

Behavioral Adaptation Within Cross-Cultural Virtual Teams

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Abstract—With today's business environments no longer confined to national borders, much work is undertaken in global virtual teams. Such teams consist of members located in different countries that communicate via technology media to complete a project task. Much of the research in this area has been focused on the technological aspects of such environments; there is, however, a lack of research into the behavioral aspects and the issue of cultural differences in particular. It has been acknowledged that when cultural diversity is neither recognized nor acted upon, significant challenges can arise for the team.

Current advice in the literature suggests that team members should adapt their normal working behavior in consideration of cultural differences. However, there is little indication of how team members should do so. This study investigated if and/or how team members adapt their behavior in cross-cultural virtual teams.

The results of this study indicate that team members can adapt their behavior in both spoken and written communication as well as allowing for religious beliefs and time zone differences. This paper discusses specifically how behavior can be adapted, including a discussion of behaviors that caused concern. Finally, a framework of behavioral adaptations is presented for ways to improve cross-cultural virtual team interactions.

Index Terms—Behavior adaptation, culture, global teams, virtual teams.

A virtual team can be described as people who are assembled to accomplish a task via information and telecommunication media [1]. As today's business environments are no longer confined to national borders [2], much effort has been dedicated to the research of cross-cultural virtual teams, where team participants are located in different countries.

Work that takes place over long distances means that communication will often involve different cultures. Participants may be surprised by such interactions because they have not considered various cultural differences and how they impact the daily work of long-distance team [3].

Culture has been described as one of the key issues of modern project management [4] as well as a significant challenge for cross-cultural virtual teams [5].

Past research suggests that team members should adapt their normal working behavior to allow for better cultural interactions [6], [7]. Yet while the literature recognizes the importance of adapting behavior in consideration of culture, there is little indication of **how** team members should do so when working in cross-cultural virtual teams [3].

This study investigates how team members adapt their behavior in cross-cultural virtual teams. For

the purpose of this study, a cross-cultural virtual (CCV) team has been defined as a project team consisting of members from two or more countries that normally communicate via technology rather than in a face-to-face environment.

LITERATURE REVIEW

Culture The concept of culture largely stems from anthropology, where there is "no consensus on its meaning" [8]. There are a large number of perceptions on the matter. Therefore, it is critical to assess these perceptions and decide on what is significant to the given research area [8].

The first known definition of culture dates back to the 18th century when Sir Edward Burnett Tylor defined culture as "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" [9]. Consequently, culture can be seen as a product of behavior [10].

Another well-known definition of culture is that of Kroeber and Kluckhohn (1952), who also relate the notion of culture to behavior. They identify culture as patterns of ideas and values that shape one's behavior [11]. In more recent times, culture has been described as "the collective programming of the mind which distinguishes the members of one human group from another" [12]. Hofstede suggests that culture is not inherited but learned, as it is derived from "one's social environment" [12]. Culture is "the way of life of a people" [13].

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Culture comes in many different forms such as functional culture, organizational culture, and national culture [5]. Throughout this study, the term culture is used to represent national culture.

Hofstede's work from the 1970s explored the notion of national culture. Four independent dimensions of national culture that could be measured relative to other cultures were proposed; POWER DISTANCE (from small to large), INDIVIDUALISM versus COLLECTIVISM, the degree of MASCULINITY versus FEMININITY, and uncertainty avoidance (from weak to strong). After replication, a fifth cultural variable was added, that of LONG-TERM ORIENTATION as opposed to SHORT-TERM ORIENTATION. These five dimensions could be used to study cultural differences between people from different countries [14]. This work, however, is now over ten years old and bears replication yet again. Culture is not static and it is worth considering how recent globalization may have converged cultures to some extent. However, De Mooij (2003) suggests that differences in culture are not being affected by globalization and that culture differences may in fact be further diverging as opposed to converging [15].

Cross-Cultural Virtual Teams A team can be defined as "individuals organized to work together to accomplish a specific objective" [16]. For the purpose of focusing this research, the definition of team can be narrowed to the notion of a project team seen as "a group that works on a specific project that has a beginning and an end" [17]. More so, a virtual team can be described as a team consisting of people who are assembled to accomplish a task via information and telecommunication [1]. Virtual teams differ from traditional project teams (often referred to as co-located teams), as team members do not work together in the same physical location [18]. Virtual team environments are "complex phenomenon(s) with numerous technological and social perspectives" [19].

During the 1990s, the use of CCV teams began to accelerate due to aspects such as global competitiveness, the increase in global customers, and the readiness of today's technology [18]. Such technologies include telephone, email, fax, synchronous chat programs, video, and call conferencing. With the increased usage of CCV teams by organizations, it becomes important to understand factors that affect a team's ability to work well. The technology itself, the issue of perceptions of time [20], and the behavior of team members are all relevant factors. Behavior is the particular focus of this study.

Behavioral Adaptation It is impossible to interface an American appliance with a European plug without using an adaptor [7]. Behavioral adaptation, more specifically in terms of culture, is proposed by this notion of interfacing [7]. Without behavioral adaptation, interaction between different cultures will

not work; and the larger the distance between the cultures, the harder it will be to interface.

Specifically for CCV teams, traditional face-to-face communication is replaced with computer mediated communication. Therefore, team members need to rebuild the way they interact [2]. This may require team members to change the way they behave and interact [21].

