



聖若瑟大學
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**VIRTUAL MEETINGS: HOW TO INCREASE
COMMUNICATION EFFECTIVENESS**

A Dissertation
Presented to
The Academic Faculty

by
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In Partial Fulfilment of the Requirements for the Degree of
Master of Communication and Media
in the Faculty of Arts and Humanities
University of Saint Joseph, Macao

05/2022

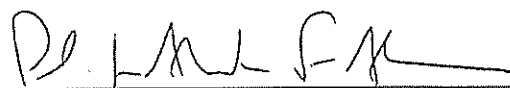
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I, the supervisor, believe that this Dissertation is ready for assessment, and reaches the accepted standard for the Master of Communication and Media



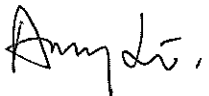
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DECLARATION OF INTEGRITY

I declare to have acted with integrity in the preparation of this thesis. I confirm that in all the work leading to its elaboration I did not resort to plagiarism or any form of falsifying the results.

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ACKNOWLEDGMENTS

I would like to take this opportunity to thank a number of people who have offered invaluable assistance in the preparation of the dissertation.

My deepest gratitude goes first and foremost to Professor Paulo Jorge DE ALMEIDA FALCÃO ALVES, my supervisor, who has walked me through all the stages of the writing of this thesis. His critical comments, constant encouragement and guidance have greatly enlightened me not only on the academic pursuit but also on the morals of being a woman and a mother. Without his consistent and illuminating instruction, this thesis could not have reached its present stage.

Secondly, I would like to express my heartfelt thanks to all the professors and teachers whose insightful lectures have well prepared me for the completion of the thesis during my pursuit of the master's degree in Communication and Media at Faculty of Arts and Humanities of University of Saint Joseph, Macau.

I also greatly appreciate the assistance offered by the authors and scholars mentioned in the bibliography, without whose works, the literature review of my thesis would not have been possible.

Last, I am deeply indebted to my beloved parents, my husband and friends, who always supported me, willingly discussed with me, and offered valuable insights. Their help and support have accompanied me through the difficult course of the thesis and moments of my life.

ABSTRACT: As the internet technology is developing rapidly, this affect people's daily life and also corporate's management system. Technology has changed business with high speed connections, providing the ability to reach more customers, to serve more people worldwide, improve products and services quality, streamlining the business process, allowing the less use of human force in intensive high-risk work. In addition to the changes that technology has been creating in society, business has also been influenced, both in terms of organizational structures as in terms of professional relationships.

With the emergence of the pandemic caused by COVID-19, organizations had to adapt their strategies to this new reality, profoundly changing the communication paradigm of the 20th century.

The way companies communicate internally and the way markets had to adapt to the restrictions imposed, leaded to the emergence of new forms of business communication interaction.

According to this new reality, this thesis aims to study the effectiveness of communication in virtual business meetings, trying to understand the new forms and procedures that have been implemented in form to improve its efficiency. To test the hypothesis that face-to-face teams deliver stronger interpersonal communication than virtual teams, an online questionnaire was distributed to the working group in Macau that have been worked in the event management industry for more than five years. At the same time, we also apply a semi-structured interview to ten professionals that have been worked for more than five years in the event management area. The results seem to show that although virtual teams have adapted well to these changes, interpersonal communication continues to be the best form of communication, leading us to conclude that virtual meetings still do not seem to have the capacity to replace face-to-face meetings.

KEY-WORDS: Virtual meetings, Face-to-face meetings, Communication, meetings effectiveness

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INTRODUCTION

The emergence in December 2019 of the first outbreak of the coronavirus (COVID-19) pandemic in Wuhan, China, has changed our current way of life, both personally and professionally. As the COVID-19 pandemic impact had becoming worse, social distancing regulations across the world are proving beneficial in reducing the spread of the virus. Different countries and districts restrict the entry and exit of their citizens. COVID-19 pandemic has required social isolation to prevent the virus from spreading (Armitage & Nellums, 2020).

This necessary alteration in the way we interact resulted in the cancellation and postponement of many national meetings and conferences all over the world, as well as other events involving close interaction between organizations and their employees. The shift to virtual meetings as a business norm has been an exciting development, leading to changes in meeting dynamics as well as providing a much-needed tool to increase inclusion, diversity and work-life balance.

According to the research conducted by ICCA (the International Congress and Convention Association)¹ during May 2020, in collaboration with ASAE (African Society of Association Executives), APFAO (Asia Pacific Federation of Association Organizations) and ESAE (European Society of Association Executives) examined the post COVID-19 strategies and plans of almost two hundred associations around the world. (ICCA, 2020).

The research finds out that 84% of this companies intend to include hybrid and digital elements to events going forward, with a general opinion that they should lead to increased attendance. This causes an exponential rise in the use of virtual meeting technology. However, the research also finds out that 60% of respondents believe that there are limitations to the ultimate success of virtual events when compared to face-to-face communication.

According to Rees (2020), we are missing the camaraderie, interaction and face-to-face contact that in the past was take for granted and this has had an impact on our learning and knowledge-sharing. The physical presence, the sense of belonging and the building of trusted relationships by meeting in person is irreplaceable.

¹ ICCA is the global association leader for the international meetings industry and specialises in the international association meetings sector, offering unrivalled data, education, communication channels, and business development and networking opportunities.

Certain subjects require a more intimate meeting where the focus needs to be on the discussion occurring within the walls of the room whereas other issues require more informal and quick conversations often times over long distances.

During COVID-19 pandemic, individuals have spent more than 5.5 billion minutes in virtual meetings (Rampton, 2020) and during lockdown, virtual meetings became the new norm for employees and companies all around the world – just looking at Zoom, 200 million people were using the app every day at the beginning of 2020, compared to 10 million in December 2019 (Memory Blog, 2020).

Thus, it becomes pertinent to study the impact that this new form of virtual communication is having on the day-to-day of its employees, trying to understand the opportunities and threats that this new reality can bring to the labor market. It is therefore our goal to study this new communication phenomenon and try to understand how virtual meetings can contribute, or not, to increase the efficiency of communication and productivity at work, studying new communication models in order to enhance virtual meetings, helping organizations to discover new ways to maintain the concentration of the attendees and make virtual meetings more productive.

We started to divide this study in two parts. The first part concerns the state of the art, or literature review, where we make a theoretical approach to the phenomenon that we intend to analyze in order to raise some questions for our research and define the objectives of this investigation. We will also address some issues related to the COVID-19 pandemic and its impact on organizations' daily lives, and how these changes have influenced the new ways of online working, namely virtual meetings.

In the second part of this study we will define the research conceptualization. It will be in this section that we will explain the chosen methodology, namely: sample characterization, hypotheses, inquiries structure as well as the problems and difficulties that we felt throughout this process. After defining the methodology, we will move on to the analysis and discussion of the results where we will present the results of our study and also refute or validate the previously defined hypotheses. Finally, we will present the conclusions and proposals for future investigations.

Part I

PROBLEM AND THEORETICAL FRAMEWORK

CHAPTER I – Theoretical approach

Meetings are social, or business events, where a number of persons come together at a certain time and place for specific purposes, such as discussion or decision-making. Since the use of virtual meetings, technology has been experiencing an exponential rise, but there are still some problems and obstacles that virtual meetings have to overcome.

As face-to-face communication provides warmth and emotion that phones and computers do not, face-to-face contact can make an important difference in the effectiveness of respective communication such as providing feedback, supporting conflict resolution, and assigning responsibility.

The insufficient progress, or even failure, of most current meeting support systems, is caused by a lack of support for flexible modelling and execution of meeting processes, such as a lack of purpose-built groupware tools for specific types of meeting activities and insufficient integration with asynchronous modes of cooperation and related applications (Wang, Haake & Rubart, 2004).

However, although some people think that meetings should be face-to-face, providing us the opportunity to feel the others personally, the actual circumstances tells us, at some particular time, that we were unable to communicate in presence due to the impossibility caused by COVID-19. One of the ways found to overcome this face-to-face communication difficulty was the adoption of new forms of online communication, namely the adoption of the virtual meeting systems.

Virtual meeting occurs when people, regardless of their location, use video, audio, and text to link up online, allowing them to share information and data in real-time without being physically together, using video-conference (VTC) software such as ZOOM, Google Meet, GoToMeeting, Hangout, WeChat video call and WhatsApp video call to improve online communication.

As internet technology develops rapidly, it affects people's daily life and also corporate's management system. Moreover, under the impact of COVID-19 pandemic, people all over the world believe that it will fundamentally change how they operate and hold conferences and events in the future.

In recent years, organizations start to use virtual meetings² to deliver messages, knowledge and exchanging ideas. But this does not mean that people are giving up face-to-face interaction. Organizations all around the world are now establishing different kinds of virtual teams to deliver corporate decision, knowledge ideas, exchanging new ideas and trends world widely, always with the main objective to enhance their business.

Traveling to meetings inside and outside local spaces was always very time-consuming and decreases productivity. But technologies changed the way we conduct business meetings, communicate with teams and present ideas (Sharma, 2017), making the use of video conferencing technologies in business, and international conferences, a common procedure, allowing that currently it's easy to use a video conferencing system in which we can communicate with partners, train employees and participate in webinars all around the world. But what will be the future of business meetings? How will we move to a hybrid system where we simultaneously apply remote communication technology in parallel with face-to-face meetings? Will we gradually replace personal interactions by computer screens?

There are many kinds of business meetings, ranging from high-level strategic planning and management team meetings to customer problem solving sessions, project reviews, project work sessions, standard meetings, and team building meetings. In particular, this study aims to identify the factors that may influence the communication, and furthermore builds frameworks for both type of meetings, contributing to improve effectiveness and communication of virtual conferences.

