IJSCET

International Journal of Sustainable Construction Engineering and Technology

Factors Affecting Virtual Team Performance in UAE Organisations

Hamad Mohammed Abdulla Al Kaabi[1*], Safiah Sidek[1], Najmaddin Abo Mosali[3]

[1]Institute of technology management and entrepreneurship,
 UniversitiTeknikal Melaka Malaysia

[2]Faculty of Mechanical and Manufacturing,
 Universiti Tun Hussein Onn Malaysia

*Corresponding Author

Abstract: The concept of the virtual teams is getting popularized all over the world to connect different skilled professional on a single forum to achieve a common goal. To get maximum of the benefits of the virtual teams, it is essential to understand the associate problems and the factors which affect the virtual team performance. This paper uncovered several factors in the major domains of the communication competency, cultural intelligence, and knowledge sharing and collaboration parameters affecting virtual team performance in UAE. Collection of the data focused on recording the perception of the MNC employees in UAE where 318 valid data samples were gathered and analyzed for Mean value and standard deviation. The analysis results revealed that all the parameters have high level relation with virtual team performance. These finding can be helpful for preparing effective strategies to improve the communication system and maximize the performance of the virtual teams.

Keywords: PLS, virtual team, communication, collaboration, knowledge sharing, collaboration, UAE

1. Introduction

Changes in virtual (remote) working environments necessitate the adaptation of organizational structures and processes to support this new type of work environment. Virtual teams have shown several benefits such as work flexibility with no geographical or time constraints, they can also pose potential challenges due to ineffective team collaboration and team management. Supportive organizational processes that facilitate collaboration efforts and virtual team structure are required for effective virtual teams (Alsharo et al. 2017). Understanding the formation and maintenance of effective virtual teams is critical for creating a work environment that supports this type of organizational structure. Leadership roles, social processes, organizational processes, team characteristics, communication tools, and collaboration tools have significant impact on effective virtual team performance (Han et al., 2017). Degbey and Einola (2020) discussed group potency in virtual teams while Lippert and Dulewicz (2018) stated that the factors influencing virtual team effectiveness are ambiguous.

Mowshowitz (1994) developed the concept of virtual organizations in his discussion of a new organizational structure that would guide business organization theory and practice. According to Alsharo and Ramirez (2017), determining the virtual team challenges and benefits enables organizations to more successfully create and manage these teams. This case study looked at virtual team members in an organizational setting to learn about their perceptions of what is effective and ineffective in their teams. The quantitative exploratory study conducted by Lurey and

Raisinghani (2001) looked into the effectiveness of virtual teams. Similar study has been conducted by numerous researchers such as Killingsworth et al. (2016) and Ale Ebrahim et al (2012). Clarity, communication technology, communication satisfaction, communication effectiveness, leader roles, and leader effectiveness are important for effective virtual team performance (Ammari et al. 2017).

Hoch and Dulebohn (2017) emphasized on the behaviours and roles displayed by virtual team leaders. Alsharo and Ramirez (2017) pointed out the impact of leader effectiveness on team effectiveness. The study sought to learn about the factors that virtual team members believe influence the effectiveness of their teams. The participants' experiences as existing virtual team members are invaluable in enhancing business knowledge. Discovering the factors that influence virtual team effectiveness based on the experiences of virtual team members in an organizational setting will aid practitioners and scholars in furthering business and theory knowledge. There are several parameters which relate the performance and effectiveness of the virtual team. This study investigated the factors which affect the effectiveness of virtual teams in UAE. Because United Arab Emirate (UAE) is considered as one of the most rapid developing economies in the Middle East (Alhammadi and Memon 2020) and is considered the most prosperous country in exploiting its resources which creates huge number of the job positions and attracts the human resource globally (Almansoori et al. 2021). These human resources are often connected through virtual environment to perform common goal.

2. Virtual Group Communication

A clear communication and meeting approach is required for effective virtual group communication. Repeated contact points with virtual community contact participants (and stakeholders) are critical for the outcome. The correct meeting frequency must be determined based on the configuration of virtual group communication, such as team size and project length (daily, weekly). "The use of "sprints" (short iterative cycles) and "daily scrums" (daily meetings to discuss assignments and roadblocks) are important project strategies" (Lumseyfai, 2020). These methods can be used in virtual group collaboration to produce positive results such as increased visibility, improved communication, and ongoing participation/feedback from stakeholders (Nevo & Chengalur-Smith, 2011).

Communication quality is one of the factors that determines how effective a group or team is (Marlow et al. 2018). People become more competent in imbuing their text messages with both tasks and social information as they become more familiar with the use of email and become more adept at imbuing their text messages with both tasks and social information. Observing how people use icons, symbols, jargon, and other shortcuts in text-based interactions demonstrates how much information can be applied to conversations that would otherwise be much simpler. Although these types of conversations will never be as rich as face-to-face interactions, it's amazing how much more complex and intricate text-based discussions can be added with additional dimensions in this way." Many younger people appear to prefer texting to talking to one another, and this generation regards virtual group contact as far more common than their parents or older siblings.

Communication is widely acknowledged as the fuel that enables groups to carry out activities and achieve their objectives. Contact is obviously crucial in determining the essence of a group's relationships among members, as well as the dynamics of the group or group itself (Saunders,, 2017). Interpersonal dynamics in a virtual community may differ from those in traditional face-to-face groupings because communication styles and patterns must differ. Gritsenko (2016) mentioned that, "individual like in traditional face-to-face groups was primarily based on non-rational or non-task bases of attraction," whereas "in virtual groups, people seem to prefer those who contribute more to the community's success." This is understandable, but it also implies that as businesses use virtual groups more frequently, they will need to pay attention to how communication differs and how to enable the most effective communication possible given the circumstances. In reality, as we will see later in this paper, training is essential if virtual groups and teams are to be as effective as they should be.

According to Scott and Wildman (2015), cultural and organisational inequalities caused by regional distribution increase the likelihood of contact breakdowns in virtual communities. They believe that the breakdowns are the result of widespread misunderstandings and a lack of "shared meaning" among the participants. Several studies have found that effective virtual communication is dependent on the "time-consuming process" of establishing a common ground (Kim et al. 2018). Zuzul (2019) pointed out that finding common ground is essentially a process of building a "shared meaning framework," and that failure to do so frequently results in major failures in collaborative endeavours." According to Asrar-ul-Haq, and Anwar (2016), knowledge sharing is another important aspect of collaboration that is linked to the creation of a shared meaning context.

