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“I did it for me, I liked it,”

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ABSTRACT

Working on projects in global virtual teams has become the norm in the modern world. In the beginning, such teams were used to enhance the productivity and efficiency of the firms; however, over time we have realized that this organizational form is not sustainable without considering the wellbeing of global virtual teams (GVTs). The relationships the members of such teams form and develop over time are crucial to their wellbeing. Many studies have focused on the connection between relationships and a firm's performance, while others have focused on singular aspects, such as the role of trust in relationships. Most of these studies have followed the input-process-outcome approach.

This study takes a critical stance towards the mainstream view of input-process-outcome models, arguing that before we embark on the singular variable approach, we must evaluate what we know about relationship development processes and how they unfold in GVTs. To accomplish this aim, the researcher followed a number of GVTs from their formation to dissolution to reveal how the processes of relationship development unfold in GVTs. This research applies interpretive philosophy through the sensemaking perspective and uses narratives to build individual-level explanations of relationship development processes. To further explain these processes at the group level, lifecycle, teleological, dialectical, and evolutionary process types were used.

The above methodology and methods were applied to the empirical data collected from the GVTs, which consisted of student teams. These individuals were enrolled in Master's degree programs and executive business education in different universities across four different European countries and represented more than 11 nationalities. The members of these teams did not have prior interactions. Much of the qualitative data gathered from these GVTs was in the form of individual reflections on the activities undertaken by the teams, class interactions, qualitative feedback from instructors on GVTs task performance, and informal discussions with the participants of the study.

Relationships among GVT members are dynamic and a combination of fluid processes unfolding at multiple levels. These processes are driven by virtual communication, through which GVTs try to realize projects. While projects and communication influence relationship development processes, they also create a team climate that influences these processes. This study proposes three theses to explain the relationship development processes in GVTs. These theses are based on

the fact that individuals in GVTs are not merely resources but capable and complex human beings. Their sensemaking of the events leads to the enactment of social structures and shared understandings, which in turn enable the formation and development of relationships.

The "organizational thesis" of relationship development shows that three aspects (task, communication, and team climate) are interlinked, and therefore they influence and are influenced by one another. This implies that the people responsible for overseeing the working of GVTs must first implement the essential structural elements of task and communication. The repeated adaptive actions and future interactions relating to tasks, communication, and team climate then decide the trajectory of relationship development processes.

The "perception, interaction, and reflection thesis" proposes that these three basic dimensions work dynamically to create multiple outcomes, including relationship development processes. These dimensions include individuals' perceptions, interactions with other team members, and self-reflection processes pertaining to the project work, based on the tools used to create a virtual environment. Each dimension drives perceptions and interactions at different levels, shaping individual thinking patterns and group dynamics while team members work together . The individual perceptions contribute to the understanding of tasks and others in the team. These individual perceptions, combined with others' perceptions of interactions, create a shared space based on shared perceptions. These shared perceptions help to precipitate personal meaning to a team-level meaning. The group-level shared perceptions and the actual execution of the tasks lead to a team climate helpful in further developing the processes of relationships.

The psychological safety thesis argues that individuals in a GVT, initially, perceive relationship development processes through their sociocultural background. Due to continuous interactions with others, over time, psychological safety becomes an entity responsible for the team climate. Everyone simultaneously interacts with technology and with each other, and this human-technology interaction contributes to the team climate, which gives rise to the relationship development processes. The assurance of a psychologically safe environment during these complex interactions makes it possible for GVTs to develop positive relationships.

KEYWORDS: Global virtual teams, process types, relationship development, sensemaking.

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TIIVISTELMÄ

Yhä useammat työskentelevät globaaleissa virtuaalitiimeissä. Alkuun tiimien tavoitteena oli yritysten tuottavuuden ja tehokkuuden parantuminen, mutta ne ovat vähitellen vakiinnuttaneet asemansa pysyvinä toimintamalleina erilaisissa organisaatioissa. Kokemuksen kautta on myös ymmärretty, että globaalit virtuaalitiimit ovat kestävä organisaatiomuoto ainoastaan, jos niiden hyvinvointiin kiinnitetään huomiota. Tiimeissä muodostuu ihmissuhteita, jotka voivat olla ratkaisevan tärkeitä tiimien jäsenten hyvinvoinnille. Monet aikaisemmat tutkimukset aikaisemmat tutkimukset ovat keskittyneet ihmissuhteiden ja yrityksen suorituskyvyn välisen yhteyden tarkasteluun tai yksittäisiin tekijöihin, kuten luottamuksen rooliin näissä suhteissa. Pääosa tästä aikaisemmasta tutkimuksesta on perustunut panos-prosessi-tulos-lähestymistapaan.

Tämä tutkimus suhtautuu kriittisesti valtavirtaa edustaviin panos-prosessi-tulos-malleihin, koska keskittyminen yksittäisiin muuttujiin on mahdollista vain, jos ymmärrämme miten ihmissuhteet kehittyvät globaaleissa virtuaalitiimeissä. Tässä tutkimuksessa seurattiin usean globaalin virtuaalitiimin kehittymistä koko niiden elinkaaren ajan muodostumisesta purkautumiseen, tarkastellen erityisesti ihmissuhteiden kehittymistä. Tutkimus lähestyy aihetta tulkitsevan filosofian näkökulmasta ja pohjaa sensemaking -teoriaan. Tutkimuksen empiirisessä osassa hyödynnetään narratiiveja, jotta voidaan tarkastella ihmissuhteiden kehittymisprosesseja yksilötasolla. Ryhmätason tarkastelussa käytettiin elinkaari-, teleologista, dialektista sekä evoluutioprosessityyppejä.

Tutkimuksen empiirinen aineisto kerättiin opiskelijaryhmistä koostuvista globaaleista virtuaalitiimeistä. Opiskelijat suorittivat maisteritutkinto-ohjelmaa tai yritysjohdon koulutusta eri yliopistoissa neljässä eri Euroopan maassa ja edustivat yli 11 kansallisuutta. Ryhmien jäsenillä ei ollut ollut aikaisempaa vuorovaikutusta keskenään. Kerätty laadullinen aineisto koostuu pääosin yksilötason reflektioista liittyen tiimin toimintaan, opetukseen liittyvään vuorovaikutukseen, ohjaajien kirjalliseen palautteeseen ryhmätehtävien suorittamisesta sekä epävirallisista keskusteluista tutkimukseen osallistuneiden opiskelijoiden kanssa.

Tutkimus osoittaa, että globaaleissa virtuaalitiimeissä ihmissuhteet ovat dynaamisia ja monitasoisia ja ne kehittyvät monimuotoisissa prosesseissa. Näitä prosesseja ohjaa virtuaalinen kommunikaatio, jonka kautta globaalit virtuaalitiimit pyrkivät toteuttamaan projekteja. Projektin ominaisuudet ja kommunikaatio vaikuttavat ihmissuhteiden kehittymisprosesseihin, mutta luovat myös tiimin ilmapiirin, joka vaikuttaa näihin kehittymisprosesseihin. Tämä tutkimus nostaa esiin

kolme teesiä selittämään ihmissuhteiden kehittymisprosesseja globaaleissa virtuaalitiimeissä. Nämä teesit perustuvat oletukseen, että globaaleissa virtuaalitiimeissä yksilöt eivät ole pelkästään resursseja, vaan osaavia ja monitahoisia ihmisiä. Yksilötasolla tapahtumien järkeistäminen (sensemaking) johtaa tiimitasolla sosiaalisten rakenteiden toteuttamiseen ja jaettuun ymmärrykseen, joka puolestaan mahdollistaa ihmissuhteiden muodostumisen ja kehittymisen.

Ensimmäinen, ”organisatorinen” teesi osoittaa, että kolme keskeistä ryhmätason tekijää (tiimille annettu tehtävä, kommunikaatio ja tiimin ilmapiiri) vaikuttavat toinen toisiinsa. Tämä tarkoittaa, että globaalin virtuaalitiimin toiminnan ohjauksesta vastaavien on ensin varmistettava tehtävän ja kommunikaation olennaiset rakenteelliset elementit. Näiden peruselementtien pohjalta virtuaalitiimin ihmissuhteiden kehitysprosessi muovautuu toistuvien mukautuvien toimien ja vuorovaikutuksen muokatessa tehtävää, kommunikaatiota ja tiimin ilmapiiriä.

Toinen teesi liittyy vuorovaikutukseen ja reflektioon tiimissä. Sen mukaan kolme yksilötason ulottuvuutta – yksilöiden käsitykset, vuorovaikutus tiimin jäsenten kanssa ja itsereflektio – vaikuttavat dynaamisesti ihmissuhteiden kehittymisprosessiin. Ryhmän työskennellessä yhteisen tavoitteen eteen nämä kolme ulottuvuutta ohjaavat niin yksilöllisiä ajattelumalleja kuin ryhmädynamiikkaa. Yksilölliset käsitykset auttavat ymmärtämään tehtäviä ja muita tiimin jäseniä. Nämä yksilölliset käsitykset yhdessä muiden tiimin jäsenten käsityksiin vuorovaikutuksesta muodostavat tiimille jaetun käsityksen ja luo yhteisen tilan toiminnalle ja ajattelulle. Nämä tiimin yhteiset käsitykset auttavat yhdistämään henkilökohtaisen merkityksen tiimitason merkitykseksi. Ryhmätason jaetut käsitykset ja tehtävien käytännön toteuttaminen johtavat tiimi-ilmapiiriin, joka edesauttaa edelleen ihmissuhteiden kehittymistä.

Kolmas ”psykologisen turvallisuuden” teesi väittää että yksilöt globaaleissa virtuaalitiimeissä, lähtökohtaisesti tulkitsevat ihmissuhteiden kehittymistä oman sosiokulttuurisen taustansa kautta. Pidemmällä aikavälillä jatkuvan kommunikaation myötä psykologinen turvallisuus muuttuu yhä olennaisemmaksi osaksi tiimin ilmapiiriä. Tiimin jäsenet ovat yhtäaikaisesti vuorovaikutuksessa teknologian ja toistensa kanssa, ja tämä ihmis-teknologia vuorovaikutus kontribuoi tiimin ilmapiiriin, ja sitä kautta edelleen ihmissuhteiden kehittymisprosesseihin tiimissä. Näin ollen psykologisen turvallisuuden takaaminen tässä monitahoisessa vuorovaikutuksessa mahdollistaa positiivisen ihmissuhteiden kehittymisprosessin globaaleissa virtuaalitiimeissä.

KEYWORDS: Globaalit virtuaalitiimit, prosessi tyypit, relationship development, sensemaking -teoria.

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9.2.2021
Majid Aleem

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1 Introduction

1.1 Setting the Scene

The need for global collaboration, the pressure to enhance productivity, and 24/7 work patterns while working in global virtual teams (GVTs) has been gaining ground in supporting multiple spheres of business. The emergence of the global COVID-19 pandemic was a further boost to GVTs, as it forced millions of people to work remotely. This shift is likely to prove to be a long-term change, giving rise to a new normal. The sudden shift and increased reliance on virtual means of collaboration have multiple implications.