It will therefore be through our research that we will try to better understand this phenomenon as well as how it has influenced the daily lives of organizations and workers in their business relations. In this sense, the objective of this study aims to analyse the communication effectiveness and satisfaction level of virtual meetings compared to face-to-face meetings, mainly during international and national meetings, with the aim of improving the effectiveness of communication.

This discussion will be relevant for the international business partners and national entrepreneur who have a need to organise regular meetings and conferences held in different places, such as the ICCA Congress. Thus, some international organizations that hold virtual

² Virtual teams (i.e., geographically distributed collaborations that rely on technology to communicate and cooperate) are central to maintaining our increasingly globalized social and economic infrastructure.

conferences may have in this study some clues that could help them to improve the effectiveness of their communication.

In detail, the objectives of this study are: i) Reveal differences in effectiveness and satisfaction between face-to-face meetings and virtual conferences; ii) Explore the potential factors that influence the effectiveness and satisfaction of face-to-face meetings and virtual conferences; iii) Identify the factors that can affect the performance and satisfaction of face-to-face meetings and virtual conferences along both social and task dimensions during international conferences; iv) Identify methods to improve the communication effectiveness and satisfaction of international virtual conferences; v) Improve the meeting procedure in order to create a better experience when using virtual meetings.

1.1. Face-to-face communication during virtual meetings

Our research question focuses on the importance of face-to-face communication during virtual meeting. Our first question is about if it is effective to hold virtual meetings and how can we improve the communication effectiveness and satisfaction. Guo et al. (2006) mentioned that as virtual teams become more and more important in organizations, understanding how to improve virtual team relational development and meeting outcomes is vital to the success of the project.

For virtual teams to be successful, effective communication and knowledge sharing among members are necessary. The importance of these two factors increase because the exchange of knowledge and information relies purely on computer-mediated communication (CMC) systems. Compared to traditional face-to-face interaction, effective communication under a CMC environment may become more difficult due to reduced social context. Video conferencing systems allow virtual teams to “come together” without the effort and financial costs that are often associated with face-to-face meetings.

However, the mediation of a team’s interaction by CMC technologies creates both opportunities and challenges. According to two related theories, media richness theory (Daft & Lengel, 1986; Daft, Hengel & Trevino, 1987) and social presence theory (Short, Williams

& Christie, 1976), media differ in the extent to which they (a) can overcome various communication constraints of time, location, permanence, distribution, and distance; (b) transmit the social, symbolic, and nonverbal cues of human communication; and (c) convey equivocal information (Rice, 1993).

Media with a high degree of face-to-face interaction are more suitable for an effective interpersonal communication as they use signs and symbolic content that facilitate the meaning of messages and their consensual understanding. In contrast, media with low social presence, such as CMC technologies, may not be suitable for intersubjective interpretation because of the obstacles that could appear in relation to interactivity and reciprocity of information, essential factors for a good communication flow (Miranda & Saunders, 2003).

According to Schutz (1958) theory, humans have a second need for control or influence, which can be related to a feeling of competence or self-efficacy. If we, as humans, do not know how to control our environment, it can trigger an underlying fear of humiliation. In a face-to-face meeting, individuals have a variety of ways to influence the direction of the conversation, from raising their hands to speaking more loudly. In virtual settings, it is often very difficult for individuals to know how to get the attention of the meeting leader and the other participants.

This inability to influence the communication process can lead to a feeling of powerlessness, or an assessment, that there is no point in even trying to give any kind of input. In many cases, the meeting process is so poorly structured that even the leader may not know exactly how the conversation will unfold. This lack of planning can increase participants' feelings of powerlessness about their ability to influence the discussion in a meaningful and productive way. (Schutz, 1958).

The last need in Schutz theory is openness. This need is related to the feeling of being likable and can trigger an underlying fear of being rejected. It can be difficult in a face-to-face setting to create a truly open environment in which all members feel free to give their ideas and share their opinions - in virtual meetings these challenges are magnified. In fact, most meeting leaders agree they want to create virtual environments that promote openness, yet few know exactly how to do that (Schutz, 1958).

Research has shown that there are specific practices that meeting leaders can introduce in their meetings which will drastically increase the overall process and relationship satisfaction of

virtual meetings because when the process works, and people feel good about the collaborative setting, the overall quality of the results likewise will increase.

As technology evolves and borders dissolve, virtual communication has become the norm for many organizations. The debate over whether virtual communication is a viable alternative to face-to-face communication is ongoing. According to the literature, if used effectively and appropriately, virtual communication shows a promising avenue for organizations to pursue.

However, when organizations decide to use virtual communication, a special attention must be paid to the mechanisms and members involved to ensure maximum benefit of the meeting. Regardless of the debate, organizations must recognize that virtual communication is sustainable, and with the right tools, technology, people and processes, organizations can use virtual technologies to achieve high quality and satisfying results to their business.

Although CMC faces challenges, organizations continue to rapidly adopt virtual communication systems. It is imperative that organizations recognize these challenges and learn how to use CMC effectively. Interpersonal dimensions, such as enhancing communication and increasing social presence are two areas that have a huge impact on virtual team effectiveness (Cascio, 2000; Dewar, 2006; Guo, D'Ambra, Turner, & Zhang, 2009; Lin, Standing, & Liu, 2008; Powell et al., 2004; Storper & Venables, 2004).

In fact, Lin et al. (2008) found that social factors were the most significant predictors of virtual team performance and satisfaction. Recommendations for enhancing communication include setting ground rules regarding communication frequency, effective qualities of communication, extent of feedback, and knowledge access. According to Dewar (2006), predictable and timely responses between members lead to greater levels of trust in a virtual team. Cascio (2000) also suggests setting times for regular meetings as well as individual accessibility by phone or email, in order to avoid e-mail being the only means of communication. It is also important that all participants rely on a common database to store and share knowledge (Hertel et al., 2005; Powell et al., 2004).

Another strategy to improve virtual communication relies on the increasing of social presence by allowing members to meet face-to-face (Cascio, 2000; Hertel et al., 2005; Lin et al., 2008; Powell et al., 2004; Storper & Venables, 2004). On the other hand, social presence cues, or another person's presence in a communicative situation, have shown to increase trust, help

members form better relationships with one another, and increase perceptions of reciprocity, quality, loyalty and favourability in a CMC environment (Hertel et al., 2005; Lin et al., 2008; Powell et al., 2004).

Powell et al. (2004) also found that virtual teams who held early face-to-face meetings, formed better interpersonal relationships, trust, respect, socialization and an improved understanding of the matters. Because much of the work done in a virtual team is task-focused, research suggests these face-to-face meetings should focus on relationship building, setting ground rules for effective teamwork, resolving conflict and technology use (Hertel et al., 2005; Powell et al., 2004).

1.2. Effectiveness and satisfaction between virtual and face-to-face meetings

Our second question aims to find if there is any difference in communication effectiveness and satisfaction between virtual and face-to-face meetings. The following table represents some of the key different features between face-to-face and virtual meetings. (Guo, D'Ambra, Turner & Zhang, 2006)

Table 1. Key features between face-to-face and video-conferencing meetings

Feature	Face-to-Face Meeting	Video-Conferencing Meeting
Co-presence	Yes	No
Visual quality	Unmediated visual access	Good quality, colour image
Number of images per screen	N/A	3 continuously available*
Camera angle	N/A	Head and shoulders only
See own image	No	Yes
Selective gaze supported	Yes	No
Audio	Unmediated audio access	Full duplex, no lag

*There were three members in each video-conferencing learn in this study.

As we can see on Table 1, the most relevant differences between virtual and face-to-face meetings is that face-to-face meetings are co-presence with more personal interactions whereas virtual meeting only serve good quality and colour image. Virtual meeting also limits the number of images per screen and participants can only show their head and shoulders.

As CMC technologies have the ability to overcome time and location constraints, retrieve and search associated materials, reprocess and merge different content, and support many-to-many communication flows, they have been used to support and enhance interaction and effectiveness of virtual teams. Among the various CMC technologies used to facilitate virtual team interactions, video conferencing systems are the core system around which the rest of the virtual team technologies are built.

Synchronous video-conferencing systems allow team members separated by geographical distances to interact in an approximation of face-to-face interaction through audio and video communication capabilities. On the other hand, video-conferencing systems allow virtual teams to “meet” without the time, effort, and financial costs of traveling to a face-to-face meeting. Video-conferencing systems also have changed the way people keep in touch and the way business is done, providing the infrastructure across which virtual team will interact and grant technological empowerment to the virtual team’s operation.

The effects of the reduced “communication modalities” on virtual team members and the circumstances in which these effects occur has been the focus of much of the CMC research (McGrath & Hollingshead, 1994). Although, not definitive in terms of specific effects, the research in this area suggests that CMC groups communicate differently than face-to-face groups (Chidambaram, 1996; Hightower & Hagmann, 1995; Hightower & Sayeed, 1995; Hiltz, Johnson & Turoff, 1986; Kiesler & Sproull, 1992; McGrath & Hollingshead, 1994; Siegal, Dubrovsky, Kiesler, & McGuire, 1986; Wiseband, Schneider & Connolly, 1995).