Behavioral adaptation recognizes the need to alter certain behaviors when interacting with people, especially when cultural diversity is involved [2], [3], [7].

Culture and Communication Communication between CCV team members can be seen as a crucial element for the success of the team [5] and the "core" of any virtual team [1]. However, communication in CCV teams can be the source of many problems. It is interesting to note that when people from different cultures communicate, "they bring with them their cultural knowledge and background" [22] which causes them to speak from their cultural perspective and to interpret the communication of others from this particular perspective [23].

Team members with different cultural backgrounds can have communication styles that differ [5] and can have different ways of conveying information [24]. This can lead to team members struggling with cross-cultural communication, as they have not considered cultural differences nor considered that this may affect the team's performance [1]. This highlights the importance of understanding communication styles and behavioral patterns of other team members.

Much of the virtual working relationship will occur via technology with the sending and receiving of messages [25]. For efficient communication between two culturally diverse team members to take place, the author of the message should adapt the information so that the reader may understand it [26]. However, it can be argued that communication within cross-cultural environments "has more to do with releasing the right responses" than actually sending the right message [7].

Cross-cultural virtual teams are confronted with more significant challenges than that of localized teams [5], with culture often a source of conflict rather than one of synergy [14]. Cultural differences can "wreak havoc... if such differences are not understood by all parties" [24].

Problems other than communication exist in global virtual teams. Some of these problems stem directly from communication, such as misunderstanding and lack of trust. Other challenges include the complexity of virtual environments, lack of international knowledge, and issues of time. The existing literature

indicates that when cultural diversity is neither recognized nor acted upon, problems can arise [5], [14], [24].

More so, the literature highlights behavioral adaptation as a crucial element in effectively dealing with cultural diversity. However, there is a gap in the literature as to **how** team members should adapt their behavior in order to facilitate better team interactions among diverse cultures [3]. This area is the focus of this study.

RESEARCH METHODS

The question defining the basis for this research was:

- How can CCV team members adapt their behavior with regard to culture?

In investigating this question, two sub-questions were also examined:

- Do CCV team members want their team to be aware of their culture?
- Does prior virtual team training influence behavior?

A case study approach was deemed as the most suitable approach to govern this exploratory research [27]. The study took place within a single organization consisting of multiple offices around the world. A case study enabled investigation of actual organizational and managerial practices within the case organization. After a detailed review of the literature as well as pertinent documents from the organization, an in-depth interview was conducted with the employee responsible for formulating the organization's cultural training material [28]. This data informed the questions and structure for the anonymous online questionnaire, which was the main data collection instrument.

The case study organization requires global virtual team members to have a basic ability to read and speak English. However, as English may not have been a participant's primary language, the questionnaire was designed using simple English terminology. The questionnaire consisted of opinion questions, closed questions, as well as open questions [28]. The opinion questions were measured using a Likert scale. The open questions provided qualitative responses, allowing participants to respond in their own words. The closed questions provided supportive evidence in the form of quantitative results. The questionnaire was tested and piloted before an invitation to participate was distributed via email to CCV team members within the organization.

The analysis of collected data forms a major part of any research study [29]. The data collected was analyzed using Miles and Huberman's data analysis process [30], content analysis, and statistical analysis.

Organization Selection The nature of the research question called for the study of an international organization, utilizing virtual team environments. The organization chosen for this research was a leading international information technology (IT) firm, which shall be referred to as Global IT Solutions (GITS).

GITS has over 20 years experience in the IT industry and is a leading provider of hardware, software, and services. Originally based in the US, GITS now has employees on every continent, many of whom work in CCV teams.

Participant Selection Questionnaire participants were recruited using a snowball sampling technique, in which a person from the organization identifies fellow associates to participate in the study [25], [27]. GITS provided a list of 15 CCV team members. These employees were contacted via an email detailing the research aims and inviting them to participate with a hyperlink to access the online questionnaire. These employees were also invited to forward the email to other known GITS CCV team workers. Eventually, the questionnaire was sent to one of GITS mailing lists for CCV team workers. In total, approximately 470 employees were invited to participate in completing the questionnaire.

RESULTS

Questionnaire results were captured using an online questionnaire interface and a database to store results. The questionnaire was open to participants for a length of four weeks. Once the questionnaire was closed, all results were collated for analysis. If participants belonged to multiple CCV teams, the questionnaire specified that they keep one particular team in mind as they answered the questionnaire.

Participant Demographics A total of 122 usable questionnaire responses were obtained giving a response rate of 26% with 75 male respondents (61.5%) and 47 female respondents (38.5%). Participants worked in 17 different countries. Most participants spent their childhood years in one of 28 different countries, but some participants indicated that they spent their childhood years in multiple countries. The primary language of 76.2% of participants was English, and 60.7% of participants were able to speak multiple languages.

Using definitions provided by GITS, participants were asked to indicate their role within their CCV team. Six percent were team managers who sponsored the team's creation and the supply of resources to complete its task. Team leaders, whose job was to lead the team to achieve its targets and goals, were 42%. Team members—people that contribute skills and subject matter expertise and have some form of interest in the outcome of the team's efforts—were 52%.

The CCV teams varied in size, with the majority of participants in teams consisting of six to ten people. The majority of participants had been part of their CCV team for more than two years (see Table I).

