual teams.

4.3 Data Analysis Approach

Statistical analysis of the survey data was carried out through the use of descriptive statistics. The responses were analysed by computing the frequency and percentage of each question in the survey form.

Each question in the survey form will be analysed independently in the next sections. The results will be presented in tables and graphs and will be followed by an explanation of the trends observed.

4.4 Results Based on Questionnaire Responses

The subsequent sections outline the findings gathered from each questionnaire item. The results are arranged based on the order of questions present in the survey.

SECTION A: BACKGROUND INFORMATION

4.4.1 Current Work Arrangement of Respondents

Question:

What is your current work arrangement?

Table 4.4.1: Current work arrangements of Respondents

Work Arrangement	Frequency
Fully Remote	12
Hybrid (remote and on-site)	11
Mainly on-site	8

Table Description

The table above shows the distribution of respondents according to their present work setup, which includes fully remote, hybrid (a mix of remote and on-site), and primarily on-site work arrangements.

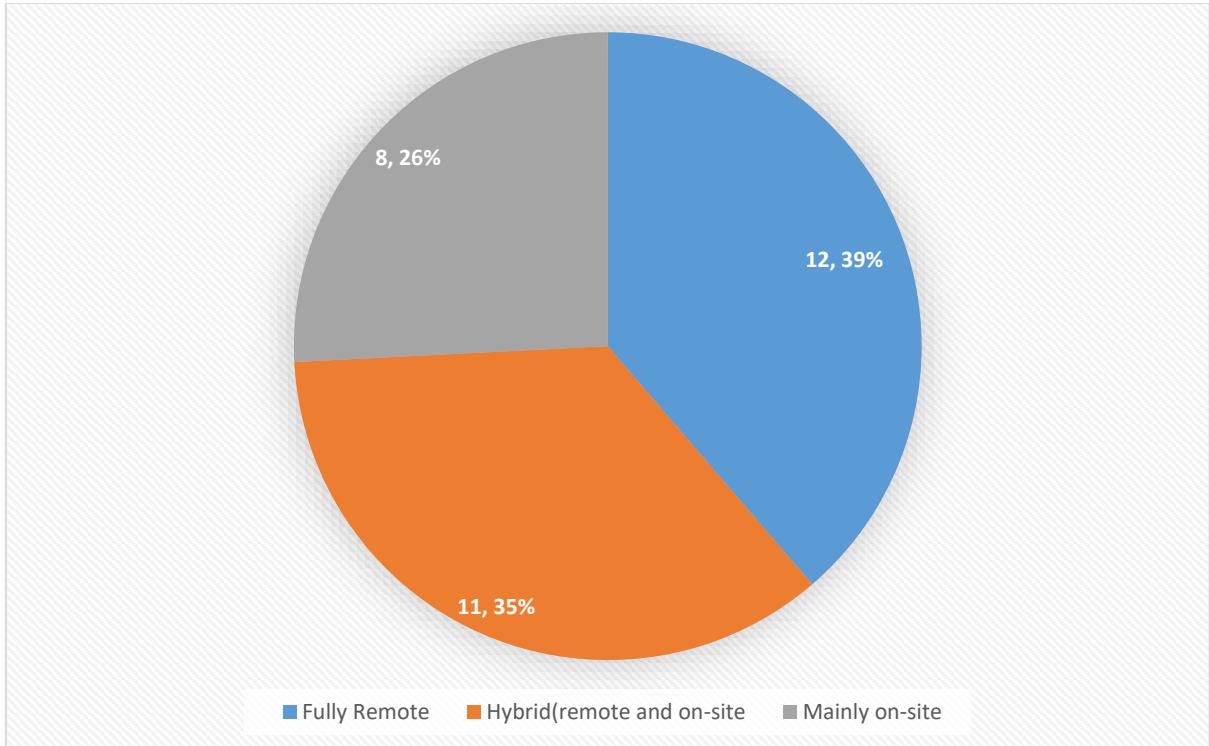


Figure 4.4.1: Current Work arrangements of Respondents

Graph Used

A pie chart visually illustrates the distribution of respondents among various work arrangements.

Explanation of Results

The chart illustrated below is the work setups in which the participating individuals operate in. It can be seen from the results obtained that individuals are classified into three broad work setups namely fully remote, hybrid (comprising of both remote and on-site) and mostly on-site. Out of these, the largest number of individuals stated that they work

in a fully remote setting representing about 37.5% of total number of participants. It shows that remote work has become the norm for the individuals participating.

Furthermore, about 34.4% of individuals stated that they work in a hybrid setup. This shows that there is increasing acceptance of flexible work schedules where employees are able to combine remote and on-site working. The rest of the participants which constitute 28.1% stated that they mostly worked on-site. It suggests that traditional work setups continue to exist along with flexible work schedules.

On the whole, one can see that there exists variation in terms of work setups among the participating individuals.

4.4.2 Duration of Remote Work Experience

Question:

How long have you been working remotely in a remote or hybrid work environment?

Table 4.4.2: Frequency of remote work experience

Remote Work Duration	Frequency
Less than 6 months	10
6 months-1 year	13
1-3 years	5
More than 3 years	3

Table Description

The table above summarizes respondents' duration of experience with remote or hybrid work, categorized into different time periods.

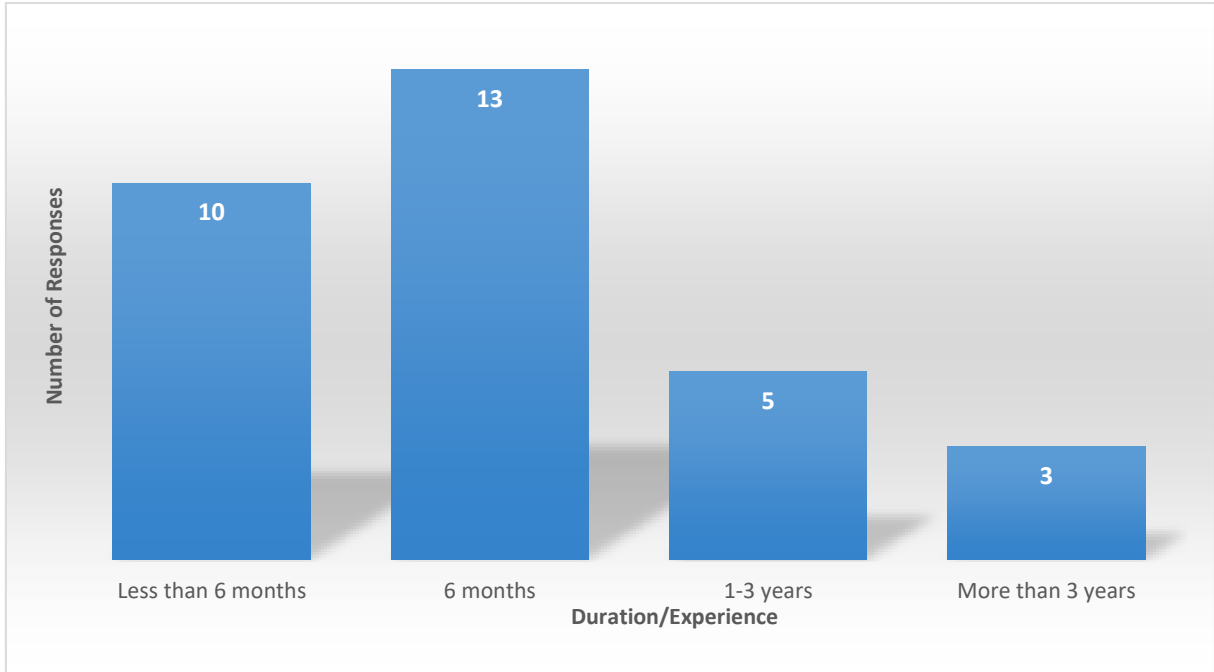


Figure 4.4.2: Duration of Remote Work Experience

Graph Used

A bar chart is used to compare the number of respondents across different experience duration categories.

Explanation of Results

Table 4.2 presents information about how the participants were divided regarding their experience in working remotely. It is apparent that participants vary in terms of their level of experience in remote work. The largest number of respondents, that is, 13 people, had about six months of experience with remote work. This proves that there is a significant number of respondents who have little experience of remote work.

Moreover, 10 participants stated that they worked remotely for less than six months; thus, this proves that there is a considerable number of respondents who are at the beginning stages of remote work. On the contrary, five people have remote work experience of one to three years, while only three participants had remote work experience of more than three years.

These statistics prove that there are both experienced and inexperienced respondents in the sample.

