

The Influence of Language Diversity on Virtual Team Communication: Overcoming Barriers and Leveraging Benefits

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Article abstract

This qualitative, exploratory study analyzes the impact of language diversity on task-based and socio-emotional communication processes in multilingual virtual teams. The results highlight keys to effective communication for both completing team tasks and building relationships: 1) propose the use of a functional language for efficiency, but encourage supporting languages for building rapport, 2) use diverse communication channels to adapt to the context, message and interlocutors, but emphasize instant messaging for groups with high language diversity, and 3) identify language nodes as key facilitators of communication, understanding and rapport building within teams.

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ABSTRACT

This qualitative, exploratory study analyzes the impact of language diversity on task-based and socio-emotional communication processes in multilingual virtual teams. The results highlight keys to effective communication for both completing team tasks and building relationships: 1) propose the use of a functional language for efficiency, but encourage supporting languages for building rapport, 2) use diverse communication channels to adapt to the context, message and interlocutors, but emphasize instant messaging for groups with high language diversity, and 3) identify language nodes as key facilitators of communication, understanding and rapport building within teams.

Keywords: communication channel, international management, language diversity, relationship building, team processes, virtual teamwork

Résumé

Cette étude qualitative et exploratoire analyse l'impact de la diversité linguistique sur les processus de communication (liés aux tâches, et socio-émotionnels) au sein d'équipes virtuelles multilingues. Les résultats soulignent les clés d'une communication efficace pour atteindre les objectifs de l'équipe et créer du lien : 1) l'utilisation d'une langue fonctionnelle pour accomplir efficacement les tâches, mais l'emploi de langues additionnelles (code-switching) pour créer du lien, 2) le recours à plusieurs canaux de communication suivant le contexte, mais surtout la messagerie instantanée pour les groupes à forte diversité linguistique, et 3) l'identification des nœuds linguistiques, pour faciliter la communication et le rapport.

Mots-clés : canal de communication, diversité linguistique, management international, processus d'équipe, relations interpersonnelles, travail virtuel

Resumen

Este estudio, exploratorio y cualitativo, analiza el impacto de la diversidad lingüística en los procesos de comunicación (basados en tareas y socio-emocionales) en equipos virtuales multilingües. Los resultados evidencian claves de la comunicación efectiva para lograr los objetivos de equipo y establecer vínculos: 1) Uso de lenguaje funcional para la eficiencia, empero, fomentando lenguajes de apoyo (cambio de código) para generar vínculos. 2) Acudir a diversos canales de comunicación para adaptarse al contexto, siendo vehemente en la mensajería instantánea en grupos con alta diversidad lingüística, y 3) Identificación de nodos lingüísticos que faciliten la comunicación y formación de relaciones.

Palabras Clave: canal de comunicación, construcción de relaciones, diversidad lingüística, gestión internacional, procesos de equipo, trabajo virtual en equipo

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Global virtual teams (GVTs) have long existed as a means to connect the members of multinationals, but this phenomenon has skyrocketed in response to the latest global health pandemic. As such, today's GVTs are physically separated over greater distances and they are more diverse than ever (RW3 LLC, 2016). Even before the pandemic, some of these teams never met face-to-face, but collaborated exclusively through technology. Other teams combined the advantages of virtual work with face-to-face work through the creation of dispersed clusters. The main advantage of GVTs is that the "right" people with the "right" skills and a variety of ideas and perspectives are recruited, no matter their physical location, and this can lead to a more efficient use of human resources (Chudoba, Wynn, Lu & Watson-Manheim, 2005; Jarvenpaa & Leidner, 1999). Furthermore, virtual work is a means to harness diversity and increase creativity within a team (Gilson, Maynard, Jones Young, Vartiainen & Hakonen, 2015), and it is a mechanism by which organizations can become more flexible in the rapidly-changing global context (Mockaitis, Zander & De Cieri, 2018). Thereby, GVTs provide a competitive advantage for multinationals (Zakaria, Amelinckx & Wilemon, 2004).

However, GVTs also create difficulties such as challenges related to communication, trust and intercultural understanding (Karjalainen & Soparnot, 2010). While not explicitly cited by the aforementioned authors, language diversity is essential in exploring the challenge of communication, specifically in the context of GVTs. Language diversity observes differences among people in a particular group or organization and it can be measured in relation to a person's language skills as well as in the languages actually used within the work environment (Church-Morel & Bartel-Radic, 2016). Language diversity is often conceptualized in relation to national languages that are used on an everyday basis, but it can also be studied in other contexts such as company speak or technical or profession-related language (Church-Morel & Bartel-Radic, 2016).

While it is accepted that language diversity influences teamwork (Kassis-Henderson, 2005), communication effectiveness (Charles & Marschan-Piekkari, 2002; Kim, Roberson, Russo & Briganti, 2019), team member relationships and emotions (Charles, 2007; Cohen & Kassis-Henderson, 2012; Hinds et al., 2014; Tenzer & Pudelko, 2015) and the use of different media for team communication (Fleischmann, Aritz & Cardon, 2020; Klitmøller & Lauring, 2013; Tenzer & Pudelko, 2016), a nuanced understanding of the keys to effective communication, for both teamwork

and team building, is lacking within the dual context of high language diversity and virtuality. Thus, the main research question explores *how language diversity influences communication, specifically considering task-related and socio-emotional processes, in multilingual virtual teams*. By exploring language diversity and virtuality, we aim to better understand and overcome difficulties associated with language and communication and reap the benefits of such teams.

By exploring team processes related to language and communication, the focus expands not only to processes directly related to the task at hand, but also to socio-emotional processes including relationship building (Powell, Piccoli & Ives, 2004) and establishing rapport (Cohen & Kassis-Henderson, 2012). In this way, we address the influence of language diversity on such phenomena as subgroups, team adaptation and team member well-being, all of which are cited as opportunities for future virtual team research (Gilson *et al.*, 2015). This question reflects a need in the current context where virtual teams are more and more popular and where managers benefit from learning about the challenges and advantages of such teams, as well as keys to manage them. Additionally, we also respond to a call from Angouri and Piekkari (2018, p. 21) for research on language in the field of international business (IB) that "*zoom[s] in the practices of employees around specific processes and zoom[s] out on the wider context*" as a means to bring together theory and practice.

To explore the research question, this paper starts with a review of the literature at the junction between language diversity in IB and GVTs. Then, we describe a qualitative study with semi-directive interviews of 20 individuals participating in multilingual GVTs. The results highlight the influence of language diversity and virtuality on task-related and socio-emotional processes, and finally we propose four keys to effective communication for both completing team objectives and building relationships in multilingual virtual teams: 1) A functional language increases efficiency, but supporting languages increase the development of team member rapport. 2) Code-switching harms team dynamics at the group level but improves relationships when used in one-on-one situations and small talk. 3) Diverse communication channels help such teams adapt to the context, but instant messaging is especially helpful for groups with high language diversity. 4) Language nodes bridge gaps and improve efficiency and relationships and should be identified from recruitment. By considering these keys to effective

communication, multilingual virtual team members and managers can overcome the language barrier and leverage the benefits of diversity.