Employees across the globe have had to upgrade their skills in using technology, flexible work hours, understanding, and ability to cope with the differences between traditional work environments and the virtual work world. However, many of us who used virtual work environments before the pandemic understand that learning such skills is just a first step towards integrating into such environments. As soon as either the initial excitement or the anxiety of different work environments wears off, the realization that the work in such environments is, after all, collaboration between individuals will set in, and despite its many benefits, there are limitations to human interaction in the virtual sphere. This occurs due to our basic need to rely on different sensory information while the virtual world restricts the use of many of our senses. The following description of events[1] illustrates how work typically progresses in virtual environments:

> It was Autumn 2016 when I became part of a global virtual work setting while working in a consultancy business in Finland. My managers informed me that I would be working with a team in a virtual setting where most of my colleagues were in different organizations across the globe. Most of us had never interacted with each other before this project work. Our project work constituted of three different small sub-projects where our team was to conduct tasks of varying nature and different levels of complexity for our

[1] The description is drawn from an interview conducted in Spring 2017.

clients. Our managers connected us through emails a couple of weeks before the [project commenced] and encouraged us to get to know each other. For the first few days, I did not hear from my colleagues. Like me, most of the members were hesitant to contact each other due to lack of previous interactions. Anyways, after three days, I sent an email to other colleagues that, [as] we are going to be part of this Global Virtual Team (GVT) and would repeatedly be working on few projects, let us have a video conference to get to know each other. To my surprise, all of them replied within a couple of hours, and we were able to set up a time to meet virtually.

After a couple of weeks, we got our first task brief. We communicated [via email] to set up a meeting. Before the meeting, we decided that everyone [should] read the brief and have a brainstorming session during the meeting. After the initial brainstorming, we realized that we needed to set up multiple mechanisms if this collaboration was to succeed. We quickly agreed on a mix of means, such as instant messaging, emails, and video conferences for communication purposes. For work collaboration, we decided to use collaborative means such as Google Docs and agreed to follow a project management approach to complete the tasks. We agreed to divide the task into smaller pieces [that], after understanding the project collectively, we [could] proceed on different parts of it individually. The individual work is then shared on Google Docs. In the next meeting, we looked at each other's work and tried to formulate [an] agreed-upon solution. At that stage, few of us…worked on the presentation of the solution. Retrospectively, setting up these communication and task mechanisms provided us with the procedures and routines for the upcoming tasks. They, therefore, saved us much time to focus on the new task. It played to our benefit because the future tasks proved to be much more complicated and we had to find more information on our own.

In the subsequent tasks we used the same approach for communicating and managing our work. However, many of us felt that a few…members [did not put in] as much effort as they should. The rest of us decided to [raise] this issue…which resulted in heated arguments. It left those members perceived as putting [in less] effort [feeling that they were not appreciated by the rest of us, while the rest of us felt that [we needed to discuss such issues to find solutions, for the sake of] the team's overall good. [Although this approach initially created friction,] it worked because we established that it was not an issue of individual capabilities but the means of communication. In between, we also had many [instances of miscommunication,] where few members thought they had informed the team about their other commitments, but others did not remember this information. However, with…constant open

> communication, flexibility towards the increasingly complex tasks, and willingness to help each other with…assigned tasks, we could create [a] conducive work [environment]. I think the early realization about communication challenges and the differences in solving…tasks while working in virtual environments brought us closer. Such a realization made it possible for us to invest, formulate a better understanding of others, carry fewer preconceptions, and have more discussions, helping to achieve the optimum solutions in a welcoming work environment.

The presented story is typical of people working in GVTs. It highlights the three most important aspects of working in virtual teams. First, in GVTs, individuals work together across spatial and temporal distances and thus resort to advanced internet-based means of communication. Second, due to the increasing complexity of their tasks, these GVTs have to adapt their methods of working and communication for each new task. Third, team members form and develop one another's perceptions via their repeated interactions, constituting a team climate, which in turn dictates the nature of their future interactions and perceptions. These three dimensions and the processes embedded therein them drive the development of relationships in GVTs.

The GVTs use multiple communication mechanisms simultaneously to accomplish their tasks (Gibson and Gibbs 2006). Although internet-based systems enable GVTs to achieve their goals, their success essentially depends on how the individual members interact with one another (Shin 2004). These interactions form the basis of how an individual views and relates to others in the team. Repeated interactions eventually build trust, and, at the same time, the team members commit themselves to the cause, thus forming the basis of their relationships (Potter and Balthazard 2002). As interactions in the virtual sphere take place through virtual means of communication, the use of these means has a significant influence on relationship development. Consider, for example, how we as individuals process information sent via email compared that we acquire through talking with our colleagues over a telephone and even more so when interact via video calls. In situations where we are engaged in an ongoing conversation, the chances of miscommunication are reduced by the ability to ask for clarifications in real time (Daft and Lengel 1986). In practice, synchronous communication decreases the chances of conflict and allows us to manage conflict better than asynchronous communication.

Communication constitutes a significant part of tasks which must be performed collaboratively. The example presented above also demonstrates the task dimension and shows how team members work on tasks and form and maintain relationships. While performing complex tasks, GVTs must deal with both the complex and mundane dimensions (Olson and Olson 2012). The complex activities in a task such

as developing a solution require team members to employ analytical and critical thinking (Bakker et al. 2013), which would benefit from synchronous real-time communication (Daft and Lengel 1986). On the other hand, routine activities such as setting meeting times, sharing written documents, administrative time management issues, and agreed-upon work distributions can be easily accomplished through asynchronous communication (Littlejohn, Foss, and Dennis 2012). Each activity performed, whether complex or mundane, affects one or more relationships in a group, causing ups and downs. At some times these relationships prosper; at others, conflicts emerge between members. In general, relationships are positive when individuals in GVTs can work on tasks harmoniously, having positive feelings based on mutual trust, fostering commitment to the team to their work, and valuing their shared experiences. In a GVT with negative relationships, individuals are less willing to trust others and their focus is on task accomplishment.

Lastly, team climate is an outcome of the repeated interactions relating to communication and tasks (James and Jones 1974). However, individual interpretations of these shared experiences usually differ from one individual to another, and relationship development also varies accordingly. For example, consider these two accounts from two different people working in the same GVT regarding their experience of working on a very complex task and forming different perceptions regarding their teammates and team climate:

> A: During this assignment, I learned something [about] myself. First, if people wait for you to lead them, they will not start any group process themselves. Second, if you give people a task they enjoy, they will do their best. Last but not least, even if people do not contribute group work much, it does not mean that they disrespect you or…underestimate the work you do.

> B: As its stands, this was the worst it got with the teamwork. Nobody had done anything in regard to our industry 4.0 (probably because it required you to actually use your brain)…I am very glad that the course is finally over. All in all, it gave me valuable insight into seeing how hard and strenuous it can be working in a global group.

Temporary, project-based GVTs are common in the business world, and are often used to complete complex tasks. The temporary nature of GVTs implies that the members of such teams focus on finalizing the task within the limited time frame given, so it does not make sense for the members to work on their relationships if the team is formulated for one project only. However, as our example shows, when team members come together regularly to perform multiple tasks, their relationships have a significant influence on team and individual performance. Explaining the

development of relationships thus involves multiple processes embedded in communication and the task itself. Based on the interactions, these processes create an environment that further influences the development of relationships in virtual environments based on the perceptions individuals formulate over time towards the processes they are part of and the other individuals in their team.

1.2 Global Virtual Teams in Prior Research

Digital means of communication have made it possible for firms to bridge spatial and temporal distances and thus take advantage of their human resources worldwide. Although traditional organizational structures are poorly suited to the new ways of organizing work using technologies, such firms have resorted to global virtual teams operating over long distances. This study follows Maznevski and Chudoba (2000, p. 473), who defined GVTs as

> groups that (a) are identified by their organization(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the organization's global strategy; (c) use technology-supported communication substantially more than face-to-face communication; and (d) work and live in different countries.

GVTs have become common in multinational organizations (Zander et al. 2013) and act as mini-organizations to carry out a multitude of tasks crucial to a firm's success. The scientific community has already well established the use of GVTs as a tactical option to overcome geographical and time zone differences (Espinosa et al. 2015), to manage workloads (Schmidtke and Cummings 2017), and to save costs (Majchrzak et al. 2004). Similarly, as a strategic instrument, GVTs have been used to gain a competitive advantage in the global market by fostering innovation (Sobel Lojeski and Reilly 2008), knowledge sharing (Klitmøller and Lauring 2013), and global collaboration to exploit cultural diversity (Shachaf 2008). The research on GVTs is multidimensional and has been conducted in fields such as management, international business (IB), information systems, communication, cross-cultural psychology, sociology, and operations management (Martins and Schilpzand 2007).

The research, specifically in the field of IB, has focused on many issues regarding the GVTs and their role in such teams' functioning. One significant stream of research has focused on the role of leadership: Zander, Mockaitis, and Butler (2012) researched leadership competencies, styles, strategies, and modes. Similarly, others studies have found that the type of leadership influences multiple outcomes in the context of GVTs. Joshi, Lazarova, and Liao (2009) found that the virtual nature of such work seems to strengthen the relationship between inspirational leadership

and commitment. Hoch and Kozlowski (2014) found that hierarchal leadership in virtual teams dampens their performance.

Another stream of literature in IB has focused on communication in managing global virtual teams (Espinosa et al. 2015; Sarker et al. 2011). The role and choice of communication tools, the synchronous and asynchronous nature of these tools (Lengel and Daft 2011; Tenzer and Pudelko 2016; Zakaria et al. 2015), and the development of media richness theory (Klitmøller and Lauring 2013; Daft and Lengel 1986; Huang, Kahai, and Jestice 2010) with regard to GVTs have been the primary focus in this stream of literature. The communication stream highlights the role and dependence on virtual means of communication for global collaborative work. However, many of the studies in this stream also agree that communication means represent only one side of the picture, as these means are used by individuals. Therefore, on the other side of the picture, the human aspects of communication, such as frequency, quality, and content (Marlow, Lacerenza, and Salas 2017), are equally important for the effective functioning of GVTs. Gibson and Gibbs (2006) have focused their attention to the issues such as role of psychologically safe communication in virtual work to overcome hinderances to innovation. Gibbs, Boyraz, Sivunen and Nordbäck (2020) explored discursive construction of subgroups in GVTs and highlighted how the formation of subgroups can be both helpful and harmful in virtual teams from a communication perspective. These studies show the multiplicity of perspectives available within the communication stream.

Within the stream of International Human Resource Management, a substantial body of literature has explored the roles of team composition (Hoch and Dulebohn 2017; Mathieu et al. 2014), leadership from a human resource perspective (Carter et al. 2015; Charlier et al. 2016; Sobel-Lojeski and Reilly 2008; Zander et al. 2012), trust (Crisp and Jarvenpaa 2013; Hakanen, Häkkinen, and Soudunsaari 2015; Jarvenpaa and Leidner 1998; Sarker et al. 2011; Gibson and Manuel 2003), and team cohesiveness (Ruggieri and Abbate 2013; Jarvenpaa, Shaw, and Staples 2004) in the functioning of the GVTs. Although there are different opinions in this stream of literature on how leadership, trust, and team cohesiveness shape and influence the work of GVTs, there is general agreement that these three aspects are crucial to functioning of GVTs.

