

Virtual Team Collaboration Problem Identification and Possible Solutions

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ABSTRACT

This literature review of work conducted a mixed-methods investigation to provide a systemic discussion with subtopics in response to the challenges experienced by remote work, the nature of virtual collaboration, as well as the strategies and technologies of virtual team management and monitoring to foster virtual working. Practicable resolution and recommendation of current and emerging solutions with virtual work will be yielded, aligned with the unique insights and explanations of where and why these opportunities and problems present themselves. Also, to address the challenges of virtual collaboration, this report will also provide six recommendations: working communication, task allocation, work report, work meeting, and high-tech products. Therefore, the purpose of this report is to identify the most significant challenges of virtual meetings and offer a meaningful set of feasible solutions.

Keywords: *Online office, Virtual meeting, Covid-19, Team collaboration.*

1. INTRODUCTION

Under the continued and unprecedented crisis of COVID-19, a massive experiment of a remote and virtual working model has been driven by social-distance restrictions and rapid advances in communications and information technology. Remote work allows individuals to improve work-life balance, the team focus on a common goal with primary worksite different from one another, and organizations reap the benefits of cost-saving on office space, reduced employee turnover, and hire top talent without geographical limitation [1], more importantly, it proposes solutions for preventions of the spread of COVID in an extraordinary pandemic context. According to the relevant statistic, “80% of global corporate remote work policies had shifted to virtual and mixed forms of virtual team collaboration during the early part of the coronavirus crisis” and “64% of organizations say that the shift to virtual team work will likely be a permanent one because of COVID-19” [12]. Despite numerous advantages of virtual work, considerable risks and problems need to be addressed to ensure adequate at-home work arrangements and keep individuals motivated and productive.

2. DESCRIPTION OF PROBLEM

Advanced internet technology has allowed virtual

team collaboration to become the dominant format of mainstream working lifestyles. Team collaboration, with members working from different continents, is now much more common. Teams work collaboratively towards a common goal while bringing multiple viewpoints to projects in a modern version of “survival of the fittest” [16].

However, satisfactory individual team performance is less reliable because remote working is dependent on several factors that vary from person to person. In the past year, the pandemic has increased the demand for virtual meetings, which has revealed several noticeable challenges. Certainly, some of these challenges existed before the pandemic, but are now exacerbated by the increased frequency and reliance on virtual meetings.

3. CHALLENGES OF VIRTUAL COLLABORATION

Virtual collaboration refers to a group of individuals that communicate, critique, and complete work via the internet from remote locations or works at different times. The spread of COVID-19 has forced companies to adapt to the virtual environment and develop alternative working strategies. Virtual collaboration is now imperative. By making the necessary adjustments, businesses will benefit by developing new competencies

in their workforce, recreating value, and enhancing company culture.

This report synthesizes information about the use of virtual teams in response to the pandemic. It aims to answer the question about the role of team collaboration as a supporting service and how it has functioned with environmental controls, performance monitoring, effectiveness, and updated technology.

Due to COVID-19, the most highly educated, well-paid workforces have required employees to work remotely [11]. Although most workers have had some remote working experience, there are still critical challenges for virtual collaboration. The following section will identify and illustrate four challenges: ineffective communication, diminished productivity and focus, task management, and team relationships.

3.1. Ineffective communication

The quality and frequency of communication can affect team collaboration and performance [9], and is even more crucial and challenging when working remotely. In a virtual team, individuals may have different cultural backgrounds or be in different time zones, which makes the communication process more essential, and difficult. Team communication contains two aspects: task-oriented communication and social/relationship-oriented communication [9]. With virtual collaboration, both facets can be affected by various factors, such as different time zones, more distractions, inability to view the body language of team members, and lowered emotional intelligence. Time zones and distractions mainly affect task-oriented communication. It can be difficult for the team to schedule meetings, coordinate activities, and work collaboratively in different time zones. Moreover, family members, pets, and mobile devices can be sources of distraction when working in a home environment [4]. Social/relationship communication may be affected due to a lack of visible body language and hindered emotional insights. Information may be confusing when people cannot interpret body language or the emotional cues of team members, which then makes building trust and confidence in others more difficult.