Literature Review

After a discussion of the main findings from previous studies on language and GVTs in multinationals, this literature review considers the importance of communication in relationship to team member skills and technological tools. Finally, the focus turns to communication as a process, with team processes including both task-related and socio-emotional processes.

Language Diversity

Language is “a multifaceted, multilevel construct for IB research” (Brannen, Piekkari & Tietze, 2014, p. 496). Language diversity can be classified based on Harrison and Klein’s (2007) construct which separates diversity into three types: variety, separation, and disparity. Language diversity in particular refers to the variety of native languages or differing proficiency levels of learned languages, the separation between people based on differing values, beliefs or attitudes about language use, and the disparity or power differences between individuals based on their language skills (Church-Morel & Bartel-Radic, 2016). This paper specifically focuses on language variety in order to study team processes that use diversity to the organization’s advantage, rather than ruptures, subgroups or language as a “power-wielding instrument” (Charles, 2007).

Language diversity is separate, but complementary, to cultural diversity. Indeed, language is approached here as a social construct emerging from different layers of context, including culture (Karhunen, Kankaanranta, Louhiala-Salminen & Piekkari, 2018). By complementing an instrumental view of language with a culturally-sensitive perspective (Tenzer, Pudelko & Zellmer-Bruhn, 2021), we recognize that language can indeed be influenced by culture because people “hear” and understand differently depending on their background and experiences (Kassis-Henderson, 2005). However, language is recognized as more than culture and is a separate stream of research in IB (Barner-Rasmussen & Aarnio, 2011). Furthermore, language differences are more visible than cultural differences on a day-to-day basis, so language is more “persistently salient” (Hinds, Neeley & Cramton, 2014, p. 555).

In teams, language diversity has been studied in the context of a team characteristic to be managed, for which language policies and language management strategies are established. Language policies often refer to a corporate language (often English as a *lingua franca* or Business English as a *lingua franca* BELF), which is chosen based on the company’s strategy (Luo & Shenkar, 2006). BELF is an international style, somewhat of a “*broken English*” [116], that is used in professional settings (Charles, 2007; Kankaanranta & Planken, 2010). The goal is simply to transmit a message and make the interlocutor understand, or “get the job done” (Charles, 2007). Vocabulary and grammar are simplified from the English spoken by a native speaker. On the other hand, a multilingual approach (i.e. a *multilingua franca*), where the most appropriate languages are used depending on the specific context and where members can speak and be understood in their native language, has also been suggested to be the best solution, albeit the most difficult one, for multilingual teams (Chevrier, 2013). In practice, a *multilingua franca* is more frequently used socially, rather than professionally (Harzing & Feely, 2003).

Management strategies are established at different organizational levels including the corporate, team and individual levels (Feely & Harzing, 2003; Harzing, Köster & Magner, 2011). Besides a corporate language, management and HR can dedicate resources for improving language capabilities and can recruit based on language requirements. At the team level, the team can choose their functional language, preferred communication channels and to use code-switching (a term from sociocultural linguistics referring to “the use of more than one language in the course of a single communicative episode”; Heller, 1988, p. 1). Individual, intercultural and communication skills also determine which individuals may serve as language nodes, or bilingual bridges, between groups (Harzing *et al.*, 2011).

A small number of studies, rather than seeing language as something to “tame,” see language diversity as a real strength to harness, thereby exhibiting a more positive view (Bordia & Bordia, 2015; Church-Morel & Bartel-Radic, 2014). People with different language skills can bring critical skills and capabilities to the company, and thereby languages can be company resources. In any case, while it is accepted that language diversity influences team work, understanding is lacking concerning exactly how and in what ways language and language

diversity affect specific team processes surrounding communication, especially in a virtual setting.

Global Virtual Teams (GVTs)

This study highlights teams with a high degree of virtuality (i.e. they collaborate significantly more virtually than face-to-face) because of their growing influence in multinational corporations. In early 2020, 89% of employees said that working in a virtual team was critical to their productivity (RW3 LLC, 2020). Of course today's participation in virtual and remote work has skyrocketed as a result of the covid-19 health pandemic, and this is predicted to continue into the future (Marsh, 2021).

A team, in its traditional sense, is a group of individuals, guided by a leader, that is organized together around a common goal for which all members are collectively responsible (Devillard, 2005). In response to evolving external demands and tasks of ever-increasing complexity, teams now have more fluid boundaries and evolving structures (Hackman & Katz, 2010). Therefore, today's teams tend to have a higher degree of virtuality. To be precise, virtuality is not a categorical variable, separating virtual teams from face-to-face teams, but rather the reality shows that it is a dimensional attribute which can be defined on a continuum with variation in the extent of face-to-face contact (Chudoba et al., 2005; Gibson & Gibbs, 2006; Marlow, Lacerenza & Salas, 2017). Virtuality comprises three dimensions, including team distribution, workplace mobility and a variety of practices (Chudoba et al., 2005). GVTs can be recognized specifically as teams that are geographically and temporally dispersed, are dependent upon technology to communicate, are naturally culturally and linguistically diverse, often have an international task and are often temporary (Chudoba et al., 2005; Jawadi & Boukef Charki, 2011; Maznevski & Chudoba, 2000). Thanks to these characteristics, companies can go beyond geographical and temporal boundaries, access required skills independently from their location and construct international partnerships and alliances (Jawadi & Boukef Charki, 2011).

The popularity of GVTs in the professional world is reflected in research. Gilson and colleagues' (2015) literature review on GVTs proposed 243 empirical articles, proposing ten main themes studied between 2005 and 2015 including team inputs, globalization and leadership and ten future research opportunities including subgroups (such as those related to language groups), team

adaptation, creativity and team member well-being. We believe that language diversity, could be a factor influencing phenomena such as subgroups, adaptation and creativity especially in virtual teams". Thereby, this paper examines the underexplored area linking language diversity in IB and GVTs.

Communication: Importance, Skills and Tools in Multilingual GVTs

Communication links language studies and GVTs and influences a variety of related topics such as choice of communication channel, knowledge management, productivity and team member relationships. Communication is essential for teams and teamwork and yet can be considered one of the main challenges of GVTs along with cultural differences, accents and motivation and implication of members (RW3 LLC, 2016). Communication is an integral team process by which two or more members exchange messages, and it can be seen as the basis for other team processes, such as coordination and negotiation, that improve team performance (Marlow et al., 2017).