While there is a plethora of research describing various technologies for computer mediated communications, there is a lack of studies examining “sustained, project-oriented teamwork of the sort that is important in most real-world organizations” (Galegher & Kraut, 1994, p. 111). Therefore the analysis of the characteristics of the CMCS is, more than ever, necessary. Virtual teams are not able to duplicate the normal “give and take” of face-to-face discussion. For example, comments of group members using a synchronous CMCS sometimes appear to be

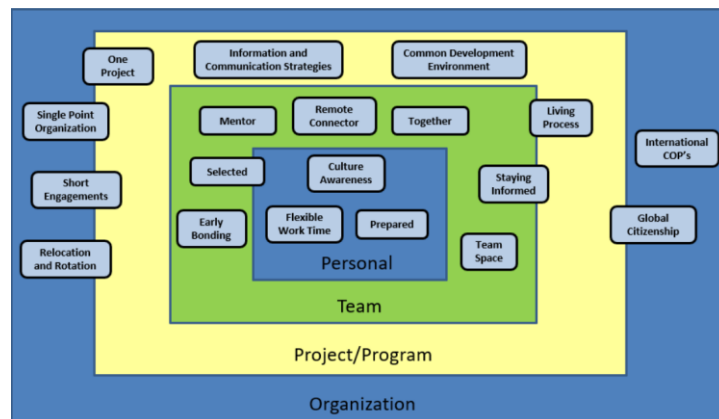
out of context, or the conversation may appear to lack focus because multiple group members are, most of the time, “talking” at once.

This is exacerbated by the inefficiency inherent in the use of a keyboard and the fact that people type and read at different rates (Siegal et al., 1986). The lack of nonverbal and paraverbal cues also reduces the richness of the information transmitted by virtual team members. Daft and Lengel (1986) defined media richness as “the ability of information to change understanding within a time interval” (Daft & Lengel, 1986, p. 560). Rich media allow multiple information cues (the words spoken, tone of voice, body language, etc.) and feedback. It takes more time and effort of group members to achieve the same level of mutual understanding in a lean medium, such as CMCS, than in a rich one such as face-to-face communication (Ibid.).

1.3. New distributed teams’ patterns

Finally, our last question is about the new pattern for distributed teams in virtual meetings. The distributed teams’ patterns collection currently has twenty individual patterns. These can be categorized based on scope into personal patterns (what an individual can apply), team patterns (that apply within a single team), project patterns (that apply for a project in an organizational context) and patterns for an organization or company (patterns that apply on a level above an individual project or program). As we can see on fig. 1, few patterns are placed across the borders between categories, meaning that they apply in both to varying degree (Hvatum, 2020). According to Hvatum (2020) we can identify seven patterns that focus on practices at the level of the distributed team:

Fig.1. Patterns Collection



Pattern 01 - Selected

When setting up a new distributed team, it is very important about how to select the team members, this will lead to a huge difference and large affective elements to the whole virtual team. According to Hvatum (2020), when forming a new distributed team, we can selected depend on the level of distribution (time zone, diversity, number of remote members) one needs to consider not only skills but also personalities. If we have a choice between a slack evangelist and avid blogger and someone who prefers to stay in a separate office with the door closed, we will probably have a more engaged team member in the first.

On the other hand, as technical skills are important also, there are personal traits that also should be considered, such as: openness to change, curiosity about other cultures, people who like to travel, oral communication skills. These traits are not something we can test for directly, but a good interview designed to understand the personality of the candidate should at least indicate if we are hiring a person who fits in our team. Over time, the members on a distributed team may not be a result of deliberate selection from the organization, but rather a form of natural selection as team members who are not comfortable with the way of working chose to leave the team (Hvatum, 2020).

Pattern 02 - Early bonding

To build a new distributed team means that we are going to connect a group of people probably working and living in different areas and do not know each other before. Therefore they need to build trust and good communication. Emphasizing on building the team from the start of the project will help us to create a well-functioning team sooner than later. If at all possible, the team should spend some time face-to-face, including incentive meetings and social events (Ibid.).

Pattern 03 - Staying informed

According to Hvatum (2020), good communication is important for any development team, to ensure the team has clarity on anything from the product being developed, design decisions and work distribution. Without communication there will be mistakes, misunderstanding and misconceptions that over time will negatively affect the product as well as the team performance. Team members, if living or working in the same area, may engage face-to-face many times per day, but for the team members who live in different areas, it might be a challenge due to the fact that they be distributed over time zones with little overlap in regular work time. The team can counter this by devising a number of ways to support frequent and spontaneous communication.

We can scheduled some regular meetings per day, or per week, to ensure that all of the team members can be involved and release some notes, agenda or meeting minutes to make sure certain topics are discussed, still leaving time for free discussions and general socializing. Timing must be respectful of people's personal time and should distribute the "inconvenience" factor evenly among the team. They should be set within the established common time as part of the flexible work time concept. In distributed teams, communication is often a mix of synchronous and asynchronous as questions are being raised and people chime in when they are available (ibid.).

Pattern 04 – Be together

Virtual teams have generally proven to be viable and can successfully deliver products of high value and high quality. But there is no hiding that this way of working through different areas and time zones are challenging, small misconceptions and miscommunications, can lead to design mistakes and product imperfections. If at all possible, it is a good idea to bring the team physically together to build personal bonds, socialize, work together on-site, and brainstorm, plan, test and in general interact and discuss. This is a good opportunity to share the vision of the product under development and do joint planning especially where there are significant dependencies across locations. It is also a great opportunity to celebrate team successes (Ibid.).

Pattern 05 - Team space

Virtual teams can generate high effectivity, however, team members are required to meet time to time by face-to-face. However, meeting off site is not only more expensive, but it takes away some of the benefits. We want the “home team” to feel like good hosts and the visitors to experience the regular workdays and shared space with information radiators and personal touches (Ibid.). We also should want the local and visiting team members to mingle as much as possible and be able to do daily work together borrowing office space elsewhere in the organization cannot support this.

According to Hvatum (2020), when selecting and configuring these digital tools we again want to pay attention to our needs and goals for collaboration, making it easy for team members to interact and to find information even when their remote colleagues who produced it are asleep. In tools like Slack, team communication (including history) is accessible to the whole team which is great for joining an ongoing discussion and being able to get up to speed quickly. Other tools that support this mind-set if used appropriately are requirements/issue tracking tools like JIRA, where the discussion around an item stays with the item and is persisted.

Pattern 06 - Mentor

There is much to learn from colleagues who have been part of distributed teams already, from practical topics like setting up the team space and the common development environment, to helping on team practices and interaction. The mentoring may happen on several levels. It may be that a new member is joining a distributed team and you assign an experienced team member as a personal mentor (Hvatum, 2020).

Pattern 07 - Remote connector

While a team is disturbed into different locations with a number of team members in each location, the communication between the co-located team members will normally be better than the communication flow between the locations. This may lead to problems in disseminating information that is important to the development. It may be that a new business request led to priority changes but not all locations are aware and so they keep working based on the previous plans. Maybe physical changes are not being communicated clearly to all who need to know. Sometimes we may not know who needs to know in other locations because we do not have the full view of what they are working on. This is of course more challenging on large programs than for small project teams. Although there are practices on the personal and team level, operating and organization with distributed teams require commitment and planning from all levels in the organization. Organizational practices around HR, finance and others need to be designed (or re-designed) to support the projects, and virtual teams need appropriate tooling and resources for their way of working (Ibid.).

To make a final consideration, according to Hvatum (2020), we can summarize the seven patterns of the distributed team as the following. When setting up a new distributed team, we usually select members depending on the level of distribution such as time zone, diversity, number of remote members, we need to consider not only skills but also personalities. We should also build the team from the start of the project because it will help us to create a well-functioning team sooner than later. Distributed team should have good communications with each of the members, if at all possible, it is a good idea to bring the team physically together to

build personal bonds, socialize, work together on-site, and brainstorm, plan, test and in general interact and discuss. The team can arrange some time for the members to visit other team members. Meeting off site is not only more expensive, but it takes away some benefits. Colleagues who have been part of distributed teams can help to setting up the team space, the common development environment, help on team practices and interaction. In a context where a team is distributed on a set of office locations with a number of team members in each location the communication between the co-located team members will normally be better than the communication flow between the locations. Although there are practices on the personal and team level, operating and organization with distributed teams require commitment and planning from all levels in the organization.

CHAPTER II – Key Concepts, Theories and Studies

According to Duarte et al. (1999, p.228), virtual teams operate “(...) without the physical limitations of distance, time, and organizational boundaries. They use electronic collaboration technologies and other techniques to lower travel and facility costs, reduce project schedules, and improve decision-making time and communication.”. As virtual teams become more and more important in organizations, understanding how to improve virtual team outcomes is vital to the project success (Guo, D’Ambra, Turner & Zhang, 2006).

Prior studies have also explored the relationships between the performance of virtual teams and various contributory factors. For example, Driskell & Radtke (2003) studied the relationships between constructs (cohesiveness, status processes, counter-normative behaviour and communication) and performance of CMC based teams. Similar studies such as Ancona et al. (1992) explored the relationships between diversity and performance such as Anderson et al. (2002) who found that net centricity contributes to the performance of virtual teams.

A rather technical explanation is given by Tubbs et al. (2003) defending that face-to-face communication is a multichannel experience. Simultaneously, we receive and make use of information from a number of different channels. The channels of face-to-face communication are the sensory organs, remaining the most powerful human interaction. Also, Kathleen Begley (2004), author of *Face-to-Face Communication, Making Human Connections in a Technology Driven World* agrees that as wonderful as electronic devices are, they can never fully replace the intimacy and immediacy of people conversing in the same room and it has worked for millions of years.

Besides, particularly in organizations with strong cultures, it may be quite alien to shift to this form of work and management. Further, many managers might find these types of changes threatening and may resist because they fear that this will reduce their power and impact in the organization. While the virtual teams can offer increased flexibility, responsiveness, and diversity of perspectives that differs from “normal and typical work groups,” the differences between these teams and more traditional ones is sometimes a problem (Nydegger & Nydegger, 2010).

