

Team Members' Perspectives on Factors Affecting Virtual Team Working in Information Technology Consulting Firms

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Abstract

This study explores team members' perspectives on factors affecting virtual teams working in information technology consulting firms. Additionally, this study filled some research gaps by studying two virtual teams using semi-structured interviews and the notion of structures and actors. In contrast, previous studies mostly adopted survey research comparing the performance of virtual teams with that of traditional teams. This study included 25 research participants and adopted two virtual teams in different contexts. One that had no face-to-face interaction, whereas the other one had the initial face-to-face meeting. Research results showed that communication, trust, socialization, cultural diversity and leadership affected virtual teams working for both teams. Communication was the main challenge due to different time zones, but both teams overcame it by organizing overlapping hours to have online synchronous meetings. The initial face-to-face meeting and open lines of communication developed affect-based trust among team members, whereas cognition-based trust based on consistent work performance existed in virtual teams that lacked physical interaction. Occasionally conducting virtual bonding exercises is necessary for virtual team members to renew interpersonal ties among team members. Regarding culture diversity, team members from individualistic cultures favored direct communication, whereas team members from collectivistic cultures shared group-based information before reaching unanimous decisions. In terms of leadership, virtual team leaders should have effective communication, understanding, good reliability of the task work-related attributes, and consistently positive leadership attitudes.

Keywords: Factors, Information technology, Perspectives, Virtual team working, Structuration theory

Introduction

In the competitive market, organizations are currently encountering challenges in changing business environments. Consequently, organizations need to respond to faster response time to demands in markets, lower labor costs, reduced travel expenses, the better quality of products and services, and at the same time, they need to serve existing customers better and expand their customer base. Therefore, many small and large organizations use virtual teams to perform their work much easier, faster, and more efficiently (Hertel et al., 2005). With virtual teams, organizations enable to decentralize work processes and facilitate the collaboration of different people across boundaries and time due to the adoption of electronic information and communication technologies such as wireless networks, cell phones, computers, and video-conferencing devices (Marchington & Wilkinson, 2005). In other words, electronic information and communication technologies have become necessary infrastructures for organizations using virtual teams working in their businesses. In addition, virtual teams have become prevalent in today's business world. For example, two-thirds of the firms in the US utilize virtual teams to execute business strategies (Bergiel et al., 2008). Virtual teams have also gained a foothold in a developing country such as India which uses virtual teams to manage services for most multinational companies across the globe, especially in the information technology and telecommunications services industries (Gupta & Pathak, 2017).

Organizations utilize virtual teams to some degree and at least for some part of their jobs. Virtual teams are utilized for core businesses processes such as marketing, product, and service development, sales, quality improvement, logistics and supply chain management, organizational change management, and customer services (Carmel, 1999; Krishna et al., 2004; Oshri et al., 2008). According to Hoegl and Proserpio (2004), companies in the information technology and software industries have broadly adopted virtual teams since software development enables companies to produce software codes rather than tangible physical products. Thus, it is suitable for geographically dispersed collaboration of team members. Further, organizations with mergers, acquisitions, downsizing, and outsourcing options have created virtual teams such as foreign-based subcontractors and consultants to leverage scarce resources across geographic boundaries to attain not only time-saving but also cost reduction (Rice et al., 2007; Bergiel et al., 2008).

The prevalence of virtual teams has generated a great deal of research interest in the area. However, factors that influence virtual teamwork have remained ambiguous (Lin et al., 2008). Methodologically, previous studies (Jarvenpaa & Leidner, 1999; Powell et al., 2004; Hoegl & Proserpio 2004; Horwitz et al., 2006) explored the key factors influencing the performance of virtual teams using survey research. Hence, these previous studies overlook how research participants feel or think. In addition, there is a dearth of research exploring factors affecting virtual team working through team members' perspectives. Therefore, this study adopts qualitative research using 25 semi-structured

interviews to provide team members' perspectives from 2 teams: Team 1 had the initial face-to-face meeting, and Team 2 only communicated electronically without any face-to-face interaction. Theoretically, previous studies did not consider the notion of structure and actors to understand the relationships between virtual team members' perspectives and virtual team working, but this study considers structuration theory. Hence, the objectives of this study are 1) to explore team members' perspectives on factors affecting virtual teams working in information technology consulting firms and 2) to find out the advantages and disadvantages of virtual teams.

The remainder of this paper is organized as follows: the relevant literature on factors affecting virtual team working and the advantages and disadvantages of virtual teams, and followed by a description of the research methods, theoretical framework, research findings and discussion, and conclusion that also provides insights from the study and recommendations for future research.

Literature review

In this section, the literature review on factors affecting virtual team working such as communication, trust, socialization, cultural diversity, and leadership is presented, followed by the advantages and disadvantages of the virtual team. Further, the definitions of virtual teams are given as follows:

Virtual teams can be defined as “groups of people who are geographically distributed working on interdependent tasks, conducting their core work mainly through an electronic medium and sharing responsibility for team outcomes” (Horwitz et al., 2006, p. 473). According to Langevin (2004), virtual teams are people who coordinate their work using electronic information and communication technologies across distance, time, and organizational boundaries.

