When technological savviness overcomes cultural differences: millennials in global virtual teams

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Abstract

Purpose – There is a generalized belief that cultural differences can have more negative consequences than benefits within the international business (IB) literature. This study argues that cultural differences are not perceived as constrains in millennial global virtual teams (GVTs). Additionally, using the theory of cooperation and competition and the motivated information processing perspective, the purpose of this paper is to uncover the process by which millennials working in GVTs address various challenges to ensure effective functioning and accomplishment of desired team outcomes.

Design/methodology/approach – This paper analyzes a data set of 503 project journals from the global enterprise experience, a virtual team competition. It uses qualitative content analysis tools and secondary data sources.

Findings – The authors find that for millennials, cross-cultural issues are not the predominant challenge when working in GVTs, unlike the prevailing understanding in the IB literature. This is because contrary to expectations, cross-cultural problems are often not experienced, while other team phenomena become more relevant, such as interpersonal and task-based issues. In addition, the paper describes how members of GVTs apply distinct challenge reconstruction and solution generation cognitive schemes to deal with both, expected and unexpected challenges.

Originality/value – This study contributes to the literature on virtual teams by identifying how millennials and post-millennials deal with the challenges embedded in the GVT interaction context by simplifying the unfamiliarity associated with the broader context rather than addressing each issue in

isolation. Finally, the paper elaborates on factors that highlight the positive outcomes of multicultural teams while making cultural differences less salient in contemporary GVT contexts.

1. Introduction

Millennials, generally defined as those born between 1979 and 1994 (Gorman *et al.*, 2004; Myers and Sadaghiani, 2010), are the first digitally immersed generation, and represent a sizable world demographics, ranging from 11 per cent of the population in Japan to 18 per cent in markets such as Vietnam and South Africa and up to 31 per cent in the UAE (Euromonitor, 2015) (Table I). By 2019, millennials are the world's second largest generation (after baby boomers) in terms of the total population. They are expected to continue to be the most lucrative and the most influential consumer segment through 2030 (Euromonitor, 2018). During their lifespan, millennials have witnessed qualitative changes in politics, economic disruptions, technology and globalization (Goldman Sachs, 2017; Tulgan, 2016). They grew up comfortable and adept at using technologies for social and professional interactions, and therefore, they may actually feel more comfortable working in a virtual environment than in a face-to-face one (Hershatter and Epstein, 2010).

The recent, and now increasingly shifting global technological context, has affected how firms do international business (IB) (Roberts and Dörrenbächer, 2016). Technology-mediated work interactions are now a reality, and virtual work and telecommunications are expected to continue growing. In multinational corporations, global virtual teams (GVTs) are "fast becoming the rule rather than the exception" (Zander *et al.*, 2012, p. 592). Firms are increasing virtual cooperation to effectively achieve their corporate objectives (Carte *et al.*, 2006). It has been reported that more than 60 per cent of managers regularly work in virtual teams (Hertel *et al.*, 2005), showing that organizations are relentlessly shifting from traditional collocated teams to GVTs (Webster and Wong, 2008; Zakaria, 2008). Enabled by the spread of information and communication technologies (ICTs), this collaboration occurs in virtual teams that differ from conventional face-to-face teams mainly in the degree of physical interaction, team member distance and degree of reliance on ICTs, namely, virtuality (Foster *et al.*, 2015; Hertel *et al.*, 2005).

In fact, Badrinarayanan and Arnett (2014) found that virtual teams are more effective than traditional working teams because the current communication technologies leverage the possibilities of overcoming the complexities of face-to-face interactions. GVTs, however, face an additional layer of complexity based on the global dispersion of the team members and the resulting cross-cultural, geographical and temporal boundary issues (Mockaitis *et al.*, 2012). The effectiveness of virtual teams depends on various factors, including team members' relations, trust, satisfaction, design process, executive leadership styles, intergroup dynamic and support mechanisms (Breuer *et al.*, 2016; Ebrahim, 2015; Lurey and Raisinghani, 2001).

As corporations increasingly use GVTs, and as business schools use them as teaching tools through experiential learning simulations, such as the global enterprise experience (GEE) (Gilberston and Cathro, 2014; Gonzalez-Perez *et al.*, 2014; Zetting *et al.*, 2014) and the X-Culture project (Taras and Ordeñana, 2014; Taras *et al.*, 2013), it is of paramount importance to explore and understand the complex internal processes that drive the effective functioning of such teams. Effective resolution of challenges faced by GVTs is vital to their success and to the success of the larger context to which they belong (Gilson *et al.*, 2014).

Characteristics	Baby Boomers	Generation X	Millennials or Generation Y	Centennials or Generation Z
Born (estimated)	1946-1964 (Sessa et al., 2007)	1965-1978 (Kupperschmidt, 2000)	1979-1994 (Sessa et al., 2007).	After 1995 (Bencsik et al., 2016)
Stereotypes at the workplace	Ambitious and workaholics (Meriac et al., 2010). Careers are defined by employers. Seeking: job security	Skeptics, prefer work autonomously and dislike team (Jurkiewicz, 2000) Loyal to profession, not necessary to employers Seeking: work-life balance (Smola and Sutton, 2002)	Attention receivers; broader perspectives on diversity, market place and supervisor-subordinate relationship. Digital entrepreneurs, work "with" organizations, and not work "for" organizations (Smola and Sutton, 2002)	Too early to describe. In 2018, they were freshmen in universities and colleges. By 2019 they were employed in part-time jobs or new apprenticeships. Career multitaskers Seeking: stability and security (Bencsik et al., 2016)
Popular cultural stereotypes and aspirations	Those born after World War II, live the 1960s, shaped by events such as the cold war, and were hippies in the 1970s. Idealistic (Lancaster and Stillman, 2002)	The renaissance of entrepreneurship (de Meuse et al., 2001)	Seeking: flexibility and freedom Generation that refuses to grow up: no children, no marriage, no career plan and no property. Immune to traditional marketing. Living with their parents for longer (Mitchell, 1998)	Savvy consumers, aware of sustainability commitments in products, services and organizations and they know what they want
Relationship with technology	Early information technology (IT) adaptors	Introduced to computers in school. Experience technological changes such as internet, mobile computer and phones. Digital immigrants (Lyons et al., 2007)	Digital natives. Technology wise, exposed to digital technology since early childhood (Mitchell, 1998; Smola and Sutton, 2002)	Do not know the world without computers or mobile phones. Digital integrators, as younger age. "Technoholics," entirely dependent on IT (Bencsik et al., 2016)

Sources: Own elaboration based on Strauss and Howe (1991); Becton et al. (2014)

Table I.
Four generations at the workplace in 2019

With this in mind, this article builds on two main questions regarding millennials collaborating in GVTs.