Results from the survey indicated that overall team members adapted their behavior to accommodate other team member's culture.

Table II shows the percentage of respondents who changed their spoken or written communication and those who allowed for religious beliefs or time zone differences. The ways in which members changed their behavior will be outlined in the following sections.

Methods of Communication Participants were asked to specify which media they use to interact with their team, and Table III displays these results, indicating that the majority of participants used both team telephone conferencing and emails to interact (96.7% and 95.1%, respectively).

Participants were then asked to specify their team's primary method of interaction. The top two primary methods of interaction were team telephone conferences (57.4%) and emails (33.6%). In total, 64% of participants primarily used verbal communication (team and one-to-one telephone conferences), and 36% primarily used written communication (email, web-based conferencing/collaboration tools, instant messaging).

Behavior Adaptation The majority of participants (80.3%) indicated that they changed the way they spoke when working within their team. Participants were then asked to detail how they did this, and Table IV indicates the results.

TABLE I
TIME OF EXISTANCE AS TEAM

Time	No.	Percentage
Less than 3 months	6	4.9%
3 to 6 months	16	13.1%
6 to 12 months	20	16.4%
1 to 2 years	30	24.6%
More than 2 years	50	41.0%

TABLE II
OVERALL RESULTS

Behavioural Adaptation	Yes	No
Do you change the way you speak?	80.3%	19.7%
Do you change the way you write?	60.7%	39.3%
Do you allow for religious beliefs?	65.6%	34.4%
Do you allow for time zone differences?	96.7%	3.3%

Many of the of participants (60.7%) also adapted the way they write when interacting with their team using written communication, and the multiple ways participants changed their behavior is detailed in Table V.

Spoken Versus Written Communication It is interesting to note that while 80.3% of participants change their method of spoken communication during CCV team interactions, only 60.7% of respondents change their method of written communication. This may be attributed to the fact that during verbal communication, one is instantly reminded to adapt to culture simply by hearing another team member's voice. As their teammate may have a different accent, tone or level of fluency, the communicator may be more inclined to speak slowly, more clearly, and avoid slang terms. In addition, verbal communication allows for the communicator to interpret pauses and silence. The communicator may further adapt his/her

TABLE III
MEDIA FOR INTERACTION

Medium	No.	Percentage
Team telephone conference	118	96.7%
E-mail	116	95.1%
One-to-one telephone conference	95	77.9%
Website	70	57.4%
Web-based conferencing /collaboration tools	21	17.2%
Team video conference	19	15.6%
Occasional face-to-face meeting	13	10.7%
Instant messaging	11	9.0%
One-to-one video conference	5	4.1%

TABLE IV
ADAPTING SPOKEN COMMUNICATION

Spoken Communication	No.	Percentage
Speak slowly / clearly	65	53.3%
Avoid slang / colloquialisms	33	27.0%
Keep words and sentences short	29	23.8%
Confirm understanding (repetition)	22	18.0%
Change language / accent	18	14.8%
Avoid jargon and acronyms	9	7.4%
Supplement with text or visual	6	4.9%
Invite each individual to speak	5	4.1%
Allow for 'think time' after responses	5	4.1%
Alter tone of voice	5	4.1%
Avoid metaphors	5	4.1%
Avoid humour	3	2.5%

speech by inviting a team member to speak, allowing for “think time” and may confirm understanding by immediately asking questions.

Written communication on the other hand, does not allow for the communicator to perceive the same behaviors as verbal communication. This may be the reason that the number of participants who adapt the way they write is lower. Yet one must be very careful with written communication as it is more easily misinterpreted [31]. This highlights the need to raise awareness of adapting written communication in CCV interactions.

There was no correlation between gender, countries of work or childhood years, or primary language spoken with the preparedness to adapt written or spoken communication. Nor was there a correlation between number of people in the team, or the type of role the participant had in the team, with adapting behavior. There was, however, a relationship between how long a participant had been part of their team and whether or not they adapted their methods of spoken or written communication. Fig. 1 depicts these two relationships, showing that similar trends exist between “change in spoken communication vs time in team” and “change in written communication vs time in team.”

Participants who had only recently commenced working in their team (for less than three months) were the least likely to adapt their spoken and written communication. These participants may not realize the need to adapt their behavior as they are only just beginning to experience CCV team work. On the other hand, participants who had spent three to six months within their team were the most likely to adapt the way that they spoke and wrote. The gradients of both lines are steepest between the first two points. This indicates that at the three-to-six month mark, team members realize that cultural differences exist, and therefore, make a greater effort to improve their

interactions by adapting their behavior. Finally, both lines begin to taper off and level out after the six-month period. This indicates that team members no longer adapt their behavior to such a large extent. This may represent that after six months, team members have a good understanding of interacting with their team counterparts, and CCV adaptations become the norm.

Awareness of Culture Participants were asked whether or not they would like their team members to be aware of their culture. Sixty percent of respondents indicated that they would like team members to be aware of their culture. Participants were then asked to detail at least one way that their team members could allow for their culture. It was interesting to note the correlation between how long a participant had been part of their team (in years) and whether they wanted their team colleagues to be aware of their culture. Fig. 2 illustrates these results showing that the longer participants have been in their respective teams, the more likely they are to want their team colleagues to be aware of their culture.