SECTION B: USE OF VIRTUAL COLLABORATION TOOLS

4.4.3 Use of Communication Tools in Remote Work

Question

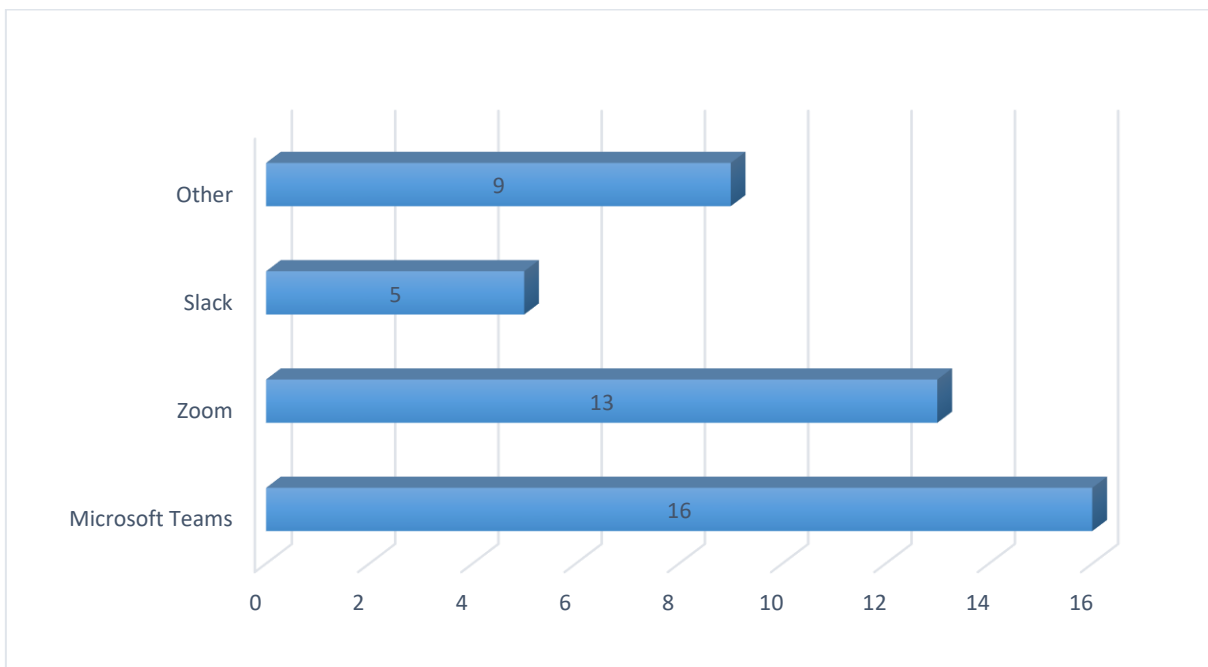
Which communication tool do you primarily use for work?

Table 4.4.3: Use of Communication Tools in Remote Work

Communication Tool	Frequency
Microsoft Teams	16
Zoom	13
Slack	5
Other	9

Table description

The table shows the frequency distribution of communication tools used by respondents.

**Figure 4.4.3: Collaboration Tools Usage**

Graph Used

A **horizontal bar chart** titled “**Collaboration Tools Usage**” is used to visually compare the frequency of different communication tools.

Explanation of Results

In this case, the question was designed as multiple response items, thus allowing respondents to select several relevant answers. In this context, the sum of frequencies is higher than the sample size of 31 respondents.

According to the results obtained, Microsoft Teams is the most popular communication tool among the respondents since it was mentioned by 16 people out of 31. The high frequency of usage means that this application plays an important role in supporting communication, especially in organized environments when Microsoft integration becomes crucial.

The second place belongs to the Zoom tool, which received 13 responses. The high frequency of the tool's use proves its importance for organizing virtual meetings, video conferencing, and live talks. The popularity of this software may be explained by its ease of use and reliability during real-time interaction.

It is worth noting that the Slack tool, despite its reputation as a collaborative platform, was selected only by 5 people. This result shows that the Slack software is used quite rarely among the respondents.

In addition, there were 9 people who chose “Other” which shows that many people use different communication applications such as emails, WhatsApp, and other organization-specific communication channels. It highlights the fact that there is no single standardized communication application used by all companies.

The findings show that even though Microsoft Teams and Zoom are dominant in remote communication approaches, many employees use different tools depending on their tasks and organizational policies.

SECTION C: EFFECTIVENESS AND PRODUCTIVITY

4.4.4 Perceived Effectiveness of Communication in Remote Teams

Question

How effective do you find communication in your remote or hybrid team?

Table 4.4.4: The table below summarizes respondents' perceptions of communication effectiveness.

Communication Effectiveness	Frequency
Very Good	6
Good	13
Neutral	9
Poor	1
Very Poor	2

Table Description

The table below summarizes respondents' perceptions of communication effectiveness.

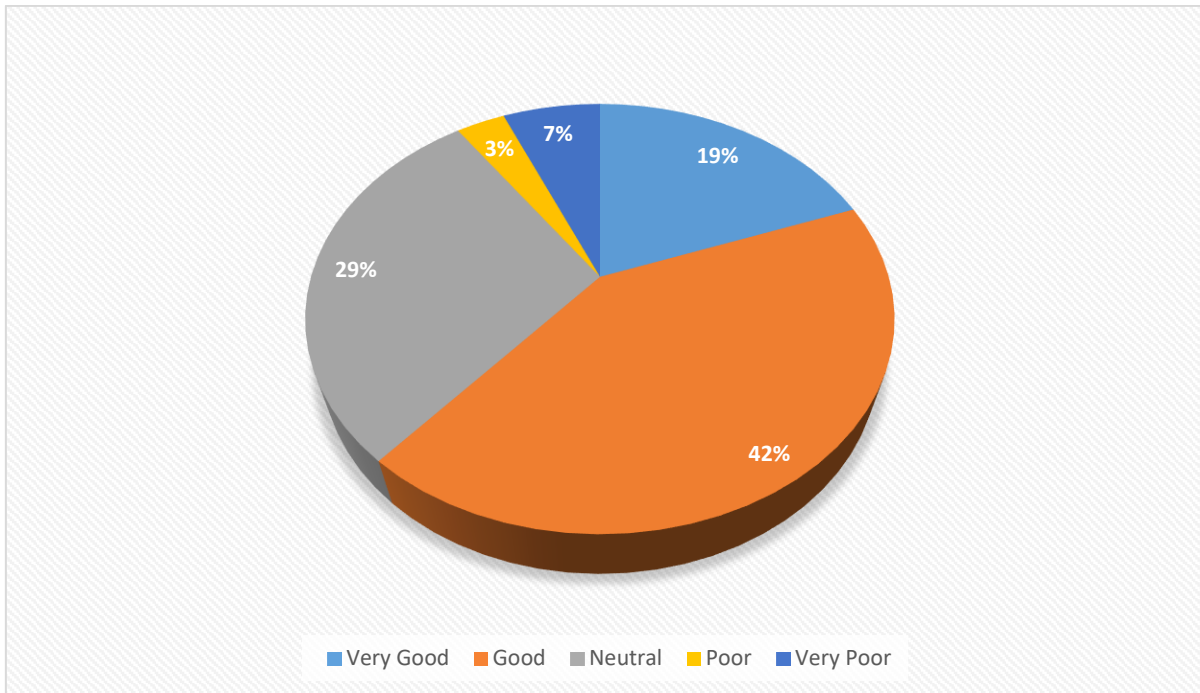


Figure 4.4.4: Communication Effectiveness in Remote Teams

Graph Used

A **pie chart** titled **"Communication Effectiveness in Remote Teams"** is used to display percentage distribution.

Explanation of Results

Results show that the majority of the respondents regard communication among remote teams positively. Nineteen out of 36 respondents marked their rating as either "Good" (13) or "Very Good" (6). It constitutes more than 50% of the whole sample size and proves that communication systems of remote working are working fine for the majority of respondents.

However, there were also nine respondents who marked "Neutral." The latter means that communication may not be bad per se; however, the lack of clarity, inconsistency, or disengagement can be found. Usually, "neutral" answers mean that communication quality fluctuates depending on how complicated a particular task is or how effectively the coordination of work takes place in the team.

Three respondents provided negative ratings. One respondent considered communication to be "Poor"; another two gave the worst mark ("Very Poor"). Though it represents a minor part of the overall sample, it still proves that there are problems with communication for some people that can result from various technological challenges, lack of feedback, or difference in time zones.

Overall, results show that even though remote communication works fine for the majority, there is still a chance to improve it.

4.4.5 Impact of Remote Work on Individual Productivity

Question

To what extent has remote work impacted your individual productivity?

Table 4.4.5: Impact of remote work on individual productivity

Impact on Productivity	Frequency
To a very large extent	2
To a large extent	7
To a moderate extent	15
To a small extent	7
Not at all	0

Table Description

The table above presents respondents' views on how remote work affects productivity.

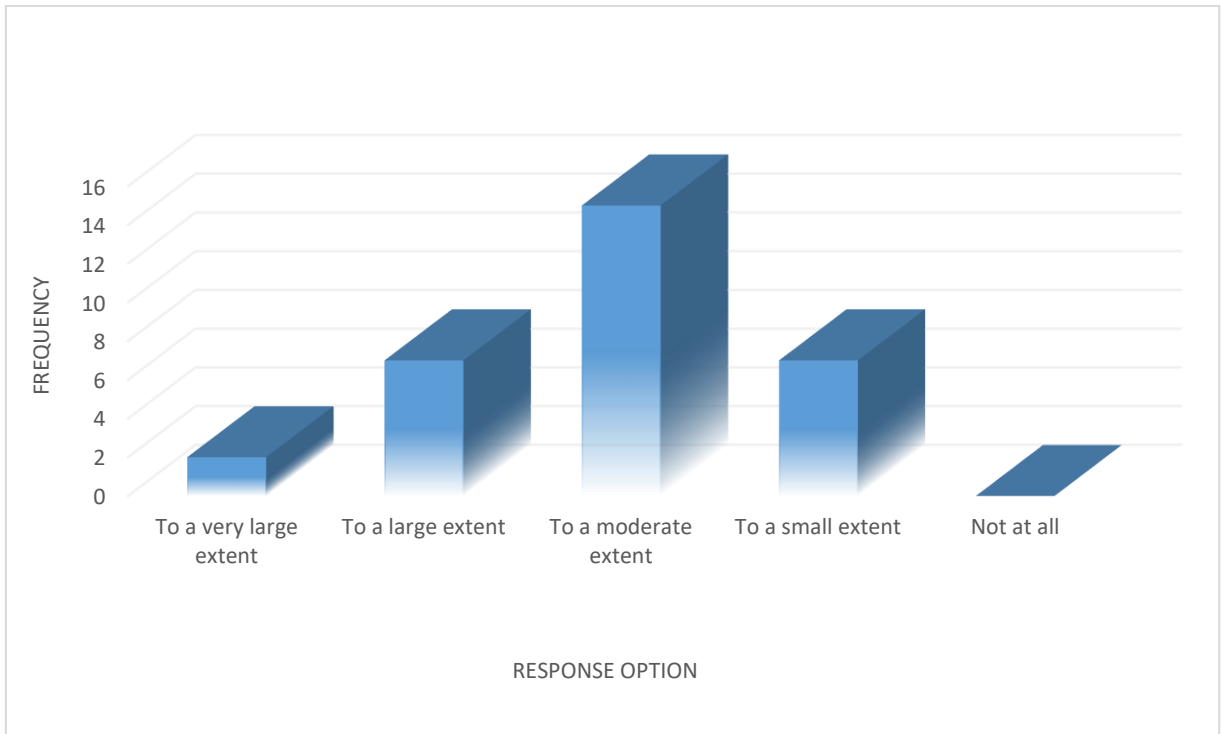


Figure 4.4.5: Impact of Remote work on individual Productivity

Graph Used

A **vertical column chart** titled “**Impact of Remote Work on Individual Productivity**” is used.