Lastly, instead of taking a stance on whether the research belongs to the communication or human resource management domain, a stream of literature has focused on the different processes within the GVTs. Marks, Mathieu, and Zaccaro (2001) conducted a review of such process studies and proposed a new categorization of process studies within GVTs, suggesting that transition, action, and interpersonal process types described multiple processes that took place within GVTs. Transition processes pertain to mission, planning, goal setting, and strategy

formulation; action processes relate to the different stages of task execution and monitoring; and interpersonal processes are means of managing conflict, motivation, and affect management (c.f. Marks, Mathieu, and Zaccaro 2001). They further argued that most GVT research deals with action and transition processes, but less attention has been paid to the transition processes. Even if the process studies within GVT literature focus on explaining singular aspects—e.g., the formation and development of trust—overall, the research reveals the existence, unfolding, and development of multiple processes simultaneously (Marks, Mathieu, and Zaccaro 2001).

The extent of research on GVTs simply reflects the complex nature of these teams, so developing an understanding of issues such as leadership, trust, team cohesion, task management, and human capital management is paramount. Relationships, defined as "the ways in which team members relate to each other" (Zimmermann 2011, p.59) have been mostly studied through the lens of interpersonal processes by exploring team identity, conflict management, and team cohesiveness. In contrast, the roles of factors such as motivation, trust, leadership, and other individual traits have also been explored but mostly in terms of team effectiveness and efficiency, whereby discussion on relationships themselves remains implicit. As relationships are the ways the members relate to one another, these ways could include countless options, such as how members relate to their team leaders , how they relate to one another through communication tools and how they use those tools while interacting with one another, how they relate to one another in times of conflict, and how they relate to one another based on one another's performance in completing tasks. The list could go on and on. For example, Sias (2009) researched the phenomenon of the workplace relationships and provides further explanations by highlighting that workplace relationships include multiple types such as supervisor-subordinate relationships, peer coworker relationships, and customer relationships. It is for this reason that prior research has made one central and repeated observation—that positive, effective relationships among GVT members are crucial for GVT success but are simultaneously particularly hard to achieve (Gilson et al. 2013; Gluesin and Gibson 2003).

As if relationships were not already complex enough, their complexity is exacerbated when one wants to understand their development processes. Relationship development processes have been referred to mostly as team-building processes. There could be multiple reasons for this, but one in particular stands out—to build upon previous research and expand on the previously developed stream of research on teams. For example, Zander, Zettinig, and Mäkelä (2013) developed their three-phase model from the perspective of leaders. They considered relationship-forming activities necessary for building a social fabric and trust among the team members in the early phase of teamwork. As they also focused on

leadership, the debate over relationships and relationship development processes remains implicit and was covered in their research (Zander, Zettinig, and Mäkelä 2013).

The literature dealing with subjects other than GVTs and IB (mostly in psychology) has also formulated similar phase-development models to understand relationship development processes (Fox 2015). Some directly use the naming convention included in Tuckman's (1965) model to describe different stages of relationship development, while others use terms such as awareness, exploration, expansion, and commitment to elucidate relationship development processes (Dwyer et al. 1987; Fisher 2001). These stage and phase models provide the impression that relationship development is a linear process. However, during this research, my findings confirm those of Zimmermann (2011), who argued that relationship processes are non-linear, involve multiple aspects, and are much more than just interpersonal processes. Therefore, for my research, the word "development" refers to the continuous and ongoing nature of relationships. Relationships do not develop linearly, which implies that relationship development is not static but always in flux.

1.3 Problem Setting

For this research, I define relationship development in GVTs as "a combination of fluid processes of making sense of reoccurring interactions to relate [to] other team members while performing different tasks through virtual means of communication." Relationship development processes are shaped by the repeated interactions of GVT members, where these interactions influence different aspects of relationships. In this study, following the GVTs throughout their life revealed multiple aspects of relationship development processes with regard to how they unfold. These aspects were in line with previous research by Zimmermann (2011) and include team identity, subgroup formation, role expectations, shared understanding, trust, communication, knowledge creation, effort, conflict, interpersonal affect, and satisfaction. It is not necessary that all these aspects develop at the same time, or even that they are present in all teams. Awareness of these aspects solves half the problem, as the question arises of what factors affect the development of these relationship aspects. While the same Zimmerman study (2011) highlighted factors such as virtuality, leadership, cultural differences, etc., which also influence these aspects of relationship development. From a process perspective one could use a single factor such as cultural differences into a model to try to understand relationship development, but doing so would not fulfil the purpose of this research.

The input-process-outcome (IPO) models used to study GVTs are singular in their implementation. These models construct explanation by considering for

example, the means of virtual communication to be given and study their influence on the outcome, such as trust. Similarly, team development models such as Tuckman's (1965) stage model are linear where they propose that the teams go through linear stages of storming, norming, forming, and performing. Relationship development processes are neither singular nor linear, because GVTs do not follow a set pattern when working on a task: Virtual communication, project management techniques, and organizational routines unfold simultaneously. Therefore, to explain the multiplicity of relationship development processes and the interrelationship of these processes, and to move beyond linear and singular IPO models, I follow the perspective of van de Ven and Poole (1995), who took stock of different types of process models and highlighted that multiple processes unfold in groups as they work to complete a task. They proposed teleological, lifecycle, dialectical, and evolutionary processes as ideal types to explain organizations' change. Van de Ven and Poole (1995) used the concept of "motors" that drive change and proposed different types of motors for each type of process. I use these process types to capture the unfolding of multiple relationship development processes in GVTs. As this study considers that relationship development is a multilevel and multi-process phenomenon with a wide range of potential explanations due to the interrelation of processes of the task, communication, and team climate, the main research question for this research is: How do the processes of relationship development unfold in GVTs?

At this point, it is essential to remember that project-based GVTs differ from operational GVTs in multiple ways (Duarte and Snyder 2006). Functional and operational teams perform operational as well as management tasks daily, with no set time for dismantling the team. The ongoing nature of the functional and operational teams means that the tasks could be repetitive, developed using previously established norms, and are focused on the smooth administration and management of the organization. The virtual nature of such GVTs is more focused on control and less on problem solving. In these teams, the task's influence on relationship development might not be a primary concern.

On the other hand, project-based GVTs are formulated to address novel problems and are usually dissolved after completing project work (Duarte and Snyder 2006). The nature of the tasks such teams handle is highly complex, requiring the application of analytical and problem-solving skills (Bakker et al. 2013). If such a team is collaborating on a single-short term project, relationship development does not need to be considered in depth because the team's core focus is on getting the job done; however, when a project team is working on multiple tasks, there is a greater need for positive relationships due to the spatial and temporal distances the team must cope with, the greater difficulty of the task and goal, and interdependent outcomes would force members to have frequent communications, resulting in an

increased experience of togetherness (Hertel, Geister, and Konradt 2005). It is thus paramount to consider the nature of the tasks GVTs are assigned to explain their relationship development processes. I will use a novel but logical approach to explain relationship development processes based on the nature of the task. I will follow the lives of GVTs members as they work on different tasks. As factors such as leadership, trust, individual capabilities, time management, etc., are shaped by the task assigned rather than being immutable, to explain relationship development I will first focus on the task. This approach provides the basis for the first sub-question: How do GVT members' engagements regarding multiple tasks shape the development of relationships?

A GVT's task influences not only relationship development processes but also communication. Zimmerman (2011) argued that communication, in the sense of the systems built around virtual communication tools and processes, constitutes another basis for studying relationship development, and pointed out that it is an aspect of relationship development. Nevertheless, when project teams are involved in highly interdependent tasks, the need for frequent communication also influences other aspects of and factors in relationship development, such as conflict, trust, shared understanding, team leadership, virtuality, and shared goals. As communication is such a broad construct, various individual aspects of it have been utilized in previous research, such as communication frequency (Marks et al. 2000) and communication content (Keyton 1999, 2010), without referring to other communication elements even though they are intertwined (Marlow et al. 2017).

The choice of media via which to communicate in virtual environments is another significant aspect of communication and can influence multiple processes within GVTs. Based on media richness theory (Daft and Lengel 1986), it has been argued that the medium or media chosen (asynchronous vs. synchronous) can influence conflict and performance (Kankanhalli et al. 2006), trust (Jarvenpaa and Leidner 1998), and relationship building (Pauleen and Yoong 2001) in GVTs. Based on the multidimensional nature of communication, I focus on it in the second sub-question: How do different forms and nature of communication affect relationship development in GVTs? Here, different forms refer to the communication based on a spectrum of tools, both synchronous and asynchronous. Simultaneously, the nature of communication refers to aspects such as quality, content, and frequency of communication. Doing so would provide us with the required understanding of relationship development processes in GVTs.

The result of virtual communication and task processes starts to culminate in an environment that acts as a large team-level canvas. The culmination of interactions in different environments is referred to in the literature as a team climate (Agreli et al. 2017; Anderson and West 1998). Against this canvas, individuals continuously update their perceptions of one another based on further interactions. Interactions

relating to the task and communication occur both at individual and group levels, culminating in a team climate that either supports or hinders relationship development processes. The antecedents of team climate lie in the field of psychology. Usually, it is considered that individuals' perceptions are the core unit that contributes to the team climate (Schneider et al. 2013). The argument here, then, is that individual perceptions are not independent of the task, communication, and interpersonal processes, so while the first two sub-questions deal with the direct influence of task and communication on relationship development, understanding these processes would not be complete without understanding how they contribute to the team climate. Therefore, to further understand relationship development processes, the third sub-question is: How do the processes of relationship development unfold with regard to team climate?

The above three sub-questions are interrelated because task, communication, and team climate have reciprocal connections—they influence and are influenced by one another. There are different processes at work within each construct, and their interrelation within and across other constructs affects relationship development in GVTs.

To answer these questions, I analyze interactions among GVT members in line with the definition of relationship development. Therefore, the unit of analysis for this study is interaction. GVT members worked on multiple tasks and reflected on their experiences individually in written documents. I also observed available individuals while they performed tasks and had informal conversations to understand how they perceived others on their team. Beyond the written documents and observations, I also analyzed the changes in their experiences based on the written feedback provided on both the task outcomes at the team level and individual reflections at the individual level. The analysis of these interactions at the individual level can explain relationship development from an individual perspective. At the group level, it explains the interrelation of individuals and the group as a whole. The analysis of these interactions and individual-level explanations leading to group-level explanations was performed using the sensemaking perspective due to its ability to capture transitions between different team levels.

1.4 The Sensemaking Perspective

During my research, I was involved in creating GVTs and I was able to observe them over time while the members of these GVTs interacted with one another. While trying to make sense of the members' action and interactions within the GVTs, I considered multiple theoretical lenses, such as social exchange theory and structuration theory. However, these theoretical lenses did not satisfy my need to identify and understand relationship development processes (see section 2.4).

Instead, I was attracted by the "sensemaking perspective" (Weick 1995) and the associated literature.