Initially, as participants commenced working in their CCV teams, they were evenly divided between wanting and not wanting their fellow team members to be aware of their culture. This may be indicative that

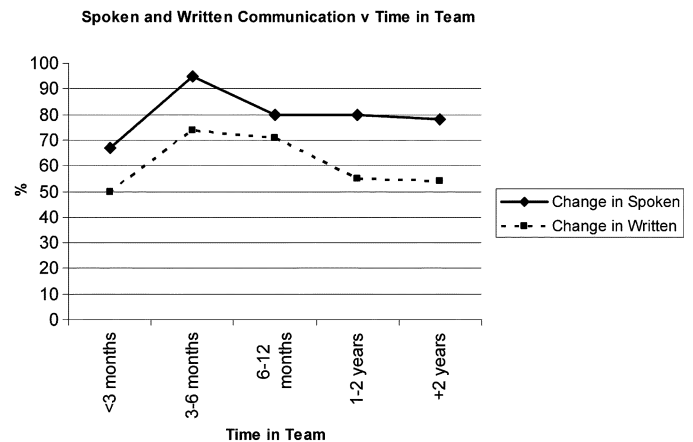


Fig. 1. Behavior adaption related to length of time in team.

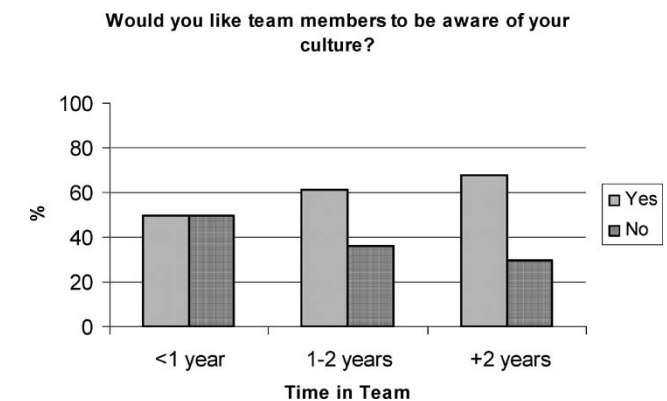


Fig. 2. Awareness of culture related to length of time in team.

TABLE V
ADAPTING WRITTEN COMMUNICATION

Written Communication	No.	Percentage
Limit use of slang and jargon	25	20.5%
Use simple English-short words	18	14.8%
Keep to the point	13	10.7%
Change b/n formal & informal writing	8	6.6%
Confirm understanding (repetition)	7	5.7%
More descriptive	7	5.7%
Use lists / points	6	4.9%
Avoid long emails to non-English speakers	4	3.3%
Write from the receiver's point of view	3	2.5%
Avoid humour	2	1.6%
Formulate criticism carefully	2	1.6%

new CCV workers may not recognize the existence of cultural differences or may simply be uncomfortable with sharing such personal differences. Participants that have been part of their team for between one and two years were 10% more likely to share this information, while those with over two years team membership were 16% more likely to want their team colleagues to be aware of their culture. The trend may suggest that as team members become comfortable with their teammates and aware of cultural differences, they are more likely to want their teammates to recognize their own culture. The trend also suggests that as team members gain more experience in CCV team work, they are more likely to understand and promote cultural awareness.

Concerning Behavior Approximately one third (35.2%) of participants identified behaviors that concerned them. These are listed in Table VI. The most common concern was with team members who did not participate during team telephone discussions. However, some participants indicated that they waited to be invited to speak, specifying that in their culture it is not polite to jump into the conversation.

Virtual Team Training The majority of the participants (61.5%) had completed some form of virtual team training (see Table VII). However, only 32.8% of the participants had received training in matters concerning culture as it relates to virtual team environments.

TABLE VI
BEHAVIOR OF CONCERN

Behaviour	No.	Percentage
Not participating during team discussions	10	8.2%
Too direct / overbearing / abrupt	5	4.1%
Refusing to accept non-local practices	4	3.3%
Preconceptions about one's culture	3	2.5%
Not being allowed 'think time'	3	2.5%
Formulation of criticism or praise	2	1.6%
Lack of team commitment due to other work commitments	2	1.6%
Bad humour	2	1.6%

TABLE VII
PRIOR TRAINING OF PARTICIPANTS

Groups of Participants	Percentage
1. Had not completed any virtual team training	38.5%
2. Had completed virtual team training without cultural aspects	28.7%
3. Had completed virtual team training with cultural aspects	32.8%

There was a small difference of behavioral adaptation between those participants who had not received any virtual team training and those who had had some training, where the training did not specifically address culture. Those who had received training were less likely to be adaptive than those who had received no training at all.

Those participants who had been given training which incorporated aspects of culture were, however, more likely to adapt their spoken communication (10.7%) and their written communication (21.3%) and were more likely to allow for religious beliefs (12.8%). There was no difference between the groups in allowing for time zone differences, which is to be expected as time zone differences are a more obvious issue for geographically dispersed teams.

FURTHER ANALYSIS

The following section discusses in detail how questionnaire participants adapt their behavior in CCV teams. Individual participant responses are indicated by Participant X where X was the number assigned to each completed questionnaire.

Slang, Colloquialisms, Jargon, and Acronyms One of the most commonly identified changes in spoken and written communication was the avoidance of slang, colloquialisms, jargon, and acronyms. Of the participants, 29.5% suggested avoiding slang in spoken communication, and 20.5% suggested avoiding it in written communication. In close association with avoiding slang, participants mentioned that they attempt "to move toward very correct English" (Participant 1) (keeping in mind that GITS CCV team members are required to speak English).