Factors affecting virtual team working

Communication

Virtual team members rely mainly on electronic technologies for communication to receive regular and timely feedback (Jarvenpaa & Leidner, 1999). Asynchronous communication such as email is most common for routine work and information exchange (Hertel et al., 2005). Although email yields a low social presence, it expedites information exchange, keeps communication costs low, and improves communication due to its high repeatability and process ability (Shachaf, 2008). Further, a study by Wong and Burton (2000) has shown that horizontal communication is a direct channel for coordinating tasks and solving problems because it allows team members to communicate directly with one another. Nevertheless, time zone difference may be an obstacle for virtual team members to communicate in real-time. Therefore, overlapping hours must occur so that synchronous meetings and real-time communication can take place (Horwitz et al., 2006).

Trust

Trust is defined as “the extent to which a person is confident in and willing to act based on the words, actions, and decisions of another” (McAllister, 1995, p. 25). According to Robert (2013), trust in teams is cultivated when team members engage in actions that comply with the positive expectations of other team members: therefore, trust is associated with promoting cooperation and coordination within teams. For example, trust has been found to promote knowledge sharing, which facilitates better decision-making in virtual teams, and trust has also been found to increase performance in collocated teams in planning and problem-solving.

Robert (2016) has shown that cognitive trust is rooted in ability, whereas affective trust is derived from interpersonal emotional connections. For example, allowing someone to perform tasks on your behalf because you believe that person can achieve the tasks is an example of cognitive trust. However, allowing someone to perform tasks on your behalf because you are emotionally connected to that person is an example of affective trust.

A study by Crisp and Jarvenpaa (2013) has found that cognitive trust promotes coordination in teams, and coordination is associated with increases in virtual team performance. In other words, cognitive trust allows team members to focus on their tasks under the assumption that other team members will follow through. Team members are also more willing to coordinate with individuals they believe are competent (Dirks, 1999). Since interactions, in virtual teams are mainly operated through computer-mediated communication technologies and such interactions tend to be superficial and impersonal. Therefore, team members need to build and maintain trust based on cognitive elements such as competence and consistent performance and responses (Bergiel et al., 2008).

On the other hand, affective trust is often derived from personal relationships and based on similarities between individuals, and it usually takes longer to develop in virtual teams than cognitive trust, and it is more long-lasting than cognitive trust (Robert, 2016). However, virtual teams with high levels of affective trust are less willing to call out the team members for poor performance when they fail to fulfill commitments simply because of concerns for maintaining good relationships with team members (Webber, 2008). Additionally, affective trust can be established in face-to-face meetings because more cues such as tone of voice and facial expressions can judge a person’s trustworthiness (Bergiel et al., 2008).

Further, since virtual team members are in different locations and time zones, real-time communication is often delayed, resulting in distrust and disengagement. Thus, the level of trust between virtual team members depends on the frequency and length of emails exchanged between members (Jarvenpaa & Leidner, 1999).

Socialization

Oshri et al. (2007) has shown that socialization enhances collaboration and communication among virtual team members. However, socializing processes to support

virtual teams may be difficult due to limited face-to-face communication opportunities, leading to fewer team-building activities (Herbsleb et al., 2000). On the other hand, early face-to-face interactions, training programs, team-building exercises, bonding exercises and mentoring programs help developing better interpersonal relationships and trust and a better understanding of objectives in virtual teams (Oshri et al., 2008). Further, it is suggested that the renewal of socialization is essential since the interpersonal ties between team members may fade over time after several years (Carmel, 1999).

Cultural diversity

Cultural diversity plays a vital role in decision-making and communication among virtual team members (Shachaf, 2008). A study on cultural differences by Kitirattarkarn et al. (2020) has shown that people in individualistic cultures, such as North America and Western Europe, focus on the self as a unique entity. In contrast, people in collectivistic cultures, such as those from Asia, focus on the self as members of a group. Therefore, individualistic people are motivated by their preferences and needs and tend to value personal goal pursuit, whereas collectivistic people are expected to work with their in-group towards goals, and pursue group harmony (Kitirattarkarn et al., 2020).

Moreover, collectivists often weigh input from others more than individualists, and they are concerned with the opinions of others and adhering to norms: therefore, they encourage the involvement of multiple people and seek advice from others (Glazer & Karpati, 2014; Yates & Oliveria, 2016). For example, Indians are more likely than Americans to include other people's considerations into their decision-making process. By contrast, individualists would instead make decisions individually following their preferences and values; hence independent decision-making (Yates & Oliveria, 2016).

In terms of communication styles, Merkin and Ramadan (2016) have found that individualists favor direct communication, and information is conveyed unambiguously and explicitly. By contrast, collectivists prefer to use indirect communication to avoid conflicts and losing face since they emphasize preserving harmonious interpersonal relationships. However, the ambiguities of indirect speech can create misunderstandings and conflicts in relationships. In addition, misunderstanding and miscommunication can occur among virtual team members due to cultural diversity and the differences in education, language and expertise. Thus, it is suggested that virtual team members need to acknowledge differences and overcome cultural barriers by any effective communication (Dafoulas & Macaulay, 2002).