As humans, we are always concerned with the question of what is going on, at least in situations that are ambiguous or new to us, be they related to an organizational matter or life in general. To answer this question, sometimes we question ourselves and sometimes we engage interactively with others in the process of sensemaking. Since Weick's seminal work on sensemaking in organizations (Weick 1995), the research on sensemaking itself and how it influences other organizational outcomes such as learning, strategic change, creativity, and innovation has come a long way. This research follows the work of Maitlis and Christianson (2014), who took stock of sensemaking research and provided a comprehensive definition that considers sensemaking:

> *a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn.* (p. 67)

Thus, sensemaking is a social construction process wherein different environmental cues are interpreted through individuals' activity, thus forcing them to construct plausible meanings by looking retrospectively on events to rationalize people's actions. Individuals engage in sensemaking to satisfy their needs for achieving coherence, consistency, and legitimacy in their thoughts and actions. From an organizational perspective, when members of an organization or organizational entity encounter moments of ambiguity, employees will try to clarify what is going on by extracting the cue from their work environment, using these as the basis for plausible accounts for what is going on to make sense of the events that have occurred and through which they continue to enact the future work environment (Weick et al. 2005; Weick and Quinn 1999).

In this research, I use the sensemaking perspective to explain relationship development processes. As this research focuses on relationship development in project-based GVTs, the team and the project aspect are crucial to explain from a sense-making perspective. From a team's viewpoint, groups engage in sensemaking to formulate a collective sense of identity, coherence in the group, and to understand what is happening in the group through intersubjective meaning development in interaction with others (Balogun and Johnson 2005; Corley and Gioia 2004; Gephart et al. 2011). The project management literature also highlights that, at least in the early stages, things are tentative, complex, and fluid, requiring the people involved to work on a wide range of subjects, including products and processes, despite these things requiring separate planning (Morris 2011). From a sensemaking perspective,

we know that people construct intersubjective meanings through processes that enable them to make sense of their world by interpreting the cues they perceive. Because risks, uncertainties, ambiguity, and unknowns are most significant in the early stages of a project, project definition tends to be imperfect. In such situations, the members' perceptions and interpretations are formulated by processes of organizing, which will eventually be used to create the project's support and communication structures, as well as the interpersonal interactions that take place within these structures.

Earlier studies in the fields of both sensemaking and project management provide a similar understanding of project-based teamwork: work processes are fluid, structures need to be enacted, and members' unfamiliarity requires interpersonal understanding. All these characteristics of early-stage project management and teamwork are present in GVTs. GVTs in which people working on multiple projects simultaneously do not know each other, come from different organizational units (or different organizations altogether), have different cultural backgrounds, and are working to deliver results under pressure, are much like temporary organizations dealing with constant structural and processual changes. Maitlis and Christianson (2014) pointed out that the sensemaking perspective has been used both to make sense of the processes within organizations (e.g., simply to study the interactions of individuals in GVTs to explain how they understand one another's actions) and also to understand outcomes as a result of sensemaking (e.g., to study the interactions of individuals in GVTs to explain the influence of these interactions on relationship development processes). This research explains relationship development processes as an outcome of sensemaking.

1.5 Research Design

I started this research without a specific theoretical lens. The urge to explore relationship development processes was my starting point. I knew that the "development" part of the research would require me to collect longitudinal data over time. Based on my research on GVTs during my master's thesis, I knew that the work they do is very complicated: It involves many moving parts, and members must make deliberate efforts to get to know one another. They have to agree on communication mechanisms, solve complex tasks together, and perform all these actions without knowing one another beforehand. The challenges do not stop there; when these GVTs embark on their tasks, many other factors arise, including trust between members, leadership problems, conflicts within the teams, and members' subjective interpretations of these factors.

It is necessary to explain relationship development in GVTs from the start when they are newly created to ensure that study particepents'previous collaboration

experiences do not skew the findings. Studying GVTs in an existing organization is problematic because most team members would have at least some experience of working together, so for my research it was essential that I studied GVTs in which the members had no prior experience of working with one another or did not know one another personally. These preconditions allowed me to observe how the teams came to be and how they transformed while working together, which enabled me to answer the research question posed for this study.

This study's preconditions—the need for longitudinal data, the inherent complexity of GVTs, and teams' observation without prior experience of working together—pose significant challenges for empirical research. I solved these problems by joining a research group to create a "social lab" to meet the aforementioned research requirements. The research group studied students enrolled in a course on IB strategy. In this course, MSc and executive MBA students in four European countries form virtual teams to solve strategy-related tasks. The course lasts for one academic semester, and the students represented more than 20 nationalities.

The social lab was initiated in 2014, and it is still operational—the members of GVTs change with each iteration of the course. The students are assigned to work on a series of consecutive projects, the complexity of which increases over time. The members act as a working team in a consultancy firm, and they are expected to solve cases. The first task is a textbook case, while the three remaining tasks are created in collaboration with industry partners.

At the beginning of the course each team is assigned a tutor. For the time period of this study, the team of tutors included a course responsible professor and two doctoral researchers. The tutors also represented diverse backgrounds and include nationals of Austria, Croatia, and Pakistan. These tutors acted as organizational managers and supervised the participants' journeys through the course with an extensive support system. To achieve the research objective, the tutors controlled the formation of teams, ensuring a diversity of work experiences, cultural backgrounds, home universities, and nationalities to emulate the true essence of GVTs. With these controls over task type and team composition, the tutors provided different formative feedback forms while teams established themselves and engaged in project work. The rationale for this process is that we did not want to interfere in the teams' internal processes despite controlling for team composition and diversity. Instead, we wanted participants to develop teams as social entities, envision shared objectives in their results, and design and implement strategies to attain those objectives. We encouraged the teams to establish roles, rules, and routines and invest themselves in a series of consulting projects that mimic real life. These projects offered opportunities to develop their relationships; they also offered possibilities for the team members to review and revise their actions, intervene in unfolding processes,

and experiment with their approaches over a longer period of time, with the objective that they would develop their organizational, management, and leadership skills.

Within this setting, I collected data from nine GVTs comprising five to six members each. Each GVT performed four consultancy tasks and during this process, and I collected multiple types of qualitative data in the form of individual reflections, video presentations, personal handbooks for GVT project work written by the participants at the end of the teamwork, formative feedback from tutors on team performance and team dynamics, field observations in the form of classroom interactions, email and social media (Facebook) communications, and informal conversations and interviews with the course participants enrolled at the Turku School of Economics.

For data analysis, this research employed a multi-method approach. At the start of the research, I used manual content analysis to develop narratives (Abolafia 2010; Brown et al. 2008). During the later stages, using NVivo 11.0 and the Gioia method (Gioia, Corley, and Hamilton 2013; Langley and Abdallah 2011), I performed in-depth analyses to obtain the findings. In the following section, I discuss the contributions of this research.

1.6 Contributions

This study investigates relationship development as unfolding processes based on GVT members' interactions while they work on multiple projects. During these projects members are continually organizing their work, dealing with asymmetrical relationships among themselves, and coping with considerable ambiguity, all of which create a stressful work environment. My goal is to offer alternative explanations to these relationship development processes as opposed to the traditional IPO linear models. The interpretivist ontology and the epistemological sensemaking perspective consider individuals' subjective realities before moving towards community-based knowledge and shared understandings. I also chose this approach because previous research on GVTs has mostly been based on cross-sectional data and locked into constructs derived from the literature. Due to such methods, the academic community has observations where relationships are deemed critical to GVTs but are considered hard to capture (Gilson et al. 2015; Gluesin and Gibson 2003).

The first contribution is therefore the application of different epistemological and methodological settings to a research stream that is strongly dominated by a positivist mindset. I use moderate constructionism, which propagates a data-driven, abduction-based approach to answer the "how" questions central to this research. A laboratory setup would be needed to capture longitudinal data generated by GVT members have not worked together previously, but such processes are time-

consuming and require years of interaction with teams. Therefore, resorting to cross-sectional data and IPO models is more convenient. However, crafting an innovative empirical setting and using a qualitative multi-method approach helped me unearth an alternative and more fluid relationship development phenomenon.

Furthermore, previous research on the development of teams has tried to simplify the phenomenon and propose linear process models. Examples of these models include the Dominance, Inducement, Submission, and Compliance (DISC) model, based on the DISC theory developed in 1928 by Dr. William Moulton Marston; Tuckman's (1965) famous forming, storming, norming, and performing model; Richard Beckhard's (1972) goals, roles, interpersonal, processes (GRIP) model; and modern ones, including the three-phase model developed by Zander, Zettinig, and Mäkelä (2013). My research is based on the premise that teams in general and relationship development processes in teams do not follow a linear path but rather constitute multiple processes simultaneously, driving the development in a particular direction. This is in line with the findings of Kaartemo, Coviello, and Nummela (2019), who found out that using a single-process approach in developing theory for a complex and multilayered phenomenon (relationship development, in this case) produces inherently incomplete explanations. They further explained that each lens reveals a certain dimension of the potentially restricted phenomenon, which was confirmed in my research. For example, using a lifecycle lens would not be enough to understand the team members' dialectical tensions and their influence on relationship development processes. Therefore, I contribute to the extant literature by showing that multiple processes in the sphere of task and communication directly constitute relationship development, and that these processes embedded within the task and communication help establish a team environment. In the long run this team environment has more influence on relationship development than the individual effects of the task and communication processes.

Previous research has highlighted that the structural aspects of GVTs, including cultural diversity, influence their outcomes. Gibbs, Sivunen, and Boyraz (2017) conducted an elaborate review of team type and design. They found out that team design catering for cultural diversity in student-based GVTs usually reveals the negative influence of such diversity on team outcomes, although organizational teams tend to highlight the positive outcomes. To further contribute to this body of literature, my research highlights that GVT influences on team design could have a negative effect on a single student; however, results vary across multiple teams. My research highlights how very structurally similar teams working on same tasks can be different internally due to the individual actions and different constructions of shared understanding. Many teams might have excellent performance according to performance criteria and yet team members' relationships can develop negatively

due to task factors such as uneven task distribution, overworked individuals, and individual work practices.

Similarly, with regard to communication conducted using various technologies, communication quality, and content issues, relationships could develop negatively. The roles of leadership, trust, and team management skills are highlighted in the team climate, which the members create through their perceptions, actions, and reactions by reaching a shared understanding. These factors are critical not only in the formulation of the climate but also at later stages of teamwork; they play a substantial role in changing the trajectory of relationship development processes from negative to positive. Furthermore, teams that experience positive relationship development might not have excellent performance, but their ability to deal with task, communication, and team climate issues through individual actions and reactions lead to a positive shared understanding and helps keep them on a positive trajectory.

