

## ONLINE VERSUS IN-PERSON PRODUCTIVITY IN DIFFERENT TEAMWORK CONTEXTS

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### Abstract

This article examines the impact of online and physical environments on productivity within different team contexts. We analyze many aspects, such as team meetings, communication methods, and team management, evaluating their influence on collaboration efficiency.

By identifying key elements, we offer a perspective on the factors that shape productivity in both digital and traditional environments, contributing to the understanding of the complexity of current-era collaboration.

**Keywords:** team productivity, online collaboration, virtual teams, communication methods, team management, meetings.

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### 1. Introduction

In today's age, teamwork is widely accepted as a smart way to organize the operation of an organization and today's technology allows such managerial and organizational actions to

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be done both physically and digitally. The technological advances of the 90s permitted the emergence and rise of virtual teams.

At the start of the 21st century, virtual teams have been defined as teams that coordinate their activities using primarily technological means. Establishing the foundation of understanding, integration, and trust, putting together the people and the context, involving the leadership for the knowledge management and information sharing, implementing the information technology, and acting regarding processes and development – these were steps that an efficient virtual team needed to cover [1]. Today, these technological means are represented by instant messaging, video calls, online meetings and conferences, etc.

At their emergence, virtual teams had the purpose of destroying the geographical barriers present in the conception of teams to be able to select the best individuals from a now much wider pool of candidates. Virtual teams expand the demographics of the modern workforce and allow the selection of the best candidates and the improvement of personal flexibility [2]. Today virtual teams have risen in popularity due to the limitations imposed by a global pandemic. Therefore, the concept of remote work has settled into the life of the modern employee. The adoption of teleworking in Europe increased after 2005. Results indicate that telework has become routine for over 20 percent of all gainfully employed. Expansion is explained by a working life transition: besides enabling information and communication technologies, factors associated with managers' trust and control; the character of jobs, work tasks, and contracts in knowledge-based industries; and individual and household work-life balance issues. Telework is connected to permanent employment in the advanced services sector, slowly diffusing into other sectors. It is increasingly performed in the home and is becoming more frequent. Individuals with families and children are overrepresented and among the fastest-growing groups. Broadband access at home is an enabler. Larger urban regions strengthen their position in favor of teleworking [3].

Although the concept of virtual teams, described and defined two decades ago, is still relevant, a lot of aspects regarding productivity and communication studied back then are not applicable anymore. Technology that benefits online collaboration has seen rapid advancement in the last years and its efficiency proved to be good enough that some modern online collaboration tools have settled into the physical environment as well. A good example is instant messaging at the workplace, which has long ago replaced, in most cases, moving to the colleague's cubicle or in a meeting room.

This paper will concentrate on how team productivity and efficiency are affected by the choice of conducting one or more collaboration aspects either digitally or physically.

## **2. Efficiency of meetings**

In some professional contexts, successful teamwork is based on organizing team meetings to integrate the individual work of the team members and to make sure that everybody is on the same page moving forward.

Team productivity, in this situation, is represented in two forms: the individual productivity and performance of team members in the period between the meetings and the efficiency of communication between the members at the time of the meeting.

### *2.1. A thorough research*

Teleworking has become even more popular after the spread of COVID-19, supported by rapid technological development. Despite the great convenience, questions about its productivity arise. Yi Li et al. [4] analyzed the productivity of stock analysts in the context of online versus offline work environments. The empirical analysis shows that analysts' forecasts are accurate after offline visits. Additionally, teleworking impacts forecast accuracy based on analyst experience, resources, firm visibility, and transparency. Measured in the quality and quantity of forecasts, analysts' productivity was higher after participating in traditional meetings rather than in online ones. That is believed to be closely related to the amount of information gathered from meetings.

Offline meetings consist of face-to-face communication between analysts and that allows them to engage in a lot more social interaction and build a stronger and closer relationship with their managers. This enables them to gather sufficient information from the meetings. Likewise, offline meetings provide an opportunity to visit the company's headquarters, which helps with a better understanding of the company's environment.

Yi Li et al. also discovered that the negative effect of online meetings on analysts' productivity is more pronounced with analysts with poor ability and limited resources. This suggests that analysts with enough experience and resources do not rely as much on the outcome of the meetings and therefore their productivity is not impacted as much by their quality.

Nonetheless, despite their reduced quality, online activities like annual shareholder meetings and online board meetings have been found to improve management. Also, in the context of not being able to hold offline meetings, the online alternative still offers an information advantage and raises the productivity levels of analysts who have participated in them besides those who did not.

Overall, while online meetings present some benefits like flexibility and convenience, they may also have a negative impact on productivity compared to their offline counterparts.