3.2. Diminished productivity and focus

Although working remotely is comfortable and has some benefits, reduced productivity and focus are still undeniable challenges for the virtual team, mainly caused by a lack of well-defined structure and a distracting environment. It is essential to implement a clearly defined standard and online workflow to foster team cohesion. To work successfully in a remote setting, independent work skills are still necessary for each member in the virtual team to achieve the same focus and productivity as they do in the office. Various issues can

diminish productivity and focus, such as facing sudden power or internet outages, lack of fixed work schedules, and losing track of time.

3.3. Task management

Planning and reviewing work progress are more difficult for virtual teams. Since monitoring the working process is usually conducted chiefly through in-person meetings and discussions, remote teams are challenged to keep up performance. Video conferencing software does not include the function to assign tasks, split work into subtasks, and set priorities.

3.4. Team relationships

The main challenges for team member relationships consist of trust and socialization. Distrust is one of the most serious challenges for digital teams, as it may lead to misunderstandings or defensive feelings. Although it is difficult to foster and maintain trust through digital interaction, research has shown that a shared mission, collaborative spirit, and strategic team building can help instill trust in remote and onsite workers alike. Moreover, socialization is one essential component of teamwork that virtual teams may often miss out on, which can result in a lack of team spirit and cohesion. In other words, it can create a lack of trust and hesitation to depend upon co-workers, and that ultimately impacts teamwork.

4. CHARACTERISTICS OF VIRTUAL COLLABORATION

4.1. Virtual Space

It is a virtual space created through web conferencing software; it must happen in digitally rather than physically. The virtual collaboration contains certain online collaboration features, such as screen sharing and interactive whiteboards [3]. Some commonly used software includes Zoom and Microsoft Meetings.

4.2. Store and Transfer Data

Virtual collaboration allows users to store and transfer data easily, such as uploading documents on cloud services and editing in sync. Big businesses usually have vast amounts of data to store, so they are more likely to pay for bigger cloud storage. Some of the famous cloud storages are Snowflake, AWS and Dropbox.

4.3. A large number of people participation

Virtual Collaboration encourages a large number of people to join in to a video conference, with little limitations. For example, Zoom allows up to 500 participants to have a meeting at the same time [3].

5. METHODS TO OVERCOME CHALLENGES

Environmental controls

Most people have already experienced working remotely and learned different practices to optimize performance outcomes. One method to overcome challenges is to be properly prepared before the virtual meeting. Being prepared is especially necessary to increase productivity in remote work settings.

Separating the working area from the living area is necessary for virtual teams to maintain productivity. The unexpected rise of virtual meetings has only made it more challenging to understand how to separate home life from work life. Clutter affects anxiety levels and our ability to focus [8]. Moreover, a distinct and well-organized working area provides easy access to resources and can conveniently accommodate work processes to increase productivity.

To further reduce household distractions, orienting desks towards a window is beneficial for collaboration and productivity. It does not simply remove other visual distractions, but also prevents strong natural light from reflecting on the computer screen, which can reduce focus and attention during meetings.

As more time is spent on team collaboration, it can be a challenge to maintain long periods of concentration while sitting in front of a screen. Hence, video fatigue has evoked remote collaboration to be less effective and productive because of anxiety, emotional exhaustion, and concentration issues. According to research by Robertson and Shockley, "41% of employees working at home during the pandemic feel burnt out, drained, or exhausted from their work" [15].

The reasons for video fatigue are complex. Since it is necessary to stare at the screen continuously, for a long time, it simultaneously creates pressures to perform well, impedes concentration, and requires more energy to focus. Also, video fatigue can be very uncomfortable because it is more difficult to read a team member's response and adjust behavior accordingly. Robertson and Shockley surveyed people who worked no more than 10% of their time at home, before the pandemic, with people that worked at least 32 hours a week during the lockdown [15]. Over 4 weeks, survey participants conveyed their day-to-day experiences while working remotely. The result suggests that the more meetings planned, the less effective and productive those meetings were. As the number of remote meetings implemented per week increases, each member's meeting experience will be diminished.