Towards the end of this paper I will present three theses related to the above contributions. The organizational thesis will focus on the organizational relationship development processes relating to the task, communication, and the team climate. The perception interaction and reflection thesis asserts that three basic tenets work dynamically to create multiple outcomes in various processes, including relationship development processes. Three dimensions are always there driving the processes and resulting outcomes: individuals' perceptions, their interactions with other team members, and the self-reflection process related to the project work based on the tools enabling the virtual environment. Finally, the psychological safety thesis explains how relationship development processes are shaped positively in GVTs from an individual perspective when team members feel comfortable around their colleagues in an environment that fosters trust. In such scenarios, team members feel that it is not necessary to be seen as rigidly professional all the time, and that they have the space to talk openly about issues not necessarily related to their job. Team members do not attack one another's knowledge and competence, nor do they skeptically question their motivations: Discussions are considered to be fruitful and they are not projected on other members' personalities.

These three theses show that positive relationship development is much more than interpersonal interactions—it encompasses multiple processes, which take place simultaneously at the individual and team levels. It is not sufficient to focus on factors such as leadership, trust, virtual means of communications, or individual capabilities; it is also crucial to understand the dynamic nature of different factors at different levels and how they interact to promote positive relationship development solutions in GVTs.

2 Sensemaking in Teams: A Methodological Perspective

This chapter discusses the philosophical and methodological choices of this research. The chapter begins with an introduction of interpretivism and discusses how it fits in with the research questions and the study's ontology. Building on the interpretive philosophy, the discussion is further extended to the sensemaking perspective and relationship development. A synthesis of these frameworks reveals the fit between philosophical and methodological choices by discussing the qualitative abductive inferences and the process approach.

2.1 The Philosophy of Interpretivism

A research philosophy guides a researcher's beliefs about what is perceived as truth, reality, and knowledge. Consequently, it can strongly influence the research process by helping the researcher shape and answer the research questions. It also helps establish the guiding principles for designing, collecting, and analyzing data. Two dominant philosophical paradigms, positivism and interpretivism, consider truth, reality, and consequent knowledge through different theoretical lenses. For positivists, a theory is about explaining, predicting, and seeking causality, whereas for interpretivists it is about understanding and revealing patterns and connections in a context (Charmaz 2006). Positivists believe that human subjectivity does not exist on its own but is an effect of the structures of the objective world (Caldwell 2015; Chia 2009; Turner 2001), so the belief that the structures within which human subjectivity exists are always present, irrespective of an individual's perception. On the other end of the spectrum, interpretivists differentiate physical phenomena and humans according to their ability to create meaning; therefore, human actions cannot be studied in the same way as any physical phenomena (Chia 2009; Little 1991). Researchers favoring interpretivism study the meanings created by individuals through their actions. The belief that social structures do not exist independently but are an outcome of individual actions and perceptions make the subjective reality the centerpiece of different kinds of knowledge (Morgan and Smircich 1980).

My prior knowledge of relationship development formed the basis of and provided the ontological setting for this study and determined its connections to scientific research methodology. A number of theoretical explanations of the concept of relationship development originate from the subjective perceptions of individuals working in teams; these perceptions are produced and reproduced within a specific group and social structures. Consequently, I formulated my main research question and subsequent research questions based on the interpretivist paradigm.

My main research question is "How do the processes of relationship development unfold in GVTs?" Through this question, I acknowledge that there is no single process of relationship development; multiple processes come together to create this phenomenon. For a positivist, such an approach would go against the basic premise of discovering and defining universal "law," such as generalizations that apply to everybody, and hence a uniform singular process of relationship development more effectively explains the phenomenon.

Interpretivists believe that because different people exist in different cultures under different circumstances and at different times, leading to different meanings of social phenomena, their experiences are different (Williams 2000). The existence of multiple relationship development processes thus provides a plausible explanation, due to the possibility of detailed insights into differences among individuals and their experiences. Interpretivists value the rich insights that come with the differences at the individual level and argue that attempts to achieve generalizations come at the cost of such insights, in an effort to reduce complexity (Williams 2000). This belief is thus a basis for my sub-questions:

- *How do GVT members' engagements with multiple tasks shape the unfolding of relationship development?*
- *How do different forms and nature of communication affect relationship development in GVTs?*
- *How do the processes of relationship development unfold with regard to team climate?*

The above questions highlight individuals' interactions and perceptions of their tasks, communication, and team climate as the focus of this study. These interactions produce and develop the social structures within which further interactions take place. The iterations of interaction, perceptions, and social structures produce the processes, and the processes regarding the task, communication, and team climate in turn explain relationship development processes.

According to interpretivism, reality is multiple and relative (Hudson and Ozanne 1988; Strauss and Corbin 1990); it is also constructed socially rather than as a single objective reality (Carson et al. 2011), which has epistemological implications. While ontology guides the researcher's beliefs about the nature of reality, epistemology is

about how researchers go about uncovering this knowledge (Guba and Lincoln 1994). As interpretivists believe in the multiple and relative nature of reality, avoiding rigid structural frameworks such as in positivist research is therefore necessary and calls for adopting more personal and flexible research structures (Carson et al. 2011). A flexible structure is receptive to capturing meanings in human interaction (Black 2006) and makes sense of what is perceived as reality (Carson et al. 2011): This means that rather than a fixed approach, researchers must choose a perspective that explains the phenomenon and presents it to the reader in an understandable manner. I therefore sought to elucidate the reality of relationship development processes in the context of GVTs. I chose the sensemaking perspective. As there are multiple processes involved in relationship development among GVT members, I used van de Ven and Poole's (1995) four basic types of theories regarding change processes as related to relationship development processes. Figure 1 depicts the methodological choices I made for this dissertation. In the following sections I discuss the relevance of these choices apart from the data collection and data analysis methods. The data collection and analysis methods have been discussed in chapter 4.

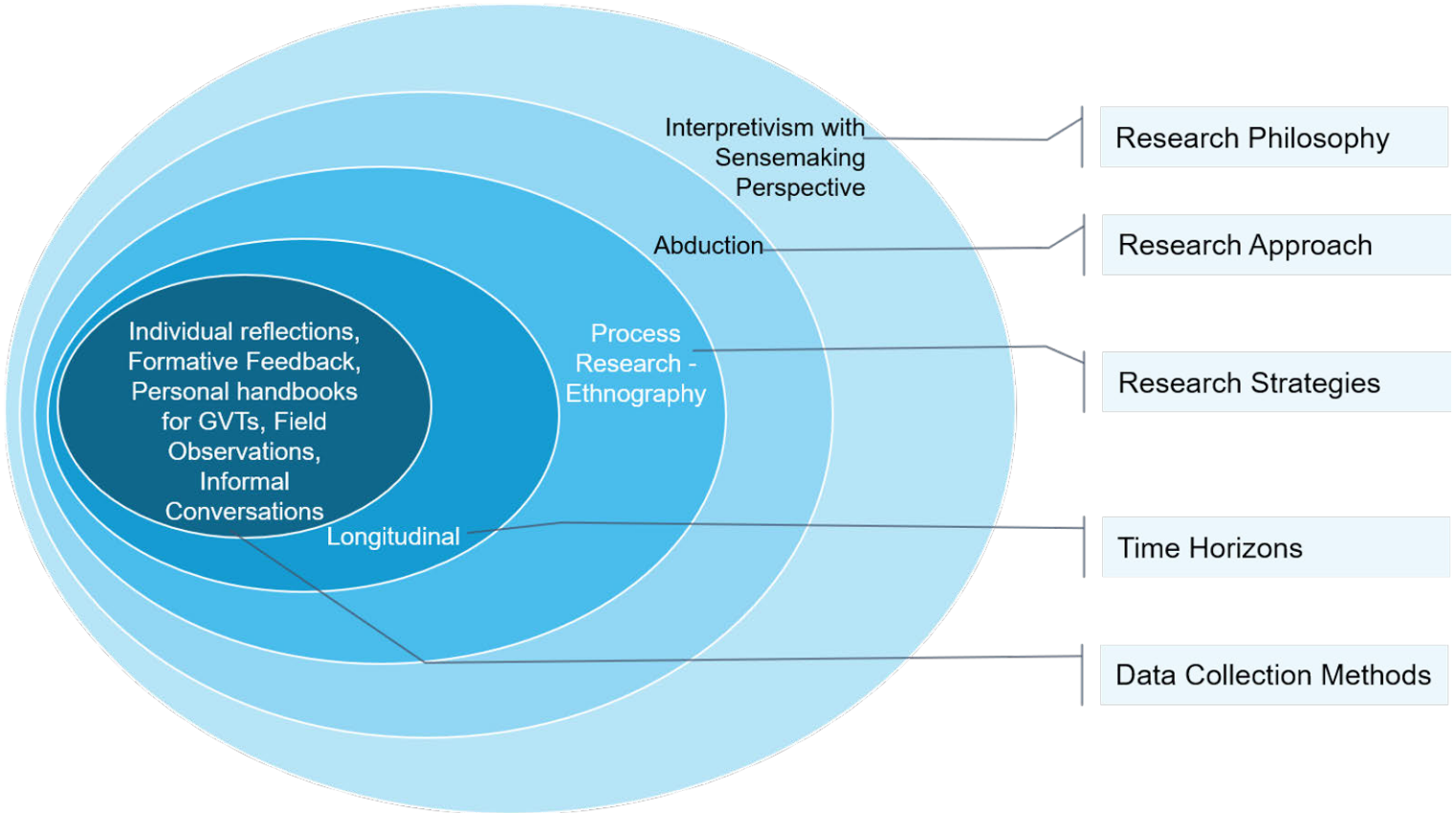

Figure 1. Methodological Choices

2.2 The Sensemaking Perspective and Relationship Development

Sensemaking, which captures reality as an ongoing accomplishment when people make sense of situations, is a central part of organizing (Maitlis and Christianson 2014). Studying this social process helps us understand how team members create order out of confusion and chaos (Weick 1995). The effort to create order from confusion influence multiple team outcomes, one of which is relationship development. For example, in the early stages of teamwork, GVT members quickly formulate the operating mechanisms when they come together. At this point they are already establishing the routines that will influence the nature of their interactions and in consequence will affect their relationship development processes.

In its original form, sensemaking contains seven properties (Weick 1995, 61–62). Based on these properties, individuals create their identity through their actions in different sensemaking situations. According to Weick (1995),

> sensemaking is understood as a process that is (1) grounded in identity construction, (2) retrospective, (3) enactive of sensible environments, (4) social, (5) ongoing, (6) focused on and by extracted cues, (7) driven by plausibility rather than accuracy" (p. 17).

Sensemaking is retrospective. Individuals continuously reflect on their actions to learn for future actions; this learning leads to enactment, wherein an individual creates an object or event with others through what they say. Sensemaking is an interactive and social process because individual actions are determined by how and with whom an individual socializes. These actions are ongoing because they are spread over time, and process of interpreting them is continuous; individuals are always extracting "cues" in sensemaking situations to determine the relevance of available information to reach "plausible" explanations (Mills et al. 2010). The sensemaking perspective considers these properties to be intertwined with one another (Weick 1995), so through enactment and by extracting cues, individuals in interactions continuously make retrospective sense of the world they live in, which is reflected in their identities.

Building on the short introduction of the sensemaking perspective in the introduction chapter (Section 1.4), I further extend the discussion from the perspective of relationship development. In this study, sensemaking is defined as

> a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered

> environment from which further cues can be drawn. (Maitlis and Christianson (2014, p. 67)

On a related note, in this study relationship development is considered to be "a combination of fluid processes of making sense of reoccurring interactions to relate with other team members while performing different tasks through virtual means of communication."