Besides this, trust is another important aspect of group efficiency, which is made much more difficult in virtual groups due to the loss of critical social and nonverbal cues. Bolino et al. (2016) demonstrated that trust, like other relational dynamics in groups, tends to dwindle when there are fewer visible and audible cues. Because trust is built in large part through the flow of information (Ponte et al. 2015), it is critical to assist virtual groups in developing communication strategies. As we all know, group members must trust one another in order to enjoy their jobs and feel a sense of belonging. Trust is positively associated with group performance (Ferguson & Peterson, 2015). The degree to

which members feel connected to and a part of the group is closely related to the issue of trust. However, we must keep in mind that, while virtual group communication is similar to real group communication in many ways, the differences must be identified and dealt with if the group is to succeed.

2.1 Advantages and Disadvantages of Virtual Teams

According to Bühlmann and Scheunemann (2018), every team is virtual at some point. Traditional or face-to-face teams, for example, could use an electronic medium to send out meeting minutes or validate decisions made in the hallway. "It's fascinating to consider teams across this range, from completely virtual to solely face-to-face," because most teams use a mix of face-to-face and computer-mediated communication. The majority of challenges in virtual teams, according to Alsharo and Ramirez (2017), are caused by a lack of personal willingness to engage, a lack of general planning by the team or management, competing schedules, or the common issue of interpersonal disagreements. These interaction challenges can be addressed in a virtual environment, but not in the same way that they can in a face-to-face setting. When compared to co-located face-to-face teams, virtual teams can be effective and trustworthy, despite the challenges and ambiguities they face. Performance-based trust is replacing social interaction-based trust. Virtual teams demonstrate several advantages and disadvantages as discussed in following sub-sections.

2.1.1 Advantages of Virtual Teams

According to Berry (2011), virtual teams have the advantage of being able to interact, collaborate, and develop outputs regardless of time and space because they are not limited by time or geography as most face-to-face teams are. Virtual teams enable companies to reach a broader geographic audience while maintaining excellent communication with employees and customers (Paul et al. 2016). According to Pangil and Chan (2014), firms use virtual teams for a variety of reasons. Here are a few examples:

i. Hiring the best people, no matter where they are in the world;

ii. Extending the workday to 24 hours rather than 8 hours globally; and

iii. Being more competitive and responsive to the marketplace by providing flexibility to facilitate globalisation of commerce and corporate activity.

According to Dulebohn and Hoch (2017), one of the advantage of virtual teams is that diverse viewpoints and perspectives are represented within the team, allowing for more organisational learning and synergy. "Agreed-upon goals and expectations are essential for any team, and addressing these goals is an important part of the team-building process." Virtual team performance is frequently easier to measure and assess because most interactions, commitments, and outcomes are quickly and electronically documented (Tali, 2016). Because engagement occurs in parallel rather than serially (with concomitant communication blockage), asynchronous procedures are frequently more efficient than synchronous processes (Trenholm, 2020). According to Kirkman and Mathieu (2005), "as technology evolves and team members' awareness and utilisation of technological skills improves, these media can now be used to benefit team functioning.

2.1.2 Disadvantages of Virtual Teams

Working in a virtual environment means that teams have less face-to-face interaction, which has been found to be a barrier to knowledge sharing and team development. According to studies, doing so simply takes longer. When using virtual teams, negative outcomes are entirely possible. According to Hahm (2017), virtual team members initially send less information than face-to-face team members. As a result, team members may have a less shared understanding of required outcomes, which may hamper performance; however, these issues of a lack of shared information appear to resolve themselves over time. These fears and concerns do exist in the short term, but they tend to fade as team members become more familiar with the virtual workplace's logistics and processes." Although it appears to take longer than co-located teams, virtual teams eventually achieve cohesion and contentment (Eubanks et al. 2016). Some argue that the most significant disadvantage of virtual teams and virtual professions is the loss of physical presence (Gibson and Cohen, 2003).

Some virtual team members may be less productive or satisfied because they feel isolated and distant from both the task and the other team members. According to motivation and satisfaction research conducted by Hanna et al. (2017), "most employees feel driven and fulfilled in part as a result of interactions with coworkers".

3. Parameters measuring Performance of Virtual Teams

3.1.1 Communication Competence

Face-to-face communication uses both verbal and nonverbal cues to help team members understand and interact more effectively. Virtual teams, on the other hand, communicate using technologies that do not provide the same visual and auditory cues, making it difficult for virtual team members to comprehend nonverbal cues, particularly when using asynchronous technology. Because good and consistent communication is required to boost information sharing and team performance, virtual team members should hold initial or occasional face-to-face meetings to increase

communication, build trust, and improve performance (Aritz et al. 2018). " Krumm and Hertel (2016) found that virtual team members with prior virtual team experience or cultural awareness training modified their verbal communication more than their written communication (using less jargon, speaking more slowly, or using simpler words or sentences), resulting in improved team performance and satisfaction. Collective societies, such as the UAE, are more influenced by group membership, have fewer abilities to enter or leave new groups (Khalil, 2017), are less motivated to provide personal information, and are less likely to respond to ambiguous messages, according to cross-cultural communication research (Greene, 2015)."

Communication refers to exchanging information and other resources, such as ideas, knowledge, and skills among team members and organizations. Communication types are written (such as letters, emails, memos, reports, and formal documents), verbal (as chat, presentation, and voicemails), and non-verbal (as signals to communicate and study body language) (Ahmed et al. 2021). Communication competence is "the ability to interact well with others" (Spitzberg 1988) which can be assessed by several parameters which measure communication competence as in table 1.

Table 1 - Parameters measuring communication competence

Indicator	Statements	Source
CC1	We standardized our communication frequency, content and media.	Jablin and Sias (2001); Spitzberg (2000)
CC2	All members are committed on communication frequency, contents and media	
CC3	We used a standardized communication channel	
CC4	We used 'knowledge database' to maintain and share existing knowledge of the project information	
CC5	We frequently communicate with team members to discuss the completion of the project	Schirmer et al. (2005); Chen & Starosta (1996)
CC6	We maintained a friendly interpersonal communication process among team member	
CC7	We recorded important communication	
CC8	We give prompt response to asynchronous queries from team members	
CC9	We established a high level of trust and confidence among team members	
CC10	We take corrective action to mitigate negative impact on miscommunication	
CC11	It is easy to ask assistance from any member of our group	Rubin and Martin (1994)
CC12	We have good command of English language	
CC13	My team member is a good listener	
CC14	I think our team members had effective communication	
CC15	My team member has a good command of the language	MsCroskey (1982)
CC16	My team member is sensitive to others' needs of the moment	Imahori and Lanigan (1989)
CC17	The communication among members is accurate	
CC18	The communication among members is adequate	
CC19	The communication among members is complete	
CC20	The communication among members is credible	Arasaratnam (2009)