As communication depends on language, highly-developed language skills support high quality communication. In IB, language can be regarded as "a measurable skill and capability that the individual (rather than the organisation) possesses to perform the job" (Angouri & Piekkari, 2018, p. 14). As a majority of international teams employ English as the team's common language, English proficiency can act as a baseline or gatekeeper to developing a more expansive communicative ability (Lockwood & Song, 2020). However, additional languages can assist high quality communication, and it may be helpful for team members to share languages besides English. Multilingual individuals can link groups by sharing their knowledge and assisting both sides to reach a mutual understanding. These multilingual individuals are known as language nodes or bridge individuals (Harzing et al., 2011). They assume an important position based on their language skills and can work flexibly between multiple languages.

Considering the tools by which team members communicate, media richness theory (Daft & Lengel, 1986) and media synchronicity theory (Dennis, Fuller & Valacich, 2008; Marlow et al., 2017) deal with the choice of communication channel in regards to the team's needs. Media richness theory states that team members communicate to reduce task complexity and they choose media that corresponds to this complexity (Daft & Lengel, 1986). In general, a richer media,

e.g. a media such as video conference that is as close to face-to-face communication as possible, is used for complex communication, while a leaner media, e.g. a general document or email, is used for simple or explicit messages (Klitmøller & Lauring, 2013). Klitmøller and Lauring (2013) present a paradox by proposing the inverse for teams characterized by a low degree of language commonality; for them, lean media is more effective for complex communication, while richer media is more effective for simple or explicit communication. Lean media allows team members to use spellcheck, take their time to respond and avoid confusion resulting from accents or verbal, cultural signals. In other words, written media such as email allows people to overcome differences in verbal style (Shachaf, 2005). Klitmøller and Lauring's (2013) findings also support studying language as separate to culture; both are important, but affect communication in GVTs in different ways.

Likewise, media synchronicity theory (Dennis et al., 2008) considers the different cues and the immediacy of the required feedback for choice of communication channel (Marlow et al., 2017). Media synchronicity is "the extent to which the capabilities of a communication medium enable individuals to achieve synchronicity" (Dennis et al., 2008, p. 581). Like media richness theory, the core idea of media synchronicity theory is also reversed in the multilingual context. Tenzer and Pudelko (2016) found that synchronous media overwhelmed multilingual GVT members with low proficiency in the common language and that asynchronous media better allowed a convergence of ideas over synchronous media where messages tend to arrive quickly and require a quick response. Asynchronous media, such as email or text messages, allow a person to open a message privately and carefully consider their response before sending it, thus reducing cognitive effort and "freeing up" cognitive resources in multilingual settings (Tenzer & Pudelko, 2016). In light of these paradoxes, Tenzer, Terjesen and Harzing (2017) call for a further examination of theories on choice of communication channel and communication effectiveness in the multilingual GVT context.

Communication Processes Linked to Both Task and Relationships in Multilingual GVTs

Team processes are "members' interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing

taskwork to achieve collective goals" (Marks, Mathieu & Zaccaro, 2001, p. 357). Team processes include task-related processes and socio-emotional processes. Task-related processes (i.e. "processes that occur as team members work together to accomplish a task or goal"; Powell *et al.*, 2004) include planning (such as mission analysis, goal setting and strategy formulation) and action processes (such as communication, participation, coordination, knowledge sharing and monitoring the group's progress; Martins, Gilson & Maynard, 2004). Socio-emotional or interpersonal processes refer to social interaction and developing relationships and include building positive relationships or rapport, trust, cohesion, social integration, conflict, and tone of interaction, for example (Martins *et al.*, 2004). These processes are closely related to "rapport management" (Spencer-Oatey, 2008) which refers to "the use of language—verbal and non-verbal strategies—to promote, maintain or threaten harmonious social relations" (Cohen & Kassis-Henderson, 2012, p. 193). Interpersonal processes have been cited as important to consider in future research on language diversity (Tenzer & Pudelko, 2020). While communication sits on the side of task-related processes according to Powell, Piccoli and Ives' (2004) model, it clearly exhibits a direct influence on socio-emotional processes, as relationships, trust and the like are related to both actions and feelings resulting from those actions. For example, Marlow and colleagues' (2017) study demonstrated a relationship between communication, trust and performance. Table 1 provides a more complete literature review by expanding upon the themes included in the notion of task-related and socio-emotional processes and the main research on these themes within the context of multilingual GVTs.

Methodology

Research Design

This qualitative study on communication processes in multilingual GVTs was exploratory in nature. Qualitative, semi-structured interviews are consistent with the dominant methodological paradigm in research on language in IB and allow us to better understand subjective perceptions (Pudelko, Tenzer & Harzing, 2015; Tenzer & Pudelko, 2015). The focus of interviews was on individual strategies and perceptions within the team context.

TABLE 1
Task-related and socio-emotional processes in multilingual GVTs

Type of Process	Definition	Themes	Examples of research	Examples of research addressing both
Task-related Processes	<ul style="list-style-type: none"> - “Processes that occur as team members work together to accomplish a task or goal” (Powell, Piccoli & Ives, 2004) - Includes planning and action processes 	<ul style="list-style-type: none"> - Mission analysis - Goal setting - Strategy formulation - Communication - Participation - Coordination - Knowledge sharing - Task-technology-structure fit / media choice - Monitoring of the group’s progress 	<ul style="list-style-type: none"> - Chudoba, Wynn, Lu & Watson-Manheim (2005) - Klitmøller & Lauring (2013) - Li, Yuan, Bazarova & Bell (2018) - Lockwood & Song (2020) - Shachaf (2005) - Tenzer & Pudelko (2016) - Tenzer, Pudelko & Zellmer-Bruhn (2020) 	<ul style="list-style-type: none"> - Fleischmann, Aritz & Cardon (2019) - Gibson & Gibbs (2006) - Jawadi & Boukef Charki (2011) - Karjalainen & Soparnot (2010) - Kassis-Henderson (2005) - Klitmøller, Schneider & Jonsen (2015) - Marlow, Lacerenza & Salas (2017) - Maznevski & Chudoba (2000) - Zakaria, Amelinckx & Wilemon (2004)
Socio-emotional Processes	<ul style="list-style-type: none"> - Processes related to social interaction and development of relationships - Also known as interpersonal processes 	<ul style="list-style-type: none"> - Relationship building - Rapport establishment/ building - Team cohesion - Trust - Conflict - Tone of interaction - Social integration 	<ul style="list-style-type: none"> - Charles (2007) - Cohen & Kassis-Henderson (2012) - Hinds, Neeley & Cramton (2014) - Jarvenpaa & Leidner (1999) - Kim, Roberson, Russo & Briganti (2019) - Tenzer & Pudelko (2015) - Tenzer, Pudelko & Harzing (2014) 	

Data Collection

Semi-directive interviews of 20 individuals with professional experience in multilingual GVTs were completed. Interviewing occurred in two phases, in early 2019 and early 2020, with two interviewees being interviewed during both phases. The intentionally diverse sample includes professionals in different fields, types and sizes of companies and teams, and hierarchical levels/ positions, such as managers, employees and researchers. However, due to the researcher’s ties to the U.S. and France, the majority are from Western Europe or North America and work in French or American organizations. This variety is interesting because it allows a better understanding of how language diversity influences people in different companies and positions.