Explanation of Results

The study shows that remote work has a considerable impact on perceived productivity for most of the respondents. The highest number of responses (15) falls under “To a moderate extent,” meaning that remote work neither improves nor impairs the productivity of most people.

There was a considerable number of people (7) who believed that remote work had an impact “To a large extent” while only 2 people opted for “To a very large extent.” These results imply that remote work makes some employees perform more effectively, possibly due to increased flexibility, reduced commuting hours, or a better balance between professional activities and personal life.

On the other hand, there were 7 people who found that remote work impacts their productivity “To a small extent.” In other words, it has no considerable difference from working in a traditional environment. It is important to note that none of the participants selected the option “Not at all.”

In conclusion, one can say that remote work impacts the productivity of the respondents to some extent but varies for different people.

4.4.6 Effect of Remote Work on Teamwork

Question:

To what extent has remote work affected teamwork within your organization?

Table 4.4.6: Perceived Effect of Remote Work on Teamwork

Effect on Teamwork	Frequency
To a very large extent	3
To a large extent	7
To a moderate extent	17
To a small extent	4

Table Description

The table shows the frequency distribution of participants' views on how remote work has influenced teamwork. Responses are divided into four levels, ranging from a very large extent to a minimal extent.

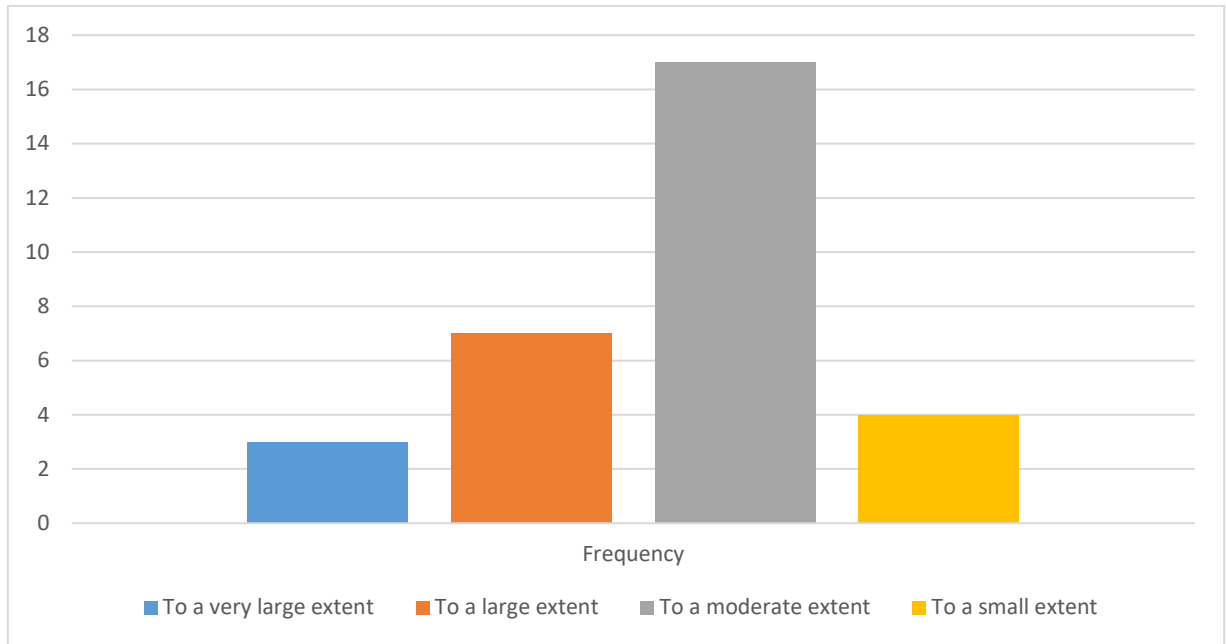


Figure 4.4.6: Perceived effect of Remote work on Teamwork

Graph Used

A bar chart is used to visually compare the frequency of responses across the different levels of perceived impact on teamwork.

Explanation of Results

The results demonstrate that teamwork has been impacted to a considerable extent by remote work for the vast majority of the participants. Most participants agreed that the teamwork was impacted to a fairly high degree, thus representing the most prevalent frequency among all possible responses provided. This signifies that teamwork is still quite successful in the context of remote work, but some cooperation may not function at its maximum capacity due to some reasons.

It can be observed that a fair share of participants noted that the impact made by remote work on teamwork was great, with problems such as lack of casual conversations, coordination difficulties, and reliance on digital platforms being highlighted. These answers imply that certain respondents encountered issues with coordination and communication in the course of working remotely.

It is worth noting that only a few respondents believed that remote work had either a very significant or insignificant impact on teamwork.

4.4.7 Areas Where Virtual Communication Is Most Effective

Question:

In which work situations do you find virtual collaboration tools most effective?

Table 4.4.7: Areas where virtual communication is most effective

Area	Frequency
Team Meetings	14
Task coordination	10
Information sharing	13
Problem-solving	10
They are generally not effective	4

Table Description

The above table presents the frequency distribution of respondents' perceptions regarding the areas in which virtual communication is most effective.

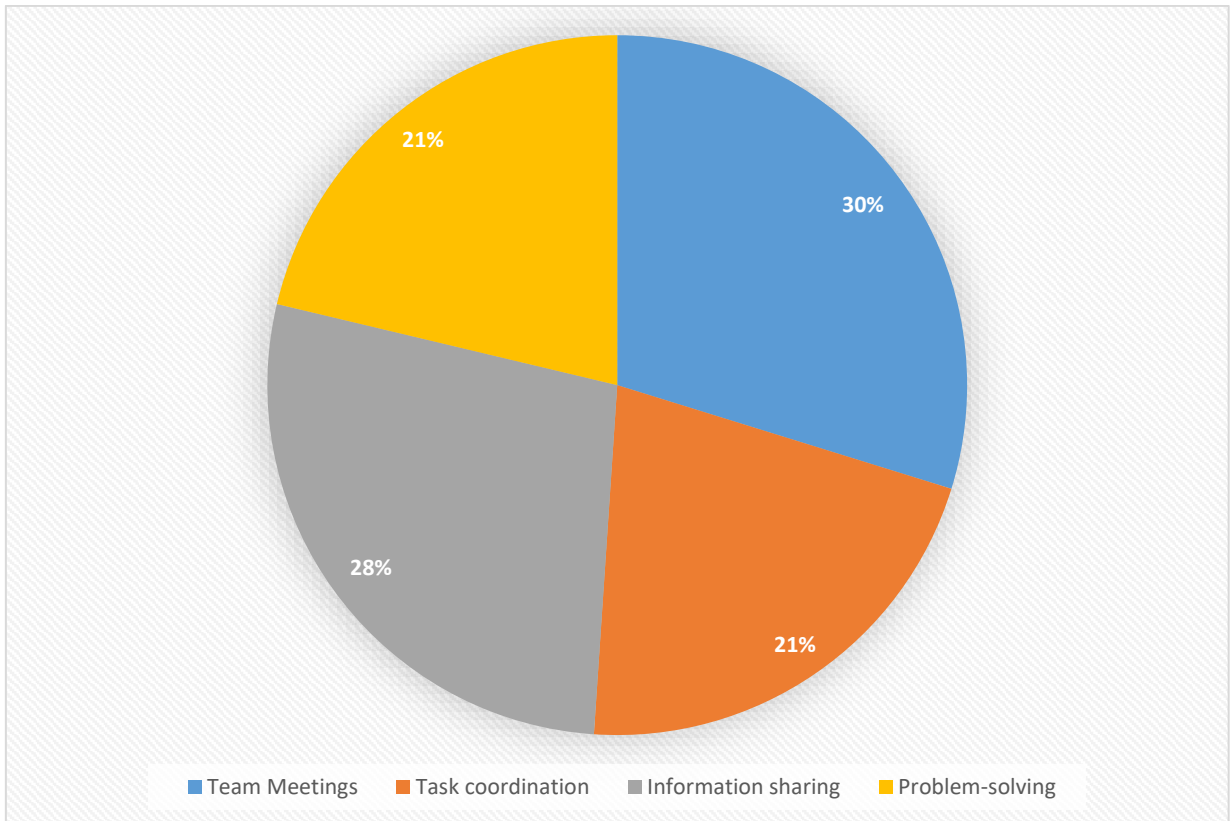


Figure 4.4.7: Areas where Virtual collaboration is more Effective

Graph used

Figure 4.7 illustrates a pie chart showing the proportional distribution of respondents' views on the effectiveness of virtual communication across different functional areas.