3.1.2 Cultural Intelligence

The beliefs or ideas that distinguish one group or category of people from another are referred to as culture (Idang, 2015). "In a seminal work on national culture differences in work-related values, Vaiman and Brewster (2015) distinguished between countries' cultures based on four dimensions as power distance (the extent to which less powerful group members expect and accept unequal distribution of power), individualism versus collectivism (the level of independence of individuals or groups when caring for them), and individualism versus collectivism (the level of independence of individuals or groups when caring for them) (the extent to which unknown situations are avoided). Cultural differences are the most significant impediment to virtual team performance (Tenzer, & Pudelko, 2016). " Individualism, achievement, egalitarianism, informality, and assertiveness are valued in the UAE, whereas western societies value collectivism, modesty, hierarchy, formality, and indirectness. As a result, cultural differences can help to explain why global virtual teams are so ineffective. The parameters indicating cultural intelligence are summarized in table 2.

Table 2 - Parameters measuring cultural intelligence

Indicator	Statements	Source
CI01	I know the ways in which cultures around the world are different	Thomas et al. (2008)
CI02	I can give example of cultural difference from my personal experience, reading and so on	
CI03	I enjoy talking with people from different cultures	Ang et al. (2007)

CI04	I have the ability to accurately understand the feelings of people from other cultures	Brislin et al. (2006)
CI05	I sometimes try to understand people from other cultures by imaging how something looks from their perspectives	
CI06	I can change my behaviour to suit the different cultural situations and people	
CI07	I accept delays without becoming upset when in different cultural situations and with culturally different people	Van Dyne et al. (2012)
CI08	I am aware of the cultural knowledge and use when interacting with someone from other culture	Ott and Michailova (2018), Thomas (2006)
CI09	I think a lot about the influence that culture has on my behaviour and that of others who are culturally different	
CI10	I am aware that I need to plan my course of action when in different situations and with culturally different people	

3.1.3 Knowledge Sharing

Knowledge is regarded as a critical resource for gaining a competitive advantage. Thus, proper organisational knowledge management is critical. As part of knowledge management, individuals within the organisation must be encouraged to share their knowledge with other members of the organisation (North & Kumta, 2018). Organizations have used virtual teams in recent years to mobilise a broader range of unevenly distributed knowledge resources. Businesses formed virtual teams in order to combine the skills of people working in different locations (Dulebohn, & Hoch, 2017). Its goal is to make information sharing and transfer easier in order to gain a competitive advantage. Organizations that encourage knowledge sharing within virtual teams will be able to fully utilise existing knowledge while also increasing the value of knowledge, because the dialogues that occur during sharing frequently result in the generation of new ideas, which are thought to have the potential to create new knowledge (Kazadi et al. 2016).

It has been demonstrated that knowledge sharing among virtual team members improves team performance. Virtual team members should be able to effectively share their knowledge due to their mutual impact, dedication, and disagreement (Wu, Lin, and Lin, 2006). Effective information sharing between members in virtual teams is more difficult than in traditional teams. To share information, team members must have a high level of trust (Zhang, & Jiang, 2015). When members of a new virtual team are thrown together for the first time, it takes a few weeks for them to accurately recognise, trust, and coordinate their specialised talents in order to efficiently perform the task (Tiwari, 2015). " As a result, virtual team members must trust one another in order to exchange information, which increases the team's effectiveness. People are more willing to share their knowledge with someone they can trust, so in virtual teams, personal trust is essential. Members do not meet on a regular basis, and in some cases do not see each other at all, making the development of personal trust impossible. As a result, virtual team members' ability to communicate information is dependent on institutional trust. Finally, research has found a strong link between cognitive trust and knowledge sharing (Holste and Fields, 2010). In other words, each member's perception of the other's competence and professionalism increases his or her desire to share knowledge. Pangil and Chan (2014) developed a framework for investigating the relationship between trust and knowledge sharing as a foundation for measuring virtual team performance. "Whether the team is traditional or virtual, knowledge exchange is critical," they concluded. Table 3 describes the parameters measuring knowledge sharing.

Table 3 - Parameters measuring knowledge sharing

Indicator	Statements	Source
KS01	People in this team share their ideas openly	Wang et al. (2010)
KS02	People in this team are willing to share knowledge/ideas with other	
KS03	This team is good in using the knowledge/ideas of team members	Hendriks (1999); Cabrera et al. (2005)
KS04	People with expert knowledge in this team are willing to help other team members	
KS05	People in this team actively share their knowledge with other team members	Gagne (2009); Cabrera et al. (2006)
KS06	It is easy to talk openly among member of our group	
KS07	The knowledge sharing with other team members is very good	Yang et al. (2008), Bartol et al. (2002)
KS08	The knowledge sharing with other members is very valuable	
KS09	The knowledge sharing with other team members is very beneficial	
KS10	People in this team keep the best ideas to themselves	

3.1.4 Collaboration

The term "virtual collaboration" refers to the widespread use of technology channels that enable team members to collaborate on project tasks (Zhang et al. 2018). When some or all of the members of a virtual team are physically separated, face-to-face interactions are nearly impossible (Alsharo, & Ramirez, 2017). Ad hoc team members use mobile social media to collaborate on cross-organizational task coordination (Anders, 2016). As a result, "degrees of freedom" for tasks, teams, and tools are relatively high in inter-organizational projects, making mutual alignment difficult. The examination of three virtual collaboration criteria, team composition, work difficulty, and tool functionality, is descriptive in nature; it is the relationships between them that matter in terms of project success.

Virtual collaboration outcomes are influenced by whether an appropriate collaboration tool is used to facilitate task completion task-tool relationship, the extent to which team members adopt and use the collaboration tool (i.e., team-tool relationship), and how well team members coordinate with one another to work on tasks task-task relationship (Argote and Fahrenkopf, 2016). Task performance and technology use improve when technology qualities match task characteristics (Wu, & Chen, 2017). The task-tool relationship in virtual collaboration is captured by "task fit," which is the alignment of a project task with a collaboration tool. When choosing a collaboration tool for an inter-organizational project, the most important factor to consider is how effective it is at completing tasks." End users of collaboration tools are project team members, and their use of technology to collaborate with one another may reveal the team-tool relationship.