The selected individuals all reported language diversity within their team(s), but specifics varied widely. The majority of the interviewees speak at least two languages at an intermediate level or above, and so could be potential language nodes. All interviewees speak advanced or native English, and French is also widely spoken. The language capabilities of the individual were considered within the context of the team’s language diversity. Because the interviewer was bilingual, interviews were conducted in both English and French. One of these languages were either the interviewee’s native language or a language so that they spoke fluently (often the functional language in the workplace). This was meant to “open doors,” build rapport between the interviewer and the interviewee and allow the collection of richer data (Welch & Piekkari, 2006, p. 425). See Table 2 for a summary of the interviews.

TABLE 2
Summary of Interviews

Interviewee										Primary team					
Interviewee Code	Gender	Job Level	Job sector	Country of Birth ¹	Country of residence	Language - English level	Language - French level	# langs (advanced +)	# langs (intermediate+)	Type	Size	HQ Location	Dispersion (# of sites)	Corporate Language	Functional language
A1	M	Employee	Analyst	US	US	Native	None	1	1	Legal	21-30	US	3	English	English
U2	M	Employee	Analyst	UA	UA	Adv.	Begin.	3	3	Project	6-10	USA	4	English	Multiple
F3	F	Employee	Translation	Fr	Fr	Adv.	Native	3	3	Project	1-5	US	2	English	English
A4	F	Manager	Service	US	US	Native	Begin.	1	1	Service	31+	US	7+	English	English
B7	F	Director	Service	BE	BE	Adv.	Adv.	5	5						
F5	F	Manager	Project mgmt	Fr	US	Adv.	Native	2	3	Innov.	31+	US	6	English	English
F6	M	Manager	Admin.	FR	FR	Adv.	Native	4	4	Admin.	11-20	DE	1	Multiple	English
A8	F	Director	Sales	US	FR	Native	Int.	1	2	Sales	1-5	FR	2	French	French
F9	F	Director	Change mgmt	FR	FR	Adv.	Native	2	3	Project	21-30	US	5	English	English
F10	M	Director	Research	FR	FR	Adv.	Native	2	2	Project	6-10	FR	2	French	French
Y11	M	Employee	Research	YE	FR	Adv.	Int.	2	4	Research	21-30	FR	1	French	French
U12	M	Manager	Research	UA	FR	Adv.	Int.	3	5	Research	6-10	FR	4	English	Multiple
G15	F	Employee	Research	GR	FR	Adv.	Adv.	3	3						
S17	M	Employee	Research	SE	FR	Adv.	Adv.	3	3						
B18	M	Employee	Research	UK	FR	Native	Int.	1	2						
F13	M	Manager	Service	FR	FR	Adv.	Native	2	2	Maint.	6-10	US	4	English	English
F14	F	Manager	Quality manager	FR	FR	Adv.	Native	2	3	Project	31+	CH	7+	English	Multiple
I16	F	Employee	Analyst	IR	FR	Adv.	Adv.	3	3	Project	31+	US	5	English	Multiple
F19	M	Director	HR	FR	FR	Adv.	Native	2	2	HR	31+	KR	4	Korean	English
A20	M	Manager	Operations	US	US	Native	None	1	1	Executive mgmt	6-10	GB	6	English	English

1. For country abbreviations, see ISO 3166-1 alpha-2 codes

Interview questions explored language diversity from the individual's point of view, but also aimed to learn about team practices and organizational strategies. Semi-structured interviews provided some consistency while also giving freedom to change between topics or expand more or less on issues considered as more or less important (Myers, 2008; Tenzer & Pudelko, 2015). The four parts of the interviews focused on the organization, the individual and their background, the team's characteristics and functioning, and more specifically, the influence of language diversity on team effectiveness. Regarding the organization, the internationalization strategy and HR practices concerning languages were explored. The individual was questioned about their feelings about virtual work, specificities regarding how they greet colleagues in person or by email, and the techniques they use to communicate with their team. To learn about the team, the interviewer asked about the team configuration, principal means of communication, situations in which members of the team experienced difficulties or misunderstanding, and finally if (and how) the team's language diversity affected its effectiveness.

Data Analysis

The 22 semi-directive interviews were recorded and transcribed in their entirety (see Miles & Huberman, 2003) before being put into the NVivo software for analysis. Recognizing the multilingual reality of this study, the interviews were transcribed and analyzed in their original language to guard against a loss of meaning but quotes are translated into English to be shared with a wider audience.

Inspired by input-process-output (IPO) models of diversity and language diversity from Kochan, Bezrukova, Ely, Jackson, Joshi, Jehn, Leonard, Levine and Thomas (2003) and Church-Morel and Bartel-Radic (2014) respectively, data was organized in a first round of coding into four main areas including the team characteristics (input), team processes, team effectiveness (output) and organizational context (mediator). Subtopics were designated based on previous literature. During the first round of coding, new conceptual elements emerged, which were explored in a second round of coding of the full set of interviews. For example, these additional conceptual elements include fluidity between multiple GVTs, local virtuality versus global virtuality, multilingual greetings as complementary to a primary functional language, and the importance of cultural diversity alongside language diversity. Fluidity between multiple GVTs and local virtuality versus global virtuality reflect the evolving work practices in today's

virtual environment. Indeed, many people who participate in GVTs participate in more than one, so team boundaries can be difficult to identify. Local virtuality refers to a lower degree of virtuality, where individuals participate in virtual work punctually (e.g. teleworking). Functional languages and multilingualism are especially at the heart of this study and will be presented in depth in the next section. Finally, all interviewees referenced culture without being prompted, which implies the interconnected nature of culture and language.

In addition, team processes were further divided into task-related and socio-emotional processes, as proposed by Powell, Piccoli and Ives (2004). Task-related processes include communication and coordination, while socio-emotional processes include trust, cohesion and belonging, but also confusion, frustration and anxiety. Table 3 specifies the data coding structure.

Findings

The team's functioning is clearly influenced by the functional language, choice of communication channel, and communication content. Furthermore, aspects related to task processes (i.e. that are necessary for completing team objectives) also influence socio-emotional processes (i.e. team member relationships). The following section presents the research findings with a focus on team processes in multilingual GVTs. See Table 4 for an overview of the findings.