First, the attention of the IB literature has been directed toward the challenges associated with cultural differences rather than on the nuanced effects driven by contextual influences such as team context and nature of team tasks (Bleijenbergh *et al.*, 2010). Based on the implications of this branch of research, GVTs are expected to face significant challenges because of their multicultural nature. However, there is an active call for research exploring the idea that diversity, in general, and cultural differences, in particular, can be an asset and not just a liability (Shenkar, 2012; Stahl and Tung, 2014; Stahl *et al.*, 2016). Therefore, a more critical and detailed perspective of culture in IB is necessary (Roberts and Dörrenbächer, 2016). In this article, we address these topics and present findings that take a critical stance by providing evidence that cross-cultural differences are not the source of all evils when it comes to GVTs, even though it is sometimes perceived to be so. In contrast to a problem-focused approach, we, therefore, view cross-cultural team contexts as an opportunity rather than a challenge. We highlight that in GVTs cross-cultural differences can be a source of positive outcomes in the form of motivation, pride and unique learning opportunities for the members, rather than a source of negative repercussions for team processes and outcomes:

RQ1. How do cultural differences evolve in millennial GVTs?

Second, we also assert that although it is important to acknowledge that the effect of cross-cultural diversity in teams is not confined to dysfunctional processes and negative outcomes, it is also crucial to understand how these widely held notions can be dispelled. An important contribution of this article is the identification of two specific schemes – challenge reconstructing and solution generation – through which challenges associated GVTs work, which plagues not only the theoretical domain but also practitioners', as well, are dealt with:

RQ2. How do millennials cope with challenges stemming from their GVT environment?

Specifically, we describe how millennial GVTs use challenge reconstructing to reframe cross-cultural issues into the team or task-based ones and then restructure the priority of issues. Next, we explain how to challenge reconstructing enables GVTs to adopt, adapt and craft solutions to address the issues they face. In this article, we use a qualitative approach to analyze the experiences of 503 undergraduate students who participated in the 2012 GEE, a yearly student virtual competition organized by Victoria University in New Zealand. Based on our analysis of these data, we find that cross-cultural diversity is not necessarily detrimental to GVTs, and we explore how they deal with their experienced challenges.

2. Literature review – conceptual background

Virtual teams are groups of people who are dispersed in terms of space and time and use ICTs to accomplish their tasks (Bhagat *et al.*, 2011; Dulebohn and Hoch, 2017; Martins *et al.*, 2004). GVTs are expected to continue increasing in prevalence, introducing additional challenges related to differences in culture, language, time zones, etc (Tenzer and Pudelko, 2016). Specifically, in addition to challenges related to the virtual context, GVTs face challenges related to cross-cultural communication and interpretation of each other's meaning (Maynard *et al.*, 2012), categorization of team members from other backgrounds into out-groups and the resulting conflict, mistrust and disagreements (Hinds and Cramton, 2013; Hinds *et al.*, 2014), power hierarchies associated with multiple levels of proficiency in a common language, such as English (Tenzer and Pudelko, 2016), differences in national

holidays and time off, as well as location specific customs that result in misunderstandings and coordination issues (Saunders *et al.*, 2004).

An overwhelming amount of the GVT literature focuses mainly on themes related to culture, communication, trust or conflict and their impact on team task effectiveness (Connaughton and Shuffler, 2007; Gilson *et al.*, 2014; Hardin *et al.*, 2015; Jarvenpaa and Leidner, 1998). Because of GVTs cross geographical, cultural and temporal boundaries, there are numerous challenges related to culture (Hofstede, 1984; Kogut and Singh, 1988; Tung and Verbeke, 2000) and other issues stemming from cultural differences related to identity threats and knowledge sharing (Eisenberg and Mattarelli, 2017), as well as communication and technology (Sutanto *et al.*, 2011). Cultural diversity among GVT's team members are also likely to create faultiness, which is dividing lines associated with differences in values, beliefs and organizational behavior (Gibbs and Boyraz, 2015). Additionally, GVTs share the common challenges faced by other types of teams such as social loafing, issues related to individual member characteristics (e.g. competencies and personalities); contextual factors (e.g. environmental complexity and organization design); team-level factors (e.g. external leader influences and task structure); and members' affective reactions (Chidambaram and Tung, 2005; Flammia *et al.*, 2010; Mathieu *et al.*, 2008; Price *et al.*, 2006).

However, with the use of communication technology, GVTs can also offer great advantages, such as more efficient use of resources, by saving both time and money (e.g. travel costs including airfares and hotels, as well as working time), flexibility, the possibility to form teams with the best worldwide available talent (Wildman and Griffith, 2014), and the ability to work 24 h nonstop by having members work in different time zones (Maznevski and Chudoba, 2000). Additionally, cultural diversity could offer advantages such as different perspectives and problem-solving skills (Cox and Blake, 1991; Hong and Page, 2001; Nielsen and Nielsen, 2013).

Research on GVTs has emphasized their complexity (Gilson *et al.*, 2014), and has offered solutions in terms of the selection of the right tools, leaders with the right skills and the right team members (Randel, 2003; Connaughton and Shuffler, 2007). These solutions are helpful in scenarios where virtual teams can be designed to include the members most suited for a specific project (Bell and Kozlowski, 2002). However, the "right" tools are not always available. Instead, virtual teams are often formed based on convenience and availability of resources or even put together randomly when the need arises.

Differences in culture and national background have been some of the recurring themes in the literature (Matveev and Nelson, 2004; Mockaitis *et al.*, 2012; Staples and Zhao, 2006). Research on multicultural teams tends to exhibit a bias toward focusing on the negative effects of the level of cultural diversity of the team rather than the positive aspects (Stahl *et al.*, 2010; Stahl *et al.*, 2016), highlighting its potential to create misunderstandings (Dreo *et al.*,2002) and hindering key outcomes like innovation (Gibson and Gibbs, 2006). It also follows the trend in the IB literature in which culture is perceived more as a negative aspect of a challenge, rather than as a possibility for boosting team outcomes depending on the task and setting, and therefore, a potential opportunity (Bleijenbergh *et al.*, 2010). This disproportionate attention to the negative aspects of GVTs emerges from assumptions around team members' discomfort with the use of ICTs for various task processes and lack of exposure and unfamiliarity with diverse global and cultural work norms. Because GVTs are culturally diverse, it is often assumed that members will hold different perspectives about multiple aspects including work norms, decision-making behaviors, team structure and processes, leadership, temporal tendencies, etc., leading to a lower effectiveness because of a lack of team identity (Stahl *et al.*, 2010; Stahl and Tung, 2014). Other common themes in

the literature related to the success of virtual teams are effective communication (Marlow *et al.*, 2017) and how to minimize difficulties associated with communication through the increasingly efficient ICTs (Bergiel *et al.*, 2008; Hertel *et al.*, 2005). Finally, there is not enough research addressing the role of team member demographics for virtual team outcomes.