The differences between these two definitions are due to the phenomena or contexts in which the studies have been conducted. However, the fact of the matter remains that in all these studies, the sensemaking process consists of noticing the cues from the environment, interpreting those cues based on events, and enacting the future environment through their actions while understanding past events.

2.2.1 The Unfolding of the Sensemaking Process

Events span multiple spheres of teamwork and can include technical issues such as technology failures and member-related issues such dealing with team members who do not contribute during brainstorming or other components of the assigned task. The sensemaking process within teams is not triggered by events alone but by differences between what one expects and what one experiences. Such differences are significant and important enough to cause the individuals or teams to ask what is going on or what they should do next. For example, team members engaged in virtual collaboration are prepared for technological failures, and therefore such an event would not trigger the sensemaking process in such teams. On the other hand, when working in a team, the members expect one another to be active and responsible, so inactivity on the part of one or more members could trigger a sensemaking process. In such a case, the active members would try to make sense of the others' behavior and engage them to reach a shared understanding. The difference between what is expected and experienced is subjective, and levels of significance can vary from individual to individual (Corley and Gioia 2004). It is possible that a sensemaking process may not be triggered if it is mitigated by organizational norms or group culture, but one is likely to be triggered when individuals and teams perceive a particular event to be a threat to established roles and routines (Maitlis and Christianson 2014). Depending on the group culture, communication norms may prompt individuals to inform others in the team about their absence from a meeting, while other members could be absent without prior notification; this scenario could trigger a sensemaking process in the team.

An event that triggers a sensemaking process requires individuals to construct an intersubjective meaning of the same event. Individuals in teams encountering a single event may all share a similar understanding of it, or they may construct

different meanings due to their different roles, positions, or backgrounds (Brown et al. 2008, 2015). Assuming that sensemaking is a cognitive process that takes place within an individual, collective meaning would then occur as individuals advocate for their own perspective and engage in conversations with others to promote their point of view (Bingham and Kahl 2013). However, is sensemaking is considered to unfold among a group of team members, intersubjective meanings are co-constructed (Heaphy 2017). For this study, I argue that these two views complement each other. Individuals construct different meanings based on differences in their roles and co-construct it with others by advocating for their meaning, reaching a compromise rather than enforcing their view.

Events and intersubjective meanings are the first two steps of the sensemaking process; "action" is considered the third integral step. The actions of individuals and groups influence sensemaking in three ways. First, actions create more raw ingredients for sensemaking by generating cues, which are then interpreted by the those individuals (Weick 1995). Second, actions also test the provisional understanding created by prior sensemaking, whereby actions feed into new sensemaking, which at the same time provides feedback for prior sensemaking (Maitlis and Christianson 2014). Third, based on this recursive link between action and feedback, actions produce the environment for sensemaking. The link between actions and environments is also recursive because the actions that help individuals make sense of what is happening can also change what people encounter, thereby altering the situation that triggered the sensemaking in the first place. The recursive link between action and environment is known as enactment, "the process through which members create a stream of events they pay attention to" (Orton 2000, P.231). Enactment is integral to sensemaking and differs from interpretation in that during enactment, people play an active role in creating their environment (Maitlis and Christianson 2014; Orton 2000; Weick et al. 2005).

This abstract process can be concretized using an empirical example. Consider a group of team members who, after receiving a task, decided to split the work so that two members were working on a single subtask. First, the cue they gathered from reading the task indicated that the task is too complex for a single individual, so in order to complete the task successfully (complexity and success create a situation that triggers the sensemaking process) they concluded that it is better to act in smaller groups. After completing the task, however, a few members found this approach to be unproductive because it deprived them of the opportunity to form a sense of team identity and led to the creation of sub-groups, which required more coordination to come up with a cohesive solution for the task. Sub-group formation cues led to the intersubjective interpretation wherein members felt their group identity was under threat and therefore new actions were necessary. These actions took the form of working as a cohesive unit on future tasks, thereby eliminating the sub-group

formation. Ultimately, through cues, intersubjective meaning, and actions, the members enacted a new environment. This simplified example shows the process of sensemaking. How team members create intersubjective meaning depends on individuals: Most individuals tend to take a narrative approach, telling one another that working in sub-groups is not what they expect and that it poses more problems than opportunities, while others would use metaphors such as "working in silos" to create intersubjective meaning (Cornelissen et al. 2008).[2]

Two studies (Bechky 2006; Maitlis and Sonenshein 2010) have played a substantial role in establishing our understanding of the sensemaking perspective in temporary organizations where individuals' interactions enact their environments, within which they make sense of one another's actions. Maitlis and Sonenshein (2010) argued that, during times of crisis and change, we usually tend to blame faulty technologies. However, there is a need to focus on human actions and our interactions involving and with technology. As GVTs are highly reliant on technological means of communication, it is usual to focus intently on getting the technologies right, which means that we tend to forget the role of individuals using these technologies. Maitlis and Sonenshein (2010) also highlighted the essential fact that groups working together in crisis situations comprise individuals from different organizations, who must not only make sense of one another's actions but also enact organizational structures within which they allocate different roles to themselves, thereby enacting their environment through structures and processes by making sense of their actions within both of these.

While crisis situations could be argued as an extreme case, Bechky (2006) highlighted similar aspects of temporary organizations when she looked into the sensemaking processes of filmmaking projects. She argued that, unlike the common belief that temporary organizations are unstable, these organizations undergo an organizing process. Traditional organizations have already developed organizing processes that change over time; however, in temporary organizations, the organizing process is enacted from scratch by developing the roles dependent on the situation through negotiations among individuals. GVTs are similar: The members are brought together to solve complex tasks and have not necessarily worked together before, so they go through the process of organizing and enacting social structures where the people involved "must enact order into chaos" (Weick, Sutcliffe, and Obstfeld 2005, p. 411). Regarding role structuring in GVTs, Bechky (2006) argued that it has emerged as a critical component of organizing under the intense ambiguity or uncertainty that GVTs face.

[2] Narratives and metaphors are two instruments that are used in conducting sensemaking research.

In this study I further extend the above discussion on the sensemaking perspective from that of relationship development. In this study relationship development is considered to be "a combination of fluid processes of making sense of reoccurring interactions to relate with other team members while performing different tasks through virtual means of communication." These fluid processes are an outcome of the individual interactions influencing different aspects of relationship development, including team identity, subgroup formation, role expectations, shared understanding, trust, communication, knowledge creation, the contribution of effort, conflicts, interpersonal affect, and satisfaction. These definitions and aspects of relationship development put me in a position where, as an interpretivist, I enter the field with a degree of prior insight into the research context, but I assume that this is insufficient to develop a fixed research design due to the complex, multiple, and unpredictable nature of what is perceived as reality (Hudson and Ozanne 1988). Therefore, I have relied on different aspects of relationship development act as a guide for my research when looking into the empirical data.

Below, I provide the reader a glimpse of my empirical data to demonstrate how compatible it is with the sensemaking and relationship development approach. The personal statements quoted in the text were produced by the members of a single GVT working on one of the tasks given to them. The presented contrasting views highlight three core components of sensemaking: events, intersubjective nature, and the actions of individuals, and demonstrate that they are embedded in the seven properties of sensemaking mentioned earlier.

2.2.2 Contrasting Views of Teamwork

The GVTs were given a task that required them to study the idea and impact of Industry 4.0. They were required to choose the sector by themselves. After analyzing the situation and highlighting the challenges in the chosen sector, they presented a solution for the future.

Below I present the perspective of few team members on teamwork. A closer investigation of these perspectives helped me to delineate multiple aspects of teamwork. As the research on GVTs is multifaceted and there is a tremendous amount of existing literature, the following narratives highlight the theoretical fit of the sensemaking perspective and help outline the streams of GVT literature used to formulate the research framework. These narratives particularly highlight the focus of the interactions and resultant relationship development processes originating from the task, the communication, and the team climate.

> **Perspective 1:** Teamwork with Case 4 was totally different [from] previous ones. Initiative was taken by the people who earlier didn't participate too much.

> That was probably because it was the final case and everyone [was] motivated. My participation [in] this case was nearly zero, but when the course started I [told] my teammates that I [would] be away in November and [would therefore] participate more [in the] first three cases. As I saw in Messenger, everyone was looking for [a] great idea, and when the solar panel idea was [suggested] everyone agreed instantly. [It was a great idea] to work with. It didn't need much specialized knowledge, and everyone was able [to] imagine and write down their possible points of view.

This team member started her sensemaking effort immediately after completing the task (retrospectively) and identified that there was an immense difference in the manner in which the task was approached. In her view, the inactive members became active, and she perceived this change in "actions" to be a result of nearing the end of teamwork. Another aspect is related to her *action or inaction*, where she knowingly did not participate in the teamwork with the acknowledgment that she had already informed team members of the prior commitments. Therefore, from her perspective, the members were aware of her absence. She also shared *her understanding of the task* progression by following the work of other team members through virtual communication. This individual's perspective shows that things were moving in the right direction and the team members were working cohesively. We will now move on to the next team member's perspective and see how he viewed the process.

> **Perspective 2:** As its stands, this was the worst it got with the teamwork. Nobody had done anything in regard to our industry 4.0 [project] (probably because it required you to actually use your brain), so I decided to take charge. I presented the group with four different types of industries we could pursue and a business model for each. I added links to our FB chat to peak interest but alas [received] no answers. I kept pestering the group chat until we decided…to [go] with…solar roofs and the Esco model. [X]—our team leader, mind you—did not chime in even once…the entire time.

In the above case, this individual's understanding of the other team members reveals that due to the inactivity of others probably reinforced his memory of previous tasks, which were negative experiences for him. The resulting *enactment* came in the form of taking the initiative to kickstart the activity and keep pushing others to reach their objective. This member's view of the group leader is a reflection on the leader's role. Here it is essential to note the individual in perspective 1 is the team leader, who assumed that her inactivity would not be a problem because she has informed the group about it. However, here, the *intersubjectivity* came into play, where member 2 perceived the same event negatively. Overall perspective 2 is a demonstration of

dissatisfaction with the capabilities and behavior of others. Satisfaction is one of the relationship aspects that shows that for this individual, relationship development is on a negative trajectory. Again, it is clear that the dissatisfaction emerged from the individual team members' inability to perform the task they were required to. This account also reveals a team climate where communication is not so strong, and people need to be pushed.

> **Perspective 3:** Definitely, my team is able to make high-quality and original product and I want to say that we [are] potentially successful. The key ability of my team is the ability to focus at the last moment. Seriously, on the last day of the deadline, the whole team worked as a cohesive anthill, [with enviable mutual aid and generation of ideas]. For the solution [to] Case 4, everyone just offered [a] start-up idea and then we voted. It [was] interesting that in the process, it became clear that the frequency of group Skype meetings or whatever [affected] the quality of cooperation. When we organized minimum audio meetings and began communication at a more official level, the work began to run faster.