Weisband et al. (1999) also found that in normal face-to-face groups individual liking between group members was largely based on non-rational or non-task bases of attraction, although in virtual teams' people seem to like those who contribute most to the group's performance.

At the same time, Balthazard et al. (2004) discussed the relationships between performance of virtual teams and expertise, extraversion and group interaction styles. In short, it can be seen that most researchers have focused on the dimensions of factors that affect performance. Only a limited number of studies go further and discuss how to improve the performance and satisfaction of virtual teams.

2.1. Communication overview

We all know that listening is very important to communication. Listening is not the same as simply hearing. When we listen to someone speak, we are engaged with them, and trying to understand exactly what they are trying to say. Listening is a crucial skill in the workplace. When people don't listen to each other, the entire communication process breaks down. In order to be an effective communicator, we must first learn to be a good listener. We have to think, when we work with others, How many times have we "listen", and have no idea of what he said by the time he finishes speaking? Sometimes we heard from other what they are talking, but we do not really know or understanding of that he or she are talking about. This happens because we were distracted by something, which kept us from really hearing what was said. Maybe it was someone else in the room, or perhaps it was our own thoughts that kept us from focusing.

Sometimes, no matter how well we listen, we just can't quite understand what is said. Maybe the speaker used a word that we don't know the meaning of or is talking about a topic that we don't understand. For whatever reason, the speaker finishes talking, and we still don't quite understand what was said. It's important to recognize when we don't understand what was said and then ask the speaker to explain what she meant. When listening to people speak, we should let them finish talking before responding to what they have said. It is impolite to interrupt someone or talk before the person is finished talking. It is also distracting and could cause them

to forget what they were going to say. If we think of something we want to say while a person is talking, we must save our question or comment until they are done. If we are in a meeting or lecture where the speaker will be talking for a long time, it is a good idea to write down our comment or question and save it for the end.

There are two parts to obtain in the communicative process, that is verbal-communication and non-verbal communication. Verbal communication is sharing information with the use of speech or language. More simply stated, verbal communication is talking and listening. It's always important to put thought into the words that we say, but it's especially important in the workplace. The words we use should be appropriate by anyone's standards. If we ever find ourselves wondering whether or not a word is appropriate for the workplace, it's probably best not to use it. We should practice using words that show our intelligence and professionalism. We must learn and understand the buzz words, or words that are important in our industry.

Although verbal communication is important, spoken words make up only a small part of communication. The majority of communication is nonverbal. In fact, some research has shown that up to 93% of communication is nonverbal! The amount of communication that is nonverbal shows why it is so important to pay close attention to people's actions as well as their words.

So how and why do people communicate non-verbally? Nonverbal communication is made up primarily of facial expressions and body language. This must be obtain through face-to-face meeting. Mastering nonverbal communication will enable us to be a better communicator as we get a better understanding of the nonverbal cues, we and the people we communicate with are sending.

So, what are nonverbal cues and how can you identify them? Here is a list of common nonverbal cues that can tell us a lot about what a person is saying, namely: eye contact; pace or speed of speech; crossed arms or legs; posture, or body position and facial expressions.

In this sense, it could be said that feelings play a big role in communication. Emotional awareness, or the ability to understand feelings, will help us succeed when communicating with other people. If we are emotionally aware, we will communicate better. We will notice the emotions of other people, and how the way they are feeling influences the way they communicate. We will also better understand what others are communicating to us and why.

Sometimes, understanding how a person is communicating with us is more important than what is actually being said.

According to Duarte et al. (1999, p.228), for a good communication we should also consider the following factors: i) Consider other people's feelings; ii) Consider your own feelings; iii) Have empathy; iv) Operate on trust; v) Recognize misunderstandings.

It is important to consider other people's feelings. Have we ever finished a conversation with someone and found yourself wondering, "Why did she tell me that?" or, "I wonder why he talked to me like that?" It is also important for us to consider our own feelings because, just as other people's feelings can affect the message they're trying to send, your own feelings can get in the way of your communication as well. When we feel a strong emotion or feeling, we should pay attention to that emotion and try not to let it get in the way of your message. Both positive emotions, like happiness, and negative emotions, like anger, can get in the way of communication. We should also try to create empathy, the ability to understand and relate to the feelings of someone else. Once we have learned to recognize another person's feelings, we can go one step further and actually relate to those feelings. Good communication also requires building trust between us and the person with whom we are communicating. We can earn the trust of others by sending nonverbal cues that match your words. Recognize misunderstandings it's also very important. A misunderstanding happens when two people think they are on the same page about something, but in reality, they are thinking two different things. Misunderstandings happen all the time, but emotional awareness can help you to avoid misunderstandings. Misunderstandings are often caused by confusing emotions (Duarte et al., 1999).

Writing is another form of communication, and it's one that we use often in the workplace. Just like verbal and nonverbal communication, written communication has its own set of rules. Whether we are writing a simple email or an important report, we should try to write professionally by using proper grammar and punctuation.

2.2. The ability to communicate

The ability to communicate is essential to leadership and vital to any organization. It is a skill that can be acquired, cultivated, and improved upon (Turnbull, 2014). Since we are studying the communication effectiveness of virtual meeting, and meeting is such a form of communications, first we have to know how to identify an effective communication.

The root of the word “communication” in Latin is *communicare*, which means to share, or to make common. (Weekley, 1967). Communication is the process or act of transmitting a message from a sender to a receiver, through a channel, and obtain feedback from the receiver to the sender. It is a whole process but not only unilateral communication, but bilateral communication. The message is a “signal or combination of signals that serves as a stimulus for a receiver” (DeVito, 1986, p.201)

But why we have to have meetings but not only emails and messages? Richard (2004) point out that if a message contains just the written word (such as a text or email), the sender needs to be confident in its clarity, that it cannot be misinterpreted. Emails can often come off cold or clipped without that being the intention of the sender, for example, yet it's not considered professional to have emoticons in formal communication to help convey the proper meaning and context.

To break it down, in any communication there is a sender and a receiver, a message, and interpretations of meaning on both ends. The receiver gives feedback to the sender of the message, both during the message's conveyance and afterward. Feedback signals can be verbal or nonverbal, such as nodding in agreement or looking away and sighing or other myriad gestures. There's also the context of the message, the environment it's given in, and potential for interference during its sending or receipt. If the receiver can see the sender, he or she can obtain not only the message's contents but also nonverbal communication that the sender is giving off, from confidence to nervousness, professionalism to flippancy. If the receiver can hear the sender, he or she can also pick cues from the sender's tone of voice, such as emphasis and emotion (Richard, 2004).

Wang et al. (2004) pointed out that today's global economy requires business teams to carry out their projects in a distributed environment. According to Duarte & Snyder (1999, p.288), virtual teams operate "...without the physical limitations of distance, time, and organizational boundaries". However, research has shown that in-person persuasiveness is thirty-four times as effective as compared with other forms. The objective of a face-to-face event is to facilitate interactions so that attendees can have a favourable business outcome, and many companies rely on these engagements as a channel to achieve that outcome. The lesson is that a face-to-face event cannot be replicated virtually without compensating for the inevitable reduction of the human element of interactivity that usually comes with such events (Finn, 2020).

Antonello et al. (2020) have proved that virtual groups can, indeed, help reduce the experience of social isolation, thereby bringing a sense of empathy and comfort to individuals, especially for vulnerable individuals in COVID-19 times.

By the following type Allwood (1993) defines communication in a way that may cover any of its uses. Communication thus is the transmission of content X from a sender Y to a recipient Z using an expression W and a medium Q in an environment E with a purpose/function F. (Allwood 1983). Berko (et al., 2007) define face-to-face communication as a form of interpersonal communication (being part of human communication) that takes place between two or more persons who establish a communicative relationship. NED Programme (2020) found out that some of the techniques used to overcome these non-technical challenges experienced during virtual meetings include the Chairperson communicating rules of engagement at the beginning of each meeting, use of the chat box functionality to raise questions or comments, utilisation of the "hand raise" functionality and going around the virtual room requesting comments in a sequential manner.

Communication is a two-way street. This means that both the person communicating, and the person being communicated to have to participate. Communication happens when information is shared between two people. Since communication is a two-way street, successful communication relies just as much on the person receiving the message as it does on the person sending the message.

Therefore, comparative research studies should allow virtual team's sufficient time to develop the same level of relational links as face-to-face groups. Further, much of the research that has

investigated relational links in virtual teams has used synchronous systems such as computer conferencing and group support systems with “collocated groups” (Chidambaram, 1996).

In a synchronous meeting, the effect of an inefficient communication medium would be felt to a greater extent than in an asynchronous meeting. Time pressures present in synchronous meetings are not necessarily present in asynchronous meetings. A participant in an asynchronous meeting has more time to consider his or her message, decide what to say, take the time necessary to convey his or her thoughts, and edit the message as much as necessary to achieve clarity. The receiver of the message can read it at his or her leisure and consider it carefully before responding. This allows more time to include social-emotional information in the message in addition to the information required to accomplish the task. However, due to the leanness of the medium and the limited modes of communication, it should still be more difficult to form strong relational links in groups using asynchronous CMCS than for face-to-face groups.

2.3. Meetings effectiveness

Rubinger et al. (2020) defined meetings into four phases of the meeting cycle: i) Pre-planning considerations; ii) Planning; iii) Accomplishing conference goals through execution; iv) Gauging response and engaging the target audience for future cycles. This covers actions and preparation for registration, scheduling, speakers, attendees, event type, technology, monetization/marketing, dealing with disruptions, post-event deliverables, response and engagement strategies. Travel, lodging, parking, and leasing/owning building space are expenses that can be eliminated or minimized (Gould, 2006).