Language Issues: Implementing a Functional Language

The team's functional language(s) is/are the language(s) that are employed by team members on a day-to-day basis within the work environment, both formally and informally. Functional languages are influenced by the prescribed corporate language (if there is one), but also by the team's linguistic and geographical configuration. For most of the cases studied, English is the functional language, however there is variation in the level and type of English. While many interviewees simply discuss proficiency, others qualify the type of English used as being "*broken English*" [I16] or a version of English influenced by other languages: "*the Czech people will say that they speak Czenglish, which is part Czech/ part English*" [A20]. Interviewees find that a common language is advantageous for teams composed of members with differing native languages: "*I don't speak Italian, and they don't speak French, so we speak in English*" [F13]. Besides English, French

TABLE 3
Coding structure

First-level codes	Second-level codes	Third-level codes
Organizational context	Company strategy	Multinational company structure
		Internationalization goals
	HR practices	Designation of corporate language
		Focus on increasing team's language proficiency during recruitment and trainings
		Organized team building events
Team characteristics	Linguistic and geographic configuration	Disparity of proficiency levels in common languages
		Physical location and proximity to others
	Individual competences	Language and communicational competence
		Empathy and openness to others
Team processes related to communication <i>(see Table 4 for details)</i>	Team linguistic practices	Flexibility in using a functional language
		Other language management practices (adaptation, code-switching, redundancy...)
	Virtual communication practices	Importance and frequency of virtual communication
		Choice of media for one-on-one and team communication <i>(see Table 5)</i>
	Language nodes	Leaders or managers with language and/or (inter)cultural competence
		Colleagues with language and/or (inter)cultural competence
	Emergent positive emotions	Trust
		Cohesion
		Appreciation
	Emergent negative emotions	Confusion
Anxiety and frustration		
Lack of sense of closeness		
Team effectiveness	Goal completion	Efficiency and time concerns
		Ability to address a complex task
	Development of individual skills	Language and communicational competence
		(Inter)cultural competence
	Individual satisfaction	Satisfaction with team interaction and intercultural context
		Dissatisfaction with inefficiencies due to language and virtual context

TABLE 4
Verbatims to illustrate team communication processes

Second-level code	Third-level code	Verbatims
Team linguistic practices	Flexibility in using a functional language	"my requirement for my team for instance is... if in a one-on-one conversation, we can switch to the native language of one of the two..., but when there's multiple people speaking multiple languages, we automatically all switch to English out of respect and to make sure that everybody just can follow the conversation." [B7]
	Other language management practices (adaptation, code-switching, redundancy...)	"When they spoke to us in a video conference, they spoke English. They spoke at a very advanced level. But when we arrived at a difficult point and we asked them a question, they would very often switch into German between them." [F5] "As much as possible we try to really talk, but then following up in written form sometimes helps specifically because not everybody's level of English is at the same level really. Sometimes it helps to send them a summary of what you have discussed afterwards in English so that they have the time to digest it afterwards." [B7]
Virtual communication practices	Importance and frequency of virtual communication	"I think the one thing you'll you always learn in the business world or any kind of organization is "communicate, communicate, communicate, communicate"" [A20]
	Choice of media for one-on-one and team communication	"We're miles apart. We just try to operate like we're next door to each other, and everybody's gotten fairly used to working at a distance... I think I really try to exploit the mediums that we have today." [A20] <i>(see Table 5 for details on specific media)</i>
Language nodes	Leaders or managers with language and/or (inter)cultural competence	"I had kept the gal from China right next to me because I know her English is not as good... I would end up being her mouthpiece to tell people." [A4] "More serious for me was to be responsible for a group of people. So I should at least be able to understand that group of people." [U12]
	Colleagues with language and/or (inter)cultural competence	"When I have a client, sometimes who would write to me in Italian. Not speaking Italian, I would look at Google Translate. Or, if I needed further clarifications, I ask one of my Italian colleagues so that he translates exactly what it means in English." [F13]
Emergent positive emotions	Trust	"I guess they just become more relaxed so it's not like their level of English has gotten better. They just feel more relaxed [...] Because they don't worry." [U2]
	Cohesion	"For each request, each message, I will try to say 'Thank you' in the person's language... So, that definitely creates a strong connection. " [F19]
	Appreciation	"It makes the work more interesting to be able to discuss with other people from other cultures." [F3]
Emergent negative emotions	Confusion or lack of understanding	"We realize that there is a very important loss online, because people are only partially there." [F9]
	Anxiety and frustration	"Of course, we know that multiculturalism brings a certain richness to the project, but regarding communication, sometimes you are fed up of it." [F5]
	Lack of sense of closeness	"It's less engaging to not see our interlocutors in any case, even if we're really conscientious." [F9]

remains a functional language for some dominantly French teams or teams located in France. For example, a Swedish researcher states, *“one of [my teams] is pure French-speaking. So not only with French people, but the language of choice is French because we’re all situated in France”* [S17]. The use of a functional language allows teams to be more efficient and share access to the same information.

While a common functional language is meant to create a space of equal understanding, it can cause disparity between those of different proficiency levels. For example, a Greek employee describes that despite her advanced proficiency in the functional language, she feels that promotion within the organization is not possible because she does not speak the functional language at a native speaker’s level, and that she would consider leaving if changes are not made [G15]. Furthermore, differing proficiencies in the functional language result in adaptation techniques, such as speaking more slowly or using simplified vocabulary. While this can be a positive point to aid communication, these techniques should be used carefully as to not reinforce differences: *“we didn’t change the vocabulary, because we don’t want to infantilize anyone”* [F5]. Overall, the findings show that a functional language aids understanding and goal completion, but disparity may prevent relationship building or opportunities for promotion.

Capitalizing on Multilingual Communication Alongside a Functional Language

While the vast majority of teams adopt a functional language, many also capitalize on additional supporting languages to increase understanding or improve relationships. Teams that work in organizations with multiple corporate languages or that work with colleagues from a specific geographic area while the corporate language comes from elsewhere (e.g. a cluster from an American multinational located in France, F3, I16) tend to use additional languages more freely. Teams with greater language disparity in the functional language practice code-switching, especially in one-on-one conversations when someone has difficulty understanding: *“I will switch to a language that helps communication”* [G15].

Also, using additional languages in greetings (of an email, for example) or to recognize a team member’s cultural holiday is perceived as more acceptable and allows individuals to get to know each other. One Swedish interviewee located in France explains, *“I play around with it a bit because I usually write*

“Bonjour” to people who are not French. It’s to sort of show where I’m from and where I’m working” [S17]. Therefore, multilingual communication aids in individual understanding and may increase group relationships when used in less formal situations. However, for formal or full-team communication, it is important to use a language that all group members understand and speak well: *“when there’s multiple people speaking multiple languages, we automatically all switch to English out of respect and to make sure that everybody just can follow the conversation”* [B7]. Too much code-switching and side conversations can lead to subgroups and a lack of cohesion. Indeed, there is a fine line between operating officially in the functional language and choosing to add other languages for a more personal touch.

Choosing the Most Appropriate Channel for Effective Communication

Media choice refers to the selection of a certain type of communication channel in relation to the message being transmitted and the person(s) receiving it. Email and voice calls are the most traditional media used for professional communication, while videoconferencing and instant messaging appear to be increasingly useful. Email is consistently the most used media on a day-to-day basis. Emails are used to quickly exchange information that can be forwarded throughout the organization [F3, F14, F19], to confirm and keep records [B7, F9, S17] and to work across time zones [A4]. It tends to be the simplest form of communication that requires the least planning: *“Organizing a meeting becomes usually more complicated than writing it. You know the availability of people, etc.”* [S17]. Email is convenient for groups and formal messages [F18, A20].