Leadership

Leadership plays a vital role in tackling the challenges of virtual team working because virtual team leaders need to drive individual team members and overall team performance. A study by Shachaf and Hara (2005) highlights four dimensions of effective virtual team leadership, namely communication, understanding, having good reliability of the task work-related attributes, and maintaining consistently positive leadership

attitudes. Other researchers also agree on these four dimensions and provide further explanations. In terms of communication, virtual team leaders provide regular and prompt communication feedback because regular and timely feedback is key to building trust and commitment in virtual teams (Lin et al., 2008). Due to lack of physical presence, virtual team leaders must ensure that work progress is on schedule through effective communication (Bell & Kozlowski, 2002). A study by Wong and Burton (2000) recommends horizontal communication because it allows team members to communicate directly with one another due to the reduced hierarchical structure of the team. In terms of understanding, it aims to support team members by making them feel a part of the workgroup and comfortable with the work situation (Liao et al., 2017; Mikkelsen et al., 2017). Understanding can be expressed by appreciating team members' opinions and suggestions, caring about their problems, and expressing personal interest in them (Liao et al., 2017; Mikkelsen et al., 2017). In terms of having good reliability of the task work-related attributes, virtual team leaders establish goals and objectives, assign tasks and responsibilities to team members, know member expertise, and mentor team members (Liao et al., 2017; Mikkelsen et al., 2017). Leaders with task-oriented leadership styles positively affect output quality, such as job satisfaction and organizational commitment of team members (Huynh & Hua, 2020). In terms of maintaining consistently positive leadership attitudes, virtual team leaders create and maintain a sense of collaboration and connection within their teams by allowing team members to discuss issues, offer perspectives, and solve problems for other team members (Shelton, 2019). As a result, team members are inspired to work to their potential to accomplish team objectives and goals (Shelton, 2019).

Advantages and disadvantages of virtual teams

Several studies have identified various advantages and disadvantages of virtual teams. May and Carter (2001) have found that virtual teams reduce labor costs and the time-to-market between 20 to 50 percent. Studies by Rice et al. (2007) and Bergiel et al. (2008) have shown that virtual teams reduce time and travel costs. Further, virtual teams enable organizations to respond faster to increased competition (Hunsaker & Hunsaker, 2008) and pool employees' knowledge, competencies and experiences regardless of locations (Samarah et al., 2007). As for disadvantages, since virtual teams are affected by physical factors relating to geographical distance and temporal distance, virtual teams can experience distrust, conflicts, power struggles, and communication breakdowns, and thus these disadvantages can hinder collaboration in virtual teams (Cascio, 2000; Kirkman et al., 2002; Rosen et al., 2007).

Theoretical framework

In this study, the researcher adopted structuration theory to understand the relationships between virtual team members' perspectives and virtual teams working at the interplay of agents and structure. The structure is defined as "rules and resources used

by actors or agents in interaction” (Turner, 1986, p. 972) and the actor or agent is a ‘knowledgeable, and capable subject’, and all actions are ‘intentional and purposeful’ (Giddens, 1979, p. 56). In this study, the term ‘actor or agent’ refers to virtual team members, managers, and firms. This study adopted Giddens’s structuration notion in a broader sense in which “structure is drawn upon by actors in the production of interaction, but are thereby also reconstituted through such interaction” (Giddens, 1979, p. 71). Virtual team working has created structural rules (team members being in different geographic locations and different time zones) and allocated resources (electronic information and communication technologies) that allow virtual team members (actors) to interact and collaborate in order to accomplish organizational tasks. In turn, this dual relationship produces and reproduces itself continuously. Therefore, structuration theory serves to understand the perspectives formed by team members regarding the factors that affect virtual team working and the advantages and disadvantages of virtual teams.

Method

This study adopted qualitative research because it allows research participants to express how they feel and think. It enables the researcher to obtain insights from research participants and understand the world as they experience it (Gillham, 2000). Qualitative research also allows the researcher to probe and uncover connections between the research subjects and the environment in which they are being examined (Bryman, 2008, p. 218). In this study, 25 semi-structured interviews with two information technology consulting firms were adopted. By using the purposive sampling method (Tongco, 2007), 25 participants were selected as the samples. Twenty-five participants consisted of 23 team members and two managers. All 25 participants were all males. The researcher divided 25 participants into two teams: Team 1 and Team 2. There were 13 members in Team 1, and there were 12 members in Team 2.

As for the criteria of selecting participants, all research participants had to work in information technology consulting firms that provided software solutions to clients virtually across multiple locations: therefore, virtual team working was standard practice in both firms. Both firms were also chosen based on access being granted. Additionally, the researcher’s network of friends working in the US at both firms introduced the researcher to all participants in the US, India, and Singapore. To find out if there were differences in team members’ perspectives on factors affecting virtual team working, the researcher selected a firm with participants who had no face-to-face interaction and only communicated electronically (Team 1), and the researcher also selected the other firm that had participants who had the initial face-to-face meeting and worked side by side for four months (Team 2). Using virtual teams in different contexts, it allowed the researcher to provide team members’ perspectives on what they deemed to be the factors most affecting their virtual team working. Furthermore, two managers were also included in this study because they needed to offer their perspectives on virtual team leadership. Table 1 below provides an overview of virtual team members in Team 1 and Team 2. For

example, the number of virtual team members, including managers in both teams, their nationalities, and work locations.