Another interesting observation on virtual teams comes from the work of Dubé and Robey (2008) who point out that virtual teams are filled with paradoxes that must be recognized and dealt with if teams are to be effective. To do this the right way will depend on getting the right people on board, spending money on the appropriate hardware and software, attracting and training the right people, and designing a management structure and reward system that will guide the work and recognize and reward the contributors. Gould (2006) points out that the most common complaint made by members of virtual teams is communication — not enough, distortions, unclear messages, etc. He recommends that at least the first meeting of the team be

face-to-face and suggests that occasional face-to-face meetings will improve communication and reduce some of the problems that result from the challenges of trying to communicate using the new CMC technology.

It may seem like an obvious requirement, but a lot of meetings start with no clear sense of purpose. The meeting's agenda can be summarized on a handout, written on a whiteboard or discussed explicitly at the outset, but everyone should know why they've gathered and what they're supposed to be accomplishing. The agenda provides a compass for the conversation, so the meeting can get back on track if the discussion wanders off course. (Bryant, 2014)

Nothing can drain the energy from a room quite like waiting for the person in charge to show up. Why do so many in positions of power fall into the bad habit of being late for meetings? Is it just that they're so busy? Or is there a small thrill in keeping everyone waiting for them, a reminder that their time is somehow more valuable than everyone else's? (Bryant, 2014)

Time is money, of course, and all that sitting around and trying to guess when the boss may arrive is a waste of a precious resource. When establishing the informal rules of an organization, employees take their cues from the person in the corner office. If that person wants meetings to start on time, meetings will start on time. A New York Times article on running effective meetings shared, Terry Lundgren, the chairman of Macy's, has never hesitated to enforce a strict policy of on-time meetings. "If the meeting is at 8, you're not here at 8:01, you're here at 8, because the meeting's going to start at 8," he said. "Busy people that can't get off the last phone call to get there, [need to] discipline themselves to be there on time." (Ibid.)

Leave the last few minutes of every meeting to discuss the next steps. This discussion should include deciding who is responsible for what, and what the deadlines are. Otherwise, all the time you spent on the meeting will be for naught. (Ibid.)

Shellye Archambeau, chief executive of Metric Stream, a firm that helps companies meet compliance standards, likes to end her meetings by asking, "Who's got the ball?" (Monippally, 2016) If we are running a meeting, we must be crystal clear on the agenda and on what we want to accomplish, but then it's time to be quiet and let others speak. If we share our thoughts first, we're likely going to look around a table of nodding heads, with people saying they completely agree with our instincts. There are three common dynamics in a large meeting: i) Few people like to showboat and dominate the conversation, while others hang back; ii) Some

people volunteer ideas, while others only offer criticism; iii) People are reluctant to offer opinions that go beyond their area of expertise or their rank within an organization. Any one of these scenarios can lead to people censoring themselves, which leads to a lost opportunity to get the best ideas and make the smartest decisions (Ibid.).

One study (Weisband & Atwater, 1999) found that in normal face-to-face groups individual liking among group members was largely based on non-rational or non-task bases of attraction, in virtual team's people seem to like those who contribute the most. for group performance. There is no doubt that for virtual teams to be effective, they must feel a sense of cohesion and connection.

2.4. Virtual meetings software support

There is several software used in virtual meetings. The choice of each of them depends on how organizations intend to adapt to the needs of their employees. Thus, we will briefly describe some of this software in order to contextualize the reader about the current solutions available on the market.

The first application that we will cover will be Zoom, as it is preferred by most organizations. Zoom Meetings offers a video conferencing and messaging solution for desktop and mobile devices that aims to be very quick and easy to set up and offer a wide range of scalable features. It is comparably easier to use for the general public and free of charge. Not only does it provide HD video and audio, but it can support up to 1,000 participants at the same time, and up to 49 videos on a single screen, though such large gatherings are probably best suited to big-screen monitors. It is suitable for some big conferences with a number of participants.

Another widely used application is GoTo Meeting. It is so convenient to use as it is a mobile-friendly video conference software. GoToMeeting is the standalone web conferencing service provided by LogMeIn. As expected, it provides audio and video conferencing, as well as screen sharing. One of the features that sets GoToMeetings apart is its mobile friendliness - we can set up and start a conference from our smartphone, something some big brand software would struggle to do. There are also settings to maximise call and image quality, as well as one-tap invites to join meetings as well as chats.

Google Meet is another application used in virtual meetings, formerly Google Hangouts Meet, is part of the Google Workspace office productivity platform (formerly known as G Suite). Having enjoyed a recent rebrand, Google Meet aims to provide a first-class conferencing service. It is developed specifically for business and academic needs, it can cater for a large number of users at once, and also uses smart participation and a fast interface to reduce the need to wait. As well as having dedicated apps available for mobile users in the Apple App Store and Google Play store for Android, Google Meet can also work with existing conferencing hardware. Many universities and schools are using this software to keep track on with the lecturers and the students in the COVID-19 pandemic outbreak.

Skype is also widely used as it is one of the pioneering applications in computer-mediated communication. Skype is very much a household name, which will serve as a strong draw from many people. While Microsoft's video chat tool is often thought of as being little more than a way of keeping in touch with friends and family, the cross-platform app also supports group video calling for up to 50 people. This software cannot support large number of participants at the same time, so it is not suitable for big conferences. There is a screen sharing option, and to make it easier to focus on who you are speaking to, there is the ability to automatically blur backgrounds. Other handy features include live subtitling of conversations, and the ability to record chats. This is commonly used among families and friends.

One of the most used applications is undoubtedly WhatsApp/WeChat video call. Mobile APP WeChat and WhatsApp also obtain video call. WhatsApp video call allows up to 8 users on the same time. WeChat video call allows up to 9 users on the video call. However, they cannot record the video call and cannot share the monitor as well. So, this two software are more recommend for in home use chatting with families and friends. This is only used to transfer files among business partners and colleagues but not video conferences.

Since there are particular restriction in China Mainland, not all the commercial meeting systems mentioned above can be used in Mainland China. One of most of the famous video conferencing software in Mainland is Tencent Meeting / VooV Meeting. According to the official website of Tencent, the company mentions that Tencent Meeting provides an easy-to-use, smooth, secure and reliable cloud-based high-definition video conferencing solution that enables customers and users to host or join meetings anytime, anywhere. During the

coronavirus outbreak, Tencent Meeting is providing free services and connecting users all over mainland China.

Its international version, VooV Meeting, has been launched in more than 100 countries and regions around the world in March 2021. Tencent Meeting is currently widely used in business, municipal services, finance, education, healthcare and other industries, and is available for online document signing, business solicitation, recruitment, online learning and training, and much more.

Finally, the CISCO Webex Meetings is one of the easy-to-use and secure App to call, message, meet and get work done. Host video conferences with HD video, audio and screen sharing. This software allows up to 50 users on the meeting at the same time for maximum 40 minutes. The host user of the meeting can share the screen, file, video, calendar with the conference attendees. The software is free of charge and you can start virtual meeting with the people all over the world, it is user friendly internationally.

Part II

EMPIRICAL RESEARCH

CHAPTER III - Research conceptualization

Research is always based on reliable data and on the methods used to capture this data. Scientific methods facilitate this process to obtain quality output in research. The formulation of research problem is the first step to begin with an investigation. At this stage, the researcher should have a clear understanding of the words and terms used in the investigation avoiding conflicts-regarding with interpretation and measurements (Sequeira, 2014).

3.1. Methodology

Scientific knowledge has at its origin on verification procedures based on scientific methodologies, applied according to each area under study. For the definition of these methodologies, data collection and analysis instruments are needed, which in turn are defined through the method, the path that allows us to achieve our goals.

It is a learning process, where during its journey we apply and adapt our data analysis and collection instruments, through a methodology duly constructed in accordance with the reality that we intend to investigate.

The methodology we defined for our investigation can then be understood as a map, where the roads represent the instruments that we decide to choose to achieve our objective. It is the way in which we conduct our research, consisting of a set of rules and essential instruments to bring us closer to the truth - it is the detailed and rigorous explanation of every action developed in the research work. It consists of a process of choosing the strategies that we will apply to our investigation and that will be conditioned through the techniques and instruments of data collection and analysis that are previously defined. It is a set of steps/procedures necessary to obtain valid (scientific) knowledge through reliable instruments.

The choice of methodology depends on the type of research that is intended to be carried out, which can be qualitative or quantitative. In quantitative research, the objective is to present data indicating probable trends observable through the use of the experimental method. Qualitative research, on the other hand, emerges as an alternative to the positivist paradigm of which quantitative research is a part and aims to study the subjectivity inherent to the

phenomenon to be studied. It focuses on understanding the problems, analysing the behaviours, attitudes or values of a given social phenomenon. There is no concern with the size of the sample or with the generalization of the results. This type of research is inductive and descriptive insofar as the researcher develops concepts and ideas from patterns found in the collected data, leading to the researcher's sensitivity being a determining factor for the success of the investigation, namely with regard to the collection of data. In qualitative research, interpretive and non-experimental procedures are used, being, therefore, a descriptive analysis based on data collected through documents, interviews and observation.

Therefore, regarding to the choice of methodology for this investigation, we decided to opt for the application of both a quantitative and qualitative methodology. The quantitative analysis was essentially focused on conducting questionnaires, a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent.