Voice calls, whether they use a telephone or an online platform, are most useful to quickly resolve problems [F3, F6, S17]. Calls are efficient: *“a half an hour email could take five minutes to do over the phone”* [S17]. When a discussion by email results in too many exchanges or *“starts to ping pong around”* [B7], some teams shift to an oral discussion to gain time [A4, B7, F9]. However, voice calls do require an advanced language level and can be negatively affected by accents [F9, F19].

Video calls are similar to voice calls, with the added benefit of seeing facial expressions and body language. They are established for regular team meetings and exchanges [G15, B18, F19]. One of the most significant advantages of a video conference is the possibility to share a computer screen and *“work through a process live”* [A1]. In addition, video can help team members establish rapport

by seeing each other in their environment and by being able to see facial reactions and body language [F5]. An American sales director shares, *“it’s just nice to see a human body now and again”* [A8]. However, video requires a good internet connection, appropriate technology and advanced planning to integrate people in different time zones [A4, A20]. Also multiple interviewees cited privacy, security concerns or team norms as a limit to using a video call software or to turning on the camera [F9, Y11, I16, S17, F19].

Instant messaging aids comprehension, especially with high language diversity, and allows for more lively team communication. A French HR director recounts, *“Messenger is more efficient for understanding the context, for digging deeper on certain points, especially with the Koreans, for example, who don’t speak English very well, but respond to written messages”* [F19]. Beyond positive effects on comprehension, instant messaging has the power to bring people closer together, share humor and maintain a relationship through informal check-ins [F14, F19]. A French quality manager compares instant messaging as the closest option to face-to-face communication: *“For me, it’s lively. I make it a tool to really try to reproduce as if we were face-to-face. Mimics that we could have, the non-verbal that is difficult to translate in an email”* [F14]. Team members that use instant messaging appreciate the quick feedback (i.e. more synchronous communication) and the possibility to show more of their personality through informal greetings and check-ins, as well as emoji.

A combination of communication channels further increases communication efficiency. The use of multiple communication channels can occur synchronously (e.g. sharing a screen during a voice call, A8, F10, F13, F14, S17) or asynchronously (e.g. confirming a work instruction by email after explaining it in a conference call, B7). This repetition is useful for important instructions and is adapted for people that learn in different ways, namely visual versus verbal learners. Repetition in a written form is also helpful for teams with high language diversity: *“Sometimes it helps to send them a summary of what you have discussed in English so that they have the time to digest it afterwards. In a multilingual team, that is often very important”* [B7]. A French interviewee working with colleagues in India shares how repetition across different communication channels allowed her to overcome difficulty in understanding her Indian colleagues due to accents, *“I had to practice and mix [oral] with written communication to make sure I got it right”* [F9].

Overall, written media tends to be used significantly more in multilingual GVTs. For example, one director estimates that her highly-diverse and dispersed team communicates 80% by written means and 20% orally [F9]. Written media allow teams to communicate efficiently across time zones while adapting to accents and proficiency levels. Written media tend to make individuals with lower language proficiency more comfortable than oral channels, whereas oral forms of communication seem to help more with resolving problems quickly. Synchronous channels that replicate face-to-face communication, with body language, conversational messages or even arguably emoji, build relationships and rapport among team members. Table 5 summarizes these findings.

Reinforcing Effective Communication With Language Nodes and Bridge Makers

If individuals provide essential team coordination thanks to language skills, they may be language nodes. Language nodes facilitate exchanges between two parties through translation or verifying others’ messages. Beyond simply having the capacity to help, language nodes often feel a responsibility for it. For example, a Belgian manager that understands seven languages believes it is her responsibility to adapt to others when there is a communication issue: *“I think it’s up to me to make the effort rather than them. So when I find indeed that either people have trouble explaining something to me or they have trouble understanding what I’m saying, I will switch or I will ask them, ‘Okay, say it in (whatever their native language is)’ and see if that helps”* [B7]. Colleagues that are physically or emotionally close can be effective language nodes by verifying a colleague’s message destined to an external client [Y11, G15] or by helping interpret incoming messages: *“I go to my colleagues. It’s like, ‘...What do you understand for this?’...these other things are still quite difficult sometimes: to get to know what the real message is”* [S17]. Translating may go beyond simply understanding the words, to also include cultural interpretations. Lastly, language nodes but may occupy any role within the team: member or manager. Due to their language skills and propensity to help, language nodes become trustworthy, central interlocutors for communication across the team and hold a privileged role among their team members.

TABLE 5
Summary of communication media used in multilingual virtual teams

Media	Purposes, Advantages, and Difficulties	Details	Verbatims
Email	Primary purposes	For simple exchanges or information	"When it's a simple one-off question, it's easier to answer via email..." [A1]
		For confirmations	"We confirm in writing to assure that we understood well" [F9]
		For descriptions of a complicated work task	"If, for example, I ask them to do something, a task that requires a few days, I will more so write an email, to explain well what I want" [F13]
		For communicating information throughout the organization	"If we want to send a mass message, email is perfect. If we want to send a formal message, email is perfect" [F19]
	Advantages	Appropriate for temporal dispersion	"Email tends to be the mode because we're all in different time zones" [A4]
		Possibility to evoke other languages in greetings or closings	"When I speak to Italians, I start with 'ciao' and after that, I speak in English. Or I finish with 'ciao.' It's a means to get closer too" [F14]
Difficulties	Time-consuming	"a half an hour mail could take five minutes to do over the phone" [S17]	
Voice, conference call (phone or online)	Primary purpose	For urgent matters or problem-solving	"what's urgent, what requires a decision, is by telephone" [F6]
	Advantages	Easy to combine with other media or screensharing	"We would cut the camera and use the text zone to send documents and PDFs" [F10]
	Difficulties	Accents become obvious	"Orally, we would have conference calls and their intonation made it so that I did not understand" [F9]
		Lack of body language	"When we speak by phone, we may not convey our emotions. For example, body language is not visible over the phone" [F13]
Videoconferencing	Primary purpose	For problem-solving	"I feel like my first instinct is usually to get on a [video] call just because it's easier to talk about it and talk through issues and questions when you're face-to-face" [A1]
		For group exchanges	"If we want a group exchange, in fact, there's no better method to use than video or teleconferences" [F19]
	Advantages	Visual cues	"I do like to use the video as much as you can because then you get to see people and you get to see the expression and what people are [thinking/feeling]" [A20]
		More personal than other media	"We always use video, always... Because for one, communication... and it's just nice to see a human body now and again" [A8]
		Better understanding of interlocutor	"By calling, we come to better understand the English level of the person. We know how and with what words to explain" [F3]
	Difficulties	Privacy concerns	"We don't use the camera... I think it's a security aspect" [I16]
Technology dependence		"Although [company] is starting to put in that type of technology, at least in our office, we need it within other offices to actually be successful" [A4]	