Explanation of Results

As a result, the number of responses exceeded the sample size of 31 people since this question was stated in multiple-choice format. It allowed individuals to mark all possible answers that matched their situation. It provides more comprehensive insights into people's experience by covering multiple factors simultaneously rather than forcing them to choose only one answer.

From the analysis, it is clear that virtual communication is perceived as the most effective tool for team meetings since it received the highest frequency of responses. In other words, virtual communication allows for structured discussion and scheduled collaboration with team members regardless of their location.

Information sharing is an important factor in explaining the responses, which proves that communication tools play a significant role in distributing documents and organizational data among team members. It is important to emphasize the importance of communication tools for maintaining openness within the organization and ensuring that employees remain informed while working remotely.

On the contrary, task coordination and problem-solving were presented with similar but lower frequencies of response. It means that despite providing some benefits regarding task coordination, virtual communication tools may lack immediacy in dealing with complex or urgent issues that require in-depth interaction.

From the above findings, it can be concluded that virtual communication is ideal for formal and information-based transactions such as meetings and exchanging information, but complex collaborations may require additional forms of communication or even multiple forms of communication.

4.4.8 Perceptions of Virtual Communication and Team Performance

Question:

Virtual collaboration tools sometimes reduce perceived productivity due to communication challenges, misunderstandings, or workflow disruptions.

Table 4.4.8: Perception of virtual communication and team performance

Responses	Frequency
Strongly agree	3
Agree	6
Neutral	17
Disagree	3
Strongly disagree	2

Table Description

Table above summarizes the frequency distribution of respondents' levels of agreement regarding the impact of virtual communication on team performance.

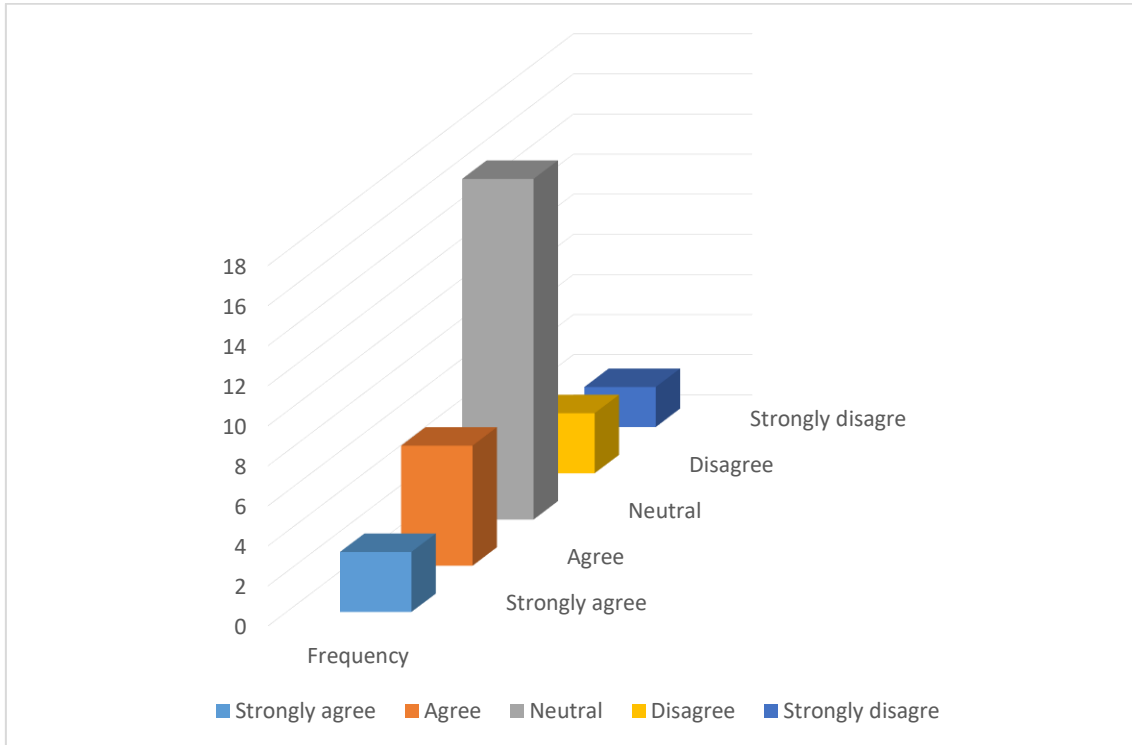


Figure 4.4.8: Perception of Virtual communication and Team Performance

Graph Used

A bar chart illustrating respondents' attitudes toward virtual communication and its influence on team performance.

Explanation of Results

According to the analysis, the largest share of respondents preferred the neutral response choice, implying diverse perceptions of the effect of virtual communication on team productivity. Such neutrality demonstrates that the virtual communication process does not positively or negatively affect the team's effectiveness to a great degree.

The majority of respondents agreed with the statements made, implying that virtual communication helps facilitate collaboration since it allows for convenient cooperation between team members. However, there was only a small share of people who had a

strong agreement with the statements, which implies the presence of certain positive aspects of virtual communication without a substantial influence.

On the contrary, a smaller number of people disagreed or strongly disagreed. These participants believed that social interaction, miscommunication, or coordination problems are issues that arise in the context of virtual communication processes.

4.4.9 Overall perception of respondents regarding virtual communication in the workplace (Likert Scale):

Overall, Virtual collaboration tools are effective in supporting productive teamwork in remote industrial management settings.

Table 4.4.9: Overall perception of respondents regarding virtual communication in the workplace

Response category	Frequency
Strongly agree	2
Agree	9
Neutral	13
Disagree	2
Strongly disagree	5

Table Description

Table presents the frequency distribution of respondents' overall perceptions of virtual communication in the workplace based on a five-point Likert scale.

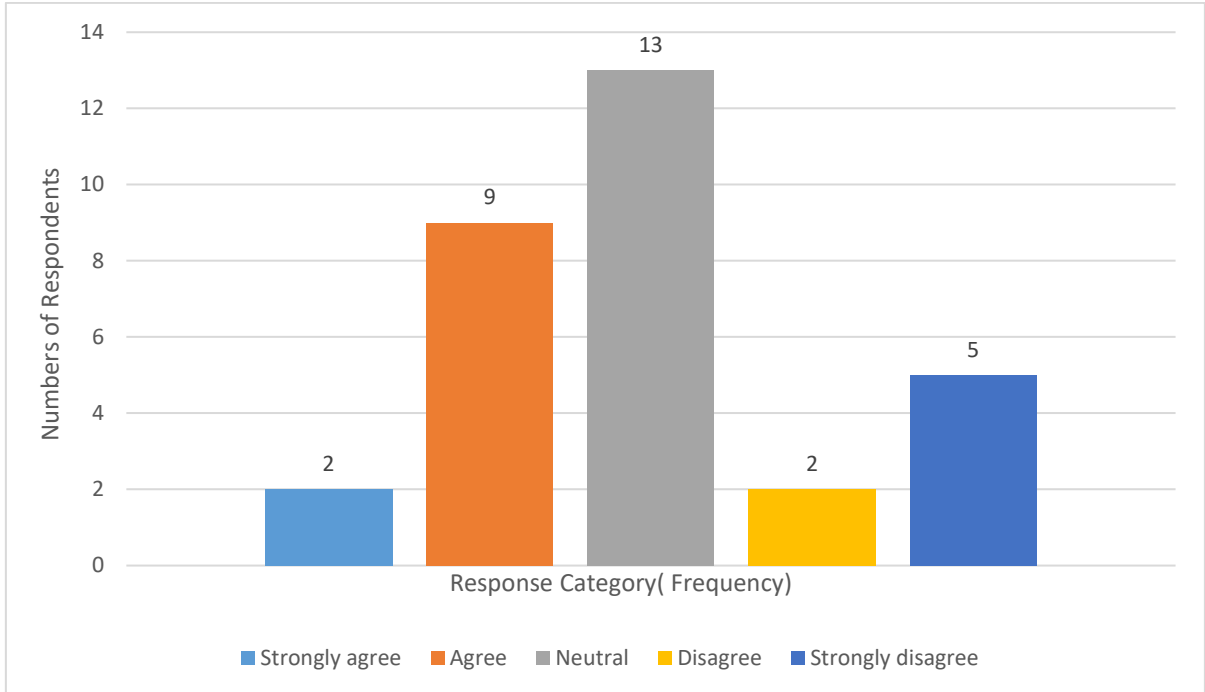


Figure 4.4.9: Overall perception of respondents regarding virtual communication in the workplace

Graph Used

Figure 4.9 displays a bar chart illustrating the number of respondents across different levels of agreement regarding virtual communication.

Explanation of Results

The results highlight different perceptions about virtual communication at work among participants. The “neutral” category appears to have the most occurrences, implying that many participants do not have any strong positive or negative perceptions toward virtual communication.

Moreover, the considerable number of people who chose “agree” shows that their overall perception of virtual communication is favourable. It is expected that they would recognize its benefits regarding flexibility, availability, and ease of coordination.

However, the few numbers of people who chose “strongly agree” show that the enthusiasm toward virtual communication may be limited to some extent.

Conversely, participants who marked “disagree” and “strongly disagree” exhibit some degree of dissatisfaction with the process. Their perceptions may involve such problems as reduced face-to-face interaction, delayed communications, and difficulties in teamwork online. The higher frequency of the latter choice over the former one demonstrates that, when faced with negative experiences, they may take them seriously.