We can enumerate some advantages of a questionnaire survey, namely: greater systematization of results, ease of analysis, low cost and the ability to reach a large number of individuals. Disadvantages are sometimes linked to factors such as: difficulty in conception, possibility of a high rate of non-response, difficulty in understanding and unclear or incomplete answers. To avoid some of these errors, we applied a pre-test of the questionnaire in order to verify if it is really applicable, if all respondents understand the content of the questions, if the list of all options of the closed answers considers all the existing options and whether there is a high degree of acceptance of the questions asked.

On the other hand, the qualitative analysis will focus on semi-structured questions by face-to-face interview. Semi-structured interviews have a script, with a set of topics or questions to be addressed in the interview. Although they can give some freedom to the interviewee, this type of interview does not allow one to stray too far from the topic.

Thus, starting from an inductive perspective, that is, from particular to general, our methodology was divided into four phases: i) Definition of the problem; ii) Literature review; iii) Data collection and processing; iv) Discussion of results and final considerations.

Defining the problem was therefore the first step in our investigation. At this stage, we were carrying out an exploratory work that allowed us to reformulate starting questions, thus trying to understand the problematic of the study, at the same time as we tried to understand the

existing connections between the vectors of analysis corresponding to the domains that constituted them.

The literature review was the second stage of our investigation. At this stage it was necessary to review the specific literature on the new paradigm of distance business communication in order to better understand this reality and the human and technical phenomena underlying it. The third stage consisted of conducting questionnaires in order to obtain the data that allowed us to proceed to the fourth stage - data processing and analysis, so that we could refute or validate our initial hypotheses. Finally, the fifth stage corresponded to the discussion of results and final conclusions of the study.

3.2. Sample characterization

One of the elements of extreme importance in any scientific study is the definition of the population or sample. Although the study of the population implies a greater precision of the results, the analysis of a sample also allows to obtain the same information with a certain margin of error considerably small. For this, the sample must present characteristics identical to the population, it must be representative of the universe that is intended to be studied.

The choice of the respondents was based on primary selection i.e., the individuals were gathered consciously in the sample but did not have to cover a certain feature distribution.

The questionnaire and the interview were applied to working groups in Macau who have been working in the field of events for more than five years and who regularly travel to different parts of the world to participate in international conferences, either as participants or as organizers.

The target group of respondents also should have experienced on virtual conferences before. The chosen respondents' age should be above 18 and below 45 years, either male or female is acceptable, moreover, the respondents' job industry should be related to business, events, public relations and decision making.

From the 200 responds that we have received, 72.7% were female and 27.3% male. 54.5% of the respondents are within 31 to 45 years old and work for more than 5 years in the event management area. Half of the respondents have a master's degree or above educational level, and 63.6% of the respondents are working in the convention and exhibition industry. Our sample is therefore a non-probabilistic sample, a convenience sample.

3.3. Hypothesis

As to answer the question of whether virtual teams can perform as effectively communication as face-to-face teams, we formulate our hypotheses to compare virtual and face-to-face teams. Dependent variables include team cohesion, communication satisfaction, team decision-process satisfaction, decision satisfaction, and decision quality.

H1: Face-to-face teams deliver stronger interpersonal communication than virtual (CMCS) teams.

A question that has been raised by some researchers relates to whether the limitations of computer-mediated communication systems prevent groups from developing relational links as strong as face-to-face groups or whether the limitations simply increase the time it takes for these relational links to develop (Chidambaram, 1996; Burke & Chidambaram, 1995; Chidambaram & Bostrom, 1993). These researchers argued that, with time, CMCS groups would overcome the limitations of the media and achieve the same level of relational links and, therefore, the same level of performance as face-to-face groups.

H2: Face-to-face teams exhibit higher performance results, as indicated by information exchange effectiveness, than virtual (CMCS) teams.

Stronger relational links in groups have been associated with higher performance. The task used in this study is one that requires the groups to exchange information effectively. Previous studies have shown that both face-to-face groups and groups using synchronous CMCS exchange information poorly (Hightower & Sayeed, 1995, 1996; Stasser & Titus, 1985, 1987). Asynchronous CMCS provide a distinct advantage for this type of task over both synchronous CMCS and face-to-face communication. Group members can take the time necessary to

compose clear and complete messages. As a result, time pressures or information load should not affect the group's performance. Information exchange is also affected strongly by the group's internal dynamics or relational links. Two factors that affect information exchange are opportunity and motivation to contribute information (Hightower & Sayeed, 1996). Opportunity is affected in part by the effects of social status; group members of lower social status often don't have the same opportunities to contribute as higher status members. Motivation is affected by the willingness of group members to contribute information that may contradict their own opinions or those of other group members. Motivation is also affected by whether the group member feels he has a stake in the group's outcome. Despite the advantages that asynchronous CMCS offer for exchanging information, stronger relational links will allow face-to-face groups to exchange information more effectively.

3.4. Structured questionnaire survey

A structured questionnaire is a document that consists of a set of standardized questions with a fixed scheme, which specifies the exact wording and order of the questions, for gathering information from respondents. A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents. Questionnaires can be thought of as a kind of written interview. They can be carried out face to face, by telephone, computer or mail.

Questionnaires provide a relatively cheap, quick and efficient way of obtaining large amounts of information from a large sample of people. Data can be collected relatively quickly because the researcher would not need to be present when the questionnaires were completed. This is useful for large populations when interviews would be impractical.

As a measurement instrument, we chose the Likert scale, one of the best-known psychometric scales used in quantitative research, namely in research of opinion, allowing the respondent to specify their level of agreement with a given statement. Thus, we use a scale of intervals from 1 to 5, where 1 was equivalent to «totally disagree» and 5 to «strongly agree».

For this study we conduct a structured questionnaire on the platform Google Form and send it out through the WeChat, email and other electronic communication software for the target audience to fill in. We have received over 200 responses.

3.5. Semi-structured interview survey

A semi-structured interview is a type of interview in which the interviewer asks only a few predetermined questions while the rest of the questions are not planned in advance. Since semi-structured interviews combine both the structured and unstructured interview styles, they can offer the advantages of both. The main advantage of an unstructured interview is its personalised approach. This is especially useful for technology roles where the experience of candidates can vary dramatically. Additionally, since unstructured interviews allow for a free-flowing conversation, they feel more casual, which puts the candidates at ease, resulting in a more natural and honest interview.

Therefore, we interviewed ten respondents who are required to meet or communicate with their colleagues or clients or working partners in other countries or areas all over the world. The followings are the details of the interviewees:

Table 2. Respondents profile

	Name	Age	Job Industry	Education Level
1	Rachel Chan	31	Event Industry	Master
2	Ines Wong	31	Designer	Bachelor
3	Annabella Sin	32	Event Industry	Bachelor
4	Steve Chan	38	Event Industry	Bachelor
5	Kevin Fong	42	Event Industry	Bachelor
6	Theo Lei	29	Police Department	Secondary
7	Fion Cheong	29	Police Department	Bachelor
8	Reginald Wong	32	Government	Bachelor
9	Grace Kan	32	Entrepreneur	Bachelor
10	Chris Cheung	34	Government	Bachelor

For the semi-structured interview, we have drafted some questions and ask the respondents where we try to understand how often they use virtual meetings; if the use of virtual meetings increased during the COVID-19 pandemic; the main advantages and disadvantages of virtual meetings; the software mostly used and the effectiveness of virtual meetings.

3.6. Obstacles and difficulties

All scientific studies, no matter how simple they seem, always present us with difficulties and obstacles. Regarding to the questionnaire, as we have set the target group of respondents, we have to briefing ask their background before they can fill in the questionnaire, this step spent a lot of time and limit the number of respondents received. And for the interviews, we have some difficult to find persons working in the related job industry who use the virtual meetings and reserve their time for interview. There are many work parties use virtual meeting but less of them using the formal meeting schedule.

CHAPTER IV - Analysis and results discussion

This research proposal is important for the development of the events industry especially in the organization of regular international virtual conferences.

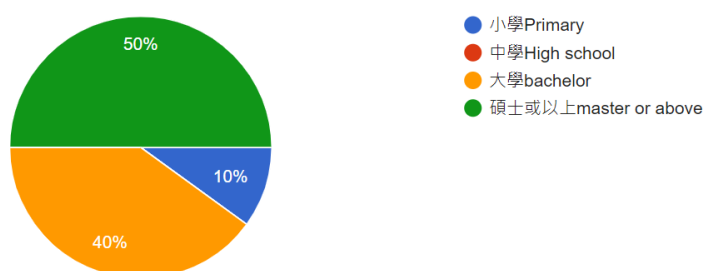
We hope that the result of this research will allow decision-makers to apply strategies that can improve the effectiveness of communication in virtual meetings in Macau.

4.1. Results of the questionnaire survey

Making a descriptive statistical analysis of the results of our questionnaire we can say that most of the respondents were female (72.7%). Regarding to age, most individuals are in the age group between 31 and 45 years old (54.5%), followed by the age group between 18 and 30 years old (36.4%).

Concerning to academic qualifications, most of our respondents have higher qualifications between the bachelor (50%) and master's or higher (40%)

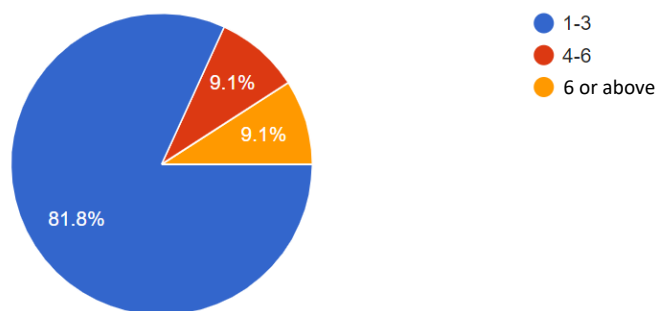
Graphic 1. Academic qualifications



Most of the respondents are working in the convention and exhibition industry (63.6%) while the rest are distributed in Government, Insurance and Education Industry.