There is a gap in the literature examining how millennials, who are likely to play increasingly significant roles in organizations, function in GVTs. We aim to contribute to the literature on GVTs by studying how these types of teams consisting of millennials experience and address various challenges. Focusing on GVTs with millennial team members or millennial GVTs can offer new theoretical insights about problem-solving in virtual and cross-cultural group contexts for various reasons. We argue that the assumptions held about GVTs regarding issues faced due to the technological dependent and globally dispersed nature of the team may not apply to millennial GVTs. First, millennials are the first generation to grow up with access to computers, smartphones and all kinds of ICTs, and therefore, they may actually feel more comfortable working in a virtual environment than in a face-to-face one (Gorman *et al.*, 2004; Myers and Sadaghiani, 2010). Furthermore, because of the increasing use of ICTs in both informal and formal contexts, millennials are more aware of and comfortable with diverse cultural practices and norms. Therefore, instead of focusing on the possible divergence of cultural values, which impinges on team identity, millennial GVTs may align on other values such as mobility and speed (Hershatter and Epstein, 2010). There are conflicting findings related to the effects of the GVT context, in part because of the contested evaluation of whether technology communication is an asset that facilitates collaboration across boundaries or a challenge that limits and hinders communication (Gibbs and Boyraz, 2015). The conflicting findings could be explained, in part, by studying generational differences in preferences for communication alternatives (Table I). Our paper contributes to the GVT literature by helping to address these inconsistencies and highlighting the attributes that distinguish millennials from their preceding generations.

Further, given the increasing numbers of millennials in the workforce, we examine how younger generations that are comfortable with technology may not have the same barriers to computer-mediated communication that earlier studies reported, highlighting the need to develop a new theory.

Although previous research on GVTs points to the importance of cultural issues, some other matters might appear to be in play within millennial GVTs, which explain what unifies or divides these teams. After a thorough literature review to find a theoretical explanation, we zeroed in on the theory of cooperation and competition (Johnson and Johnson, 1989). According to the authors, group members perceive their goals to be either cooperatively or competitively linked. In the case of cooperative goals, members assume they swim or sink together and that they benefit from each other's performance. They have high trust, are more likely to experience psychological safety, and handle their conflicts more constructively, which paves the way for better problem-solving and team performance. In contrast, in groups with competitive or independent goals, members perceive that their interests, achievements and rewards are negatively correlated. They are, therefore, less motivated to work together to solve issues and come up with solutions, thereby adversely affecting collective outcomes. In the context of task-based GVTs, the common task can serve as a shared or interdependent goal that all team members strive to achieve. They are, therefore, motivated to find solutions to team-level issues and be able to work together effectively.

Additionally, to understand how collaborative efforts to achieve cooperative goals can ensure better outcomes, we drew from the motivated information processing perspective according to which collaborative processes only work if the members actively and systematically exchange and process information (De Dreu, 2007). Members can sometimes rely on heuristics and not engage in deeper and more elaborate, argument-driven ways of problem-solving (Chaiken and Trope, 1999). In certain team contexts, such as high time pressure, low accountability and so on, members are more likely to rely on heuristics. In GVTs, however, members are more likely to engage in a systematic exchange of ideas for solving problems. This is because members of GVTs often function in unfamiliar territories such as working with people from different cultures and distant geographic locations. As a result, they are less likely to have readily available heuristics to rely on and are forced to engage in deep and systematic exchange.

3. Methods
3.1 The research setting
The GEE is a global virtual competition organized by the Victoria University of Wellington, New Zealand, since 2004. It seeks to develop global leadership skills in undergraduate students from all around the world. Until 2014, 6,000 students from 430 higher education institutions from 85 countries have participated in the GEE challenge (Gilberston and Cathro, 2014). Every year the host institution releases a call for applications for the contest, which is open to any business-related undergraduate program at any university in the world. Lecturers who decide to participate and make the contest part of their course work ask their students to register online. Then, random diversified teams of eight students are formed, all of them led by a student from New Zealand. Teams have three weeks to develop a six-page business plan, which in 2012 was aimed at developing a profitable venture linking developed and developing countries for mutual benefit (Global Enterprise Experience (GEE), 2018). Despite being short, the competition is well-structured, and the teams have a specific task at hand that resembles business life in the sense that students are asked to create an actual business plan and provide real data and justification for why it should work. The grade is based on the financial feasibility of the project in real life. Additionally, each student had to submit a one-page journal describing as much as possible his or her experience, basically, the good, the bad and the ugly. Although they did not have to answer any specific questions, they were motivated to describe their experiences, challenges and perspectives about the process and their learning outcomes. These journals were neither graded nor were they considered as a component of the final business plan. As free written journals, they provided rich insights from the students on several issues such as what they expected before the program began, what worked or not in terms of teamwork, culture, communication, technology and so on; all the way to what they learned or what drove them mad. The journals were submitted after the conclusion of the project. They were evaluated by the GEE organizers in New Zealand, and therefore, it did not interfere with the project's grade. Additionally, the criteria for the best journal were unknown to the students and professors. Participants were encouraged to sincerely write about anything they wanted to share about their experience, reducing the amount of bias expressed in these journals. As this is a free writing exercise, where each experience is different from the student's perspective, reading previous journals for past students did not guarantee a winning possibility for future experiences.

3.2 Data collection
A total of 888 undergrad business students from all over the world randomly distributed in 111 teams participated in GEE 2012. Figure 1 shows the breakdown of students according to

Figure 1.
GEE 2012. Number of
participants by
country of origin
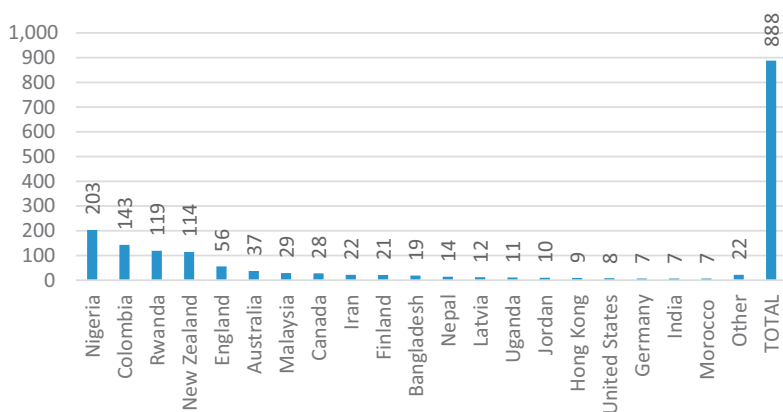
Source: Own elaboration with data from GEE, 2012

the country where they study. As mentioned, at the end of the project, students were asked to submit a one-page journal describing their experiences. A total of 503 students, corresponding to 56 per cent of the total participants, submitted the journal. All 503 journals were analyzed in this article to gain a deeper understanding of what happened during this international virtual cooperation. From the total sample of journals, 272 journals (54 per cent) were submitted by female students and 231 (46 per cent) were submitted by male students.