Table 1 An overview of virtual team members in Team 1 and Team 2

	Number of virtual team members including managers	Nationalities	Work locations
Team 1	2	Malaysian	Singapore
	3	Singaporean	Singapore
	7	American	San Jose, California, United States
	1 (manager)	American	Miami, Florida, United States
Total number of people in Team 1	13		
Team 2	1	Canadian	Santa Clara, California, United States
	5	American	Santa Clara, California, United States
	5	Indian	Bangalore, India
	1 (manager)	American	Chicago, Illinois, United States
Total number of people in Team 2	12		

Source: Interviews from December 2020 to February 2021

In this study, the researcher adopted interview questions because interview questions helped the researcher to provide descriptions in order to answer research questions. The researcher designed interview questions and divided interview questions into two sections. The first section consisted of personal information such as name, age, educational qualifications, years of experience in information technology consulting, and duration of employment with their current firms. The second section questioned each factor affecting virtual teamwork, such as communication, trust, socialization, cultural diversity and leadership. Some of the questions were the primary form of communication for routine work and information exchange, other forms of communication to share information between team members, the challenges they encountered during communication, and how they overcame these challenges. In terms of the trust, Team 2

was asked how the initial face-to-face meeting and four-month collocation helped develop trust and how members in Team 1 built and maintained trust without any face-to-face interaction. As for socialization, Team 2 was asked how the initial face-to-face meeting developed better interpersonal relationships among team members and the activities Team 1 adopted for socialization due to financial constraints. Participants were asked whether cultural diversity played an essential role in decision-making and communication among virtual team members, and they were also asked to explain. In terms of leadership, only two managers were asked to offer their perspectives, and some of the questions were the challenges they encountered in leading their virtual teams, how they overcame these challenges, and how they supported and inspired their team members to achieve team objectives and goals.

Due to the Covid-19 pandemic and financial constraints, the researcher could not travel to the US, Singapore, and India to collect data by herself. Thus, all 25 interviews were conducted via mobile phone with the voice recording system. From December 2020 to February 2021, it took the researcher two months to accomplish interviews with 25 participants. The duration for each interview lasted from 40 minutes to 45 minutes which were recorded. As for data analysis, the researcher adopted thematic analysis to analyze interview transcripts and to identify themes and concepts. According to Rubin and Rubin (2005), thematic analysis is appropriate for semi-structured interviews. Subsequently, the key themes that appeared under this research helped the researcher connect the data obtained with the relevant literature and enabled the researcher to answer the research objectives in this study

On the ethical considerations, the researcher obtained the approval for the protection of human subjects from Walailak University Human Research Ethics Committee (WUEC), and the approval number is WUEC-20-323-01. Moreover, the informed consent of all research participants and their permissions for recording all the conversations during the interviews were obtained before the interviews began. The names of virtual team members and managers mentioned in this research are pseudonyms for confidentiality.

Results and discussion

Results showed that factors affecting virtual team working were communication, trust, socialization, cultural diversity and leadership. In terms of leadership, the perspectives of team members were excluded and only two managers offered their viewpoints on virtual leadership. The results are discussed according to these factors and followed by the advantages and disadvantages of virtual teams. Table 2 provides an overview of team members' perspectives on factors affecting virtual team working in information technology consulting firms.

Table 2 An overview of team members' perspective on factors affecting virtual team working in information technology consulting firms**Team 1**

No	Names	Work locations	Communication	Socialization	Cultural diversity	Trust	Leadership
1	Lim	Singapore	Emails, zoom and instant messaging were used	Virtual bonding exercises	US team was independent decision makers due to their individualistic cultures and long years of experience in IT consulting	Cognitive	
2	Chen	Singapore	Emails, zoom and instant messaging were used	Virtual bonding exercises	US team was independent decision makers due to their individualistic cultures and long years of experience in IT consulting	Cognitive	
3	Tao	Singapore	Emails, zoom and instant messaging were used	Virtual bonding exercises	US team was independent decision makers due to their individualistic cultures and long years of experience in IT consulting	Cognitive	
4	Wang	Singapore	Emails, zoom and instant messaging were used	Virtual bonding exercises	Malaysians and foreign workers of Chinese descent were favorite labor sources for Singapore	Cognitive	
5	Xiao	Singapore	Emails, zoom and instant messaging were used	Virtual bonding exercises	Malaysians and foreign workers of Chinese descent were favorite labor sources for Singapore	Cognitive	

No	Names	Work locations	Communication	Socialization	Cultural diversity	Trust	Leadership
6	Adam	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members	Cognitive	
7	John	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members	Cognitive	
8	Kevin	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members	Cognitive	
9	Mark	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members	Cognitive	
10	Peter	US	Emails, zoom and instant mess and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members and indirect in communication	Cognitive	
11	Sam	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members and indirect in communication	Cognitive	