Regarding question 5 (During the virtual meeting, the respondents are always the chairman), data did not reveal information that would allow us to draw any kind of conclusion. With regard to the use of virtual meetings, the data reveal that most respondents (81.8%) have between one to three virtual meetings per month.

Graphic 2. Virtual meetings per month



The data also seem to indicate that most respondents (72.7%) believe that the increase of virtual meetings was mainly due to the COVID-19 pandemic.

On the other hand, around 90% of respondents believe that virtual meetings are a way to save time and money and most of the respondents (72.7%) strongly agree that virtual meetings are not limited by time zone and geographical issues.

The study also shows that most respondents (82%) agree that virtual meetings are comparatively easier to call and represent a form of promotion and discussion of ideas (64%). It should also be noted that almost half of respondents (45%) agree all the attendees in the virtual meetings know the agenda and the topic of the meeting.

Regarding question 13 (You agree attendees will speak out during virtual meeting) and question 14 (You agree attendees will use another software to discuss during virtual meeting) data does not allow us to make any kind of analysis. However, it should be noted that 73% of respondents agree that virtual meetings can achieve the expected result.

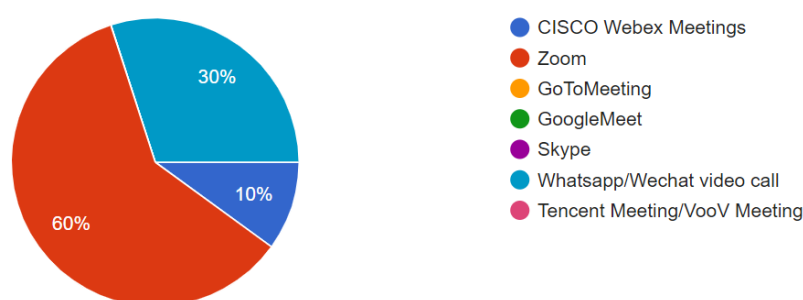
With regard to the ability of virtual meetings to bring individuals closer together, data seem to indicate (55%) that this could be a strategy to be adopted in the near future.

According to the ability of virtual meetings to allow individuals to get to know each other more and strengthen their bonds of friendship, data reveal that although 55% disagreed, 28% did not express any opinion, revealing a disagreement with its capacity.

Data also seem to indicate that most respondents (55%) do not agree with the replacement of face-to-face meetings by virtual meetings, with 18% having no opinion and 28% agreeing with this change.

Regarding the software used to carry out virtual meetings, data clearly reveal that the Zoom platform is the most chosen.

Graphic 3. Virtual meetings software



Data also reveal that the majority of respondents (82%) have computers that allow them to access virtual meetings without difficulty.

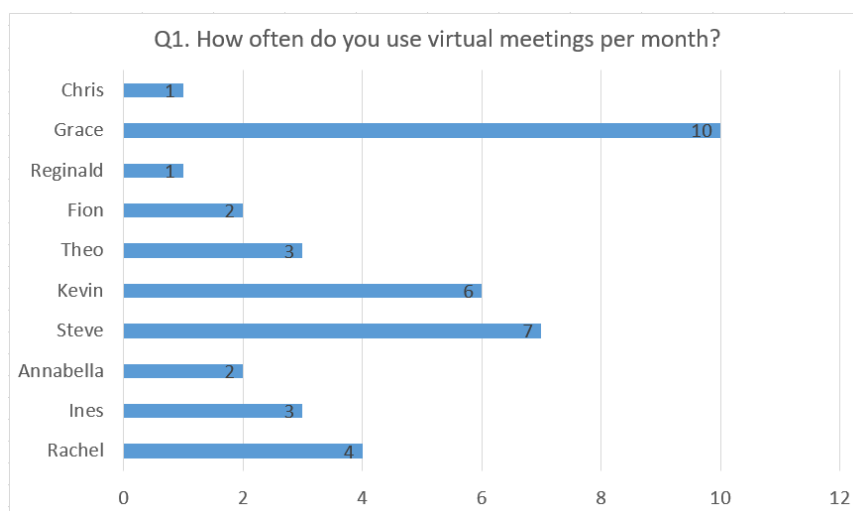
Most of the respondents think the smoothness, sharpness of picture and the cost of the software will strongly affect their choice when they are choosing the software for virtual meeting. In relation to the possibility of recording the meetings, the possibility of sharing the screen with the participants and the ability to access via mobile phone, does not represent an added value for the respondents. On the other hand, most of the respondents agree (73%) that it is a must to reach visual and audio of all attendees during virtual meetings. In relation to the preparation of

a traditional meeting in relation to a virtual meeting, the data does not seem to reveal any kind of opinion that allows us to point out which of the two requires more preparation. It should also be noted that data does not reveal any preference among respondents between traditional and virtual meetings.

4.2. Results of the interview survey

Regarding to the results of our interviews, the respondents were 50% female and 50% male. According to age, most individuals are over 30 years old (80%). Concerning to academic qualifications, most of our interviewees have higher qualifications (80%).

Graphic 4. Virtual meetings usage



Data shows that most of the interviewees have around 2 to 4 virtual meetings per month (50%), whereas we can estimate that people working in the Government needs less virtual meetings, and people working in event related industry and having their own business need it more.

Most of the interviewees are not the chairman during the virtual meeting (80%) and all of them agree that they have more virtual meetings because of the effect of COVID-19. All the respondents also declare that they have more virtual meetings because of the effect of COVID-19.

As we can see in Table 3., regarding the advantages of virtual meetings, respondents agree that they are easier to convene and that they have a low cost and high efficiency. They also emphasize the fact that virtual meetings avoid the risk of infection with covid-19 and other infectious diseases while promoting better communications and clearer explanations than those allowed by phone calls.

Regarding the downsides, the data seems to show that the weak network causes misunderstandings. Another disadvantage is the possibility of meetings with different time zones, which can lead to less interaction between participants. On the other hand, the communication difficulty becomes greater in meetings with a high number of participants, as it is more difficult for all participants to participate actively.

Table 3. Advantages and disadvantages of virtual meetings

PROS	Call up meeting anytime and anywhere. Low cost and high efficiency. Everyone can be involved and do not limit by the place. Avoid the infection risk covid-19 or other infectious diseases. Can have better communications and clearer explanation than phone calls.
CONS	Weak network cause misunderstanding. Different time zone. Less interaction between participants. Hard to communicate for mass group meeting. More difficult for all participants to take an active role when a virtual meeting, especially if the group is large.

On the other hand, the responses show that all respondents (100%) communicate by text with their colleagues during virtual meetings, and that all respondents (100%) agree that virtual meetings can be a way of replacing face-to-face meetings.

Regarding to the interview question 6 “Do you agree that virtual meetings can have better results than face-to-face meetings? Why? Why not?”, the results seem to show that respondents

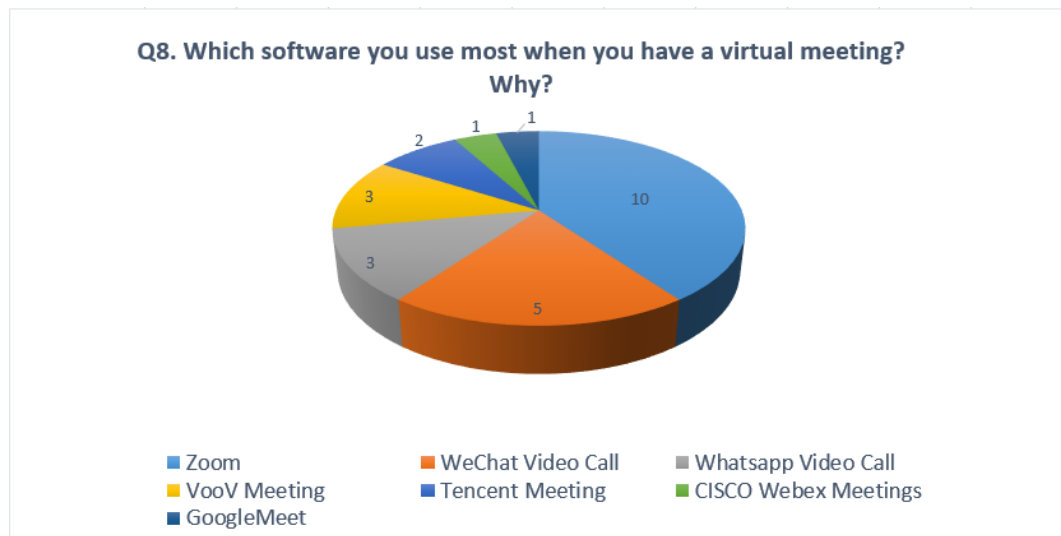
agree that virtual meetings are more effective, allowing better communication between clients and colleagues in relation to telephone calls. However, some of the interviewees feel that there is less personal interaction and cannot feel the real feelings of the participants, leading to the interactions between the participants being more difficult.

Table 4. Virtual meetings and face-to-face meetings performance

AGREE (40%)	Less time and cost consuming. Virtual meetings are more effective. Better communications between clients and colleagues than phone calls. Immediate answer and fast decision making through the virtual meeting.
DISAGREE (60%)	Less personal interaction and cannot feel the real feeling of the participants. Interactions between participants are difficult, we do not know if all of the participants having the same opinion.

Regarding to the interview question 7 “Do you agree that virtual meetings can replace face-to-face meetings?” All the respondents disagree that virtual meetings can replace face-to-face meetings.