We believe the reason why this sample suits our research questions is two-fold. First, participants gathered data from were millennials. Their journals provide rich information to facilitate the process of generating theoretical insights regarding unique ways in which millennial GVTs function. Second, the journals provide students' reflection on their personal experience throughout the whole process regarding GVT challenges.
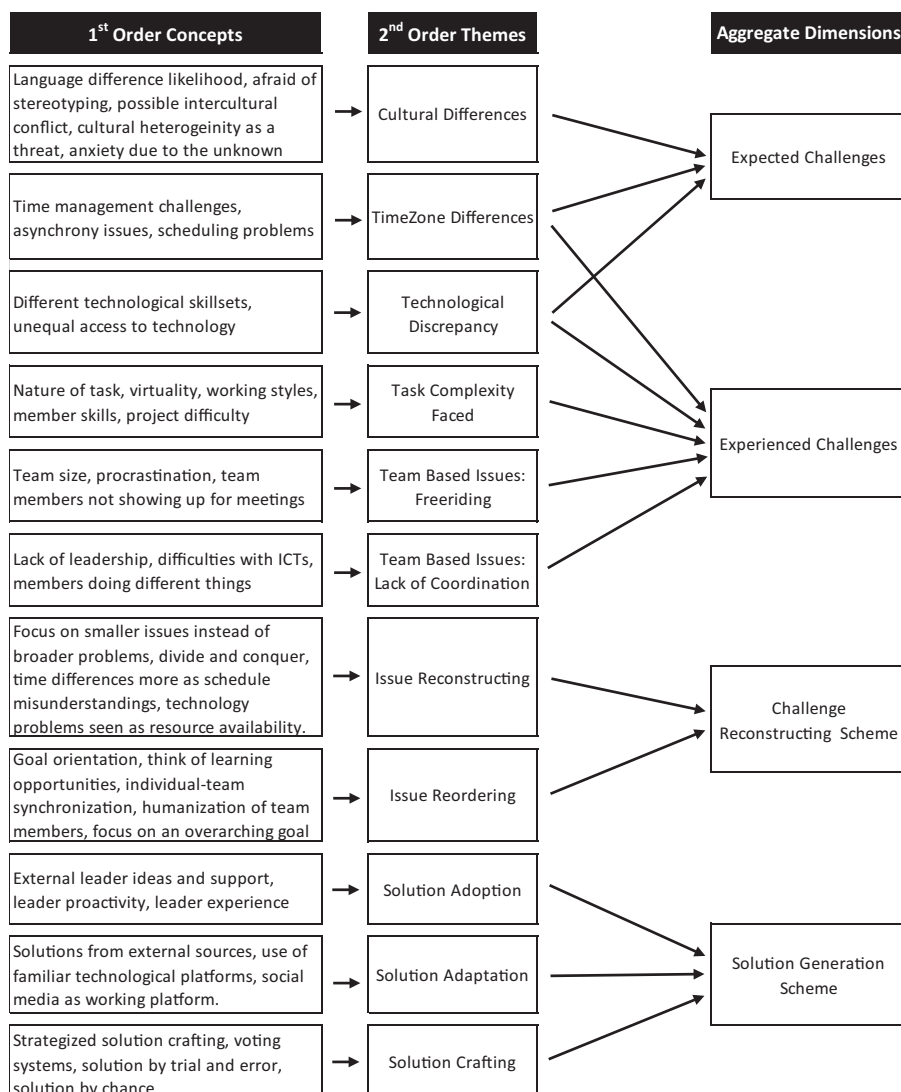
3.3 Data analysis
The data collected from the journals were analyzed using coding and content analysis tools. This is an unobtrusive research technique, appropriate for understanding collaborative team decision-making behaviors, which also ensures external validity by using data collection as it occurs in its most naturalistic setting (Zakaria, 2017).

The approach used included processes of open coding, axial coding, creation of categories and abstraction (Elo and Kyngäs, 2008). With the aim of increasing accuracy, validity, reliability and trustworthiness, two researchers independently and manually coded the same data, enabling triangulation and comparison of findings. Therefore, both manually coded each journal following King (2004) and Corbin and Strauss (2015), until the saturation point. They started with micro-coding to look for possible emerging themes and categories. After each researcher did the micro-coding, they met to discuss and reconcile similitudes and differences, and as a result, a code book was created. This supported the development of hierarchical thematic coding, grouping similar codes and discussing the underlying meaning of statements to define higher-order themes (King, 2004). Specifically, following King's (1998) recommendation, researchers restricted the hierarchical coding to four levels so as to ensure clarity in organizing and interpreting data. After analyzing several students' journals, researchers started with a combination of open coding and micro-coding, during

which some categories changed and new ones emerged, which made reformulate the coding book to account for the new insights found in the data. Every time a new code emerged, all journals had to be reviewed again. Similarly, meetings to reconcile differences and discuss findings were held. The result of the process can be seen in Figure 2.

The coding process was driven by the interest of finding the role of cultural differences in millennial GVTs. However, cultural issues were not a common theme or topic within the journals. Nonetheless, emerging topics were also included. Therefore, and building on the

1st Order Concepts	2nd Order Themes	Aggregate Dimensions
Language difference likelihood, afraid of stereotyping, possible intercultural conflict, cultural heterogeinity as a threat, anxiety due to the unknown	Cultural Differences	Expected Challenges
Time management challenges, asynchrony issues, scheduling problems	TimeZone Differences	
Different technological skillsets, unequal access to technology	Technological Discrepancy	
Nature of task, virtuality, working styles, member skills, project difficulty	Task Complexity Faced	Experienced Challenges
Team size, procrastination, team members not showing up for meetings	Team Based Issues: Freeriding	
Lack of leadership, difficulties with ICTs, members doing different things	Team Based Issues: Lack of Coordination	
Focus on smaller issues instead of broader problems, divide and conquer, time differences more as schedule misunderstandings, technology problems seen as resource availability.	Issue Reconstructing	Challenge Reconstructing Scheme
Goal orientation, think of learning opportunities, individual-team synchronization, humanization of team members, focus on an overarching goal	Issue Reordering	
External leader ideas and support, leader proactivity, leader experience	Solution Adoption	Solution Generation Scheme
Solutions from external sources, use of familiar technological platforms, social media as working platform.	Solution Adaptation	
Strategized solution crafting, voting systems, solution by trial and error, solution by chance.	Solution Crafting	

Source: Authors'elaboration based on Gioia *et al.* (2013)

Figure 2.
Categories of analysis

coding process, four categories were developed, namely, expected challenges, experienced challenges, challenge reconstructing scheme and solution generation schemes. The first two categories deal directly with the first question proposed for this research, while the other two categories are related to the second question.

In addition, to analyze the coded data, researchers also focused on finding properties, conditions, relationships and/or consequences among them to be able to conceptualize phenomena (Corbin and Strauss, 2015). During the coding and analysis processes, researchers discovered differences between the fundamental nature of challenges anticipated before the project began and the problems faced during the project. Hence, the inductive and deductive approaches were included. Also, the analysis of data was supported by the use of some secondary data sources to compare and triangulate findings (Yin, 2003).