In addition to improving the physical environment, the mental aspects of the work environment are also significant. Without face-to-face communication and personal interaction, how can the team spend a

tremendous amount of time to accomplish a project? Team collaboration in a virtual environment is affected by intrinsic values such as teamwork, assigned individual work, and shared findings through regular team meetings. One response is presented: "Easy time-sharing and work progress due to teams in different time zones, which means teams almost working 24/7 to achieve project goals. You have an opportunity to connect with your team members at any point of time" [7]. Hence, to provide a positive mental environment for virtual teams, self-discipline is essential for all team members to work on a project at the same pace. Fortunately, video fatigue can be resolved with just a few practical strategies:

Rank meeting priorities. If many meetings are arranged, try to determine which meetings are not urgent or necessary. If needed, switch to audio-only meetings to avoid video fatigue.

Schedule short breaks. Allowing members to recharge and rest is always a good idea. All team members should take a break simultaneously. For example, walking outside or buying a coffee will help members feel refreshed while turning off meeting cameras. This is not only a strategy for individuals, but also an ideal strategy to reflect on overall team performance.

Make a tight deadline and keep updating information with the team. Making a list of questions that reflect the process of the work and schedule, then using the list to keep every team member focused during the meeting. Eventually, evaluating at the end of the meeting whether the goals have been achieved.

Monitoring work performance

With the COVID-19 outbreak, remote working is becoming a new norm for many businesses. With this rising new norm, new management methods to maintain work morale must be developed. Without any prior remote working practices, many businesses had a tough time managing performance remotely. High-performing employees may experience declines in job performance and engagement when they begin working remotely, especially in the absence of preparation and training [10].

Compared with high-performing employees, average employees may show a similar decline in performance, as monitoring work becomes more difficult, thus increasing the probability of skiving. By 2025, an estimated 70% of the workforce will be working remotely at least five days a month [13]. Therefore, businesses need to learn how to better monitor remote workers without making them feel overwhelmed.

Tips for how to monitor employees virtually:

Give trust to employees, adopt decentralization.

It is unavoidable that employees must work remotely during the pandemic, so it is suggested that trusting

employees to work on their schedule is a better option. Intense monitoring will only impose a feeling of overwhelming to the workers, while decentralizing authority and oversight promotes a spirit of group cohesiveness and can increase employee morale.

Be open to communication and ensure task clarity.

It is recommended that companies define objectives and expectations as early as possible. By doing this, employees will understand the bigger picture and know what to achieve, even when there are no supervisors. So, it is important for management to always be prepared for meetings apart from the routine.

Provide positive reinforcement and recognition.

Employees might feel stressed while working alone, therefore, frequent positive reinforcement is necessary to maintain motivation, such as giving compliments when employees reach a task milestone. Employers also need to show patience when resolving unanticipated problems.

Be patient with employees.

There will always be one or two employees who have trouble doing their work or getting along with others, especially in this COVID19 era, it is common to see employees not getting used to new work patterns. Employers should be a good listener and give constructive behavioral feedback to workers. Set consequences early if work patterns don't improve and be prepared to implement company policy if performance worsens.

Effectiveness

Although virtual working involves a substitution of the location of work, the overall scope of the job or the responsibilities of the work itself usually do not change with the substitution of the location. Hence, virtual working is often considered "the context or environment in which an individual's work is carried out, and not an aspect of the work itself" [2].

Some scholars believe that the virtual working environment increases the discretion of employees and the way employees complete their work, which allows employees to better adapt to their own productivity rhythm and working style by adjusting their work and rest patterns, thus improving their work effectiveness [5]. In addition, supported by the study of exchange theory, virtual workers feel obligated to achieve a commensurate level of competence due to the many benefits associated with virtual working, which may result in extra effort and diligence on the part of the virtual workers in performing the job [6]. For example Professor [6], who established exchange theory, found that virtual workers work an average of four hours more per week than other employees who do not work remotely. Besides, work may be done more efficiently at home because there are fewer interruptions than in the office.

With more time and energy saved from virtual working, individuals feel more obligated to put themselves to work in exchange for the benefits of telecommuting. As a result, individuals who work remotely are more likely to achieve higher job effectiveness.