## *2.2. Online meetings disadvantages*

Meetings are ubiquitous at work. Therefore, understanding what makes meetings effective (or not) is important. Blanchard and McBride [5] have studied the disadvantages of online meetings amidst the start of the pandemic context. They have found that online meetings do not allow the same level of engagement as offline meetings do, leading to decreased motivation and attention of team members. Also, they have discovered that a lack of visual cues and nonverbal communication can have a negative impact on the effectiveness of communication between team members during the meeting. When meeting participants perceive a high enough level of group-ness in their meeting, then they begin to enact the processes to create a successful meeting and experience the outcomes of a successful meeting. The authors propose a model connecting the characteristics of successful face-to-face (FtF) meetings to entitativity and extrapolate this model to online meetings.

We will explain the role that effective communication has in team productivity further in the article. Additionally, online meetings present technological challenges such as glitches, poor Internet connection, and software compatibility problems.

Furthermore, online meetings are also at a disadvantage because of the possibility of experiencing 'Zoom fatigue'. Fauville et al. [6] have researched Zoom fatigue and found that people who use video conferencing more frequently, for longer, and with fewer breaks have expressed more Zoom fatigue. They have also described the disadvantages of Zoom fatigue: it can lead to exhaustion and burnout among frequent participants, and it can be amplified or produced by mirror anxiety and hyper-gaze, both of which can distract and decrease focus. They provided empirical evidence that Zoom fatigue is influenced by the dynamics of individuals' video-conferencing usage and their psychological experience of the meeting.

Also, maintaining the effort put into giving nonverbal communication cues required on video calls drains the participant and reduces the ability to properly understand the discussion held. On the whole, Fauville et al. have found that Zoom fatigue can harm productivity by causing the disadvantages discovered, taking away cognitive resources from actual work tasks.

## *2.3. Why meetings matter*

Even decade-old research acknowledges the importance of meetings and their effect on productivity. Kauffeld and Lehmann-Willenbrock [7] have found that successful meetings that contained proactive communication and in which the participants contributed ideas and suggestions had a positive impact on team productivity. After having recorded 92 regular team meetings, the study followed the idea that the key to understanding team meeting effectiveness lies in uncovering the microlevel interaction processes throughout the meeting.

It has also been found that participating in meetings where they could contribute ideas and personal goals in an open discussion led to a 10.6% average increase in worker productivity during a field experiment. The brief participatory meetings also increased treatment workers' retention rate and feelings of empowerment such as job satisfaction and a sense of control [8].

While they have the disadvantages presented above, virtual meetings can also lead to increased productivity, based on reduced travel time and increased flexibility in scheduling. During the pandemic, office workers were accustomed to fully remote work or partially remote hybrid work. Many of them did not intend to go back to commute to a workplace full-time, no matter the cost. Research from the ADP Research Institute, covering more than 32,000 workers, fully 64% said they would consider looking for a new job if they were required to return to the office full-time. More than half said they would accept a pay cut of up to 11% if they could guarantee themselves remote or partially remote hybrid work [9].

### **3. Communication methods**

Amidst the labyrinth of collaborative dynamics, the profound impact of effective communication on team productivity unfolds as a pivotal dimension that requires scholarly exploration. This exploration, grounded in the principles of research paper language and concepts, delves into the intricate facets of communication methods, providing critical considerations for the optimization of team functioning.

As teams embark on complex missions and objectives, the nuanced exchanges of information, the articulation of ideas, and the cultivation of mutual understanding emerge as fundamental determinants shaping the trajectory of collective productivity.

Within the academic discourse on team dynamics, a rigorous analysis of communication methods is essential to uncover the subtle nuances influencing the efficacy of team interactions. Scholarly investigations, exemplified by the studies conducted by Li et al. [4], contribute valuable insights into the impact of exclusive reliance on specific communication modalities.

This scholarly scrutiny is essential for teams navigating the contemporary landscape, where the strategic selection of communication methods becomes a decisive factor necessitating a nuanced understanding of associated advantages and disadvantages.

The examination of communication tools, including email, instant messaging, and verbal interactions, forms a focal point in this academic exploration. Li et al.'s research [4], for instance, sheds light on potential delays and varied interpretations resulting from exclusive reliance on email. Moreover, the comparative studies conducted by Li et al. [4] offer an objective lens through which the influences of instant messaging and verbal communication on team productivity can be systematically assessed.

Beyond the instrumental considerations of communication methods, the academic inquiry extends to the profound impact of effective communication among team members on broader organizational outcomes. Sunarsi et al.'s findings [10] exemplify this, revealing a correlation between effective team communication and heightened job satisfaction. This linkage underscores the motivational force embedded within communication quality, fostering employee engagement and, consequently, contributing intrinsically to the overarching productivity metrics of a team.

In the ever-evolving landscape of work, this scholarly discourse serves as a compass, guiding teams toward informed communication strategies aligned with the complex objectives of contemporary organizational contexts. As teams navigate the intricate interplay between communication and productivity, these research-driven insights pave the way for strategic choices that enhance collaborative efficacy and contribute to the enduring success of teams within dynamic work environments.