Overall, the results suggest that opinions about virtual communication tend to be moderate, tending more toward neutral and somewhat agreeing positions. Therefore, while it can be inferred that virtual communication is considered by many as an integral component of the current workplace environment, its effectiveness may depend on contextual considerations such as tasks performed and communication systems used.

SECTION D: EXPERIENCE-BASED QUESTION

4.4.10 Open-Ended Responses on Remote Work Experiences

Question:

Please share any additional comments or experiences related to remote work and teamwork.

In addition to the survey questions, respondents also received an open-ended question in which they could provide any further comments regarding remote working and collaborating. Although the number of answers to this question was smaller than that of the closed-ended questions, the qualitative data is highly valuable to complement the quantitative information.

After carrying out the thematic analysis, several major themes emerged from the responses. One of the major themes was increased flexibility, with respondents stating how well they were able to organize their working time while teleworking. They claimed that telecommuting allowed them to focus on work more efficiently since there were no constant distractions during telework.

Another major theme included problems with communication. Some respondents mentioned that despite having digital means of communication available, working remotely might cause certain problems with understanding each other.

Such problems were evident, particularly when considering issues related to collaboration among team members and impromptu problem solving.

It is worth noting that some respondents stressed the importance of digital instruments that help facilitate effective communication and resolve issues related to remote work. In other words, according to survey participants, regular online meetings, well-defined roles, and explicit task assignments are essential aspects of keeping high levels of collaboration in a remote environment.

On the whole, the open-ended answers provide additional information about the survey results by focusing on the benefits and disadvantages of remote work.

4.5 Summary of Key Findings

This study examined the perspectives of respondents about remote work as well as how remote work influences collaboration, communication, and productivity through a comprehensive survey approach. As per the results, it can be seen that remote and hybrid work models are widely employed by respondents with some individuals performing remote work exclusively. It can thus be inferred that there is a gradual change toward adopting flexible work options in modern workplaces.

Moreover, it can be observed that respondents have different levels of experience working remotely ranging from below six months to more than three years. Such variance in terms of experience helps obtain perspectives from newly adopted remote work individuals as well as experienced ones, thus allowing us to comprehensively understand the perspectives of remote work.

The findings reveal that the use of technology such as Microsoft Teams, Zoom, and Slack is common to collaborate in remote work setups. Almost all respondents have rated the effectiveness of communication as either good or very good, emphasizing the role of technology in maintaining communication in remote work settings.

In terms of productivity and collaboration, several participants reported that remote work influences productivity and collaboration among team members.

Many of the respondents agreed that telecommuting improves productivity, collaboration, and decision-making processes among teams. However, some respondents opined that telecommuting could produce different results according to their individual experiences and organizational setting.

The qualitative responses received through the open-ended questions made the findings even more credible because of their detailed descriptions of the experience of the respondents. Although flexibility and better balance between work and personal life were highlighted as strengths, problems in terms of poor communication were identified as well. The findings clearly emphasize the need for good communication methods and proper use of technology resources.

Overall, telecommuting can be considered an efficient mode of work if it is supported with appropriate communication means, technology, and organizational help.

4.6 Transition to Discussion

Results obtained in this chapter provide a foundation upon which further analysis can be conducted. The findings in this chapter are analysed in relation to existing research as well as theoretical perspectives on telecommuting, teamwork, and organization communication.

5. DISCUSSION

5.1 Overview of the Findings

The objectives of this study were to examine the effects of virtual collaboration tools on the productivity perceptions of teams in either remote or hybrid workplace environments. The discussion of the findings presented in the previous chapter provides information on the employees' experiences with the implementation of remote work policies, communication technology, and teamwork in a distributed environment. It is essential to note that the outcomes presented should be considered in terms of perceived productivity rather than quantitative productivity.

According to the results obtained, remote and hybrid work arrangements are widely applied in the sample. While the majority of the respondents claimed that they worked remotely entirely, others indicated that they worked in a hybrid model or mostly attended the office in person. These data indicate that there is a tendency towards adopting flexible work arrangements in modern companies as part of the global trend toward implementing remote and hybrid work models.

Moreover, the study revealed that respondents have different levels of remote working experience. While some respondents had up to six months of experience in working remotely, others claimed to work from home for several years. Such variety of remote working experience makes possible interesting conclusions about the practice of remote working, since both newbies and experienced remote workers contributed to the results. Furthermore, an interesting finding was associated with the way respondents communicate. According to the obtained results, Microsoft Teams and Zoom are the most widely used means of communication, while Slack and other applications are used much less often. It indicates that workers use various tools for communication depending on their tasks.

In terms of the efficiency of communication, it should be noted that remote/hybrid teams usually communicated successfully within the organizations. Indeed, most respondents stated that communication could be classified as either good or very good.

This suggests that the use of digital communication devices is quite efficient for establishing contact.

On the other hand, the findings also indicate that there are respondents who have neutral or negative opinions regarding the effectiveness of communication. In other words, even though the tools used for communication are very helpful in communicating with others without being physically available, they might not be able to completely mimic the process of communication in a conventional office. When it comes to the perception of productivity, the results show that telecommuting affects the perception of productivity. In most cases, telecommuters perceive their productivity as being affected in a moderate way by the process of telecommuting. This implies that telecommuting neither negatively nor positively impacts the perceptions of workers in terms of productivity. In essence, productivity and the effectiveness of working remotely depend on the individual work style and mode of interaction.

Likewise, the results suggest that telecommuting has a moderate impact on team work. While it is clear that teamwork can still occur in telecommuting environments, certain difficulties in teamwork might arise due to the absence of face-to-face communications and the necessity to use technological communication methods.

In addition to this, the results highlight the fact that virtual communication devices are deemed as beneficial especially when engaging in well-structured activities such as meetings and sharing information. Virtual communication allows employees to communicate effectively, collaborate, and conduct discussions at predetermined times. On the other hand, a few of the respondents noted that virtual communication could not be very efficient when addressing complex problems or any activity that needs extensive collaboration.

In this regard, it becomes necessary to highlight that virtual collaboration tools play a significant role in facilitating teamwork among people working remotely because the efficiency of using such tools depends on the type of task as well as communication strategy used.

Such results corroborate the existing studies of productivity perceptions among telecommuters. According to Kniffin et al. (2021), there was an increase in the reported productivity levels due to freedom and flexibility.

In a similar case, Wang et al. (2021) also pointed out that the utilization of digital technology would potentially improve the productivity levels supported by appropriate structures of work. In other words, these results align with the ones presented above based on the perceptions of the employees.

5.2 Perceived Productivity Perspective

It should be noted that the outcomes of the study need to be interpreted based on perceived productivity rather than actual productivity. It means that the research outcomes relate to the personal experiences and perceptions of participants regarding telework and digital communication platforms, rather than performance indicators. In such a way, it is important to note that although the personal views of employees may not necessarily correlate with productivity outcomes, they may influence workers' involvement, motivation, and behaviour at work.

The research indicates that most of the surveyed individuals demonstrate positive attitudes towards telework in terms of productivity and teamwork. Such outcomes correlate with previous studies of perceived productivity in telework settings. For instance, according to Kniffin et al. (2021), many employees perceive telework as being more productive due to increased flexibility and autonomy. Likewise, Wang et al. (2021) claim that telework can increase perceived productivity if digital infrastructure is provided.

It becomes evident from the above results that collaboration technologies are very crucial in supporting remote teamwork. It can be argued that such technologies as Microsoft Teams and Zoom facilitate communication. These results coincide with the research conducted by Waizenegger et al. (2020). It is concluded that digital communication technologies contribute significantly to sustaining collaboration between remote teams. Nevertheless, like the extant literature, this research study highlights such challenges as communication delay, miscommunication, and reduction in informal communication.

Furthermore, one should note that even though many respondents perceive virtual collaboration technologies as efficient, the effectiveness of these solutions is determined by their implementation within the organization. According to Yang et al. (2022), digital communication is not enough to achieve desirable results, and appropriate communication methods must be employed.

The other significant observation about the study is that what people perceive to be their productivity is not always identical to their real performance. Earlier research has mentioned that there is an opinion among workers that individuals can feel more productive in remote workplaces because of some characteristics specific to the person, but no changes in productivity could be observed objectively. Therefore, one may discuss the significance of methodology applied in this study since the researchers are interested in the perception of workers.

On balance, the conclusions of the study are compatible with the literature on perceived productivity in remote work. The results show that virtual collaboration tools have positive outcomes for communication, coordination and teamwork. Nevertheless, it can be concluded that these tools are not a panacea to all problems related to remote work.

5.3 Virtual Collaboration Tools and Communication Effectiveness

The first important finding from this study has been related to how communication within remote workforces is conducted effectively. Based on the results, most of the respondents have indicated that communication within remote or hybrid teams was mostly effective. This finding has been supported by previous studies, which state that digital communication tools may improve cooperation among remote workers.

In particular, Gilson et al. (2015) mention that communication technologies are important for promoting interaction and coordination among virtual teams. With the help of Microsoft Teams and Zoom, for example, employees can hold meetings, exchange information and send messages in a real-time mode. Such skills are important for replacing face-to-face interactions under the conditions of remote work.

Additionally, Powell et al. (2004) note that digital communication technologies become a necessity for collaboration of team members in different geographic locations. These instruments can assist in coordinating work, sharing responsibilities, and communicating. Indeed, the conclusions derived from the research support these observations. Quite a few of the respondents claimed that communication between the team members was good or excellent implying that communication technology performed well in the context of working in remote locations. The frequent use of the applications like Microsoft Teams or Zoom proves that organizations used digital communication tools so that it would be possible for them to cooperate remotely.