Virtual working may, in some cases, however, limit face-to-face interaction and thus hinder the completion of certain aspects of work tasks. Studies have shown a curvilinear relationship between virtual working and job satisfaction, meaning that at low virtual working levels (about 15.1 hours per week), virtual working has a positive effect [17]. But when employees spend a lot of time on virtual working, their satisfaction may be lower because they feel socially and professionally isolated. For highly independent work, the curve is flatter [17]. That said, while virtual working may have a positive impact on job effectiveness, the independence of work plays a more important role than the time invested in virtual work. Thus, a balance of evidence suggests that individuals who work remotely more generally have higher work effectiveness in terms of general outcomes.

Build leadership and team relationships.

Empathy towards Members

In the Covid-19 era, leading a virtual team requires one to be empathetic. Working from home significantly differs from ordinary office chores. Virtual teams sometimes face challenges when it comes to meeting sessions due to potential restrictions. Understanding and sharing in the difficulties that team members may face are essential to keep the group together. For example, a team leader should understand and support a member who may have contacted the virus. Finding solutions to problems that a virtual team member is undergoing, may help safeguard the interests of employees and motivate them to improve their productivity.

Also, the composition of virtual teams covers diverse backgrounds of team members, such as different cultures, practices and customs. Therefore, the leader in charge of the team should understand and appreciate all cultures and backgrounds in the group.

Team Participation Enhancement

Team members, especially those with introverted personalities in positions that need more interaction with others, may find a comfort zone of sitting back for others to execute duties. However, an efficient virtual team leader should encourage them to promote team participation [14]. Delegation of duties is also a way of ensuring that all members fully participate in the virtual team. When a virtual team leader gives everyone a chance to take charge of a particular course, it motivates them with positive recognition.

Maintaining Team Trust and Responsibility

Team trust and socialization within an organization may be negatively affected since these two concepts are more practical when people meet in person. Nonetheless there is a need to practice them due to their fundamentalism in the success of an organization because they effectively boost team work. Achieving trust and responsibility in the era of Covid-19 requires a leader to focus on delegating duties and encouraging teamwork.

It is possible for leaders to keep track of employees' efficiency in virtual teams during the pandemic. Accountability of employees can be an essential virtue in the era of Covid-19 since organizations rub using virtual teams. Keeping track of accountability to ensure trust and responsibility in virtual teams requires delegation and work [14]. The COVID-19 pandemic has forced employees to work remotely, making oversight much more difficult. Employees working at home may be tempted to take frequent breaks, and do chores such as laundry or other household tasks. So, the accountability of employees has become a necessity. Possible solutions include adding work mandates with clearly defined tasks. Leaders can also check the progress more frequently to ensure that the work is completed on schedule.

6. RECOMMENDATIONS

Working from home is not a bad thing for employees. It allows employees to reduce commute time, avoids cross-contamination during the crisis of COVID-19, and allows employees to spend more time with their families. The most important thing about virtual working is how to execute regular work. Here are six recommendations:

Working time

Virtual working, from a collaborative point of view, requires employees also have a regular commute time that fits employees themselves. When virtual working from home, there are still some kinds of temptations to distract employees, and comfort makes it easy for them to slack off.

Therefore, the team should agree to a common working time with all members, and those who are not online or away for a short while should check their status on instant messaging.

Work communication

In the office, employees can find collaborators, colleagues or leaders, in real time without worrying about response issues. Correspondingly, one of the most obvious characteristics of virtual working is the uncertain response time, which makes employees reluctant to ask questions while increasing anxiety and distrust among people.

Hence, the team should make sure that all members are adequately trained to be proficient with the virtual working software. During the period of virtual working, the team should make an agreement with all members that they must stay online as much as possible so that face-to-face video conferencing can be initiated whenever necessary for discussion.

Task allocation

In office work, employers and employees can first propose a vague task objective, and then in the execution of the task at any time to supplement and adjust the task content. However, during the period of virtual working, many tasks are fragmented, scattered on various communication platforms, and lack supervision and tracking. Consequently, employees with weak self-drive ability or multi-task ability management are unable to respond to the internal and external demands timely. Therefore, the following two points should be fully considered by employers.

First, the mission should be initiated with a clear purpose, task description, completion time, member composition and responsible person. Second, when the task is received, the responsible person and relevant members need to have a clear reply on whether the task is received or not.