The technology acceptance model (TAM) is a well-known concept for user adoption that estimates intention to use based on perceived usefulness and perceived ease-of-use (Davis et al., 1989). WhatsApp and WeChat, for example, provide a variety of features and user interfaces that allow for cross-organizational collaboration. "In the utility function of usability, usefulness and ease-of-use are linked: the former represents the benefit side in terms of performance expectancy, while the latter represents the cost side in terms of effort expectancy" (Venkatesh et al., 2003). As a result, the team-tool connection can be defined as "tool usability," in which the ease with which a collaboration tool can be used influences how often team members use it. For specific project tasks, a temporary inter-organizational project team is formed (Bakker et al., 2011). "Bringing together a virtual team of employees from other organisations, as well as other stakeholders such as project sponsors, clients, suppliers, and subcontractors, to collaborate on project activities, is the most difficult managerial challenge" (Von Danwitz, 2018). There are numerous parameters measuring collaboration role for effective virtual teams as presented in table 4.

Table 4 - Parameters measuring collaboration

Indicator	Statements	Source
CLB01	I collaborated with my team members to come up with decisions acceptable to us	Lai (2011); Wood and Gray (1991)
CLB02	I tried to bring all our concerns out in the open so that the issues could be resolved in the best way	Boddy et al. (2000)
CLB03	I tried to work with my team members to find solutions to a problem that met our expectations	Randhawa et al. (2017)
CLB04	I exchanges accurate information with my team member to solve a problem together	
CLB05	I tried to investigate an issue with my team members to find solution acceptable to us	
CLB06	There was a clear sense of direction during on-line discussion with the remote teams	D'amour et al. (2008); Marion and Fixson (2021)
CLB07	The online interactions between local team and remote team were well organized	

4. Research Methodology

In this study, a positivistic approach was used to collect data because it is cost-effective, has a quick data collection mode, is simple to analyse, and is appropriate for testing hypotheses and determining relationships between variables (Almansoori et al. 2021b). The questionnaire method was used to collect information from respondents. A questionnaire is a survey research instrument that consists of a series of structured questions designed to collect primary data from research participants. A questionnaire is a tool that "converts the research objectives into specific questions, the answers to which enable the researcher to test the stated hypotheses". The questionnaire is frequently regarded as the heart of survey research (Kothari, 2004) because it can cover a large geographical area at a low cost, making it cost effective; it may be bias-free; it allows respondents adequate time, ensuring the reliability of respondents' responses due to the convenience provided to them; and it can be used in large samples, making the results reliable and dependable.

The population was made up of UAE multinational corporation employees ranging from management to low-level workers. To collect the data, we used a simple random sampling technique. This method gives each attribute an equal chance of being chosen (Almazrouei et al. 2021). The total number of employees in Dubai multinational companies at

the time of data collection was 3,044. Meeting with all of the respondents from the entire community to fill out questionnaires is time-consuming, expensive, and difficult for the researcher (Rungtusanatham et al., 2003). With limited resources and at a specific time, it is impossible to study a large area, such as the entire UAE. As a result, samples from a subset of the research population are required. Anything between 100 and 200 is considered satisfactory, and anything above 200 is considered a large sample (Goh and Hooper, 2009). As a part of data collection in this study a total 318 valid completed questionnaire forms were collected which were analyzed statistically to calculate mean and standard deviation values.

5. Results and Discussion

5.1 Demographic Profile of the Respondents

Collected questionnaire forms were reviewed carefully. The information regarding the respondents was collected to assess the capability and expertise of the respondents. The demographic information of the respondents is presented in Table 5.

Table 5 - Demographic information of the respondents

Items	Frequency	Percentage
Gender		
Male	193	60.7
Female	125	39.3
Age Distribution		
18-28	49	15.33
29-38	115	36.18
39-48	85	26.68
Over 50	69	21.77
Educational level		
Diploma/certificate	2	0.61
Bachelor degree	26	8.28
Masters degree	226	71.16
PhD. degree	64	19.93
Position		
Manager	37	11.65
Team leader	31	9.81
Member	114	35.88
-	136	42.77
Experience		
1 to 5 years	95	29.75
6 to 10 Years	104	32.82
11 to 15	35	11.04
More than 16	84	26.38

Table 5 shows that about 60.7% of the respondents are male and 39.3% are female, the difference between the male and the female is much because respondents are selected on the basis of the actual employee in the organizations as revealed in Arab countries the number of men more the women. The distribution according to age shows that about 50 of the respondents are aged from 18 to 28 years thereby constituting about 15.33 % of the respondents; and about 26.68% are within the age of 39 to 48 years, and about 21.77% goes to the range of above 50 years.

5.2 Normality Assessment

Awang et al. (2015) argued that a scale data evaluation is commonly evaluated to determine the normality of data distribution. This is because analysis of factors and modeling of structural equations require normal distribution of variables. Furthermore, the distribution of highly skewed or highly kurtosis data suggests non-normality, which implies that the estimate may be affected by external cases. Pallant (2011) stated that it was necessary to check the distribution of variables before they were used in the analysis process.

Pallant (2011) suggested that skew and kurtosis values of -1 to + 1 be regarded a parametrically adequate symmetry distribution and that a normal distribution be assumed. A variable with a skewness and kurtosis values between -2 and +2 can be deemed regularly distributed, according to George and Mallery (2010). The absolute value of skew and kurtosis for all structures was presented in this regard and was within the recommended ranges. This meant that the data distribution for this study was univariate normal. As a result, no more data alteration was required.

Awang et al. (2015) claimed that to determine the normality of the distribution of data, a scale data evaluation is commonly evaluated. This is because both factor analysis and structural equation modeling require normal variables distribution. In addition, the distribution of highly skewed or highly kurtosis data suggests non-normality, implying that external cases may occur that affect the estimate. Pallant (2011) stated that the distribution of variables had to be checked before they were used in the analysis process. The skewness and kurtosis values of the entire items were presented in table 6 below.