From the sensemaking perspective, this team member saw the successful completion of the task despite the time pressures as a good thing for her team. Unlike perspective 2, this individual was happier to focus on what had been achieved instead of what lead to the situation where the time pressures increased. The *intersubjective nature* of sensemaking is again highlighted here, as the same event has been interpreted differently by three different members. The *social process* within which these interactions took place is the same, and yet the members' *perceptions* of the team climate, communication mechanisms, and processes resulted in different relationship development trajectories.

> **Perspective 4:** The last case, Industry 4.0, has finally ended, [leaving us with] lots of memories.... Now I [am] proud to affirm that we [made] a great team together during…tough times, as the quality of our performance [got] better and better. We…really turned into a close-knit team [and were] always ready to support each other, accept the results we got, and encourage each other to move forward. In the end, that is how we [became] successful, as a team, as colleagues, and as friends, even [over a] long distance.

This team member's reflection comes across as superfluous, as she did not comment on the process of working on the task itself but just praised the team's ability to work as a close-knit unit. Her perspective, represented in terms such as "successful team," "friends," and "quality of performance," combined with her failure to mention the actual working of the team, led the researcher to make the plausible assumption that

this was the individual who did not actively participate in the group tasks, because although some of the other team members complained about one of the group failing to contribute to their work, they did not identify who this person was. The resulting influence on the team's performance and other processes created a negative team climate where the relationships developed on two different trajectories.

> **Perspective 5:** After the last assignment I feel that we…managed to put together all the resources we had and complete the assignment in a very efficient way and in a very short time. Due to the fact that my teammates [did] not actively [participate] in previous group works, I decided to change my active role and did not divide the task [among] everyone. I was hoping that they [would] take…the initiative, but I was wrong, and it did not work out. I decided to try again to organize a Skype group meeting in order to share thoughts about the assignment and agree on the topic and to-do actions. Although it took some time, we finally succeeded [in] having one group meeting, [which three of the five members attended].

In this instance, the trigger of the sensemaking was the fact that the member who took the lead (who was not actually the team leader) decided to neglect this responsibility. Her expectation that the others would start to take responsibility did not come to pass, and so she had to resume her leadership role. She also highlighted the effort she had to put in to get the team going, and still almost half the members did not show up to the meeting.

2.2.3 The Synthesis and Methodological Implications of Teamwork Narratives

The individuals quoted above elaborated on their experience of working on a case. From the perspective of relationship development, it can be concluded that the team members did not become a cohesive team and worked together just because they had to. From the sensemaking perspective of relationship development, this demonstrates the ups and downs experienced during a single task if only some members are satisfied, consider their team successful at creating knowledge, and see others as fulfilling their responsibilities. However, there were individuals whose sensemaking process revealed their dissatisfaction with the communication, task performance, and the overall team climate, as well as their lack of confidence in the abilities of others.

There are multiple ways to interpret this data; however, using the sensemaking perspective helps to explain the complexities of relationship development processes. The sensemaking perspective highlights that, contrary to the notion of a single linear

process that is currently popular in extant literature about relationships, a combination of fluid processes actually developing with regard to the task, communication, and team climate. The above account of a single task within a team is a snapshot of the extensive data collected from nine different teams as each worked on four different tasks. This descriptive account highlights the need for further research on relationship development processes, particularly studies on tasks, communication, and team climate and actions, which is basis for the literature review (chapter 3) of this study. It also further highlights the need to capture the process from a temporal perspective—for instance, statements such as "due to the fact that my teammates did not actively participate in the previous group work" and "teamwork with Case 4 was different from previous ones" prompted the researcher to study these teams right from their birth to their conclusion.

In terms of research design, the aspects presented are reflected in two key choices of the study: the type of data collection and analysis and the time dimension in this study. In the case of this research, among the many choices available, I chose the abductive approach to data collection (see Section 2.5).

2.3 Qualitative Research

"Qualitative research" is an umbrella term used to describe multiple interpretive techniques used to provide meaning to naturally occurring phenomena in the social world (J. V. Maanen 1979; J. V. Maanen et al. 2007). It is well suited to the study of any social phenomena, as it was developed in social and human sciences as a reaction to the view that human beings can be studied in the same way that objects are (Minichiello et al. 2010). Therefore, qualitative research refers to research that produces findings by means other than statistical methods (Corbin and Strauss 1990) and is usually unstructured, relying on non-numerical data. There are multiple definitions of qualitative research, depending on the ontological choices of a researcher. In the case of this research, Denzin and Lincoln (2011) provided a precise definition that fits the interpretive philosophy and subsequent sensemaking perspective:

> Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials—case study, personal experience, introspective, life story, interview, observational, historical, interactional and visual texts—that describe routine

> and problematic moments and meanings in individuals' lives. (Denzin and Lincoln 2006, p. 2)

In the context of this definition, I followed the interpretive philosophy and attempted to make sense of interactions among GVT members. Qualitative research can be used to not only uncover and explain phenomena of which little is yet known but also to provide fresh and alternate insights to already discovered phenomena (Corbin and Strauss 1990). The capability of qualitative research to consider the influence of the context in which the research is conducted to produce rich explanations of processes is its hallmark and particularly relevant to my research (Welch et al. 2011). Qualitative research utilizes various approaches and methods, such as case study, observation, textual analysis, interviews, and reflective interactional accounts of events, and it is common for these approaches and methods to be combined (Denzin and Lincoln 2011; Silverman 2001). In line with the overarching domain of qualitative research, I utilized multiple methods for both data collection and analysis, as having multiple data sources help in capturing the processes of relationship developing over time and is in line with the sensemaking perspective. Maitlis and Christianson (2014) argued that our understanding of the sensemaking perspective and what it helps achieve comes from data that provide revealing descriptions over time. Therefore, the textual data, in the form of reflective assignments, engagement with participants through feedback, informal conversations, and observations of the GVTs provided rich qualitative data to explain relationship development processes from a sensemaking perspective (Bechky 2006; Gioia and Chittipeddi 1991; Maitlis 2005; Weick 1995).

The sample population used for this qualitative study was drawn from multiple GVTs and provided the researcher with the opportunity to research real-life social situations. The ability of sensemaking perspective to provide rich contextual explanations is particularly useful in qualitative research. I focused on generating rich insights into relationship development processes while acknowledging the differences through intersubjectivity among teams. Kaplan and Orlikowski (2013) studied multiple instances of sensemaking within the same organization to compare and contrast how members of five different project teams engaged in temporal work from a sensemaking perspective; similarly, I used the sensemaking perspective in studying the members of nine different GVTs as they worked on different tasks over time. Following the tradition of interpretive sensemaking, early on the focus of studying these GVTs was the premise of understanding relationship development processes in the context in which these GVTs operated without worrying about plausible explanations, as such explanations would emerge from longitudinal observations and other methods, such as interviews and informal conversations.

Based on their analysis of multiple studies from the *Journal of International Business Studies* (JIBS), the *Academy of Management Journal* (AMJ), and the *Journal of Management Studies* (JMS), Welch et al. (2011) argued that a qualitative approach based on content and textual analysis offers the strengths of iterative conceptual development, leading to contextualized theories. Given (2008) labeled this iterative approach as recursivity—the cyclical nature of qualitative research—where all procedures can be undertaken repeatedly until a specified condition is met. This recursive aspect of qualitative research implies that the research design cannot be locked in early in the research process. In contrast to standardized research methods, recursivity allows the researcher to change the study design during the data collection phase. The research must go through multiple rounds of data analysis and theory iterations until plausible explanations of the research phenomena are developed. This dynamism is often reflected in qualitative studies a qualitative researcher uses the first interim data analysis to make changes to either the research focus or design midway through the study or to achieve clarity for further data collection. This recursivity in developing relevant evidence enables a researcher to be more open and accommodating to the potential of building new constructs and to unexpected results, with the option to embed them in the research process in an ongoing manner (Given 2008). Recursivity is thus at the core of abductive research. During my research, I used abduction to collect data through multiple sources.

The sensemaking perspective (section 2.2.) focuses on the "development" of relationships and highlights the process aspect of this research, while this section of qualitative research discusses the fit between the sensemaking perspective and qualitative content analysis through abductive inferences. I discuss these two aspects in the following sections.

2.4 The Process Approach

Process research addresses the questions of how and why things emerge or develop over time, which are distinct from variance questions dealing with variation among dependent and independent variables (Langley et al. 2013; Mohr 1982). Simply put, process studies address questions about temporally evolving phenomena. The two significant components of process research are the processes involved in and the temporal nature of the phenomena being studied. In my research design, the relationship development processes that take place in GVTs are temporally set, so I followed these GVTs while they were moving through different tasks. Therefore, my analyses focused on different processes to formulate explanations for relationship development. In this sense, it fulfills the requirements to be regarded as a process study. The nature of this study is further discussed in Chapter 4, which deals with

the research design. For the theoretical understanding, it is essential to understand the concept of process and the temporal elements inherent in it.

Process research follows process metaphysics, the worldview that processes are the primary form of the universe, which implies that change is a constant phenomenon and is prioritized over persistence. This approach does not deny the existence of events and entities but recommends that they be unpacked to reveal the complex activities they are comprised of (Rescher 1996). It argues that discrete events can be broken down into multiple processes that can be further broken down into more complex processes. This process perspective argues for moving beyond dualities, such as emotion and reason or structure and agency, to focus on the interactions among them instead. It is in line with the sensemaking perspective, where the focus of analysis is on interactions and how they create social structures.

To empirically understand temporally ordered phenomena, Mohr (1982) distinguished between variance and process theories. The former provide explanations of phenomena in terms of relationships among dependent and independent variables, while the latter provide explanations in terms of patterns in events, activities, and choices over time. Research on different phenomena within GVTs, such as the impacts of technology or temporal distance or their working methods, has employed a variance approach. Such a research approach can also be used to delineate, for example, whether the trust level among GVT members is equal to that established during face-to-face interactions or if the knowledge of IT tools helps team members establish communication networks to mitigate the effects of distances. However, the focus of this thesis is the processes through which GVTs tackle temporal, physical, and technological distances, resulting in relationship development among the members.

From an empirical human resource perspective, a process study to understand relationship development in GVTs is necessary. The *Academy of Management Journal* conducted a discussion about why HR managers do not adopt evidence-based HR knowledge. Rynes (2007b, 2007a) noted that all the models discussed in this forum were variance-based, and relatively little consideration was given to the process issues; in her final comments, she said: “The real world of HR managers is messy, complex and filled with human drama, making it unlikely that it can be completely understood using ‘hands-off’ methodologies such as surveys and archival analyses” (2007b, p. 1048).

As Poole (2013, p. 384) put it, “process is a formless everything, and everything is process,” so it is necessary to define some of the basic types of processes. From a temporal perspective, process researchers use “tracing back,” “following forward,” or “reconstituting the evolving present” approaches to explain different processes (Hernes and Maitlis 2011). Aldrich and Martinez (2001) provided a similar categorization of process studies, arguing that process research is either outcome-

driven or event-driven. What they call outcome-driven explanations are similar to tracing back, while event-driven explanations mimic the "following forward" process.