The use of metaphors was identified as not translating well within CCV team interactions. As a specific example, Participant 1 of Australia identified that her US counterparts often use metaphors that her French counterparts do not comprehend. Participant 4, also from Australia, explained that metaphors and managerial words such as "proactive or outside the box" need to be limited in CCV communications.

In association with avoiding managerial words, participants avoid using jargon or "anything that resembles consultant-speak" (Participant 55). Participant 55 suggested that terms such as "bandwidth, fire drill, CTQ, TOI" do not translate well. Many participants also suggested that the use of acronyms should be minimized and that if it were necessary to use acronyms, that they be first written in full and explained clearly.

Confirm Understanding Eighteen percent of participants "spend more time checking for understanding" (Participant 50), confirming that

their teammates have understood their intentions. Participants identified doing so primarily through the use of repetition and iterations. This was a key concept that was largely identified in adaptations of spoken communication. Confirming understanding was also present in adaptations of written communication, with 5.7% of participants doing so.

Participants suggested that by simply “asking questions” (Participant 2) of their teammates, they could confirm whether the correct intention was comprehended. If the questions were answered incorrectly, the team could clarify the issue until it was understood by all team members. Participant 4 expands on this notion suggesting that one must use “open ended questions” to confirm understanding, “otherwise the answer will invariably be Yes.”

Participant 41 of the UK suggested asking team members to summarize points in their own words. As a complementary approach, Participant 50 of France and Participant 82 of the Netherlands recommended repeating/summarizing concepts in one’s own words. These techniques were recommended to ensure that the correct understanding of information is obtained.

Many participants suggested repeating key points to ensure that they are not misunderstood. Participants identified repeating themselves using different words as a way to increase the chance of team members understanding such words. Rephrasing was also used to repeat key points.

Socializing/Informal Chat Cultural understanding can be obtained via socializing informally with team members [29]. Participants were asked to suggest ways that their team members could allow for their culture. One popular suggestion was to discuss culture on a social level, preferably at the start or end of a phone discussion. This suggestion came from participants working in multiple countries including France, Germany, the Netherlands, Australia, Canada, and the US.

These participants believed socializing was “important” (Participant 63) and would benefit the team by opening a “window into the other team members’ cultures” (Participant 8). Weather, religious holidays, music, food, movies, personal activities, priorities, and interesting cultural facts were suggested as good social topics to assist in cultural understanding (Participants 8, 43, 70, and 107). By understanding cultural aspects of a team member’s life, personal relationships can be developed, which may ultimately lead to a better team environment (Participant 107).

Despite the request of some participants for more socializing, many other participants already made time to socialize with their team (Participants 8, 63, 70, and 89). Participant 8 of Australia manages a

team of 11, consisting of members from Australia, the US, Argentina, Sri Lanka, Hong Kong, and Japan. As the manager, Participant 8 encourages his team to take pictures of their holidays which can later be shared with the team via email. This team also dedicates a section of their team meetings to allow each member to share something that is “important in their life out of work.” Participant 8 states that these activities have “been very well received by the team.”

Face-to-face meetings were also identified as a prime opportunity to not only share culture within the team, but also to “observe local customs...[and] learn a minimal amount of local language” (Participant 13). If the team has the opportunity to have a face-to-face meeting, time can be set aside to allow team members to get to know each other on a personal level (Participants 43, 63, 103). Participant 8 identified that at a face-to-face meeting held in Australia, his team members brought along movies “about their countries and in their language (with English subtitles) to share with the team” (Participant 8). These face-to-face meetings enable social interaction and also aid in cultural understanding.

Understanding Silence Many questionnaire responses highlighted the need to understand silence within CCV team discussions. In this context of virtual environments, SILENCE refers to when someone is not speaking at a given moment during a telephone conference. Three types of responses were found to be reoccurring. Some participants expressed frustration at other team members who did not speak during telephone conferences, but other participants suggested that they would prefer someone to invite them to speak (rather than interrupt) during team conversations. The third type of response was provided by participants who understood why silence was occurring and invited individual team members to speak.

Some participants expressed concern about silence when team members did not participate or propose anything during team discussions (Participants 48, 51, 109, 120). It was also suggested that if members are not invited to voice their opinion, they may “decide later that they disagree with things that were discussed” (Participant 109), “well after consensus was reached” (Participant 122). This could cause delays in the team coming to agreement.

However, as recognized by many of the questionnaire participants, “for some cultures, it is a barrier to talk openly in a larger audience” (Participant 85). This notion was supported by questionnaire responses, in particular by Participant 7 of Japan. When asked to detail how team members could allow for his culture, he stated, “In Japan, it’s not polite to jump in the conversation. So I’d like [the] chair-person to ask if we have something to say.” This highlights that

some cultures would much rather be invited to speak during team conversations.

Many team members and team leaders recognized “that not all cultures feel comfortable with open discussion” (Participant 65) and were “more vigilant” (Participant 90) in accommodating for such cultures. Specific ways in which participants did so was “to be more inclusive over the phone” (Participant 100) by asking each person individually if they have something to contribute rather than asking generic questions of the entire group (Participants 16, 64, and 65). In order for quiet team members to speak, the more dominant team members need to allow time for them to “voice an opinion” (Participant 94).