TABLE 5
Summary of communication media used in multilingual virtual teams

Media	Purposes, Advantages, and Difficulties	Details	Verbatims
Instant messaging	Primary purpose	For synchronous, written exchange	"Messenger is more efficient for understanding the context, for digging deeper on certain points, especially with the Koreans for example, who don't speak English very well, but respond to written messages" [F19]
		For prelude an exchanging via another medium	'I use Skype for instant messaging for short- "Are you around?" and "Can we have a call now?" and stuff like that, and then usually switch to a phone call to save time' [S17]
		For showing availability and interest	'We also want to show that we're present. It's constantly being in contact. Messenger is great for that because it allows us to be in touch, say "How are you today?", without necessarily making a big deal out of it" [F19]
	Advantages	Instills confidence in team members	'For people who are a bit less at ease or who don't dare to speak, it's easier to write... I think that messaging has facilitated exchanges" [F14]
		Imitates lifelike conversation	'I make it a tool to really try to reproduce as if we were face-to-face. Mimics that we could have, the non-verbal that is difficult to translate in an email" [F14]
		Use of emoticons and smiley faces	'I say "hello" and put a little smiley. After that, there are people that use it more than others. It depends, and then it also allows us to share a little humor and things like that that aren't necessarily easy to convey" [F14]
	Difficulties	Lack of record	'at the beginning I started the conversation [and wrote]... important facts in these things. Then they disappear' [S17]
Combination of media	Purpose	For repetition across multiple media	'As much as possible we try to really talk, but then follow up in written form... Sometimes it helps to send them a summary of what you have discussed afterwards in English so that they have the time to digest it afterwards. In a multilingual team, that is very often very important' [B7]
		For illustration	'what we use a lot... is to be able to share the screen, not to see each other, but so I can show what's on my screen' [S17]

Discussion and Propositions

This study demonstrates the issues surrounding multilingual GVTs and how the two variables of language diversity and virtuality are equally important to consider to understand team processes. For example, the particularities of multilingual GVTs make the stakes of choice of language and appropriate communication channel of an even greater importance than for face-to-face teams. Language nodes and bridge makers are also increasingly important for highly linguistically-diverse and dispersed teams.

Which Language?

BELF is used by a significant number of multilingual GVTs, but other functional languages, i.e. French, may also be selected depending on the multinational company's strategy, structure and transnationality (Luo & Shenkar, 2006). This study confirms the benefits of BELF for multilingual GVTs because a clearly-designated language for official communication reduces confusion. As BELF mixes English and other discourse practices from the speaker's mother tongue, BELF speakers do not aim for native-speaker proficiency, which reduces pressure and makes them more comfortable speaking and writing (Kankaanranta & Planken, 2010). Focusing on proficiency has been shown to reduce perceived ability-based trustworthiness (Tenzer, Pudelko & Harzing, 2014). On the other hand, this study also demonstrates the limits of BELF or other functional languages. Despite evidence otherwise, non-native speakers have been perceived as less intelligent or capable than their native speaker counterparts. BELF is not "cultureless" and should not be approached in that manner, by native or non-native English speakers (Kankaanranta & Planken, 2010). Also, while an international form of English is accepted for internal communication, native-speaker proficiency is usually the goal for external communication. So team members that have outward facing roles may be incited to further develop their language proficiency.

Besides a *lingua franca*, we also observe the benefits of a monological multilingualism approach, which is an inclusive policy that recognizes a certain number of local languages, each being allocated for one context or another (Janssens & Steyaert, 2014). It is not yet at the level of a true *multilingua franca* approach in which language is a true *bricolage* of multiple linguistic resources all being used simultaneously (Janssens & Steyaert, 2014). In fact, in the 22 interviews, we did not encounter any team-wide *multilingua franca*, reflecting that a true *multilingua franca* is difficult to establish and that it is more common in social rather than

professional settings (Feely & Harzing, 2003; Harzing *et al.*, 2011). However, informal communication is essential in teams (Charles, 2007) and thus creates opportunities to integrate additional languages. Teams that communicate informally and personally and that are able to spend quality time together, even infrequently, show increased group capacity, individual satisfaction and trust. Teams that never meet face-to-face must address this lack of quality time through other means such as informal calls and online teambuilding activities. This high quality, interpersonal communication "combats barriers to trust establishment" and leads to improved team outcomes (Marlow *et al.*, 2017). For this reason, we propose the use of additional languages in informal team communication such as in written greetings or small talk to indicate interest in others and improve group dynamics.

Code-switching has been widely debated in the field of language in IB. Our results also show that code-switching can increase understanding and efficiency in completing tasks, but it has the potential to cause intense emotion, tensions and reduced benevolence-based trustworthiness between team members when used too much (Hinds *et al.*, 2014; Tenzer, Pudelko & Harzing, 2014). For this reason, we support Tenzer and Pudelko's (2020) proposition that managers should limit code-switching (in group settings), practice guiding code-switchers back to the shared language and further reduce misunderstanding through repetition and regularly summarizing discussion outcomes during and following team meetings. However, we compromise by acknowledging the benefits of code-switching for knowledge sharing (one-on-one or via a separate channel during team communication) or building relationships in informal situations.

To summarize, the findings of this study point to a combination of a designated functional language with an official recognition of team members' language skills and backgrounds by encouraging switching to other languages in less formal and one-on-one situations. Such flexibility between languages may be easier in the virtual environment where team members can use multiple communication channels at the same time without interrupting the main conversation. For less formal situations, communication will more likely pass through informal communication channels, i.e. where messages are not usually saved or forwarded to others, such as instant messaging or texting. This official recognition of languages outside the functional language may be a step towards the future acceptance of a *multilingua franca*.

Which Communication Channel?

Multilingual GVTs use a combination of written and oral communication channels, privileging written channels for the most important messages and to confirm what has been previously conveyed orally. While the choice of communication channel does depend on individual preference and the tools provided by the organization, some are better adapted to certain messages than others. In choosing a channel, the team needs to consider language commonality and the type of message being sent. Our findings are generally consistent with Klitmøller and Lauring (2013) who find that rich media in highly diverse teams makes sharing complex messages difficult due to accents and that lean media gives more time to individuals with lower proficiency to reflect and correct their writing. Indeed, sharing important information in writing (or confirming it in writing) helps accommodate language diversity. Along with media richness, we observe the importance of media synchronicity. Again, our findings are consistent with Klitmøller and Lauring (2013) and Tenzer and Pudelko (2016) who highlight asynchronous media in multilingual settings because it eliminates pressure for immediate action.