Table 6 - Results of normality test

Indicators	Skewness		Kurtosis	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
CC1	-.474	.137	-1.168	.273
CC2	-.574	.137	-.970	.273
CC3	-.620	.137	-.883	.273
CC4	-.608	.137	-.897	.273
CC5	-.796	.137	-.623	.273
CC6	-.670	.137	-.790	.273
CC7	-.634	.137	-.898	.273
CC8	-.562	.137	-.781	.273
CC9	-.709	.137	-.688	.273
CC10	-.479	.137	-.909	.273
CC11	-.496	.137	-.742	.273
CC12	-.399	.137	-.928	.273
CC13	-.639	.137	-.795	.273
CC14	-.489	.137	-.848	.273
CC15	-.462	.137	-.977	.273
CC16	-.429	.137	-.757	.273
CC17	-.532	.137	-.853	.273
CC18	-.370	.137	-.865	.273
CC19	-.698	.137	-.599	.273
CC20	-.681	.137	-.518	.273
CI1	-.790	.137	-.282	.273
CI2	-.737	.137	-.326	.273
CI3	-.818	.137	-.288	.273
CI4	-.699	.137	-.418	.273
CI5	-.824	.137	.006	.273
CI6	-.811	.137	-.205	.273
CI7	-.804	.137	-.215	.273
CI8	-.819	.137	.063	.273
CI9	-.762	.137	-.303	.273
CI10	-.691	.137	.033	.273
KS1	-.676	.137	-.618	.273
KS2	-.804	.137	-.429	.273
KS3	-.805	.137	-.344	.273
KS4	-.650	.137	-.621	.273
KS5	-.794	.137	-.470	.273
KS6	-.826	.137	-.143	.273
KS7	-.799	.137	-.363	.273
KS8	-.567	.137	-.669	.273
KS9	-.778	.137	-.528	.273

KS10	-.488	.137	-.974	.273
CLB1	-.573	.137	-1.076	.273
CLB2	-.755	.137	-.561	.273
CLB3	-.772	.137	-.626	.273
CLB4	-.766	.137	-.459	.273
CLB5	-.692	.137	-.689	.273
CLB6	-.946	.137	-.001	.273
CLB7	-.917	.137	-.147	.273

The result in table 6 shows the skewness and kurtosis values for the research items are within the recommended range .

5.3 Reliability Test

The reliability of the research constructs is tested using Cronbach's alpha coefficients. The result of the reliability test is presented in table 7 below.

Table 7 - Results of reliability assessment

Constructs	Cronbach's Alpha
Communication Competence	.978
Cultural Intelligence	.964
Knowledge Sharing	.958
Collaboration	.938

The result in table 7 shows that the Cronbach's alpha for all the constructs are above the required minimum of 0.7 as adopted by Soomro et al. (2020). Thus, the constructs achieved the required reliability.

5.4 Descriptive Analysis of the Parameters

The data was analyzed descriptively with mean and standard deviation tests. The results were evaluated based on the condition that a mean value of 1 – 1.8 indicates very low level, 1.81 – 2.60 indicate low level, 2.61 – 3.40 indicates moderate level, 3.41 – 4.20 indicates high level, and 4.21 – 5.00 indicates very high level. Results of the 20 parameters of communication competence are presented in Table 8.

Table 8- Results of communication competence indicators

Indicator	Description	Mean	Standard Deviation
CC1	We standardized our communication frequency, content and media.	3.48	1.453
CC2	All members are committed on communication frequency, contents and media	3.56	1.417
CC3	We used a standardized communication channel	3.55	1.413
CC4	We used 'knowledge database' to maintain and share existing knowledge of the project information	3.60	1.392
CC5	We frequently communicate with team members to discuss the completion of the project	3.69	1.366
CC6	We maintained a friendly interpersonal communication process among team member	3.62	1.363
CC7	We recorded important communication	3.62	1.402
CC8	We give prompt response to asynchronous queries from team members	3.64	1.280
CC9	We established a high level of trust and confidence among team members	3.67	1.346
CC10	We take corrective action to mitigate negative impact on miscommunication	3.58	1.297
CC11	It is easy to ask assistance from any member of our group	3.52	1.304
CC12	We have good command of English language	3.43	1.346

CC13	My team member is a good listener	3.57	1.374
CC14	I think our team members had effective communication	3.51	1.314
CC15	My team member has a good command of the language	3.46	1.386
CC16	My team member is sensitive to others' needs of the moment	3.51	1.248
CC17	The communication among members is accurate	3.51	1.359
CC18	The communication among members is adequate	3.46	1.277
CC19	The communication among members is complete	3.82	1.240
CC20	The communication among members is credible	3.79	1.197

Table 8 shows that mean value of all the variables lie in the range of 3.41 – 4.20 which indicates that the investigate parameters have high level of relation with effectiveness of the virtual global team. Similarly, the results obtained for cultural intelligence parameters in presented in table 9.

Table 9 - Results of cultural intelligence indicators

Indicator	Description	Mean	Standard Deviation
CI01	I know the ways in which cultures around the world are different	3.69	1.201
CI02	I can give example of cultural difference from my personal experience, reading and so on	3.60	1.223
CI03	I enjoy talking with people from different cultures	3.71	1.230
CI04	I have the ability to accurately understand the feelings of people from other cultures	3.63	1.197
CI05	I sometimes try to understand people from other cultures by imaging how something looks from their perspectives	3.73	1.147
CI06	I can change my behaviour to suit the different cultural situations and people	3.64	1.219
CI07	I accept delays without becoming upset when in different cultural situations and with culturally different people	3.71	1.195
CI08	I am aware of the cultural knowledge and use when interacting with someone from other culture	3.78	1.099
CI09	I think a lot about the influence that culture has on my behaviour and that of others who are culturally different	3.80	1.131
CI10	I am aware that I need to plan my course of action when in different situations and with culturally different people	3.73	1.055

Table 9 indicate that all the 10 parameters of the cultural intelligence have mean value in between 3.41 – 4.20 which indicates that the investigate parameters have high level of relation with effectiveness of the virtual global team. Similarly, the results obtained for knowledge sharing parameters in presented in table 10.

Table 10 - Results of knowledge sharing competence indicators

Indicator	Description	Mean	Standard Deviation
KS01	People in this team share their ideas openly	3.75	1.253
KS02	People in this team are willing to share knowledge/ideas with other	3.80	1.267
KS03	This team is good in using the knowledge/ideas of team members	3.83	1.232
KS04	People with expert knowledge in this team are willing to help other team members	3.76	1.202
KS05	People in this team actively share their knowledge with other team members	3.81	1.275
KS06	It is easy to talk openly among member of our group	3.77	1.226
KS07	The knowledge sharing with other team members is very good	3.81	1.231
KS08	The knowledge sharing with other members is very valuable	3.70	1.189
KS09	The knowledge sharing with other team members is very beneficial	3.71	1.335
KS10	People in this team keep the best ideas to themselves	3.73	1.229

From Table 10 it can be seen that indicate that all the 10 parameters of the knowledge sharing have mean value in between 3.41 – 4.20 which indicates that the investigate parameters have high level of relation with effectiveness of the virtual global team. Similarly, the results obtained for collaboration parameters in presented in table 11.