4. Findings
Analysis of the data suggests an incongruity between the challenges that the participants had anticipated before the beginning of the project and the challenges that they actually faced. We distinguished between the broad categories by labeling them as "expected" challenges and "experienced" challenges. Although there were some overlaps between the two categories, it was interesting to find that several challenges were unique to each category. Specifically, we observed that the expected challenges were heavily skewed toward the cross-cultural domain, whereas the experienced challenges comprised mainly task and procedural issues common to all teams.

The second emerging topic was how teams dealt with the challenges faced and with completing a complex task successfully. In line with the data, teams approached problem-solving through two processes. The first one involved how the students approached the problems themselves. For this, problems were transformed in ways that made them seem more addressable to the students. The second process concerned the various approaches used to find solutions for the problems identified. We discuss these findings in detail in the following sections.

4.1 Overview of challenges: expected *versus* experienced
The expected challenges that were anticipated were predominantly based on cross-cultural differences. On a second level, time and technological disagreements were also mentioned. This should not be surprising considering the prevailing skepticism regarding the complexities associated with cross-cultural teams compared to relatively familiar team types with lower levels of cross-cultural variance. Likewise, having to work in multicultural virtual teams raised concerns regarding time management and differences and technological disparities:

> I thought it was going to be very difficult because we have different time zones, we are from different cultures and there we could have some problems or conflicts about the way we work or something. (Female, 177)

> The first thought I had was: how are we going to make a project with people from everywhere? How are we going to communicate? (Female, 192)

> Of course one expects certain difficulties to arise from this type of cross-cultural undertaking, especially with regards to language, technology and time differences. (Male, 805)

In contrast, the experienced challenges were a team- or task-based that are known to be common across various types of teams, such as difficulties in goal selection, freeriding and poor coordination (Mathieu *et al.*, 2008):

> One precise challenge I experienced was when we all were voting for choosing a developing country. Half of the team said India and the other half said Colombia, so it was difficult to reach an agreement on this. (Female, 178)

> [. . .]one member from Rwanda did not appear. I thought in the beginning that maybe it was difficult for him to have access to internet. But we were finishing the project and that person came and said: please team we have to win, when he never helped us. (Female, 206)

Except for some cases where time differences and technological discrepancies became a problem to be solved, there was little overlap between the challenges that were expected and the ones that were actually experienced by the GVT members. The expected challenges that participants dreaded the most before the start of the project were not the ones that were perceived to affect the processes and outcomes during the project in most of the cases. The expected challenges, which were predominantly cross-cultural in nature, were not perceived to have an impact on the team processes and outcomes. As a matter of fact, they rarely appear on the description of the process as challenges or obstacles that the team needed to address to proceed with the project. Even when mentioned, they were acknowledged to be either manageable or overshadowed by other issues:

> The bad experience does not derived from cultural differences, but it is all about the attitude of the individuals. Since 1st day, I've tried almost every day to conduct discussion with my team; however, no one bothered to participate regardless I've planned schedule ahead and highlighted the time difference for them. (Female, 463)

Although time zones and technology differences could be somehow related to cross-cultural issues, these matters do not belong to the theoretical sense of the term *cross-culture*, which includes values, beliefs and social systems (Hofstede, 1984). On the contrary, they fall more under the purview of modern workplace issues that do not necessarily pertain to culture. In terms of different work times, people are increasingly choosing different work hours based on the requirements of their non-work lives such as family time, reducing commute and hobbies (McMenamin, 2007). Differences in technological skills are hardly a purely global issue as substantial variance can be found in the same geographic locations, especially in the context of cross-functional teams where members have differential expertise in different domains (Lewis *et al.*, 2003).

GVTs are complex entities that can reflect high variance along with several parameters such as degree, distribution and forms of diversity (national origin, functional expertise, etc.) (Tenzer and Pudelko, 2016). Our analysis indicates that different aspects of diversity and member attributes' variance can be problematic for different teams in unique ways. Although these issues can be similar, intricacies and nuances of the issues can manifest themselves in different ways depending on the nature and the context of each team. For instance, as mentioned before, one of the commonly mentioned expected challenges was the issue of technology discrepancy among the different countries' participants. However, teams experienced this issue in different ways and to different extents. For some, the issue was noticed at the different levels of technical skill sets. For others, the issue was found in the unequal access to technological media, despite uniformity in terms of requisite skill sets. This problem was nuanced further by the unavailability of technological infrastructure and legal constraints in accessing certain media (such as Facebook in China, Iran, Bangladesh, Syria and North Korea):

> One of the first difficulties I had was at the time of communicating between each other. The team was formed by people over the entire world: Africans who cannot access to the internet easily or students flats with poor internet connections. (Female, 906)

On the other hand, it is noticeable how the very aspects of the experience that were making the participants skeptical and anxious at the start, were responsible for positive unexpected outcomes experienced at the end, as this student mentions:

> When it is daytime in Nigeria, it is nighttime in New Zealand, etc. – and this ensured that we have at least one person working on the paper 24/7 [24 h a day, 7 days a week] leading to higher efficiency and productivity. I realized the contest is a good simulation of globalization – where multicultural teams are made to take advantage of one's own skills set and to actually reap the benefits of time difference. (Male, 32)

Some of the factors that made this happen were the specific aspects of these GVTs, including age group and technological know-how of the participants. These aspects make this sample an interesting and relevant context because GVTs are increasingly characterized by millennial members who have extensive knowledge of the latest technologies and applications:

> What I liked about this experience was that I understood that we are young people more than Colombians or Syrians or Nigerians; we have common thoughts and common behaviors no matter in which part of the globe we are. (Male, 9)

> Finally, we all agreed to have a private group in Facebook. We keep ourselves update via Facebook. It is the most effective way of communication. Logging in to Facebook daily is a must for our generation. (Male, 970)

Additionally, contrary to expectations, culture became a source of positive outcomes in the form of pride, happiness, learning and affective networks:

> Cultural diversity of the group means that we all had something different and unique to contribute to the table. (Female, 542)

> The differences in culture brought strengths to the team because we could build the project from different points of view. (Female, 339)

Therefore, millennial participants might not perceive the challenges posed by cross-cultural issues in the way that their predecessors did when working in GVTs. Drawing from such observations, we further analyze the participants' journals to explain how the expected and unexpected experienced issues were dealt with, and how culture was transformed from a being a threat to being a treat. Overall, we observed that there was variety not only in the nature of the challenges but also more so in the level of familiarity and preparedness of the participants for the various types of challenges. Thus, in the next section, we focus on extracting how teams approached a range of issues they anticipated or experienced, rather than discussing each solution. Specifically, we propose various cognitive schemes that explain how the broad range of challenges were approached, supporting our second research question.

4.2 Schemes to approach challenges
Millennial GVTs, in this study, faced diverse challenges, which were difficult if not impossible to anticipate. However, they developed cognitive approaches to face and solve

those difficulties. Figure 3 shows a summary of those approaches, which will be discussed next.