An alternative way was suggested to interact with cultures that find it hard to openly voice their concerns. Participant 11 suggested discussing an issue with the team during a telephone meeting and then “ask each person individually for input by calling them afterwards.” Participant 85 and 90 also believe that the combination of team meetings and personal phone conversations assist in “ensuring that persons from other cultures are included in the conversations” (Participant 90).

Participant 58 of the US highlights that silence can be interpreted in different ways. He gives an example of silence after an explanation has been given, suggesting that this silence mostly represents a team member digesting the information. This example helps introduce the notion of “think time,” identified by Smith [29] as allowing time for people to “consider the question before responding.” Allowing “think time” was recognized by some participants who suggested that they “allow lots of thinking time between responses” (Participant 19) in order to allow teammates time “to interpret and respond” (Participant 106) accordingly.

Formal/Informal Communication Only 7% of participants recognized changing between formal and informal communication based on the intended message receiver. Participant 13 of the US stated that she is more informal with those from her own country while being more formal with those from other countries in order to reduce misinterpretations.

Participant 50 of France detailed the importance of formality in terms of being a team leader. He explained that some of his team members come from cultures that are very hierarchical and that “being too informal early on in a management relationship [could] unsettle” the team. This highlights the use of a management style that suits all the cultures involved. This concept was also suggested by Smith [29].

Visual Supplements Participants identified using written communication or visuals (such as emails, graphs, and models) to supplement and enhance

spoken communication. To assist in developing a “more productive” (Participant 16) telephone discussion, it was suggested that an email or presentation be sent to team members prior to the discussion. Visual supplements assist spoken discussions as they translate well in CCV team environments and clarify anything that may not be clear when spoken. This also enables team members to review the topic before the meeting, and hence, gives team members more time to comprehend the material. More so, the visual supplement serves as a reference for team members to refer back to after the discussion.

Participant 11 suggested that visuals are used to not only supplement discussions but also used to substitute verbal communication. This occurred in cases where spoken communication was found to be difficult, and so instead a written format was adopted as it was “easier and clear to understand.”

Praise and Criticism Four participants identified issues with giving and receiving praise or criticisms. While some participants made positive attempts to carefully formulate praise or criticism, other participants were “irked” (Participant 112) by this behavior.

For example, Participant 51 of Germany was concerned with the British who “have a tendency to phrase rejections very elegantly so that they appear as agreement at first.” On the contrary, Participant 69 of the UK expressed concern about those who question her integrity because of her constructive feedback. She would like team members to recognize that praise can, indeed, be genuine.

Participant 113 of Germany believed that his North American colleagues tend to “formulate more carefully and intersperse more positive comments.” Therefore, he too attempts to do the same. On the other hand, Participant 112 of New Zealand found “faint praise” from his American counterparts as “very insulting in New Zealand.” However, he accepts the fact that this is simply “a disconnect[ion] between cultures.”

CCV team members need to be sensitive when giving and receiving praise or criticism as it may not be received in the intended manner.

Humour Participants identified avoiding humour or irony in CCV team interactions. Some participants identified being careful with their use of humour and irony and suggested to only use humour if they were sure it was appropriate. However, it is hard to judge when humour may be appropriate to use. It is for this reason that some participants suggested “avoid[ing] any jokes, since they are very rarely funny in a different culture” (Participant 63) and do not “travel well across language barriers” (Participant 31) or “borders” (Participant 75).

Participant 31 of the UK identified humour as a behavior which had specifically concerned him. He explained that some jokes were not appreciated by his team, who were “offended by the wording used.”

Tone of Voice It was interesting to note the tone of voice that participants adopted during CCV team discussions. Some participants stated that they often speak more loudly during discussions to make sure that they are understood over the phone.

However, other participants expressed concern over those who talk too loudly or abruptly during telephone conversations. Participant 54, who grew up in Scotland and now works in Greece, suggested that people need to “appreciate that we don’t talk so loud in Europe.” Participant 68 of the US does recognize the importance of adjusting one’s tone of voice. She stated that she attempts “to tone down [her] approach for cultures that find [her] abrupt.”

This highlights the fact that CCV team members need to be careful of the tone of voice they use in telephone conversations.

Corporate Culture Seven percent of participants mentioned corporate culture and organizational values as “key factors” (Participant 27) in CCV team environments. It was suggested that an organization’s corporate culture can override an individual’s national culture.

Participant 21 suggested that “company corporate culture is quite strong and overlays individual cultures.” Participant 103 was also adamant with this concept, mentioning it twice within his questionnaire responses. Having worked as both a team member and team leader for more than two years, Participant 103 suggested that it was the “right expectation” for the team to work in the company’s culture. He believes that working within corporate culture leads to more optimal results.

The notion of corporate culture can be of use to CCV teams as “it provides a common point of reference and helps bind [a team] together” (Participant 21). Participant 36 also believes that corporate culture crosses cultural borders and provides “a common cultural platform to work from.” It is for these reasons that corporate practice and values need to be incorporated in CCV team interactions.

The degree to which corporate culture affects national culture is unknown within this study and may be a point for further research.