Table 11 - Results of collaboration indicators

Indicator	Description	Mean	Standard Deviation
CLB01	I collaborated with my team members to come up with decisions acceptable to us	3.62	1.424
CLB02	I tried to bring all our concerns out in the open so that the issues could be resolved in the best way	3.79	1.263
CLB03	I tried to work with my team members to find solutions to a problem that met our expectations	3.81	1.288
CLB04	I exchanges accurate information with my team member to solve a problem together	3.81	1.223
CLB05	I tried to investigate an issue with my team members to find solution acceptable to us	3.75	1.252
CLB06	There was a clear sense of direction during on-line discussion with the remote teams	3.88	1.202
CLB07	The online interactions between local team and remote team were well organized	3.78	1.263

From Table 11 it can be observed that indicate that all the 7 parameters of the collaboration have mean value in between 3.41 – 4.20 which indicates that the investigate parameters have high level of relation with effectiveness of the virtual global team. From these results it can be concluded that all the investigated parameters are highly related with effectiveness of the virtual team performance.

6. Conclusions

This study investigated relation of communication competency, cultural intelligence, and knowledge sharing and collaboration parameters with virtual team performance in UAE. A total 4 parameters were considered for investigated identified from literature. This investigation was carried out based on questionnaire survey. Total 318 data samples were collected from MNC employees in UAE. Mean and standard deviation tests of the data revealed that all the parameters have high level relation with virtual teams. This research has provided essential details regarding the parameters to ensure that communication is enhanced and performance therefore improved. The assessment of the communication strategies which could effectively enhance project performance is also of fundamental importance to the multinational companies in the UAE.

Acknowledgment

References

Ahmed, N., Memon, A. H., and Memon, N. A. (2021), "Communication Modes Used for Information Sharing in Construction Projects of Pakistan", International Journal of Emerging Trends in Engineering Research, Vol. 9, No. 10, pp. 1305-1311

Ale Ebrahim, N., Ahmed, S., Abdul Rashid, S. H., and Taha, Z. (2012), "Technology use in the virtual RandD teams", American Journal of Engineering and Applied Sciences, Vol. 5, No. 1, pp. 9-14.

Alhammadi, A. S. A. M., and Memon, A. H. (2020), "Inhibiting Factors of Cost Performance in UAE Construction Projects", International Journal of Sustainable Construction Engineering and Technology, Vol. 11, No. 2, pp. 126-132.

Almansoori, M. T. S., Rahman, I. A., and Memon, A. H. (2021), "Correlation between the Management Factors Affecting PMO Implementation in UAE Construction", International Journal of Sustainable Construction Engineering and Technology, Vol. 12, No. 3, pp. 155-165.

Almansoori, M. T. S., Rahman, I. A., and Memon, A. H. (2021b), "Grading of Factors Affecting PMO Implementation in UAE Construction Industry", Turkish Online Journal of Qualitative Inquiry (TOJQI), Vol. 12, No. 6, pp. 1025-1032.

Almazrouei, A., Yassin, A. M., and Memon, A. H. (2021), "Strategic Management Indicators for Sustainable Road Traffic Management", International Journal of Sustainable Construction Engineering and Technology, Vol. 12, No. 3, pp. 88-95.

Alsharo, M., Gregg, D., and Ramirez, R. (2017), "Virtual team effectiveness: The role of knowledge sharing and trust", Information and Management, Vol. 54, No. 4, pp. 479-490.

Ammari, G., Alkurdi, B., Alshurideh, A., and Alrowwad, A. (2017), "Investigating the impact of communication satisfaction on organizational commitment: a practical approach to increase employees' loyalty", International Journal of Marketing Studies, Vol. 9, No. 2, pp. 113-133.

Anders, A. (2016), "Team communication platforms and emergent social collaboration practices", International Journal of Business Communication, Vol. 53, No. 2, pp. 224-261.

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., and Chandrasekar, N. A. (2007), "Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance", Management and organization review, Vol. 3 No. 3, pp. 335-371.

Arasaratnam, L. A. (2009), "The development of a new instrument of intercultural communication competence" Journal of Intercultural Communication, Vol. 20.

Argote, L., and Fahrenkopf, E. (2016), "Knowledge transfer in organizations: The roles of members, tasks, tools, and networks", Organizational Behavior and Human Decision Processes, Vol. 136, pp. 146-159.

Aritz, J., Walker, R., and Cardon, P. W. (2018), "Media use in virtual teams of varying levels of coordination" Business and Professional Communication Quarterly, Vol. 81, No. 2, pp. 222-243.

Asrar-ul-Haq, M., and Anwar, S. (2016), "A systematic review of knowledge management and knowledge sharing: Trends, issues, and challenges", Cogent Business and Management, Vol. 3, No. 1, pp. 1127744.

Awang, R., Zyoud, S. H., Al-Jabi, S. W., Sweileh, W. M., and Waring, W. S. (2015), "Global research productivity of N-acetylcysteine use in paracetamol overdose: a bibliometric analysis (1976–2012)", Human and experimental toxicology, Vol. 34, No. 10, pp. 1006-1016.

Bakker, R. M., Knoben, J., De Vries, N., and Oerlemans, L. A. (2011), "The nature and prevalence of inter-organizational project ventures: Evidence from a large scale field study in the Netherlands 2006–2009", International Journal of Project Management, Vol. 29, No. 6, pp. 781-794.

Bartol, K. M., and Srivastava, A. (2002), "Encouraging knowledge sharing: The role of organizational reward systems", Journal of leadership and organizational studies, Vol. 9, No. 1, pp. 64-76.

Berry, D. M. (2011), "The computational turn: Thinking about the digital humanities", Culture machine, Vol. 12.

Boddy, D., Macbeth, D., and Wagner, B. (2000), "Implementing collaboration between organizations: an empirical study of supply chain partnering", Journal of Management studies, Vol. 37, No. 7, pp. 1003-1018.

Bolino, M. C., and Grant, A. M. (2016), "The bright side of being prosocial at work, and the dark side, too: A review and agenda for research on other-oriented motives, behavior, and impact in organizations", Academy of Management Annals, Vol. 10, No. 1, pp. 599-670.

Brislin, R., Worthley, R., and Macnab, B. (2006), "Cultural intelligence: Understanding behaviors that serve people's goals", Group and Organization Management, Vol. 31, No. 1, pp. 40-55.

Bühlmann, B., and Scheunemann, Y. (2018), "It's time for a virtual team driver's license. Zürich: Evernote".

Cabrera, A., Collins, W. C., and Salgado, J. F. (2006), "Determinants of individual engagement in knowledge sharing", The International Journal of Human Resource Management, Vol. 17, No. 2, pp. 245-264.