Using the journals' data, it is possible to determine various specific forms in which problem-solving approaches manifested themselves. Broadly, there were two forms of cognitive schemes that teams resorted to during the project. First, what we call the challenge reconstructing scheme, which involves redefining challenges in ways that team members are equipped to address. Second, the solution generation scheme, which focuses on managing redefined challenges through various types of solutions. It is important to note that for each specific challenge, solution generation follows challenge reconstructing. However, during the course of the entire task, both schemes kept re-occurring as new challenges presented themselves and existing ones evolved.

5. The challenge reconstructing scheme

As teams were not equipped to address the challenges that they anticipated beforehand, approaches to address the actual challenges emerged only during the project execution. During this process, teams resorted to what we call here a challenge reconstructing scheme. A challenge reconstructing scheme operates at two levels: first, reconstructing each issue, and second, reordering the relative importance of issues.

5.1 Issue reconstruction

The first aspect of the challenge reconstructing scheme identified from the data is the process of breaking down an issue into a form that can be addressed by the team. This is not confined to just deconstructing the issue to its simplest components but it involves reframing it into a relatively familiar version that is more manageable. This process involves changing the form and essence of the issue and then generating solutions accordingly.

Reformulation of a problem can help to reduce its complexity by tearing apart the layers of the larger issue into manageable parts. The complexity of issues in this context mainly stemmed from unfamiliarity. Thus, the problem was broken down into components and
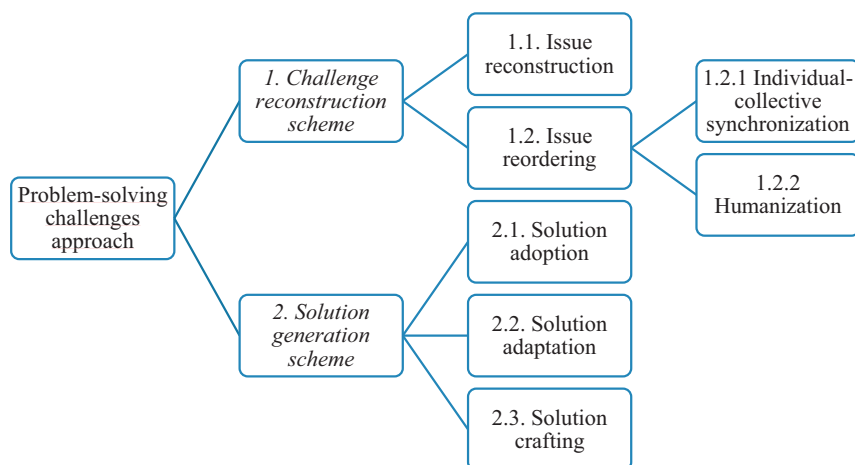

Source: Own elaboration of the authors

Figure 3.
Problem-solving
challenges approach
summary

reframed as familiar issues with known solutions. For instance, the seemingly daunting broad issue of cross-cultural diversity was broken down into issues such as language or time differences. These smaller, more specific issues were more amenable to solution generation.

Because the unfamiliarity was mostly in the context of cross-cultural issues, the process of reconstruction involved transforming the cross-cultural aspect to other forms. For example, one major expected challenge was differences in technological capabilities across nations, which was initially perceived to be a cultural matter. Rather than dwelling on the idea that different cultures had differential levels of capabilities, which presented a somewhat unresolvable issue, the group members redefined the central concern into something that could be addressed. During the course of the project, this issue was reframed in terms of relative resource availability to each member rather than technological capability. Once it was framed in this way, team members were motivated to find a resource that was available to everyone. Thus, an issue reconstruction scheme enabled teams to break down challenges into familiar forms that were more manageable:

> The main difficulty with the competition was the communication aspects, considering that we were from different parts of the world, and that we had to cater for different time zones. We managed to get around this by setting up an online Facebook group, allowing everyone to communicate at their own times. (Female, 28)

This common approach to meet the challenges was perceived in both expected and emergent challenges. For instance, cultural differences in language were reframed as a communication concern, which can happen in any team and is not unique to GVTs:

> [. . .] at the end there was a kind of disagreement in the final purpose of the project, to me, it was a fault of communication, even though we had several Skype meetings; I learned that having a good communication is essential to carry out an excellent work in a global team, since people may not belong to the same culture and may think in a very different way. (Female, 151)

5.2 Issue reordering

Expected and experienced challenge issues do not necessarily represent factors that negatively affect the group's processes or outcomes. Accordingly, a mechanism that emerged during the course of the project was to change the order of priority of issues that confronted the team. This involved focusing attention on other issues that affected the process or final outcome to a greater degree or affected the members directly.

Reordering of issues can happen organically as more relevant or immediate challenges outweigh any expected cross-cultural issues. In the context of GVTs, the expected cross-cultural challenges were overshadowed by issues pertaining to the group task and individual aspects. The task-based aspects included the importance of achieving an overarching, meaningful goal. The individual-level issues were related to cognitive outcomes, such as unique learning opportunities, as well as effective outcomes, such as excitement and pride:

> For me, the cultural differences weren't an inconvenient because everybody was focused on the project and we didn't have problems. I expected to have some cultural shocks or disagreements, but for me it wasn't the case. It was like working with people from my country. (Female, 425)

> I was very proud of realizing that my team had put their hearts and minds in developing a very interesting business idea. They showed me that when working under pressure and for a common goal, cultural diversities are manageable and yielding. (Female, 152)

In the context of the reordering scheme, it is important to note that the issues that get prioritized are likely to be the ones that are shared by all members, which drives collaborative solution generation, in line with the theory of cooperation and competition (Johnson and Johnson, 1989). The emergence of shared issues at the top of the hierarchy was done with group input. It can happen that teams fall prey to a color-blind approach, in which cultural identity is silenced or ignored or individual identities are realigned according to an overarching identity (Hogg and Terry, 2000) through an emphasis on a superordinate goal. Such a context can discourage diverse members from applying unique ideas or practices associated with their social categories (Stevens *et al.*, 2008). However, in the context of the millennial GVTs studied, certain tactics enabled the team to fully use the distinctive viewpoints of each member:

5.2.1 Individual-collective synchronization. The first tactic was oriented toward ensuring that each member's insights were accounted for without deviating from the collective purpose. For instance, many teams implemented a system of skill-based task assignments in which members were given separate tasks to do the way they liked. Moreover, in many cases, the members were allowed to choose, which task or role they wanted to be involved in. They also adopted a collaborative approach in choosing the overarching goals that were shared by everyone and surpassed the cultural identities. However, because the process of determining the unifying goal was a collective effort involving individual inputs based on diverse perspectives, the uniqueness associated with each identity was used optimally by sharing members' personal histories:

> At the beginning each member participated in a dynamic way, sharing their bios and giving business ideas. (Female, 178)

> One of the major problems that we had was getting everyone online at the same time and this problem was mainly as a result of time difference, thankfully, we benefitted from this problem by doing division of labour and time and this ensures that at every period someone was online working on the proposal with gusto on behalf of others and this brought efficacy. More so, we did effective division of labour and this bares the strengths and limitations of members of the group. (Male, 282).