No	Names	Work locations	Communication	Socialization	Cultural diversity	Trust	Leadership
12	Tony	US	Emails, zoom and instant messaging were used and well-spoken English with the Chinese accent by team members in Singapore	Virtual bonding exercises	Singapore team was courteous and concerned with the opinions of their team members and indirect in communication	Cognitive	
13	Darryl Manager	US				Cognitive	4 dimensions of effective virtual team leadership
Team 2							
No	Names	Work locations	Communication	Socialization	Cultural diversity	Trust	Leadership
1	Anan	India	Emails, zoom and instant messaging were used	Collocation enhanced relationships	US team was straightforward and systematic in planning	Affective	
2	Anucha	India	Emails, zoom and instant messaging were used	Collocation enhanced relationships	US team was straightforward and systematic in planning	Affective	
3	Charun	India	Emails, zoom and instant messaging were used	Collocation enhanced relationships	US team was straightforward and systematic in planning	Affective	
4	Kanan	India	Emails, zoom and instant messaging were used	Collocation enhanced relationships	US team was straightforward and systematic in planning	Affective	
5	Panu	India	Emails, zoom and instant messaging were used	Collocation enhanced relationships	US team was straightforward and systematic in planning	Affective	
6	Ben	US	Emails, zoom and instant messaging were used and difficult to understand strong Indian accent	Collocation enhanced relationships	India team sourced out group-based information and decisions were unanimous	Affective	
7	David	US	Emails, zoom and instant messaging were used and difficult to	Collocation enhanced relationships	India team sourced out group-based information and decisions	Affective	

No	Names	Work locations	Communication	Socialization	Cultural diversity	Trust	Leadership
			understand strong Indian accent		were unanimous		
8	George	US	Emails, zoom and instant messaging were used and difficult to understand strong Indian accent	Collocation enhanced relationships	India team sourced out group-based information and decisions were unanimous	Affective	
9	Lucas	US	Emails, zoom and instant messaging were used and difficult to understand strong Indian accent	Collocation enhanced relationships	India team sourced out group-based information and decisions were unanimous	Affective	
10	Nathan	US	Emails, zoom and instant messaging were used and difficult to understand strong Indian accent	Collocation enhanced relationships	India team sourced out group-based information and decisions were unanimous	Affective	
11	William	US	Emails, zoom and instant messaging were used and difficult to understand strong Indian accent	Collocation enhanced relationships	India team sourced out group-based information and decisions were unanimous	Affective	
12	James Manager	US				Affective	4 dimensions of effective virtual team leadership

Notes: 1. The names of virtual team members and managers mentioned in this research are pseudonyms for confidentiality.

2. Both managers offered their perspectives only on leadership.

3. Four dimensions of effective virtual team leadership consist of communication, understanding, having good reliability of the task work-related attributes and maintaining consistently positive leadership attitudes (Shachaf & Hara, 2005)

Source: Interviews from December 2020 to February 2021

Communication

Table 2 shows that both virtual team members relied mainly on electronic technologies for communication (Jarvenpaa & Leidner, 1999). The primary form of communication for both virtual teams in routine work and information exchange was email (Hertel et al., 2005). Further, video conferencing devices such as zoom were used

for all members of both virtual teams to participate in regular group meetings because they were low-cost, easy to set up and use, and flexible to connect via desktop and mobile devices. Nevertheless, members of both virtual teams admitted that communication was quite challenging due to different time zones (Horwitz et al., 2006). Both virtual teams overcame this problem by organizing overlapping hours so that synchronous meetings could take place and they were able to communicate in real-time (Horwitz et al., 2006). Online synchronous meetings were significant for both virtual teams because they had to engage in business initiatives, commercial projects, brainstorming, and strategic planning.

Moreover, both virtual teams used instant messaging such as Facebook, Messenger, WhatsApp, and Line for group communication to share information such as deadlines, new company policies and regulations, and task assignments. However, if team members had vital information to deliver urgently, they chose to talk over the phone. From the notion of structuration, “structures (being in different locations and time zones and the need to use electronic technologies for communication) and actors (virtual team members) are not two independent identities but exist and function in a reciprocal duality relationship” (Giddens, 1984, p. 162).

Further, team members in the US experienced the difficulty understanding Indian team members in Bangalore due to their strong accents. David, one of the US team members, explained:

“Sometimes, it is difficult to understand what my colleagues in India are saying over the phone. Indians tend to speak English very quickly with a heavy accent. Quite often, I have to ask them to speak more slowly. If I am not sure what they’re saying over the phone and the matters we discuss are important, then I ask them to write emails just to prevent miscommunication and misinterpretation.”

Therefore, writing emails enabled native English speakers to understand non-native English speakers better. According to Shachaf (2008), writing emails also removes accents and improves communication due to its high repeatability and process ability. However, US members in Team 1 did not experience a language barrier with their team members in Singapore because they spoke English well and clearly despite the Chinese accent.