However, on the other hand, it is also obvious that some of the respondents' responses revealed their neutrality or even negativity towards the efficiency of communication in question. It means that digital communication cannot replace completely all benefits of face-to-face interaction. According to Hinds and Bailey (2003), distributed teams might sometimes find themselves in confusion due to the absence of non-verbal communication cues which were typical for face-to-face interaction.

Thus, it becomes clear that while being essential for cooperation at a distance, digital communication requires that organizations implement more efficient ways of communication.

5.4 Impact of Virtual Collaboration Tools on Team Productivity

The results obtained from this research indicate that there are some differences between telecommuting and use of online collaboration software concerning its influence on the level of personal productivity. The majority of respondents were asked about productivity changes during telecommuting and they gave moderate answers. In other words, the fact of working in the virtual environment does not always bring positive or negative effects on personal productivity. Instead, people who work remotely are likely to have productivity at a medium level because it depends on a range of factors including communication quality, task allocation, and personal approach towards working process. Such conclusions can be traced in other academic papers that state that telecommuting has an individual character in terms of productivity.

For example, bloom et al. (2015) conducted an experimental study and concluded that remote employment could bring moderate increases in productivity due to appropriate use of technological instruments and communication tools. It was observed that telecommuting can cause some coordination problems that could affect the level of productivity achieved because of ineffective communication management. The results received from the current research are similar, as participants claimed that telecommuting has considerable but not too powerful an impact on the perceived productivity of people.

At the same time, the use of communication tools in online space is a factor that increases the productivity of remote workers. These online tools allow employees to collaborate virtually, exchange information, and manage their work without going to the office. Using communication technologies for collaboration provides greater flexibility for workers and reduces the time required for commuting to the workplace and performing various other administrative activities. Therefore, employees have more time to perform their duties effectively and productively (Allen et al., 2015).

However, despite all benefits of using technology in communication, its effectiveness relies heavily on proper implementation within organizations. Inability to organize online communication channels or excessive alerts can affect the productivity of employees as information overload can distract people and prevent them from performing important activities. It has been reported that digital overload is a critical problem in telecommuting (Wang et al., 2021).

Consequently, the findings of this study reinforce the view that using virtual collaboration tools within well-designed communication systems enhances perceived productivity. At the same time, the findings indicate that technology alone cannot guarantee enhanced performance.

Whether remote work settings will help to achieve efficient teamwork depends largely on organizational policies, methods of teamwork used by teams, as well as the communications habits of workers.

Such conclusions are supported by earlier studies of perceived productivity in remote work settings. For instance, Kniffin et al. (2021) state that employees' perceptions of

their productivity were higher as a result of flexibility. Similarly, Wang et al. (2021) note that with appropriate technologies employed, remote work may increase perceived productivity.

It should be emphasized, however, that perceived productivity does not necessarily equate actual productivity. Flexibility and comfort may lead to increased productivity even if the real-life productivity is not improved.

5.5 Remote Work and Teamwork Dynamics

Conclusions made by this study suggest that working remotely somewhat influences the teamwork within firms. The majority of participants stated that the impact of teamwork is somewhat influenced by the way in which employees perform their duties either remotely or in a hybrid fashion. This conclusion indicates that despite the fact that collaboration could still continue to take place in distant spaces, the dynamics of such collaboration might be transformed when interactions are made using technology.

One explanation of this conclusion is connected with the absence of the natural interaction, which usually occurs in typical office environments. Traditional offices represent the most popular environment wherein em-workers share information informally by engaging in small talk. These interactions help develop social contacts and facilitate information sharing between colleagues. The probability of informal interaction is likely to diminish when employees work from home. Consequently, remote working might influence how teams deal with their duties (Gilson et al., 2015).

Similarly, other prior literature has noted similar challenges. According to Gilson et al. (2015), geographically dispersed teams often resort to using formal communication systems rather than informal communication. Although modern digital technology enables individuals to communicate from far away, the use of the same can hinder informal social interactions that characterize teamwork. Hence, building a sense of trust within teams can require extra efforts due to physical separation between the members.

Another factor that influences teamwork is the level of coordination required by some activities. While certain work activities can be performed independently and without much interaction, there are those that require regular cooperation and timely

communications among the team members. Coordination of such work can prove harder when conducted remotely owing to possible time differences and delayed information flow (Powell et al., 2004).

However, one must not overlook the fact that the results show that with the help of modern technologies, teams can coordinate effectively despite the physical distance. Programs such as Microsoft Teams and Zoom provide an opportunity to communicate using video and voice communication. Therefore, although the workers are physically distant from each other, they still collaborate efficiently. It means that generally, the results show that telecommuting does not replace teamwork; it only changes its approach within organizations. For telework settings, collaborative activities require the greater use of technological methods.

5.6 Communication Challenges in Remote Teams

Despite the fact that the outcomes of the research point out the efficiency of the communication process between remote working teams, several participants pointed to their neutral and even negative experience concerning the quality of communication. The data collected by the participants suggests that online communication can serve as a barrier to team interactions.

The first major obstacle to communication at a distance is the absence of the use of non-verbal communication channels. People who communicate face-to-face understand the message correctly because they perceive body language, facial expressions, and tone of voice. In contrast, most remote communication happens through emails or brief video conferences where such indicators cannot be used at all. Thus, misunderstandings and poor communication between team members become more likely (Hinds & Bailey, 2003). A second form of communication difficulty involves the time lag in answering. The employees can communicate via asynchronous means through use of messengers or emails while working remotely. Asynchronous communication allows the flexibility of the employees but may delay the decision-making process because instantaneous feedback is necessary. Studies conducted on virtual teams have indicated that

sometimes the delay in answers can hinder effective coordination, especially during tasks that involve exchanging information in a timely manner (Malhotra et al., 2007).

Another issue that can affect the quality of communication in remote work environments includes difficulties caused by technology. Problems related to IT can be the absence of internet connection, incompatible software or access to online sources. Despite the development of the technological framework in recent years, there is still the possibility for technical difficulties to affect the collaboration in remote work environments.

Communication difficulties have been found by the study through open-ended questions as another area of concern identified by some respondents. Some of the respondents reported encountering miscommunication or reduced interaction with their co-workers while they were working from home. These findings from the qualitative data are consistent with those of the quantitative data and demonstrate that communication difficulties have been experienced by people who work remotely.

Despite these problems, effective communication strategies can help resolve a lot of difficulties associated with remote collaboration. Communication procedures and virtual meetings can be helpful for ensuring smooth teamwork and objective orientation.

5.7 Practical Implications for Organizations

Several valuable insights can be gained from the results of this study to be applied by companies introducing or scaling up their remote work processes. With remote work becoming a new phenomenon in various industries, it is crucial for companies to devise communication strategies and policies that would ensure proper team collaboration and efficiency.

First of all, it is possible to point to the choice and implementation of communication apps as one of the implications. According to the outcomes of the study conducted, the use of software like Microsoft Teams and Zoom seems critical for maintaining communication among remote employees. Therefore, companies should make sure that they are able to provide access to communication platforms allowing both synchronous

(such as video calls) and asynchronous communication. Using standardized communication technologies may prove efficient in improving coordination among workers utilizing multiple apps (Gilson et al., 2015).

The second implication related to the research topic under discussion is linked to the management of communication within remote teams. Despite the fact that majority of the interviewees who took part in the study pointed out that the communication within remote teams was efficient, there were a few participants who had neutral or even negative attitudes towards communication management in remote teams. Therefore, it is crucial for organizations to develop structured systems of communication to guarantee efficiency of information flow among team members. One of the examples would be holding virtual conferences, establishing clear lines of communication and assigning tasks clearly (Malhotra et al., 2007).

The firms must help their employees adjust to the new working environment through offering proper training and assistance. Employees with limited experience of working within remote teams may need assistance in working efficiently with technology and communicating effectively within the virtual environment. The programs aimed at providing knowledge about using digital communication technologies, managing time and collaborating virtually will be useful (Allen et al., 2015).

The second implication concerns the necessity to keep the cohesiveness of the team and social contacts among the workers when they work remotely. Sometimes remote work can be a reason for weak personal relations within a team because of the lack of casual contact. One solution to this issue is organizing virtual team-building sessions or informal chats, which may involve topics unrelated to work (Powell et al., 2004). Secondly, managers must remember that telecommuting may affect workers' performance in various ways depending on the nature of the job, family circumstances, and working style. The managers must use various approaches of management in accordance with the specific features of each worker while keeping an overall vision of team efficiency. Through effective communication strategies, various management styles, and proper coordinating mechanisms, companies will be able to create favorable remote working

conditions that will not only increase efficiency of employees but also promote their well-being. While previous researchers focused on leadership behavior and organizational support, these aspects were not analyzed in this paper. Future research may pay more attention to these factors.

5.8 Limitations of the Study

Despite the usefulness of the findings from this study for the analysis of remote work practices and virtual collaboration tools, there are several limitations that should be taken into account to interpret the outcomes.

To begin with, one of the biggest limitations is associated with the relatively small number of participants. The evaluation process involved the responses provided by 31 people, who have been completing an online questionnaire. Although it is possible to use a small sample size when conducting preliminary research to receive some key information, for statistical analysis, it is necessary to conduct the research using a bigger sample size. The future study could include a wider range of individuals working in different sectors or residing in different regions (Bry-man, 2016).

Another limitation relates to the sampling technique used for this study. The questionnaire has been sent to participants using such social media platforms as WhatsApp and Facebook. This indicates that the sample was not selected randomly and conveniently for the researcher, thus, the sample may not represent the population. Indeed, there is a possibility that the participants know each other or are connected through similar social or professional networks, which can affect the results of the survey negatively.