Cabrera, E. F., and Cabrera, A. (2005), "Fostering knowledge sharing through people management practices", The international journal of human resource management, Vol. 16, No. 5, pp. 720-735.

Chen, G. M., and Starosta, W. J. (1996), "Intercultural communication competence: A synthesis", Annals of the International Communication Association, Vol. 19, No. 1, pp. 353-383.

D'amour, D., Goulet, L., Labadie, J. F., San Martín-Rodriguez, L., and Pineault, R. (2008), "A model and typology of collaboration between professionals in healthcare organizations", BMC health services research, Vol. 8, No. 1, pp. 1-14.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989), "User acceptance of computer technology: A comparison of two theoretical models", Management science, Vol. 35, No. 8, pp. 982-1003.

Degbey, W. Y., and Einola, K. (2020), "Resilience in virtual teams: Developing the capacity to bounce back", Applied Psychology, Vol. 69, No. 4, pp. 1301-1337.

Dulebohn, J. H., & Hoch, J. E. (2017), "Virtual teams in organizations", Human Resource Management Review, Vol. 27, No. 4, pp. 569-574.

Eubanks, D. L., Palanski, M., Olabisi, J., Joinson, A., and Dove, J. (2016), "Team dynamics in virtual, partially distributed teams: Optimal role fulfilment", Computers in Human Behavior, Vol. 61, pp. 556-568.

Ferguson, A. J., and Peterson, R. S. (2015), "Sinking slowly: Diversity in propensity to trust predicts downward trust spirals in small groups", Journal of Applied Psychology, Vol. 100, No. 4, pp. 1012.

Gagné, M. (2009), "A model of knowledge-sharing motivation. Human Resource Management", Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management, Vol. 48, No. 4, pp. 571-589.

George, D., and Mallery, P. (2019), "IBM SPSS statistics 26 step by step: A simple guide and reference", Routledge.

Gibson, C. B., and Cohen, S. G. (Eds.). (2003), "Virtual teams that work: Creating conditions for virtual team effectiveness", John Wiley and Sons.

Goh, C. H. T., and Hooper, V. (2009), "Knowledge and information sharing in a closed information environment", Journal of Knowledge Management.

Greene, K. (2015), "An Integrated Model of Health Disclosure Decision-Making1", Uncertainty, information management, and disclosure decisions: Theories and applications, pp. 226

Gritsenko, V. (2016), "Interaction on online forums and group communication: a case study of an IT support community", Procedia-Social and Behavioral Sciences, Vol. 236, pp. 14-24.

Hahm, S. (2017), "Information Sharing and Creativity in a Virtual Team: Roles of Authentic Leadership, Sharing Team Climate and Psychological Empowerment", KSII Transactions on Internet and Information Systems, Vol. 11, No. 8.

Han, S. J., Chae, C., Macko, P., Park, W., and Beyerlein, M. (2017), "How virtual team leaders cope with creativity challenges", European Journal of Training and Development.

Hanna, B., Kee, K. F., and Robertson, B. W. (2017), "Positive impacts of social media at work: Job satisfaction, job calling, and Facebook use among co-workers", In SHS web of conferences, Vol. 33, p. 00012.

Hendriks, P. (1999), "Why share knowledge? The influence of ICT on the motivation for knowledge sharing", Knowledge and process management, Vol. 6, No. 2, pp. 91-100.

Hoch, J. E., and Dulebohn, J. H. (2017), "Team personality composition, emergent leadership and shared leadership in virtual teams: A theoretical framework", Human Resource Management Review, Vol. 27, No. 4, pp. 678-693.

Holste, J. S., and Fields, D. (2010), "Trust and tacit knowledge sharing and use", Journal of knowledge management.

Idang, G. E. (2015), "African culture and values", Phronimon, Vol. 16, No. 2, pp. 97-111.

Imahori, T. T., and Lanigan, M. L. (1989), "Relational model of intercultural communication competence", International Journal of Intercultural Relations, Vol. 13, No. 3, pp. 269-286.

Jablin, F. M., and Sias, P. M. (2001), "Communication competence", The new handbook of organizational communication: Advances in theory, research, and methods, Vol. 2, pp. 819-864.

Kazadi, K., Lievens, A., and Mahr, D. (2016), "Stakeholder co-creation during the innovation process: Identifying capabilities for knowledge creation among multiple stakeholders", Journal of business research, Vol. 69, No. 2, pp. 525-540.

Khalil, S. (2017), "Investigating the factors that influence virtual teams' performance within the United Arab Emirates using IMOI model", International Journal of Business and Social Science, Vol. 8, No. 1.

Killingsworth, B., Xue, Y., and Liu, Y. (2016), "Factors influencing knowledge sharing among global virtual teams", Team Performance Management.

Kim, I., Hong, S., Lee, J. H., and Bazin, J. C. (2018), "Overlay Design Methodology for virtual environment design within digital games", Advanced Engineering Informatics, Vol. 38, pp. 458-473.

Kirkman, B. L., and Mathieu, J. E. (2005), "The dimensions and antecedents of team virtuality", Journal of management, Vol. 31, No. 5, pp. 700-718.

Kothari, C. R. (2004), "Research methodology: Methods and techniques", New Age International.

Krumm, S., Kanthak, J., Hartmann, K., and Hertel, G. (2016), "What does it take to be a virtual team player? The knowledge, skills, abilities, and other characteristics required in virtual teams", Human Performance, Vol. 29, No. 2, pp. 123-142.

Lai, E. R. (2011), "Collaboration: A literature review", Pearson Publisher. Retrieved November, Vol. 11

Lippert, H., and Dulewicz, V. (2018), "A profile of high-performing global virtual teams", Team Performance Management: An International Journal.

Lumseyfai, J. (2020), "A Four-Pillared Holistic Model for Improving Performance in Engineering Virtual Project Teams", Engineering Management Journal, Vol. 32, No. 2, pp. 107-119.

Lurey, J. S., and Raisinghani, M. S. (2001), "An empirical study of best practices in virtual teams", Information and Management, Vol. 38, No. 8, pp. 523-544.

Marion, T. J., and Fixson, S. K. (2021), "The transformation of the innovation process: How digital tools are changing work, collaboration, and organizations in new product development", Journal of Product Innovation Management, Vol. 38, No. 1, pp. 192-215.

Marlow, S. L., Lacerenza, C. N., Paoletti, J., Burke, C. S., and Salas, E. (2018), "Does team communication represent a one-size-fits-all approach?: A meta-analysis of team communication and performance", Organizational Behavior and Human Decision Processes, Vol. 144, pp. 145-170.