However, as Tenzer and Pudelko (2016) point out, asynchronous and written communication is no “panacea” for all team communication, so teams should use a variety of media. For example, it is important to privilege lean, asynchronous media, such as emails, for efficiency and sharing important information, but also integrate rich, synchronous media, such as video calls, to create a more “personal” touch where team members can build personal relationships. Using media to create a more “personal” touch through social communication is especially important in the virtual context where team members cannot build rapport in face-to-face situations (Powell *et al.*, 2004).

We also promote the use of “in-between” options that allow team members to write to each other synchronously, such as instant messaging. In line with Li, Yuan, Bazarova and Bell’s (2018) study on the effects of language proficiency

in multinational teams, instant messaging allows members with low language proficiency to feel more comfortable speaking up because social cues and thus cognitive and social constraints are restricted. This medium should be encouraged as it imitates lifelike conversation, bringing the benefits of face-to-face communication to the virtual context.

Which Individuals to Build Language Bridges?

Finally, the results highlight the central role of clearly identified language nodes for multilingual GVTs. People that master multiple languages and that can improve understanding by facilitating communication between two parties within the same group are known as language nodes, also known as bridge makers (Harzing *et al.*, 2011). Likewise, Barner-Rasmussen, Ehrnrooth, Koveshnikov & Mäkelä’s (2014) study on boundary spanners (that operate between organizational units), found that language skills are more important than cultural skills to properly perform boundary spanning functions. We propose the same for language nodes within a single unit. Thereby, organizations need to identify individuals with pertinent language skills as well as a desire to help others. This can be done starting from the recruitment process, focusing on complementary team members based on their language competence. Our findings are consistent with Barner-Rasmussen and colleagues (2014) who believe that language nodes can occupy any role within the team, including manager, but should be ideally distributed across different organizational levels and job roles. Managers should also identify the language competencies already present within the team to understand who can act as a language node. In the virtual context, team members may be initially unaware of the language competencies present in the team, so helping to identify them is an important step to creating a more cohesive team. Table 6 presents the propositions resulting from the study.

TABLE 6 Propositions	
Proposition 1a	One designated functional language facilitates teamwork and knowledge sharing in multilingual GVTs.
Proposition 1b	Additional languages (based on the team's language configuration), that are regarded as complementary to the functional language in informal and one-on-one situations, facilitate relationship-building in multilingual GVTs.
Proposition 2a	Code-switching is generally more harmful than helpful during full team and formal communication in multilingual GVTs.
Proposition 2b	Languages outside the main functional language in the context of greetings and small talk improve team member relationships by highlighting the team's multilingual nature in multilingual GVTs.
Proposition 3a	Multilingual GVTs that operate across a variety of communication channels (used subsequently or in combination, and integrating both oral and written communication forms) are more effective and have a better rapport than teams that only privilege one or two communication channels.
Proposition 3b	Among the different types of communication channels, written communication that also allows synchronous communication, such as instant messaging, is best adapted to multilingual GVTs with high language disparity.
Proposition 4a	Language nodes help increase team rapport and effectiveness in multilingual GVT functioning, so should be identified by managers and encouraged to share their language and cultural skills within the team.
Proposition 4b	Identifying appropriate language skills during the recruitment process is a means to identify and integrate language nodes within multilingual GVTs.

Conclusion

This study aimed to contribute to research at the intersection of language in IB and GVTs in order to answer the question of how language diversity influences communication in multilingual GVTs. We distinguished task processes and socio-emotional processes among team processes and identified related literature. The virtual and multilingual nature of the team influences communication processes such as the choice of a functional language, use of supporting languages and choice of communication channel(s). Theoretically, we advance virtual team research by observing emergent states of team processes through a language lens (Tenzer & Pudelko, 2020). We propose that a functional language aids efficiency and results in all team members receiving the same information, but that encouraging the use of other languages in informal and one-on-one situations aids in building positive rapport between team members. We thereby further the discussion of functional language (Luo & Shenkar, 2006) by also highlighting the importance of supporting languages. We specify that effective communication crosses multiple communication channels, but that written, synchronous media such as instant messaging are especially useful in multilingual GVTs for social communication. The choice of communication channel (Daft & Lengel, 1986; Dennis *et al.*, 2008; Klitmøller & Lauring, 2013; Marlow *et al.*, 2017) demonstrates the importance of written communication to aid comprehension and additional synchronous channels to emphasize the benefits of informal, social communication (Charles, 2007). Also, language nodes can be a great help in bringing team members together and helping to ensure that each team member understands the same information. In this way, we further the discussion on language nodes and bridge individuals as “linking pins” (Harzing *et al.*, 2011). Finally, we contribute to language research by focusing on language practices and activities surrounding language use as an alternative to traditional approaches for conceptualizing management practices (Angouri & Piekkari, 2018).

By understanding team processes, we further propose success factors with managers and members of such teams and provide strategies aimed at not only dealing with the challenges of language diversity, but also leveraging its benefits in the context of new virtual work practices. Managerial implications emerge from the understanding of the consequences of this diversity. In order to support multilingual GVTs to complete their task, time and resources must be dedicated

to replicate the positive aspects of face-to-face work. For this reason, we encourage regular, informal exchanges, channels such as instant messaging that allows lively discussion and identifying language nodes who can assist in these exchanges and who can help build positive emotions and rapport between team members. Furthermore, organizations and managers need to learn to support their employees coming from language backgrounds outside of the primary functional language. Managers can learn about the various management techniques that aid communication such as being aware of appropriate communication channels depending on the goal of the message, encouraging high quality, frequent, personal communication, and supporting team members that have the ability to operate as language nodes.

The limitations of this study lie notably in its exploratory nature, the number and time period in which interviews were conducted and in the implications of age and institutional variables. Future work could concentrate on certain sectors or positions to better understand specific teams, such as innovation project teams. It could also expand the scope of interviews in order to have more precise, significant and generalizable results. Additionally, institutional variables, such as the importance of the French language for national identity, should be considered. Finally, it should be noted that this study took place before and during the 2020 rapid increase in virtual work as a result of the global health pandemic. New technologies and the transformation of work should be considered within the scope of future research.

Future research on the topic of multilingual virtual project teams should go more in depth focusing on specific teams in particular industries to verify the findings and propositions of this exploratory phase. Since we have observed a link between communication channel and the quality, quantity and content of information shared, future research could explore the preferences and understanding based on oral versus written communication, including emoji. The influence of language diversity on GVTs should be further explored and verified using a variety of methods, such as experimental methods, in order to observe behaviors in multilingual virtual situations.

Finally, the effects of language diversity and virtuality should be further studied in relation to team outcomes and team effectiveness. Indeed, while the focus of this study was on team communication and processes, questions were

raised regarding team outcomes such as objective fulfilment and team capacity, development and identity. Indeed, a Ukrainian manager shared, “*I think our diversity (language diversity, cultural diversity, our origins) ... is helping because there is quite an exchange, there is quite a soup that is prepared out of that, and that is helping us to confront with the different situations*” [U12]. Therefore, team outcomes merit further exploration in the multilingual GVT context as an additional means to understand the barriers and benefits of diversity.

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