### *3.1. Written Communication Challenges*

In scrutinizing written communication, email emerges as a robust tool for documentation; however, Li et al.'s [4] caution against exclusive reliance on it reveals potential pitfalls. Relying solely on email can lead to delays and varied interpretations, primarily stemming from the absence of non-verbal cues.

Moreover, the ubiquity of instant messaging, while fostering real-time interactions, introduces challenges. It may create an environment pressuring immediate responses, thereby influencing the overall work pace. A comparative study by Li et al. [4] becomes imperative to unravel the nuanced influences of both instant messaging and verbal communication on team productivity.

### *3.2. Verbal Communication Dynamics*

Verbal communication, whether unfolding in physical meetings or through phone calls, injects a layer of richness into team interactions through non-verbal elements. However, the transition to the online environment reveals potential challenges.

Technical issues may compromise the advantages brought by gestures and vocal tones, introducing sound or connection delays. The emphasis from Kauffeld and Lehmann-Willenbrock's study [11] on proactive communication within meetings underscores the significance of these sessions beyond information exchange. Such meetings serve as catalysts for innovation and the expeditious making of crucial decisions.

### *3.3. Team Member Communication Impact*

The impact of effective communication among team members, as gleaned from Sunarsi et al.'s findings [10], extends beyond operational efficiency. It correlates significantly with higher job satisfaction, fostering motivation and engagement among team members. The pivotal nature of choosing communication methods becomes evident, guided by discernment and a comprehensive understanding of their advantages and disadvantages.

This choice is instrumental in cultivating an environment of effective communication, supported by appropriate methods and practices, ultimately encouraging active participation and contributing significantly to achieving heightened productivity and meeting established goals.

### *3.4 Connectivity in Distributed Teams*

Communication emerges as the lifeblood of team unity and awareness. In distributed teams, maintaining optimal connectivity becomes a prerequisite for efficient collaboration. However, the online environment, while facilitating remote interactions, poses challenges. Saghaian and O'Neill's observations [12] shed light on the heightened efforts exerted by online teams to establish optimal communication channels, underscoring their connectivity concerns compared to teams operating in physical proximity.

Cang et al. [13] further argue that the absence of physical co-presence and non-verbal communication contributes to reduced connectivity in online collaborative work. The delicate balance in connectivity is essential, preventing information overload and maintaining focus on individual tasks, ultimately preserving and enhancing overall team productivity.

## **4. Team management**

### *4.1. Transformational versus transactional*

The way a team is led can be an influencing factor in team productivity. Recently, there have been conducted thorough studies on two leadership styles: transactional and transformational.

The transactional model is characterized by offering rewards such as bonuses for finishing clearly defined tasks and by setting punishments to motivate team members. The transformational model requires a much deeper implication from the team leader in team dynamics to develop the skills of team members and motivate them by being supportive and setting high expectations.

Even though both models present very different characteristics, they both contribute to the growth of job satisfaction. However, the transformational model has been found to have a

stronger impact, suggesting that its motivational aspects have a wider influence on bettering job satisfaction [10]. Also, this model has proved to be more efficient in the context of virtual teams because it can be used to strengthen the feeling of trust between team members [14].

Job satisfaction is a key factor for productivity. The effect culture has on employee satisfaction is also important. One of the biggest strengths of the organization is the relationship and communication between the employees and the managers. Research has discovered that workers with a high level of job satisfaction have a higher chance of being motivated and engaged in their work-related tasks, which leads to higher productivity [15].

#### *4.2. Challenges of leading teams in an online environment*

In an online environment, leaders face new challenges generated by the transition to a different work setting. Chamakiotis, Panteli, and Davison have found that maintaining subordinated engagement requires more effort from the leaders [14]. They have also identified that leaders are required to find new ways to create a feeling of trust between team members and sustain the work-life balance for both themselves and the team members.

Besides choosing to implement the transformational leadership model, the leader of a former traditional team must be creative and adapt easily to the numerous challenges that arise when transitioning to the management of a virtual or partially virtual team.

#### *4.3. Why effective communication matters for leadership*

Effective leadership requires physical interaction because it allows a leader to grow strong interpersonal relationships with team members. Developing strong interpersonal relationships enhances engagement and satisfaction among team members and leaders who prioritize it are more likely to inspire and motivate team members, which leads to increased productivity [16].

As mentioned above, distance takes a toll on effective communication. With the increasing commonness of remote work, managers must face the challenge of effectively communicating with team members, which is heavily impacted by time zone differences [17].