Trust

The initial face-to-face meeting in Team 2 played a significant role in trust development for team members because they had the opportunities to get to know their colleagues in person for four months at the headquarter in Chicago, Illinois, United States before they were disintegrated and returned to their original work locations which were Santa Clara, the United States, and Bangalore, India. The initial face-to-face meeting and the collocation for four months at the start of the project allowed team members to engage

in social interactions: therefore, team members were able to build and develop good personal relationships with one another, thereby resulting in affective trust (Bergiel et al., 2008; Robert, 2016).

In addition, Team 2 earned one another's trust since they kept the lines of open communication, meaning that all members were encouraged to share their ideas in planning and problem-solving and obtained feedback from one another for better decision-making and improvement. As a result of affective trust through open lines of communication, team members were willing to offer full cooperation in carrying out projects successfully. Therefore, trust promotes knowledge sharing that facilitates better decision-making in virtual teams and increases performance in collocated teams in planning and problem-solving (Robert, 2013).

Without face-to-face interaction, Team 1 needed to build and maintain trust based on cognitive elements such as competence and consistent performance and responses (Bergiel et al., 2008). Adam, a member of Team 1, described:

“I think the way I can build and maintain trust is to answer emails regularly and meet deadlines. Since I have never met my colleagues in Singapore in person, the only way I can trust them is when they deliver consistent work performance. For example, replying to emails on a daily basis and making sure their assignments are on schedule. Basically, it is easy to coordinate when you work with someone who get their tasks done in a timely manner.”

From the findings above, it can be seen that cognitive trust is derived from ability (Robert, 2016), and it enables members in Team 1 to focus on their tasks and believe that other team members will accomplish their tasks as well. Therefore, cognitive trust promotes coordination in teams (Crisp & Jarvenpaa, 2013), and team members are willing to coordinate with individuals they believe are competent (Dirks, 1999).

In addition, the level of trust among virtual team members depended on the frequency of emails exchanged between members (Jarvenpaa & Leidner, 1999). From research findings, we can see that trust can reduce work-related uncertainties and ambiguity among team members through open lines of communication and consistent work performance, thereby promoting a sense of belonging, group cohesion, cooperation, and coordination.

Socialization

Results showed that the initial face-to-face meeting in Team 2 had a significant impact on team members developing better interpersonal relationships since team members had had the opportunity to meet and work side by side for four months before the team was disintegrated. Team members returned to their original workplaces. As a result of four-month collocation, it enhanced communication among virtual team members (Oshri et al., 2007). For example, conversations over the phone between team

members became informal and friendly conversations, and they could discuss work-related matters and share personal issues.

Due to financial constraints, Team 1 was not capable of organizing face-to-face meetings. Nevertheless, team members decided to conduct virtual bonding exercises occasionally to renew team members' interpersonal relationships (Oshri et al., 2008). For example, they shared photographs and stories, sent inspirational quotes, sent online birthday cards, and organized quarterly special recognition for members who performed well. Carmel (1999) indicated that the renewal of socialization is important because the interpersonal ties between team members may fade over time. Further, Team 1 viewed that face-to-face meeting was unnecessary for them because the nature of their jobs (providing software solutions to global clients) required them to work virtually. From the notion of structuration, "activities (bonding exercises) are coordinated across time and space because actors (team members) know when, where, and how to relate to others during their interactions" (Cohen, 1989, p. 132).

Cultural diversity

Results showed that cultural diversity plays a vital role in decision-making and communication among virtual team members (Shachaf, 2008). According to Indian members in Team 2, team members in the US were straightforward and concise in their communication. As a result of direct communication, Indian team members had clear directions on what actions were expected or to be taken. Such findings concur with a study by Merkin and Ramadan (2016) that individualists favor direct communication and information is conveyed unambiguously and explicitly. Based on the findings, the US team explained the plans to execute the projects clearly and systematically and asked Indian team members to verbally summarize the projects' execution plans so that both sides had a mutual understanding. Hence, the US team also communicated directly to establish two-way communication. It is suggested that virtual team members need to acknowledge the differences and overcome cultural barriers by any effective communication (Dafoulas & Macaulay, 2002).

On the other hand, Indian team members were viewed by their US counterparts as good team players because when there were work-related decisions to be made, Indian team members took time to source out group-based information and ensured that the decisions were unanimous. Therefore, collectivists like Indian team members prefer to work with their in-groups towards goals, pursue group harmony, seek advice from other team members, and include their team members' considerations into the decision-making process (Glazer & Karpati, 2014; Yates & Oliveria, 2016; Kitirattarkarn et al., 2020) since collectivists place great emphasis on avoiding conflicts and preserving harmonious interpersonal relationships (Merkin & Ramadan, 2016).

As for Team 1, all team members in Singapore agreed that their US counterparts were straightforward and independent decision-makers, whereas team members in the US viewed their counterparts as being indirect and courteous and being concerned with the

opinions of their team members (Merkin & Ramadan, 2016; Yates & Oliveria, 2016), thereby placing the value on group harmony (Kitirattarkarn et al., 2020). The results showed that the capabilities of independent and rational decision-making of team members in the US were due to their individualistic cultures (Yates & Oliveria, 2016) and long years of experience in information technology consulting.