Work report

When working centrally, leaders can inquire progress and questions face to face at any time; When working remotely, employees rely more on formal conventions for reporting patterns. At the same time, part of the work information needs to be open and transparent within the team, so that every member of the team knows about the work information of everyone else, rather than just giving one-way pipeline reports to superiors.

The leaders must explain clearly, and the employees must also understand clearly the five elements of the task: the goal of the task, the criteria of the task, the deadline of the task, the time needed to invest in the task, and the scope of the cooperation of which departments or colleagues are needed.

Work meeting

Work meeting helps employees to have a ritual feeling when working from home and makes everyone feel more like a team fighting. For example, the team needs to schedule video meetings according to the actual situation, such as the morning meeting before work and the meeting after work.

High-tech products

In offline communication, employees make a lot of eye and body contact with each other, and information that can only be conveyed through micro-expressions and emotions is often reduced by virtual working.

High-tech products, such as facial micro expression recognition systems or Augmented Reality, which also known as AR, can effectively solve the problem of non-verbal communication limited by remote work. In addition, these high-tech products can reduce employees' feelings of social and professional isolation from virtual working, improve their job satisfaction, and enable them to be positive about tasks, which in turn can increase job effectiveness.

7. RISKS AND MITIGATION

The five recommendations above are beneficial for increasing virtual team collaboration. However, every coin has two sides. When teams follow these recommendations, some problems or risks may also arise. The following are the risks that may occur and how companies can react to mitigate them.

Working hours

Everyone employee may have their schedule under the remote work model. If someone has an unanticipated situation or travel plans, it will pose potential risks on ensuring the team functions smoothly because it is difficult to ensure that they are paying attention to work. Therefore, setting a detailed plan with work times and deadlines can motivate employees to keep a work-life balance, improving productivity.

Work communication

Even though meeting online is the proper platform to communicate among employees, its efficiency can be affected if members are not entirely focused on their work. Online meetings impact not only verbal and non-verbal communication, but also trust and impression formation, which in turn affects team collaboration. Furthermore, eye contact and appropriate body language show respect to others, which motivates others to listen carefully and helps employees concentrate and think more deeply. Thus, keeping in touch with team members is essential in virtual environments as people are more likely to create new ideas when they have a synchronous meeting and are working together.

Task allocation

Group work can be completed ideally only when every group member is familiar with the division of labor and due dates. However, what happens if some miss the deadline, cannot catch up on the project, or do not engage in the group's work? Effective performance evaluation would be a rational remedy. An appropriate performance evaluation can motivate employees to accomplish their work goals and helps the company assess an employee's ability, which will then lead to a plan to resolve any issues.

Work reports

As teamwork requires employees to work collaboratively, choosing the right shared work platform is an important consideration. There are limited features in cloud services and that can be disrupted if the connection becomes unstable. To reduce the risk of shared working platform, one feasible solution is to work offline individually. Meanwhile, creating a shared to-do list on a platform like Trello ensures everyone will be on the same pace of work collaboration.

Work meetings

Since employees do not work together in one location, distractions like mobile phones, noisy pets, or other people talking can impact meeting quality. Having meetings with the use of a webcam, in an isolated room, and keeping phones away can help employees stay focused and allow everyone to work more efficiently. For issues related to noise, the company can provide noise-canceling headphones or ask employees to work in low-noise environments like airports.

High-tech products

One of the risks of implementing Augmented Reality is the danger of reality modification. It obscures the line between the digital world and the real world, which may pose potential risks for users. For instance, when a user needs a seat, it may be a challenge to find out which a digital chair is and which a real chair is. To mitigate this risk, companies need to train workers and teach them techniques to withstand this possibility. Workers should use this technology in a large room to avoid any hazards.

8. CONCLUSION

As what we deduce in the report, remote working is a double-edged sword. Remote working can save time and reduce the spread of COVID-19, but at the same time, can stifle work efficiency and creativity. Not every industry is possible to switch completely to virtual collaboration, for example, the movie industry. However, companies should not overlook the fact that working in virtual environments is becoming a big trend in the world, and adopting this new work lifestyle, or not, should be every company's top concern. Our team made every effort to include the upsides and potential risks of virtual working and met out an action plan to follow. It is our team's utmost hope that this action plan will be paramount necessity for bringing new perspectives of virtual working to all businesses throughout the world during the pandemic.

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