Another limitation associated with this survey lies in its dependence on self-reports about opinions. Data collection involved the perception of effectiveness of communication, collaboration, and productivity in the remote work environment. Even though this data is quite useful for understanding what people believe concerning the effectiveness of collaboration and productivity, it may not necessarily reflect their real

productivity rate or even team performance since there is a chance of misinterpretation of the question.

One should admit that the study did not make a detailed comparison of the specific tools for collaboration used in remote work, such as Microsoft Teams, Zoom, and Slack. Namely, people were allowed to use whatever communication tool was convenient to them during tele-working; however, there was no comparative analysis of the apps listed above.

The final limitation of the study is the use of cross-sectional surveys which are merely reflective of perceptions at one point in time. Remote working technologies will continue developing, so their effect on workers' perceptions of productivity is likely to change. Thus, longitudinal studies focused on changes in perception of workers regarding productivity in remote groups may yield interesting results and help clarify the issue.

5.9 Recommendations for Future Research

In light of the findings and limitations of the present study, there are many directions that further research may take into consideration. Due to the growing tele-working in various industries, future research should focus on the issue to understand the relationship between tools of remote communication and productivity in virtual teams. Further studies can apply a diverse sample of people to explore possible differences in perceptions of virtual collaboration tools based on a number of factors. In particular, one should conduct a comparative analysis of companies from different industries as well as organizations from different countries and regions (Gilson et al., 2015).

Another research topic that needs to be explored is the effectiveness of certain collaboration tools. While the current paper investigated the application of digital communication in general, the efficiency of various collaboration software tools such as Microsoft Teams, Zoom, and Slack should be explored. Such studies may help identify those functions of specific collaboration tools that help to foster communication and coordination. Next, it will be useful to conduct research into the relationship between leadership practices and the performance of telecommuting teams. The importance of leadership practices cannot be overlooked because such factors as communication management

and employee motivation are essential for coordinating remote team efforts with organizational goals. The literature devoted to different leadership approaches in virtual settings can provide some useful insights about how leaders can successfully coordinate remote collaboration (Malhotra et al., 2007).

Additionally, another significant research topic may include studying the psychological and sociological factors that may affect employees' views about telecommuting practices. Such aspects as employee well-being, job satisfaction, work-life balance, and social isolation are likely to play an important role when perceiving telecommuting as an effective way to enhance employee welfare (Allen et al., 2015).

Finally, a mixed methodology approach combining both quantitative surveys and qualitative data gathering techniques could be helpful for researchers who would like to examine the problems and benefits of remote work in more detail.

5.10 Conclusion of the Discussion Chapter

Discussion is devoted to discussing the findings obtained in relation to the existing literature on remote working, virtual collaboration software, and employee productivity. It should be mentioned that remote employees require virtual collaboration software for better collaboration. The majority of employees claim that communication among remote workers tends to be efficient, and it is only because of Microsoft Teams and Zoom software that interaction is ensured.

The study findings showed that remote work affects employee productivity but not the objective performance of the latter. Despite the fact that many participants agreed that remote working had moderate influence on their productivity and teamwork, it is necessary to mention that there are multiple factors that influence the efficiency of remote working.

At the same time, it should be admitted that certain issues appeared due to remote communication. Misunderstandings, lagged responses, and reduced informal communication among teammates were among those. These results prove the previous research that suggests that despite being used for working remotely, digital communication

technologies cannot replace social dynamics that appear during face-to-face communication.

In general, the results obtained in the course of this study are consistent with previous studies concerning perceptions of productivity in remote environments. According to results, virtual collaboration technologies were viewed positively in terms of their role in communication and teamwork. Nevertheless, the application of such tools did not help solve all problems, and depended on communication culture within an organization.

5.11 Role of Communication Technologies in Supporting Remote Collaboration

The findings from this study reveal the importance of digital communication platforms in supporting cooperation in remote and hybrid workplaces. Considering the current trend of promoting flexibility in organizations, communication technology plays a vital role and can be employed for coordinating, sharing information, and decision-making processes among individuals from various geographical regions. From the findings presented in Chapter 4, it is clear that the respondents use digital communication technologies like Microsoft Teams and Zoom to perform work-related duties. These platforms support virtual meeting, document sharing, and data transfer. The prevalence of these digital platforms shows that organizations have integrated digital communication tools in their operations to collaborate in remote locations.

Previous research stressed the importance of the role played by the communication technology in virtual teams. In the opinion of Martins et al., virtual teams have become increasingly dependent on the information and communication technologies for organizing their activities and facilitating communications among team members. Communication technologies will allow them to get rid of geographical barriers, as people could interact almost in real time and cooperate in carrying out joint operations.

These findings suggest that the use of digital platforms for communication is very efficient when it comes to conducting team meetings and sharing information, as communication technologies can play an important role in formal communication process.

Nevertheless, the research reveals that digital tools are not very useful when performing such tasks which demand cooperation. Some people stated that activities such as coordination and problem solving may be better performed via dynamic interaction rather than through communication technologies.

This conclusion is consistent with research by Hinds & Bailey (2003), who state that coordination problems usually arise within a distributed team because online communication methods are not able to simulate the richness of face-to-face communication. Non-verbal cues, quick reactions, and spontaneous interaction are often missing in online environments.

Therefore, while communication technologies are essential in facilitating collaboration between distant parties, there is a requirement for companies to build effective means of communication that can complement the use of such technology.

5.12 Relationship Between Communication Effectiveness and Team Productivity

One of the conclusions drawn from the results of this research is the relation between the effectiveness of communication and the level of productivity. According to the findings of the survey, most of the participants perceive their communication in remote teams as quite effective; many respondents believe that the communication process in remote teams is good or excellent.

For effective collaboration and increased productivity in remote environments, efficient communication is key. Workers can easily plan their work and eliminate errors that can affect the completion of the projects when they have the chance to share their views and opinions. Earlier researches emphasize the significance of the quality of communication in remote working environments. As Powell et al. (2004) indicate, communication effectiveness is one of the main factors that determine the success of virtual team members. Teams which have well-developed and unified modes of communication always manage to coordinate themselves in an effective manner. The conclusions drawn from the research conducted give proof of the theory highlighted above. Respondents holding favorable attitudes towards the effectiveness of com-

munication were also inclined to consider its positive effect on perceived productivity and teamwork. The conclusion about the significance of the quality of communication as the crucial factor through which virtual collaboration technologies influence team performance can be made based on these findings.

However, at the same time, the presence of respondents with neutral positions allows concluding that the effectiveness of communication varies from one team or organization to another. Some employees may experience problems related to communication styles, time zone issues, or even the functioning of the technological component.

According to the findings of Gilson et al. (2015), the communication within distant teams should be supported by technology and well-established norms of communication and leadership. The teams which establish good communication standards and participate in regular communication activities will be able to address challenges associated with remote work.

The findings of the study support the idea that effective communication is an important factor that influences teamwork and productivity in distant work environments. Firms which will have good technology and communication systems will be able to facilitate productive cooperation among their remote workers.

5.13 Remote Work Experience and Adaptation to Virtual Collaboration

Another factor that may influence perceptions about remote work and collaboration tools is the level of experience employees have gained in remote work environments. According to the findings described in Chapter 4, respondents demonstrate various levels of remote work experience ranging from less than six months up to several years. Workers who started their remote work career recently may encounter certain difficulties in adjusting to communication tools and processes used when performing work remotely. Such individuals probably lack skills necessary to establish efficient communication via the internet and handle tasks without face-to-face communication and personal supervision. However, individuals who have spent considerable time working in remote

environments may be able to develop strategies that allow them to cope with work-related issues more efficiently.

According to Wang et al. (2021), adjusting to remote work involves both technological and behavioral changes. While employees require knowing how to use communication technology, they must develop new behaviors that improve their work efficiency from a home or remote environment.

The variations in remote work experiences among the subjects of this study provide valuable insights into the perceptions different workers have regarding remote collaboration approaches. Those workers who have never done remote work before may be faced with many uncertainties regarding communication processes, but those who have experience in working remotely will have constant productivity. From the conclusion drawn from the experiment, it is important for organizations to support their workers in their transition to remote work by offering training, communication procedures, and teamwork.

5.14 Integration of Quantitative and Qualitative Findings

One of the important advantages of this research is the combination of both quantitative and qualitative data from the surveys. In particular, the structured questions from the survey provided the quantifiable data related to perceptions of participants concerning their communication, collaboration and productivity. At the same time, the qualitative data obtained from the open-ended questions provided additional information about the employees' experience while working remotely.

In particular, qualitative analysis of the answers showed that most of the employees found such advantages of telecommuting as flexibility, better balance of work and life and good communication. On the other hand, the obtained quantitative results indicated that most of the respondents consider remote work only moderately influential on productivity and collaboration.

Furthermore, the findings from the qualitative interviews showed several challenges associated with remote work environments. Some participants stated experiencing delays in communications, misunderstandings, and fewer informal chats with colleagues. In this

regard, the findings correspond to the survey results suggesting that although communication systems may be efficient enough, they might not fully reflect the interpersonal relationships of employees in traditional working environments.

The approaches to mixed-method research that entail the usage of both quantitative and qualitative evidence have long been considered valuable sources of information to understand complicated organizational issues. Creswell & Creswell (2018) explain that mixing various types of data provides researchers with an opportunity to gain a better understanding of the investigated problem.