Adapting for Whom? The literature identifies a key concern when adapting to culture in virtual environments. The literature states that “it is unclear whose culture to adopt or what habits the team should adopt” [3]. It is also suggested that team

members should be looking to adapt to the message receiver. One participant stated that “in your emails, you have to start to think as the reader, not as the sender” [29]. In a team situation, questionnaire participants suggested that one must adapt to suit the largest audience or dominant culture within the team.

Adaptation to Religious Beliefs Many respondents (66%) allowed for religious beliefs when working within their CCV team. Religious beliefs are an important part of many cultures, but the issue was found to be mainly “outside of work” (Participant 1). Participants suggested that while they would display a “simple respect for others beliefs” (Participant 5), the issue of religion “isn’t something that comes up at work” (Participant 32).

However, religious beliefs were found to affect CCV teams in terms of team member availability. With the celebration of annual religious/cultural holidays such as Christmas, Easter, Ramadan, Hanukkah, and New Year celebrations, many team members may be absent from work. In addition, weekly religious beliefs may also affect work days. For example, team meetings may not be scheduled on Fridays to allow for prayer time. Half the participants who allowed for religious beliefs did so by taking religious holidays into account when scheduling meeting times so that all team members could be present.

Many participants agreed or strongly agreed that in order to allow for their culture, they would like their team members to recognize and respect public or religious holidays. These participants work in a number of countries including Australia, England, Greece, Hong Kong, India, Spain, and the US. Table VIII outlines these results.

Therefore, CCV team members and leaders need to keep religious holidays and prayer times in mind when scheduling team meetings and deadlines.

Adaptations to Time Zone Differences Nearly all the participants (97%) made an allowance for time zone differences when communicating with their team members. The main adaptation for team members was to make sure the majority of the team could attend telephone meetings during working hours. When the burden of attending telephone meetings after hours

TABLE VIII
IMPORTANCE OF RELIGIOUS HOLIDAYS

It is important that my team allows time for my religious holidays.	Percentage
Strongly Disagree	9.8%
Disagree	17.2%
Undecided	18.9%
Agree	40.2%
Strongly Agree	13.9%

became apparent, participants suggested rotating team meeting times so that the burden was shared.

However, the majority of time zone issues are not cultural issues but rather issues of distance. A member's "time vision" on the other hand, can be an important factor for CCV teams with "different perceptions of time across sets of time dimensions" [20]. These perceptions can affect how team members view deadlines as well as team success. While an important aspect in CCV teams, time vision was not the particular focus of this research.

Face-to-Face Communications Participants were asked, "in commencing a new team, do you believe that meeting team members via video conference would be of benefit?" Of all respondents, 63.1% agreed that video conferencing would be of benefit, and 28% suggested that they would much rather initially meet face-to-face and would only use video conferencing as a secondary option.

Meeting team members at least once in a face-to-face environment was important to participants. This was found to be especially true if the team were expected to form a long-term relationship. Participants suggested that this face-to-face meeting occur during the early stages of a team launch. If more than one face-to-face meeting were possible, it would be useful to visit different countries "so everyone gets to know the work environment of others" (Participant 113).

Participants suggested that video conferencing may be useful but only as a secondary option to meeting face-to-face. However, many participants believed that video conferencing offered "little or no improvement" (Participant 68) to telephone discussions, detailing negative experiences with video technology. These concerns included cost and the cumbersome nature of setting up equipment only to result in poor video quality. Participants identified the impracticalities of video conferencing for virtual team members. With telephone meetings, team members may participate from home or on a mobile phone. However, this cannot happen with video conferencing, as adequate technology may not be available at such locations. Participant 107 suggested that the use of a photograph on a website would be better.

The use of photographs was suggested as another method of obtaining team member visuals. Participant 65 of the US is the team leader of 20, consisting of team members from Singapore, Hong Kong, Spain, the US, and Australia. Her team posts pictures of themselves on their team web page. Similar methods were undertaken by Participants 1, 8, 44, 74, and their respective teams.

A number of benefits were identified in being able to view team members' faces, whether it be face-to-face or via video conferencing: the opportunity to establish

better relationships, reduce misunderstandings, establish team spirit and rapport, and to view body language. It was also suggested that being able to see a team member's face reminds other team members that they are all human beings rather than just a voice or email address.

Virtual Team Training Many participants requested more cultural virtual team training. One participant went so far as to indicate that cultural training should be a "priority" (Participant 49) and another that it be "mandatory" (Participant 53) for all CCV teams to complete.

Participant 122 suggested that "if teams take the training together, it would benefit all and add a bit of levity to an otherwise challenging situation." If teams are unable to physically participate in training together, they may still like to take the training at the same time and then dedicate a meeting to discussing any issues that arose.

Another participant stated that there needs to be "more insight into what is important to specific cultures," as he is unaware if he is "being sensitive" or not (Participant 67). Participant 84 of Scotland suggested that "GITS should have a website which does a culture summary of each of the countries so that it is easily accessible to all employees."

What is most interesting to note is that GITS does have a website containing all this information. The website is provided by an external vendor that charges GITS to use the site. In return, the employee's department is charged to use the site. The website allows employees to compare their cultural preferences with those from other cultures. A number of employees were unaware that the site existed. GITS may need to encourage greater awareness and use of this resource.

Training material available at GITS highlights "cultural awareness" as one of six desired competencies of virtual team members. In particular, the material suggests that virtual team members should develop "effective mechanisms and behaviors for operating cross-culturally." Yet the training did not indicate how team members should adapt their behavior.