Interestingly, it was revealed by Singaporeans in Team 1 that the Malaysian labor force was a favorite labor source for Singapore due to the ability to assimilate into Singapore's mainstream society quickly. From the findings, it can be analyzed that Malaysia and Singapore have close ties from geographical proximity, shared history and culture, and a similar multiethnic composition; hence Malaysian workers easily obtain work passes to work in Singapore (Wong, 1997). Consequently, two Malaysian workers were hired as virtual team members in Team 1. From such findings, it can be analyzed that the manager (actor) in Team 1 was aware of Singapore's foreign labor policy. With managerial agency (professional norms, professional knowledge, and legitimacy), he could draw on selectively on rules and resources to bring about the results (Whittington, 1992). In other words, actors have choices and power, and thus they can act and have the potential to be transformative in the social world (Giddens, 1984).

Surprisingly, results also showed that foreign workers of Chinese descent were also favorite labor sources for Singapore because the Singapore government intended to maintain racial harmony and social cohesion among different ethnic groups such as Chinese, Malay, Indian, and others. According to Hill and Fee (1995), Chinese-Singaporeans make up a majority of the population. They highly value Confucian virtues such as working hard, respecting parents and superiors, maintaining social harmony, living a peaceful life and saving for long-term financial stability. Hence, foreign workers of Chinese descent are readily acceptable in Singapore because they are recognized as trustworthy and diligent workers capable of contributing to Singapore economically and socially. As a result, the Singapore government tends to approve work passes for foreign workers of Chinese descent, and this is why two Chinese-Malaysian members in Team 1 were selected to be part of the labor force in Singapore.

Leadership

Managers of both virtual teams were located in the US. The manager of Team 1 was located in Miami, Florida, whereas Team 2 was based in Chicago, Illinois. Both managers admitted that it was challenging to lead their teams virtually due to their inability to see team members at work physically. Due to their lack of physical presence, both managers mainly communicated with their team members through emails. A video-conferencing device such as zoom was used to hold group meetings. With urgent matters, they preferred to talk over the phone. Moreover, both managers made themselves contactable outside working hours and over the weekends to provide additional support for their virtual teams. Additionally, both managers had to constantly stay in touch with their teams and ensure that work progress was on schedule (Bell & Kozlowski, 2002).

The results also showed that both managers fit into Shachaf and Hara's four effective virtual team leadership (2005). Darryl, manager of Team 1, said:

“I think leading virtual teams is quite challenging since I am not physically present to see my team working so every facet of leadership is a challenge. For example, talking to my team members, listening to their problems whether personal or work-related, giving them feedback regularly, setting goals and objectives, assigning tasks for team members, mentoring them and encouraging them to voice their opinions. I also have to check on their work progress and get results that I want. As a leader, I need to show my team that I can be trusted and this is how I gain commitment from my team.”

From the findings, communication such as providing regular and timely feedback was necessary for managers because it is key to building trust and commitment in their virtual teams (Lin et al., 2008). Furthermore, these results concur with the findings obtained by Mikkelsen et al. (2017) and Liao et al. (2017) on understanding. Virtual team leaders understand and support team members by making them feel comfortable with the work situation, which can be expressed by appreciating team members' opinions, caring about their problems and expressing personal interest in them. The findings also agreed that effective virtual team leaders possess good reliability of the task work-related attributes such as setting goals and objectives, assigning tasks and responsibilities to team members, and mentoring them (Mikkelsen et al., 2017; Liao et al., 2017). In return, leaders with task-oriented attributes gain commitment from team members (Huynh & Hua, 2020). Furthermore, the results showed that consistently positive leadership attitudes were significant for virtual team leaders, and managers created and maintained a sense of collaboration and connection within their teams by allowing team members to discuss issues and offer perspectives. Therefore, team members are inspired to work their potential to achieve team objectives and goals (Shelton, 2019).

From the notion of structuration, “with leadership and managerial agency (professional norms, professional knowledge, and legitimacy), managers are capable of making strategic decisions, empowering their conduct and motivating managerial autonomy to achieve organizational tasks” (Whittington, 1992, p. 702).

Advantages and disadvantages of virtual teams

Results showed that Indian team members in Bangalore received cheaper salaries of nearly one-third of the salaries of the US team members. Thus, virtual teams reduce labor costs for their firms (May & Carter, 2001). Such salaries were higher for Indian team members than the local average salary in Bangalore, and they were delighted with the salaries. By working for foreign companies, they were able to save and support their families. Anucha, one of the virtual team members in Bangalore, India, said:

“Using virtual teams can give companies several benefits including the ability to reduce costs whether they are labor costs, operating costs, facility budgets and travel expenses. I think virtual teams allow companies to set up subsidiaries in low labor cost countries like India where most people can also speak English. In this case, companies gain cost competitiveness.”

However, team members in Singapore received very competitive salaries that rivaled their US counterparts. Further, results showed that competitive salaries in Singapore were associated with large US technology companies’ investment and operation expansion in Singapore. Therefore, tech-related jobs were in great demand.