5.2.2 Humanization. Another example of an approach in which individual identities were not only preserved but also made more salient was through humanizing the members. At the start of the project, each member was just the proxy of a certain nationality. However, some groups used media such as Facebook profiles, which served the purpose of enhancing the salience of individual identities by attaching a human face to a vague profile. This also benefitted the group by reframing the context into a more familiar one and providing diverse viewpoints:

> Facebook was a definite lifesaver, and not only in terms of communication. It made my team members a lot more *human*. (Female, 30)

By interacting on Facebook, team members became more than just another foreign national to each other. Facebook also highlighted common aspects among individuals beyond the collective goals, such as shared interests.

Overall, the challenge reconstruction scheme described here reflects a broad approach toward problem-solving, especially in contexts with high degrees of unfamiliarity. Adopting such a scheme enables teams to reframe challenges to more familiar and manageable forms that are less daunting. It also facilitates the focusing of cognitive resources on issues with direct repercussions on collective goals.

6. The solution generation scheme

After redefining challenges into familiar manageable issues of importance toward achieving goals, the next step required addressing the reconstructed, salient issues. In this phase, millennial GVTs generate schemes internally while performing the project or through external means. The three broad forms of generating solution schemes used include:

6.1 Solution adoption

When GVTs were confronted with challenges that they were not equipped to handle, they resorted to adopting schemes that were available through external means. Here, external means refers to approaches that were not generated during the process of carrying out the project but were already available in some form. In the context of these teams, solution adoption was evident in the form of leader inputs. Across the journals, we found that when whole teams or individual members were faced with a problem, team leaders came to the rescue and provided solutions. Teams did not have to grapple with the problem and create a solution because the leader already had a pre-planned approach that could be adopted and implemented by the team. In those cases, leaders became external sources that procured solutions for specific challenges faced by the team:

> Conflicts in available time for meetings were further compounded by time differences between team members, which may have a negative impact on the efficiency of our tasks. So the leader created a discussion board on Facebook so that we could communicate synchronically. (Male, 392)

6.2 Solution adaptation

Similar to solution adoption, in solution adaption team members did not come up with solutions from scratch by tackling the issue on their own. The answer came from external sources. However, in solution adaptation the approach is not adopted in its existing form; it is adapted to suit the specific team contexts or to enhance relevance for unique issues in each team.

For instance, to solve the broad issue of sharing ideas and inputs across nations, all teams were provided with a specific software program called Basecamp. However, some teams faced unexpected challenges in the comfort level of all members using the tool. Therefore, instead of adopting the tool in the form proposed by external sources, they adapted the approach to incorporate more familiar tools, such as Facebook, Skype and Gmail:

> BaseCamp, in which the leader and team members post messages about the project, but we didn't chat through it many times because it is easier to chat in social networks with smartphones. A Facebook group made it easier to communicate because the ones who have smartphones can go on line and write at any time and place, without the necessity of doing it on the computer, because not all the times you were in your home or in the university to answer the messages of your team. Skype was also used to talk easier and make voice conferences. (Female, 190)

In doing so, participants not only solved the broader communication issue but also managed emergent challenges by adapting the externally proposed tool. This adaptive approach is also an example of how to transform issues and approaches into more familiar ones.

6.3 Solution crafting

In many cases, there were no externally generated schemes or solutions available to the teams, which resulted in solution crafting by teams' members themselves. Solution crafting

involves experiencing a problem, tackling its complexities, and in the process, creating approaches to deal with various aspects of the problem.

Solution crafting manifested itself in two ways in the GVTs. The first was *strategized solution crafting*, in which team members chose to be involved in a planned process. This meant that for any possible challenge, participants chose to invest time in exploring alternatives regarding what was the best way to address the challenge and then adopt one best approach. For instance, in dealing with any issue regarding decision-making, the members chose to follow a collaborative process in which everyone got to vote or to present the pros and cons of his or her case:

> We agreed to hold meetings that were adapted to the times of the different countries and bring different business ideas that seemed interesting and then held a vote to choose the best. (Female, 322)

The second form was *emergent solution crafting*, in which the approaches to address issues merged organically during the course of the project. No deliberate efforts were made to generate a solution. It presented itself through trial and error or was discovered completely by chance:

> The differences in culture brought strengths to the team because we could build the project from different points of view. The 3 members from developed countries helped to find the customers and the entities that helped to finance projects in developing countries. (Female, 339)

Both ways, strategized and emergent solution crafting, provided solutions for challenges for which no external solutions were evident or known.

7. Discussion and implications
Cultural differences are not always an obstacle. One major take-away that materialized from the data is that cross-cultural issues were the most dreaded and predominant expected challenges before the team members embarked on the project. However, during the project, there was little mention of challenges that stemmed from cross-cultural differences. This points to the important finding that despite masquerading as a major threat to GVT effectiveness, cultural differences are not the real challenge. On the contrary, the real culprit is unfamiliarity, which can be observed in several forms and at various levels. Unfamiliarity regarding the unique team context and what challenges to expect and unfamiliarity about possible solutions deeply pervades GVT functioning. Accordingly, the schemes identified in this article focused on redefining the issues into more familiar forms, and then, finding a way to solve them. The purpose was to chip away at the sense of skepticism and threat that comes from venturing into the unknown. Hence, GVTs understudy lack problems related to cultural differences. However, new topics emerged, namely, expected challenges, experienced challenges (unrelated to cultural differences literature), challenge reconstructing scheme and solution generation scheme.

It is important to consider that GVTs studied in this research solved a hypothetical business problem, representing a cooperative goal for all the members. Such cooperative goals within groups can form the foundation for collaborative work, which can lead to better team problem-solving and improve performance outcomes. This process described by the motivated information processing perspective results in the various cognitive schemes that we find from the analysis of our data. Also, our findings indicate that the process of finding solutions for unfamiliar problems involves viewing the problem from different levels of abstraction, as described by Liberman and Trope (1998) in their construal level theory. Higher order abstract labels, such as cross-cultural issues, are broken down to lower levels

of abstraction into concrete problems such as communication tools, coordination and so on. This helps to uncover the underlying nature of the problem, enabling reframing of the issue into addressable forms. Using the arguments from these theoretical perspectives, we argue that millennial GVTs with collaborative goals are a very suitable context for studying the mechanisms through which team members can engage in problem-solving.