Graphic 5. Software use during virtual meeting



Regarding to the interview question 8 “Which software you use most when you have a virtual meeting? Why?” As we can see in graphic 5, most of the respondents use the software ZOOM in virtual meetings. The data also seems to show that most of the interviewees disagree that virtual meetings can deliver strong interpersonal communication than face-to-face meetings, because there is no personal interaction between participants and participants cannot deliver strong interpersonal communication with their colleagues or clients (60%).

Regarding to the interview question 9 “Which areas do you think will affect more the performance of virtual meetings?” The respondents think that virtual meetings can be most affected by the weak network connection.

Regarding to the interview question Q10 “You prefer face-to-face meetings or virtual meetings? Why?” The respondents think that virtual meetings are more relaxing, faster and easier to reach clients or colleagues. Are also safer under the infection risk covid-19 or other infectious diseases and spend less time and cost consumption. On the other hand, face-to-face meetings are easier to make friends and build up network by face-to-face personal interaction - 80% of the respondents prefer having virtual meetings.

Regarding to the interview question Q11 “What would you recommend to improve communication effectiveness in virtual meetings?” The respondents think mainly the smoothness and sharpness of the picture must have to improve.

The interview question Q12 “Do you agree virtual meetings can deliver strong interpersonal communication than face-to-face meetings? Why?” revealed...

Table 6. Virtual meetings can deliver strong interpersonal communication than face-to-face meetings

AGREE	Less time and cost consuming.
(40%)	Easy to call meeting can link the people get closer Immediate answer and fast decision making through the virtual meeting.
DISAGREE	Less personal interaction and cannot feel the real feeling of the participants.
(60%)	Interactions between participants are difficult, we do not know if all of the participants having the same opinion.

4.3. Hypothesis verification

According to the previous survey results, we will verify if the hypothesis can be validated or refuted.

H1: Face-to-face teams deliver stronger interpersonal communication than virtual (CMCS) teams.

The answer to part 3 of the questionnaire can verify this hypothesis. In face-to-face meetings, participants can exchange ideas and discussions, clarify the theme of the meeting, bringing people together, allowing participants to get to know each other better. However, while face-to-face meetings offer stronger interpersonal communication than virtual meetings (CMCS), the possibility for participants to be able to text each other is an added value. The response of question 12 of the interview can also verify this hypothesis. Interviewees think that in virtual meetings there is no personal interaction between participants and cannot deliver strong interpersonal communication with their colleagues or clients.

H2: Face-to-face teams will exhibit higher performance results, as indicated by information exchange effectiveness, than virtual (CMCS) teams.

The answer to part 3 of the questionnaire refutes this hypothesis. Whether they are the president or the participants, they use virtual meetings 1-3 times a month to work. They also agree that there are more virtual meetings under the influence of COVID-19 during work and that virtual meetings can save time and travel costs. As the virtual meeting is not limited by time zone and geographical issues, it is comparatively easier to convene this type of meeting.

Half of respondents and their colleagues use ZOOM software most often when they need to have a virtual meeting while working, and most agree that their computer is capable of holding/attending a virtual meeting.

Therefore, it is false that face-to-face teams will outperform, as indicated by the effectiveness of information exchange, then virtual teams (CMCS).

CONCLUSIONS

Our study seems to prove that virtual meetings are a way to save time and money and also, because they are not limited by time zones and geographical issues, they can more easily achieve the expected result.

Virtual meetings also seem to be easier to call, and represent a solid form of promotion and discussion of ideas. Data also seems to reveal that virtual meetings do not have the ability to promote individuals to get to know each other more and strengthen their bonds of friendship, leading us to conclude that virtual meetings cannot replace face-to-face meetings and that the building of trusted relationships by meeting in person is irreplaceable.

Recording to our hypothesis, data seems to show that face-to-face teams deliver stronger interpersonal communication than virtual (CMCS) team and promote higher performance results. Although virtual teams exhibit higher performance results in many different areas, they seem to still cannot replace face-to-face meetings.

Virtual meetings also seem to be accepted in replacement of face-to-face meetings as a result of COVID-19 pandemic but also because virtual meetings can save time and cost of travel since they are not limited by time zone and geographical issues as said before.

Due to the versatility of virtual meetings, data seem to reveal that these have already become a common practice in most companies, however, data also seems to show that participants continue to prefer face-to-face meetings as it strengthens social ties and allows more productive discussion. In addition, virtual meetings should promote dialogue between all of the participants and should use omni channel technics to improve their effectiveness.

The potential factors that influence communication effectiveness and satisfaction of face-to-face meetings and virtual conferences are the lack of personal interaction between participants and the fact that participants are unable to establish strong interpersonal communication with their colleagues or clients when using virtual meetings. Therefore, face-to-face meetings cannot be replaced by virtual conferences.

One of the main methods to improve the effectiveness of communication and the satisfaction of international virtual conferences has to do with the visualization of the participants, namely

the gestures of the face and body, helping to create a better experience in this type of remote meetings.

As final considerations, it is important to mention that, although face-to-face meetings are preferred over virtual meetings, the fact that virtual meetings are faster and more objective is an asset. Given the possibility of exchanging information and discussing issues through text messages during meetings, it represents an added value. Also, the fact that we have the cameras on helps to create an environment more similar to face-to-face meetings, helping to express opinions more clearly.

We also recommend future studies on this matter in a way to engage other realities and societies in order to find other issues that could contribute to a deeper knowledge of this practice.

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APPENDIX

Appendix 1 - Questionnaire

This questionnaire aims to collect data for the elaboration of the Master's thesis in Communication and Media, held at the University of Saint Joseph. This survey is anonymous and lasts approximately 7 minutes. Thank you for your collaboration.

Part 1: Sociodemographic information

Q1: Gender

- ☐ Male
- ☐ Female

Q2: Age

- ☐ 18-30
- ☐ 31-45
- ☐ 46-60
- ☐ 61 or above

Q3: Education Level

- ☐ Primary
- ☐ High school
- ☐ Bachelor
- ☐ Master or above

Q4: Job Industry

- ☐ Tourism
- ☐ Convention and Exhibition
- ☐ Food and Beverage
- ☐ Insurance
- ☐ Advertisement

Part 2: To know if the respondent reaches the expected performance by using virtual meeting

Q5: During the virtual meeting, you are always be the chairman

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q6: How long you will use the virtual meeting per month for work?

- ☐ 1-3
- ☐ 4-6
- ☐ 6 or above

Q7: There are more virtual meetings under the effect of COVID-19 when you work?

- ☐ Yes
- ☐ No

Q8: You agree virtual meetings can save the time and cost of travel.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q9: You agree virtual meeting is not limited by the time zone and geographical issue.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q10. You agree virtual meeting is comparatively easier to call the meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Part 3: To know if the respondent has stronger interpersonal communication

Q11. You agree virtual meeting can exchange ideas and discussion.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q12. You agree all the attendees in the virtual meetings know the agenda and topic of the meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q13. You agree the attendees will speak out during virtual meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q14. You agree attendees will use another software to discuss during virtual meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q15. You agree virtual meetings can have expected outcome.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q16. You agree virtual meeting can make people get closer.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q17. You agree virtual meeting can make attendees know more about each other and be friendlier.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q18. You agree virtual meeting can replace face-to-face meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Part 4: To know the in-service usage of virtual meeting tools

Q19. Which software will you use most when you need to have virtual meeting during work?

- ☐ CISCO Webex Meetings
- ☐ Zoom
- ☐ GoToMeeting
- ☐ GoogleMeet
- ☐ Skype
- ☐ Whatsapp/Wechat video call
- ☐ Tencent Meeting/VooV Meeting
- ☐ Other: _____

Q20. Which software will your colleague use most when they need to have virtual meeting during work?

- ☐ CISCO Webex Meetings
- ☐ Zoom
- ☐ GoToMeeting
- ☐ GoogleMeet
- ☐ Skype
- ☐ Whatsapp/Wechat video call
- ☐ Tencent Meeting/VooV Meeting
- ☐ Other: _____

Q21. Your computer is capable to hold/join virtual meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q22. Which areas will affect the performance of virtual meetings?

- ☐ Sharpness of picture
- ☐ Smoothness
- ☐ Can record
- ☐ Can share attendee's screen to others
- ☐ PPT can play video/show PPT
- ☐ Can use email for alerts before the meeting

Can use through mobile

- ☐ Free of charge
- ☐ Other: _____

Q23. You agree it is a must to reach visual and audio of all attendees during virtual meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q24. You agree there's less preparation to join a virtual meeting than a face-to-face meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Q25. Compare to face-to-face meeting, you prefer to attend virtual meeting.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ No opinion
- ☐ Agree
- ☐ Strongly agree

Appendix 2 – Semi-structured interview guide

Q1. How often do you use virtual meetings per month?

Q2. During the virtual meeting, are you always the chairman?

Q3. Do you think that you have more virtual meetings because of the effect of COVID-19?

Q4. Can you list advantages and disadvantages of virtual meetings?

Q5. Do you usually communicate by text with your colleagues during virtual meetings?

Q6. Do you agree that virtual meetings can have better results than face-to-face meetings? Why? Why not?

Q7. Do you agree that virtual meetings can replace face-to-face meetings?

Q8. Which software you use most when you have a virtual meeting? Why?

Q9. Which areas do you think will affect more the performance of virtual meetings?

Q10. You prefer face-to-face meetings or virtual meetings? Why?

Q11. What would you recommend to improve communication effectiveness in virtual meetings?

Q12. Do you agree virtual meetings can deliver strong interpersonal communication than face-to-face meetings? Why?