With the internet technology, all twenty-three virtual team members agreed that they could work at all available times. Therefore, there was no need to travel overseas to collaborate with other team members in the US, Singapore and India. In this case, virtual teams reduce time and travel costs for their firms (Rice et al., 2007; Bergiel et al., 2008). Additionally, the findings of the study revealed that virtual teams allowed firms to produce and provide services and acquire highly skilled workers across different locations. In other words, firms can pool the knowledge, competencies, and experiences of employees regardless of locations (Samarah et al., 2007). Since “actors (firms) are knowledgeable and capable subject” (Giddens, 1979, p. 56), and thus they use the material and organizational facilities (e.g., financial resources, managerial agency, and organizational capacity) to gain the advantages of virtual teams (cost reduction and access to skilled workforce). In other words, actors who possess resources can mobilize resources and power to get things done (Whittington 1992).

As for the disadvantages of virtual teams, all members of both virtual teams responded that there were no communication breakdowns, but work-related conflicts were typical due to geographical distance and time zone differences (Cascio 2000; Kirkman et al., 2002; Rosen et al., 2007). However, work-related conflicts did not affect collaboration among members of both virtual teams. In addition, the study’s findings showed that since there was no virtual team supervisor in both teams, communication flew freely between team members. It can be said that both information technology consulting firms have a flat structure or horizontal organizations, and such organizational structure provides team members autonomy and opportunities to discuss work-related conflicts through direct communication. As Wong and Burton (2000) indicated, horizontal communication is a direct channel for coordinating tasks and solving problems because it allows team members to communicate directly with one another.

Conclusions

Based on the results of this study on factors affecting virtual teams working in information technology consulting firms, the following conclusions can be drawn:

1. Communication, trust, socialization, cultural diversity and leadership affect virtual teams working for both teams.

2. Despite different electronic communication technologies such as zoom and instant messaging, emailing is the primary form of communication for routine work and information exchange for both teams because it prevents miscommunication and misinterpretation from the accents of non-native English-speaking virtual team members.

3. The initial face-to-face meeting and open lines of communication help virtual team members with trust development, thereby resulting in affect-based trust, whereas virtual team members with no physical interaction have developed cognition-based trust, which is gained by consistent performance and responses such as replying to emails daily and meeting assignment deadlines.

4. Conducting virtual bonding exercises occasionally is necessary for virtual team members in order to renew interpersonal ties among team members

5. Cultural diversity has influenced decision-making and communication among team members. Virtual team members in individualistic cultures are straightforward and concise in their communication; therefore, their colleagues have clear directions on what actions to take. On the other hand, virtual team members in collectivistic cultures gather group-based information before making unanimous decisions.

6. Foreign workers of Chinese descent are a good labor source for the Singapore government due to the capability to assimilate into Singapore's mainstream society quickly and Confucian virtues admired and practiced by Singapore's majority-Chinese population. Therefore, foreign workers of Chinese descent are likely to be selected and included in Singapore's labor market.

7. Maintaining positive leadership attitudes is the key to leading virtual teams, and these attitudes are showing gratitude and empathy, granting their team members autonomy, and energizing them by optimism and goals.

8. The advantages of virtual teams are reduced labor costs, travel costs, and time. Firms are also able to obtain skilled workers to produce and provide services across multiple locations. However, virtual teams can experience work-related conflicts due to geographical distance and time zone differences, and they can overcome them by horizontal communication.

9. From structuration, virtual team members' perspectives have to understand the constraints created by virtual team working, such as geographical distance and time zone differences and factors affecting virtual team working that presents practical challenges during virtual interactions. In addition, virtual team managers have to exercise their leadership, knowledge, and experiences while managing and leading their virtual teams to achieve the goals of their organizations.

As for the insights from this study, it is predictable that more organizations are going and will go for virtual team working during the Covid-19 and post-pandemic. Furthermore, most employees will prefer to work remotely or work from home to reduce human connections. Thus, traditional teams that require face-to-face interaction will gradually be replaced by virtual working that diffuses work-life boundaries, yet provides flexibility to those with childcare responsibilities due to school closures during the

pandemic and those with long commute time. Meanwhile, managers who used to work at the office will need to adjust to the distributed workplace, and they need to know how to manage, mentor, collaborate, motivate their subordinates, and evaluate their performance virtually. Moreover, organizations will need to provide sufficient resources to facilitate this new way of working, especially the technologies with access and security that are tailored for multiple modes of working and applications that enable virtual collaborations. In other words, employees, managers, and firms will have to readapt themselves to this global pandemic and changes in the business environment.

Although this study provides valuable insights on factors affecting virtual team working through team members' perspectives from information technology consulting firms, there are some limitations. First, this study lacks generalizability due to a small sample size because it focuses only on two firms with 25 research participants. Future research may want to include a larger sample size in different industries such as automotive, construction, teleworking, and travel industries since these industries also adopt virtual team working to some degree. Second, the scope of this study is mainly limited to virtual team members. Hence, future research may focus on interviewing managers to gain different perspectives on factors affecting virtual team working.

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