Praise of Cross-Cultural Virtual Team Work The final question asked participants if they had any other comments to make in regards to CCV teams. These comments touched on a wide variety of topics that have been included throughout this paper. One recurrent trend which emerged from this final question was that of positive experiences of participants in CCV teams. Of the 102 participants that chose to provide final comments, 24% used the opportunity to provide positive comments and praise for CCV team work.

CCV team work was described as “extremely effective” (Participant 107), “immensely productive” (Participant 31), and “more powerful” than non-cross-cultural teams (Participant 23). Participants went on to describe their own teams as being “extremely successful” (Participant 103) and “doing a great job of bringing their team together” (Participant 54). In particular, Participant 50 described CCV team work as “a very rewarding experience” and would highly recommend it to others.

In addition to the comments of praise, many participants contacted the researchers to request the results of this study. This illustrates the growing interest and recognition of culture within CCV teams.

DISCUSSION

In investigating behavioral adaptations in CCV teams at GITS, it was found that many respondents did attempt to change their spoken or written communication to improve communication with team members from different cultures. The majority of participants also did want their team members to be aware of their own culture.

It was found that the longer a team member works in CCV teams, the more likely they are to want the rest of their team to be aware of their culture. This indicates that as people gain more experience in CCV environments, they realize the importance of recognizing one's culture. This also suggests that as someone becomes more comfortable with their teammates, the more likely they are to share their culture.

Prior virtual team training was found to influence behavior, however, only if the team training specifically looked at cultural aspects. There were no notable differences between those who had not undertaken any training and those who had undertaken virtual team training without cultural aspects. Those participants who had undertaken virtual training involving cultural aspects adapted their behavior much more than the others. This suggests that virtual team training that includes aspects of culture is influential to the adaptation of behavior and that GITS' training is indeed recognized by its employees.

The literature identifies that CCV team members should adapt their behavior when working with team members from other cultures. The primary research question of this study was “How can CCV team members adapt their behavior with regard to culture?”

The following Framework of Behavioral Adaptations for Cross-Cultural Virtual Teams presents the completed list of adaptations found within this study. This study has also outlined behaviors that caused concern in CCV environments, adding specific

adaptations to the framework in order to counteract these behaviors.

FRAMEWORK OF BEHAVIORAL ADAPTATIONS FOR CROSS-CULTURAL VIRTUAL TEAMS

Creating awareness amongst team members about different ways to adapt behavior to enable them to be culturally sensitive (Table IX) can help improve communication and synergy within CCV teams.

LIMITATIONS

The relatively small response rate from the survey could be considered a limitation of this study. The

TABLE IX
FRAMEWORK OF BEHAVIORAL ADAPTATIONS

Type of Adaptation	Specific Behaviours
General	Be aware of cultural differences
	Be accepting of cultural differences
	Allow for team socializing / informal chat
	Reward good behaviour in a cultural sense
Spoken and Written	Avoid slang / colloquialisms / jargon / acronyms
	Use simple language
	Avoid metaphors
	Avoid humour
	Keep to the point
	Confirm understanding by asking open-ended questions
	Reiterate key points
	Use follow-up emails for feedback
Spoken	Formulate criticism / praise carefully
	Speak slowly / clearly
	Acknowledge / invite each individual to speak
	Allow for 'think time' between responses
	Alter tone of voice (do not be too abrupt)
Written	Supplement discussions with written text or visual
	Write from the receiver's point of view
	Be more descriptive
	Use lists / points
Religious Belief	Change between formal and informal writing
	Consider religious holidays when scheduling meetings and deadlines
Time Zone	Allow extra time for time zone differences
	Attempt to schedule meetings during work hours
	Rotate meeting times to share the burden of after-hours work
Face-to-face Meeting	Initial team face-to-face meeting if possible
	Initial team video conference
	Put team member photographs on a website
	Rotate face-to-face meetings in different locations

invitation to participate stated that the researchers were interested in the cross-cultural issues associated with and by virtual teams. As participation was voluntary self selection, more people who were interested in cultural issues and recognized the importance for CCV teams may have chosen to respond. Consequently, the figures for behavioral adaptation may be higher than those for the average team at GITS. However, this possibly more culturally aware participation has enabled the assembly of a wide range of behaviors as listed above in the framework.

CONCLUDING REFLECTIONS

Application This study has added to the body of literature concerning culture in virtual team environments, generating further awareness of the issue. The findings of this study have the potential to directly benefit organizations working with cross-cultural virtual teams. It indicates that virtual team training, which includes aspects of culture, is important and provides a framework that can

be used to educate employees to adapt behavior in consideration of culture.

The framework is mainly designed for team interactions, but it is still applicable to any individual that communicates virtually with those in other countries. The framework not only applies to business interactions but also to social virtual interactions with those of other cultures. The framework is also relevant to educational institutions who deal with geographically dispersed students and where virtual team work is gaining popularity.

The framework can also be extended to organizations and individuals who communicate via a face-to-face environment. Such behavioral adaptations and, in particular, spoken adaptations are very much applicable to face-to-face interactions.

Improvements As with most cultural studies, the questionnaire was written in English. This study may be further improved by developing the questionnaire in different languages in order to reach a larger sample of participants, allowing for further insight into behavioral adaptations.

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