McCroskey, J. C. (1982), "Oral communication apprehension: A reconceptualization", Annals of the International Communication Association, Vol. 6, No. 1, pp. 136-170.

Mowshowitz, A. (1994), "Virtual organization: A vision of management in the information age", The information society, Vol. 10, No. 4, pp. 267-288.

Nevo, S., and Chengalur-Smith, I. (2011), "Enhancing the performance of software development virtual teams through the use of agile methods: a pilot study", In 44th Hawaii International Conference on System Sciences, IEEE, pp. 1-10.

North, K., and Kumta, G. (2018), "Knowledge management: Value creation through organizational learning", Springer.

Ott, D. L., and Michailova, S. (2018), "Cultural intelligence: A review and new research avenues", International Journal of Management Reviews, Vol. 20, No. 1, pp. 99-119.

Pallant, J. (2011), "Survival manual. A step by step guide to data analysis using SPSS".

Pangil, F., and Chan, J. M. (2014), "The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness", Journal of Knowledge Management.

Paul, R., Drake, J. R., and Liang, H. (2016), "Global virtual team performance: The effect of coordination effectiveness, trust, and team cohesion", IEEE Transactions on Professional Communication, Vol. 59, No. 3, pp. 186-202.

Ponte, E. B., Carvajal-Trujillo, E., and Escobar-Rodríguez, T. (2015), "Influence of trust and perceived value on the intention to purchase travel online: Integrating the effects of assurance on trust antecedents", Tourism Management, Vol. 47, pp. 286-302.

Randhawa, K., Josserand, E., Schweitzer, J., and Logue, D. (2017), "Knowledge collaboration between organizations and online communities: the role of open innovation intermediaries", Journal of Knowledge Management.

Rubin, R. B., and Martin, M. M. (1994), "Development of a measure of interpersonal communication competence", Communication Research Reports, Vol. 11, No. 1, pp. 33-44.

Rungtusanatham, M., Salvador, F., Forza, C., and Choi, T. Y. (2003), "Supply-chain linkages and operational performance: A resource-based view perspective", International Journal of Operations and Production Management.

Saunders, E. N. (2017), "No substitute for experience: presidents, advisers, and information in group decision making", International Organization, S219-S247.

Schirmer, J. M., Mauksch, L., Lang, F., Marvel, M. K., Zoppi, K., Epstein, R. M., and Pryzbylski, M. (2005), "Assessing communication competence: a review of current tools", Fam Med, Vol. 37, No. 3, pp. 184-92.

Scott, C. P., and Wildman, J. L. (2015), "Culture, communication, and conflict: A review of the global virtual team literature", Leading global teams, pp. 13-32.

Soomro, N.U.I, Memon, N. A., Memon, A. H., and Memon, K. R. (2020), "Contractor's Selection Criteria in Construction Works in Pakistan", Engineering, Technology and Applied Science Research, Vol. 10, No. 2, pp. 5520-5523.

Spitzberg, B. H. (1988), "Communication Competence: Measures of Perceived", A handbook for the study of human communication: Methods and instruments for observing, measuring, and assessing communication processes, pp. 67.

Spitzberg, B. H. (2000), "A model of intercultural communication competence", Intercultural communication: A reader, Vol. 9, pp. 375-387.

Tali, A. (2016), "Perceived effectiveness in estonian virtual teams: relationships with trust, team commitment and efficacy beliefs".

Tenzer, H., and Pudelko, M. (2016), "Media choice in multilingual virtual teams", Journal of International Business Studies, Vol. 47, No. 4, pp. 427-452.

Thomas, D. C. (2006), "Domain and development of cultural intelligence: The importance of mindfulness", Group and Organization Management, Vol. 31, No. 1, pp. 78-99.

Thomas, D. C., Elron, E., Stahl, G., Ekelund, B. Z., Ravlin, E. C., Cerdin, J. L., and Lazarova, M. B. (2008), "Cultural intelligence: Domain and assessment", International Journal of Cross Cultural Management, Vol. 8, No. 2, pp. 123-143.

Tiwari, S. R. (2015), "Knowledge integration in government–industry project network", Knowledge and Process Management, Vol. 22, No. 1, pp. 11-21.

Trenholm, S. (2020), "Thinking through communication: An introduction to the study of human communication", Routledge.

Vaiman, V., and Brewster, C. (2015), "How far do cultural differences explain the differences between nations? Implications for HRM", The International Journal of Human Resource Management, Vol. 26, No. 2, pp. 151-164.

Van Dyne, L., Ang, S., Ng, K. Y., Rockstuhl, T., Tan, M. L., and Koh, C. (2012), "Sub-dimensions of the four factor model of cultural intelligence: Expanding the conceptualization and measurement of cultural intelligence", Social and personality psychology compass, Vol. 6, No. 4, pp. 295-313.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003), "User acceptance of information technology: Toward a unified view", MIS quarterly, pp. 425-478.

Von Danwitz, S. (2018), "Managing inter-firm projects: A systematic review and directions for future research", International Journal of Project Management, Vol. 36, No. 3, pp. 525-541.

Wang, S., and Noe, R. A. (2010), "Knowledge sharing: A review and directions for future research", Human resource management review, Vol. 20, No. 2, pp. 115-131.

Wood, D. J., and Gray, B. (1991), "Toward a comprehensive theory of collaboration", The Journal of applied behavioral science, Vol. 27, No. 2, pp. 139-162.

Wu, B., and Chen, X. (2017), "Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model", Computers in Human Behavior, Vol. 67, pp. 221-232.

Wu, S., Lin, C. S., and Lin, T. C. (2006), "Exploring knowledge sharing in virtual teams: A social exchange theory perspective", In Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06), Vol. 1, pp. 26b-26b.

Yang, J., Adamic, L. A., and Ackerman, M. S. (2008), "Crowdsourcing and knowledge sharing: strategic user behavior on taskcn", In Proceedings of the 9th ACM conference on Electronic commerce, pp. 246-255.

Zhang, Y., Sun, J., Yang, Z., and Wang, Y. (2018), "Mobile social media in inter-organizational projects: Aligning tool, task and team for virtual collaboration effectiveness", International Journal of Project Management, Vol. 36, No. 8, pp. 1096-1108.

Zhang, X., and Jiang, J. Y. (2015), "With whom shall I share my knowledge? A recipient perspective of knowledge sharing", Journal of Knowledge Management.

Zuzul, T. W. (2019), "Matter Battles: Cognitive representations, boundary objects, and the failure of collaboration in two smart cities", Academy of Management Journal, Vol. 62, No. 3, pp. 739-764.