### **5. Ways of improving productivity**

#### *5.1. Using technology to promote effective communication*

Yuka, Koyano., et al. [18] claim that one of the main problems of working in an online team is the meetings because it is difficult to read the intentions and thoughts of the other



participants and the atmosphere of the place. Conventional online meeting systems are designed on the premise that the participants turn on the camera to show their own faces. To improve productivity, teams can use avatars that directly reflect their facial expressions. The system analyzes the participants' facial expressions and reflects them on a cartoon-like avatar provided.

The program also extends a voting feature that allows participants to vote in speech and chat. The results of the voting are displayed, and the users can check the differences of opinion. The system can also show the negative-positive ratio, and the facial expression ratio of a meeting and generate a word cloud.

### *5.2. Using the project management method to increase productivity*

Turetken et al. [19] identify several ways to increase productivity through Agile project management. These methods include focusing on the customer (this can help increase productivity as teams concentrate on delivering products or services that are valuable to customers); delivering value quickly (helps increase productivity as teams can receive feedback from customers earlier and make adjustments accordingly); working in small and autonomous teams (helps increase productivity as teams can communicate and collaborate more easily); and adapting to changes (helps increase productivity as teams can better cope with unforeseen changes).

Kirkman et al [20] define team virtuality as the extent to which team members use virtual tools to coordinate and execute team processes, the amount of informational value provided by such tools, and the synchronicity of team member virtual interaction. They identified a key factor that can influence the productivity of a team, the size of the virtual team, and the implications of their model for management theory and practice.

The dimension that should be the best depends on three main keys: the task characteristics (the nature of the task can influence how the team uses technology), team characteristics (their experience with virtual work), and organizational characteristics (the organization's policies and procedures). These factors still influence the team's productivity in the present.

### *5.3. The power of receiving feedback*

To enhance online productivity, Rice et al. propose a model for adapting team processes [21]. 16 teams that worked together for periods ranging from 3 months to 3 years were studied. Team processes that emerged naturally from long-duration teams were formalized and taught to shorter-duration teams. These shorter-duration teams comprised 3 different cohorts, each of which received different levels of training.

This model involves receiving feedback to identify areas that need improvement and addressing issues; designing new processes tailored to specific needs and objectives;

implementing the new processes and monitoring them; evaluating the effectiveness of the new processes and adjusting as needed; and maintaining to ensure continuous improvement.

Geister et al. conducted a study with 52 virtual teams formed by students, divided into two groups: one group received feedback on the tasks they completed, while the other group did not receive feedback [22]. The experiment's results showed that the group that received feedback recorded improvements in motivation, satisfaction, and performance. Because team members were more motivated, they were more satisfied with their team experience and were able to accomplish more tasks in a shorter time.

The authors of the article suggest that feedback on team tasks had a positive effect through the following mechanisms: increasing transparency and accountability as team members better understood how the team functioned and contributed to the development of individual responsibility; improving communication and collaboration; and increasing trust and respect among team members. For feedback to have the greatest impact, it needs to be specific, relevant, timely, and provided by a trustworthy person (e.g., a mentor or team manager).

Although the effects of feedback were noted in two studies two decades ago, its relevance remains unmodified. Feedback is a powerful tool to improve the productivity of teams even nowadays.

## **6. Discussion**

Even though virtual teams were introduced as a revolutionary way to manage a project, that was two decades ago. Time since then has shown us how hard it is to replicate the quality of teamwork using virtual means to collaborate.

We have split our research into three categories: meetings, communication, and leadership. We consider these aspects to be the most important when it comes to the essence of teamwork. Out of these three, communication is the most important because it stands at the root of both meetings and leadership.

When it comes to meetings, choosing to stick to physical ones proves to be highly beneficial due to the use of social interaction. Building strong relationships inside the team is such an important factor that it influences every aspect of teamwork. Online meetings, however, present a multitude of challenges that not only disturb the focus of participants but also do not allow the efficient gathering of information from the other participants.

Leadership is also impacted by the online environment. In comparison to meetings, leadership doesn't come with its own specific hardships, and it's heavily influenced by the quality of communication. That being said, communication quality is lower in online settings, and that is reflected in online-based leadership.

Lack of visual cues and other non-verbal elements block virtual-based communication from reaching the nature of traditional communication. Effortlessly staying connected to teammates is the backbone of collaboration.

Effective communication, motivating leadership, and competent meetings are the fundamental part of productive and effective teamwork and as such we need to make sure all three elements are treated vigorously.

## **7. Further research**

The research does not cover the whole subject of the productivity impact of online and physical environments. While the study provides valuable insight, some aspects remain unexplored. Mainly, traditional and online meetings were examined, but hybrid meetings have become more relevant. Similarly, the study focused on leadership in fully remote and fully in-person meetings, while hybrid leadership contains elements from both styles. The research showed the importance of project management to increase team productivity, however, details of a comparison between online and in-person methods were not primarily focused on and would provide valuable insight.

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