In this study, the combination of quantitative and qualitative outcomes provides more information about the effects of virtual collaboration technologies on remote teams. The survey results demonstrate that the usage of remote communication technologies is quite effective, although the qualitative outcomes emphasize that there should be an emphasis on solving issues associated with communication and fostering social interaction within remote teams.

From the perspective of general outcomes, virtual collaboration technologies can facilitate efficient teamwork provided that organizations employ appropriate communication strategies and offer sufficient support to employees.

6. CONCLUSION

6.1 Overview of the Study

The aim of the study is to identify the effect of virtual collaboration tools on team productivity. With the advancements in technology, globalization, and change in workplace demands in the last one decade, remote working has been adopted by many organizations all around the world. The online collaboration tools like Microsoft Teams, Zoom, and Slack have been indispensable sources for collaboration among the employees who are not co-located.

Due to the rapid expansion of remote working, there have been several questions raised regarding the role of virtual communication tools and their impact on collaboration, communication, and productivity. Although virtual communication tools have proved to be very helpful for remote working, they may cause some problems in the process of collaboration like communication barrier, coordination problems, and low interaction between employees. Hence, it becomes a matter of relevance to analyze the effect of virtual collaboration tools on effective teamwork.

This research intended to add to the existing literature in terms of studying the significance of the use of virtual collaboration technology used by em-workers in remote working settings. The study explored whether effective communication, teamwork, and the productivity of employees working remotely are influenced by the use of communication technology.

The study made use of a quantitative research design. Specifically, an online survey was conducted. Thirty-one participants participated in this survey and were asked about their experiences with using remote communication technologies and their attitudes towards remote collaboration. The survey included closed questions and one open-ended question.

The collected data through the survey were analyzed using descriptive statistical methods. The goal of the study was to understand trends in relation to participants' views on communication efficiency, teamwork, work productivity levels, and problems experienced when working remotely.

The research findings were then examined and discussed within the context of existing academic research on virtual teams, remote work, and digital tools for collaboration. In this paper, an attempt was made to deepen knowledge about the effect of digital communication tools on the process of collaboration in remote settings and productivity in organizations.

6.2 Summary of Key Findings

Some insights provided by the results of this research include several important insights related to the perceptions of remote workers regarding virtual collaboration tools.

Among the conclusions made as a result of the analysis of the data collected, one should highlight the fact that the role of digital communication channels is critical for collaboration among remote employees. As stated in the results, the respondents mainly used digital channels, such as Microsoft Teams and Zoom, for collaboration purposes, i.e., exchanging messages or discussing some work-related issues.

Another important point that can be highlighted based on the results of the analysis is the fact that team members see communication within their remote teams as productive. Most participants noted the high effectiveness of their team's communications, which means that digital collaboration platforms can serve as an effective tool for conducting various communication activities.

The second main finding relates to the effect of telecommuting on productivity. According to the data gathered through the questionnaire, the effect of telecommuting on the productivity of workers is moderate. The interviewees reported that telecommuting contributes to increased concentration among employees and proper management of their time; however, some respondents emphasized that the productivity of workers could be contingent upon efficient communication and coordination within a working team and effective application of digital tools.

The survey also revealed that tools used for remote cooperation greatly contribute to effective teamwork. Respondents reported using different technological instruments for collaboration purposes, namely conducting team discussions, exchanging documents, coordinating projects, and having casual communication with colleagues. In this way, this

study expands the scope of previous research on remote work, virtual teams, and digital collaboration tools.

On the other hand, certain challenges associated with remote communication have been identified by the research. Respondents pointed out such challenges as delays in communication, misunderstanding, and scarcity of informal contact opportunities between workers. Such obstacles may emerge because online communication tools cannot provide the same richness as in-person communication involving nonverbal communication and spontaneous conversation.

Qualitative data from an open-ended survey question helped to understand better the experiences of the remote workers within the organization. Many participants pointed out that remote working is comfortable and easy. There were also those participants who stressed that communication and cooperation are impossible without proper communication strategy and reliable technology.

To sum up, the outcomes of this paper indicate that although virtual collaboration tools are necessary for successful remote collaboration, they are effective only when organizations manage to develop appropriate communication strategies for employees in the digital environment.

There are different aspects of the study which make the paper a valuable contribution to the existing literature on remote work, virtual teams, and collaboration tools.

First of all, the research contributes to the empirical study of the issue under consideration as it provides information about the views of employees concerning virtual collaboration tools used in remote work.

Previous studies have identified the importance of using communication technologies in promoting virtual teamwork (Martins et al., 2004; Gilson et al., 2015).

These assumptions have been supported by the research conducted.

Furthermore, the study stresses the relationship between effective communication and group output in telecommuting. According to the findings, employees perceiving their communication within teams to be effective tend to rate themselves as productive workers. This confirms past studies, which highlight that communication quality is an important determinant of virtual team performance (Powell et al., 2004).

The above outcomes suggest that virtual communication media are now critical components of contemporary teamwork processes.

In addition, the research reveals several problems related to remote communication. Specifically, some respondents admitted facing difficulties including delayed communication, misinterpretation, and lack of opportunity for spontaneous interactions with their colleagues. This problem may exist due to the fact that the use of virtual communication technologies does not provide the same opportunities for interaction as personal communication, which implies the involvement of non-verbal communication and informal dialogue.

The open-ended question for the survey yielded qualitative data that provided insights into the experiences of workers with remote working arrangements. Many of the respondents pointed out the benefits of convenience and flexibility associated with remote working conditions. However, some of the respondents noticed that efficient communication and collaboration require appropriate channels of communication and functional technology platforms.

The results of the present study indicate that although virtual collaboration technologies are a requirement for facilitating remote collaboration, their efficiency is contingent upon how the organizations adopt communication practices and enable workers to adjust to the digital work environment.

6.3 Contribution to Existing Literature

This research has a number of contributions towards the existing knowledge base regarding remote employment, online teams, and digital collaboration tools.

The first contribution concerns the practical implications related to the understanding of the perception of virtual collaboration tools among employees in modern virtual workplace contexts. Previously, the importance of communication technologies in the context of virtual cooperation had been emphasized by scholars (Martins et al., 2004; Gilson et al., 2015). Digital communication technologies like Microsoft Teams and Zoom seem to be significant facilitators of communication and collaboration within virtual teams.

Another contribution pertains to the relationship between effective communication and productivity of remote teams. Based on the findings obtained during the research, it becomes evident that there is a connection between effective team communication and moderate-high levels of productivity. Thus, the study supports previous claims regarding the necessity of having a good quality of communication as a factor influencing the performance of virtual teams (Powell et al., 2004).

Third, the research provides insight into the phenomenon of employee experience in the realm of remote work by combining both quantitative and qualitative perspectives. Quantitative data were obtained using structured questions on the questionnaire, while qualitative data were derived from open questions concerning communication and productivity in remote work.

Furthermore, one should stress that the study highlights the necessity of organization assistance for a successful teamwork. According to the research findings, the application of technology alone is not enough in guaranteeing efficiency of collaboration within the remote team. Organizations should implement certain measures related to communication norms, adequate technological support, and proper training.

The research provides a comprehensive view of the impact of digital collaborative technologies on teamwork and productivity in modern institutions.

6.4 Managerial and Organizational Implications

The results obtained from this study have great significance regarding managers and other organizations involved in developing or upgrading their telework strategies.

First, companies should stress the importance of picking and utilizing reliable digital means for collaborative activities. Applications such as Microsoft Teams, Zoom, and Slack play the role of indispensable elements of communication in today's world. The use of communication tools that provide convenience and reliability is vital in promoting remote working practices, as they will ensure successful cooperation and sharing of information.

Another recommendation involves managers' creating efficient communication frameworks and protocols that will be used by remote workers. In telework,

communication is much more complicated than in case of in-person collaboration. The use of regular video conferences, well-structured communication channels, and specific roles assignment can help prevent any mistakes. They are also useful for fostering teamwork.

Secondly, it is necessary to implement special training programs within organizations for assisting employees in gaining skills which are needed for efficient remote working. Training is important since the employees require assistance regarding the utilization of digital technology, time management while being away from the office, and the development of effective communication strategies in virtual teams.

Fourthly, the aspect of socialization must be taken into account when establishing remote collaboration. The informal relations of workers are very important for the maintenance of team spirit and employee engagement. In order to solve this problem, an organization may arrange for virtual team building exercises, as well as social events where the workers engage in non-work-related activities.

Finally, there is a need for organizations to adopt flexible management practices taking into consideration individual characteristics of remote workers. Workers may have diverse working habits, different home environments, and communication strategies. By adopting a flexible and supporting approach to management, businesses may encourage workers to continue performing efficiently in remote conditions.

6.5 Final Conclusion

To conclude, this study aimed at determining the opinion of the workers regarding the impact of virtual collaboration tools on productivity among remote employees. The results show that communication channels online are essential for facilitating collaboration, communication, and coordination of employees from diverse locations.

It has been found out that the majority of respondents believe communication in remote teams is quite effective, which implies that today's communication means can be utilized in order to facilitate cooperation in a large number of cases. In addition, the issues associated with remote communication have been emphasized.

However, besides using advanced technology, the ability of virtual collaboration tools to improve performance will rely heavily on how the organizations implement the communication strategies and assist their employees in adapting to remote working. Firms that utilize stable technological infrastructure in conjunction with efficient communication management techniques will probably create a productive and cooperative remote working setting.

Considering that remote and hybrid work structures undergo transformations at the moment, the use of digital collaboration technologies remains relevant. The knowledge of how digital collaboration affects communication and collaboration will remain crucial for future studies. However, it should be noted that in the framework of the current study only perceived productivity is taken into account instead of real productivity.

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