Given the large variety of challenges faced, and the different ways in which each issue was experienced, problem-specific solutions were very difficult, if not sometimes impossible, to anticipate. Although having to deal with several unfamiliar issues is a reality for any type of team, it is especially relevant and amplified in the context of GVTs. Members of teams with little or no cultural diversity can draw from the experience of their non-work interpersonal interactions and apply familiar socio-cultural cues to successfully function in work team contexts (Taras *et al.*, 2019). In the context of GVTs, however, prior experience of working in homogenous teams is unlikely to provide all the appropriate problem-solving tools to deal with issues faced by GVTs (Jimenez *et al.*, 2017). The team participants' practical and theoretical knowledge could only provide limited insights into what GVTs are likely to face during a project when interacting with culturally diverse people over a virtual medium. Moreover, these issues are likely to change across GVTs as well depending on the nature and composition of the GVT. Given the sheer number and types of issues that a person can face across team contexts, it can be a less effective strategy to figure out *a priori* solutions to address each issue. We argue that is it a much more valuable approach to extract broad philosophies with which teams can approach a realm of issues. As pointed out by Gibson and Cohen (2003), it is more fruitful to identify conditions that promote team effectiveness. Documenting the specific solutions for each problem would lead only to a large inventory of tactics with little or no relevance across contexts.

Thus, we focus our efforts on identifying the more encompassing cognitive problem-solving schemes, which can be available to GVTs as frameworks, to solve broad categories of problems. A cognitive problem-solving scheme in this article represented the broad philosophy behind the problem-solving approach rather than the description of any problem-specific approach itself. Schemes govern the nature of the various types of approaches that can be adopted to address challenges (Garro, 2000; Nishida, 1999). Understanding these schemes is crucial to truly grasp the overarching processes through which GVTs can deal with the complex context in which they are in and the variety of issues associated with that context. In our case, the challenge reconstructing scheme and the solution generation scheme proposed, with all its components (Figure 3) aims to grasp what is behind each tactic used by the teams to overcome challenges.

As we have discussed, the process of dealing with challenges involved schemes that enhanced familiarity and comfort toward a relatively new context and the phenomena associated with it. In addition, there are certain contextual factors that we need to be taken into consideration to assess the extent to which such schemes can work:

- *Technology*: virtual teams depend on technology to function. However, it is not only the presence of technology that matters but also the presence of alternatives that can be adapted to suit the unique demands of any context. As we saw from several examples, GVTs in our study had access to several forms of communication technologies that made expected cultural issues redundant or less relevant. Technology is evolving at a fast pace, and in the process, it provides solutions and alternatives to address specific issues. GVTs are evolving as well so that incorporating the latest tools is a natural part of their functioning. However, it is important to note that the availability of technology is futile without the

complementary skills of the team members. This points to the second important factor – age of team members; and

- *Age*: one major factor that seemed to facilitate the problem-solving process in the GVT context was the profile of the participants. Participants were all young students, millennials, who were eager to be associated with this new and exciting experience. Moreover, they had the requisite skills to use new forms of technology and identify relevant media to deal with the issues of time and distance. This points to the fact that the composition of the GVTs can be a major factor in determining how effective the schemes can be.

Most of the literature that describes cultural issues of GVTs are based on samples that do not include millennials. The effects of cross-cultural differences or virtual contexts on the interactions and performance of millennials can be very different from that of prior research subjects (Gorman *et al.*, 2004). Individuals who grew up using gadgets and ICTs can be as comfortable, if not more so, with virtual interactions as with face-to-face interactions. Thus, in evaluating the impact or implications of cross-cultural differences on GVTs, we need to take into account the nature of millennial GVTs, composed of tech-savvy individuals and the widespread availability of ICTs.

Overall, our findings have important theoretical and practical implications for researchers, practitioners and policymakers. Recent studies in the GVT literature have started to highlight, mainly theoretically but also empirically, the potential benefits of cultural distance and diversity (Shenkar, 2012; Stahl and Tung, 2014; Stahl *et al.*, 2016). Our article contributes to the GVT literature by emphasizing the importance of considering generational differences and technology usage as critical determinants of the role of cultural differences, which can be both a challenge and an opportunity in the context of GVTs.

Practitioners and policymakers, especially those in charge of educational policies (Butler and Zander, 2008), should realize that an exclusive focus on cross-cultural issues when preparing teams for projects in GVTs would only heighten the anxiety associated with such team experiences. Our study suggests that cross-cultural diversity in GVTs should be treated as another form of unfamiliarity. Educational initiatives and training aimed at enhancing challenge reconstructing and solution generation skills may be a more effective way to get team members better prepared to work in a globally distributed team environment. Further, given the increasingly important role millennials are expected to take on in organizations, as their level of seniority progresses through the ranks, our study demonstrates that for younger generations of employees who are comfortable with using technology for a number of collaboration and communication tasks, GVT context may be less of a challenge. This has important practical implications for organizations as they make expansion and staffing related decisions, which should take into consideration the communication preferences of potential employees over their cultural background.

Our article is subject to some limitations, which, in turn, create interesting avenues for future research. First, our sample is composed of short-term student GVTs. However, just like other studies using student GVTs (Taras *et al.*, 2013), our research resembles corporate GVTs because our sample is quite diverse, and class instructors act as project managers who determine the objectives of the project. Additionally, the project is complex and communication tools are the same as the ones commonly used in the corporate world. However, subsequent studies should confirm our results in samples including other nationalities and corporate GVTs. Finally, 58.9 per cent of GVT studies use short-term GVTs (Gibbs *et al.*, 2017). Besides, while participants in the project share some common characteristics such as being business school undergraduate students, the sample includes

students from both developed and developing countries (Figure 1), and therefore, there is considerable variation in the kind of school systems and cultural, socio-economic, political and technological environments in which the students live. Similarly, we rely on the journals submitted by participants, which consist of a reflective thinking narrative of their project experience, the process, its challenges and positive or negative outcomes. Although the journals were not graded to avoid the potential bias of students selectively reporting more positive aspects of their experiences to gain a more favorable impression or grading, future research could rely on focused interviews to dig deeper and widen our understanding about how millennials deal with these types of tasks. Finally, we studied millennials in a very particular context: that of collaborating in a GVT preparing a business plan as part of an experiential learning project. Although this set was specifically designed to resemble the real world in terms of team autonomy and incentives for performance, it would be interesting, to generalize our findings, to replicate the analysis with other tasks and in other contexts.

8. Conclusion

The prospect of working in GVTs can be intimidating and exciting. Unfortunately, based on the prevalent attitudes toward cross-cultural differences such opportunities are received with more skepticism than optimism, even if there is no significant risk involved. This article highlights an important context of GVTs with young, technologically savvy millennials, who experienced a result contrary to expectations that cross-cultural issues would become an obstacle to effective team functioning. We identified schemes that emerged across teams to address various forms of challenges. We also highlighted how accounting for the context and content of GVTs offered an alternative perspective, which was different from the findings of the extant literature on GVTs regarding cross-cultural issues. In the process, we emphasized how the role of culture in GVTs has been grossly misinterpreted and that any issues emerging from cultural aspects can be addressed by reframing the issues. This article provides a basis for further exploration of how this unique form of collaboration through GVTs can be used effectively, for instance, in novel human resources management strategies, such as a results only work environment, and prove to be even more successful than traditional work environments.

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