In "tracing back," the events have happened already in the past, so the researcher already knows the outcome. In such a scenario, the data collection process is comparatively concise and straightforward, as the researchers collect data for the elements which are directly related to the outcome (Langley 2009; Aldrich and Martinez 2001). The recent 2019 Indian moon mission Chandrayaan-3 is an example of such a process: the satellite did not land successfully, and researchers were able to trace back the events that led to the unsuccessful landing.

"Following forward," or the event-driven approach, means that researchers are not aware of the outcome of the process. They simply follow processes in real-time as they unfold. Observing such processes in action and wondering what will happen next is a very different experience from tracking back by sifting through archival traces or relying on secondhand narratives that have already been rationalized by their narrators (Aldrich and Martinez 2001). Real-time data provides a rich temporal record that would otherwise be unavailable, especially when it comes to studying interactions among people. Retrospective accounts by individuals, especially of cognition, are limited because of the human tendency to make event chains seem more logical than they were as they unfolded (Tenzer and Pudelko 2016).

Apart from the two above-mentioned process approaches, "reconstituting the evolving present" takes into account how the entities and objects of research are approached (Langley 1999). The first two approaches still consider entities such as organizations as stable, even though they change over time. "Reconstituting the evolving present" considers organizing to be a dynamically and continually reconstituted by ongoing processes. Such studies involve real-time ethnographic research following processes forward over a reasonably long period, but because of their focus on reproduction and recursiveness, "reconstituting the evolving present" better reflects their overall temporal orientation than "following forward." In this study, as relationship development comprises multi-layered and multilevel processes that are dynamic and ever-evolving, "reconstituting the evolving present" is the most suitable temporal orientation.

This research analyzes different processes that take place among team members and are visible through their interactions, while the enacted structures are considered fluid themselves, being constructed through individual actions. The results were not known at the time this study was initiated, so the third approach was used due to its data richness, uncertainty and longitudinal time frame. Lastly, the third temporal approach is in line with the theoretical choices made. While the sensemaking perspective was used as a base theory, the use of abduction is also in line with this

approach because it involves ethnographic research where the researcher is part of the process.

Conducting process studies comes with certain limitations. They require a substantial amount of time to draw the series of events taking place at a particular time frame, with the questions about how to draw meanings from these events, how different events are linked to one another, and how multiple micro and macro processes based on a multitude of events interact with one another when formulated a whole. Process studies typically involve the collection of large amounts of multi-faceted data, so researchers run the risk of "data asphyxiation" (Pettigrew 1990). They can be tempted to limit the number of cases collected to generate a deeper understanding of the process, which limits confidence in the generalizability of the conclusions of the process research. If compromises are not made in the number of collected cases, situations can soon spiral out of control when the results need to be reported. The use of different models to report different processes because of the enormous amount of data compromises the synchronization of the different processes at work, diluting the overall understanding of the processes.

To address the issues of generalizability and richness of data that arose during this study, the author collected as much data as possible; the issue of synchronicity, however, was a question of choosing different process models to meet the needs of the research without neglecting any of other processes taking place simultaneously. Van de Ven and Poole (1995) and Poole and Van de Ven (2004) assimilated different process models and approaches to formulate four process models of organizational change; these process types provide a structured framework to report on the different types of processes taking place while attempts are made to understand a phenomenon. In the case of the relationship development processes that occur in GVTs, there are structural elements of communication, task, and team environment that constitute many of the GVT members' interactions.

Similarly, individuals' interactions within and with social structures lead to multiple simultaneous events taking place at multiple process levels, including the team and individual levels. To understand the relationship development processes that occur in GVTs, the four-process models of organizational change, presented as four types of processes, provide a structured framework and help with reporting the findings of this thesis. Van de Ven and Poole (1995) synthesized the different theories and presented the four models that encompass most of the process explanations. They proposed that processes can be categorized into four different sets of developmental models: life cycle, teleological, dialectic, and evolutionary. They later refined their work (cf. Poole 2013) and adapted the development models to the process explanations, eventually presenting these models as process types:

Four Types of Processes

Theory / Characteristic	Life Cycle	Teleological	Dialectical	Evolutionary
Basic sequence	Set unitary sequence of stages: A→B→C→Etc.	Multiple sequences of stages or activities oriented to goal attainment	Two possible patterns: (1) Classical dialectic: thesis→antithesis→ synthesis; (2) Tension dialectic with polarized terms continuously in tension	Population develops through variation-selection-retention (VSR) sequence at the member level and community ecological processes at the macro level
Process of change (generative mechanism of temporal pattern)	Sequence of stages and transitions between them is dictated by logic, natural process (e.g. human development), or institutionally- defined norms	Unit perceives problem or opportunity, sets goals, acts to achieve goals, monitors outcomes	In classical dialectic the thesis gives rise to the antithesis as part of its operation and synthesis is an emergent; In the tension dialectic, poles are continually in tension and interplay among them and how parties deal with the tension shapes the process	VSR process is influenced by nature of the niche that the population is located in and by competitive and cooperative relationships among members of different populations; VSR introduces the new forms
Number of developing entities	A single unified entity	A single entity or a unified collection of entities	Multiple entities	Multiple entities in populations
Termination point	End of sequence, dissolution, death	Goal attainment and steady state of goal maintenance	In classical dialectic, the synthesis; in tension dialectic there is no end state	Decline and extinction of the population

Figure 2. Process Typology

The main characteristics of the four process types are summarized in Figure 2, which depicts the basic sequence a process would follow, what drive the changes, whether a process represents development relating to a single entity or multiple entities, and what type of termination point a process reaches.

Poole and Van de Ven (2004) also contended that these process types are interlinked with one another and identified two dimensions of inter-process relationships, including interlevel relationships and directness of relationship. They asserted that interlevel relationships may be arranged into a hierarchy in which changes in one level are dependent on changes at a higher- or lower-level process. The second type of interlevel relationship occurs when processes at different levels are entangled. These processes operate simultaneously and independently, but still influence one another without being part of a cohesive process. Lastly, the aggregated process represents the third type of interlevel relationships, where a higher-level process is constituted by collective lower-level processes.

The second dimension of inter-process relationships, directness, within the same or different levels of processes, can be related both directly and indirectly. Types of direct relationships include reinforcing other processes, dampening the other processes, or complex relationships. Entrainment, the first type of indirect relationship among these different processes, occurs when processes are synchronized by an external factor. For example, a deadline to complete a task for the GVTs may pace the decision-making among the group members. The second type of indirect relationship, cyclical relationships, occurs when two or more process

types alternate in their impact on the change process. For example, members of a GVT trying to resolve a conflict among themselves may practically apply the dialectics approach, but they can later switch their attention to external tensions between themselves and others in the group.

All in all, the methodological choices made in this research are interlinked through the ontological interpretivist domain, leading to the epistemological design of abductive inferences, whereby the ethnographic history of the researcher involved in the overall process is taken into consideration. The process nature of research falls into the domain of "reconstituting the evolving present," where individuals are always evolving within the social structures they themselves enact. This process nature is in line with the sensemaking perspective and its view of social reality. From an empirical perspective, while studying any process, it also crucial to know the logical choices made in order to capture the change. At this point, following Van de Ven and Poole (1995), it can be assumed that there are multiple processes involved in relationship development in GVTs.

2.5 Abductive Inferences and the Research Process

The research in this thesis followed a pragmatic, empirical path, with the starting point being the need to understand an empirical phenomenon. The understanding of such a phenomenon is developed systematically by combining and studying the interrelations between theoretical elements and the phenomenon (Brinberg and McGrath 1988). Dubois and Gadde (2014) conceptualized such a process of systematically combining phenomenon and theory as an abductive approach that describes, in contrast to mainstream inductive and deductive perspectives, a non-linear, non-positivistic approach to the case study. All three inferencing techniques are focused on the creation of meaning in different ways. Deductive inferences are certain and inductive inferences are probable; abductive inferences are plausible. Creating plausible meanings gives a researcher a chance to see things that might otherwise be missed by relying on tried-and-true explanations (Given 2008).

In line with interpretive philosophy and the sensemaking perspective, which assumes a constant state of change and a socially constructed world situated in the interactions of individuals, reality is subjective to those interacting and creating social structures. Plausible explanations are thus the most likely, rather than objective reality. This abductive research process is followed in this research, where, through multiple iterations and systematic combining of the concepts and data (J. V. Maanen et al. 2007), the research design evolved with time. An inductive or deductive conceptualization of the research process involves pre-planned phases; however, in abductive research, the analytical framework is continuously modified due to novel findings and related theoretical insights gained during the process until

plausible explanations of the phenomenon are uncovered. Hence, unlike the abductive conceptualization of Järvensivu and Törnroos (2010), where abduction is a mix of induction and deduction, my research aligns with the conceptualization of Dubois and Gadde (2002), who described it as a non-linear process of going backward and forward between data and theory while "capturing surprises" (Bryman and Bell 2018) that provide new insights into the studied phenomenon.

Before delving into the abductive process used in this research, it is important to highlight the alternate theoretical lenses that could have been used to formulate the explanations for relationship development processes. During this study I employed and discarded multiple theoretical lenses. I used emotions research (Ashkanasy 2003; Weiss and Cropanzano 1996; Laros and Steenkamp 2005), social exchange theory (Homans 1958), interdependence theory (Thibaut and Kelley 1959), and structuration theory (Giddens 1984), along with its multiple iterations—structuration of decision development (Poole et al. 1985), adaptive structuration theory (DeSanctis and Poole 1994), and structuration of climate (Bastien et al., 1995)—to explain relationship development processes.

While emotion-based explanations of relationship development processes clarify the "interpersonal nature of relationships," this theoretical explanation was not sufficient for the role of the social structures within and relating to which such human interaction takes place, and it was therefore unable to explain the role and influence of, for example, structures enacted in the form of routines, roles, communication norms, etc., in relationship development processes. It was also not clear how processes develop in situations where emotions may not be the actual trigger for change (e.g., changes in routines or communication methods).

The shortcomings of social exchange theory and interdependence theory are like the literature relating to emotions. While these theories adequately explain how individuals interact with one another and what kind of influences actions and reactions have, they fail to answer the fundamental question of how the environments within which these interactions take place influence those actions and reactions.

The shortcomings of structuration theory became apparent only after I completed the entire first draft of my thesis. These shortcomings were in the form of incoherence among three variants: adaptive structuration theory (DeSanctis and Poole 1994), structuration of decision development (Poole et al. 1985), and structuration of organizational climate (Bastien et al. 1995b). The inability of these three variants to explain the interrelationships among task, communication, and climate and the vast nature of the leading theory itself (every social phenomenon is explainable through the interplay of structures and interactions) left many gaps in relationship development processes. At this point, I turned to the sensemaking perspective, which is explained above in sections 1.4 and 2.2. Below I present the abductive research process and major decision points reached during this research.

Phenomenon of Interest (2014–15). My research interest in GVTs and relationship development started in 2014 following discussions with a friend while working part-time in a cleaning company to support myself financially during my Master's degree at Turku School of Economics (TSE). This friend had recently started a software development company and, with time, received projects to work on. Consequently, he needed and hired experts from different parts of the world. During our discussions, it became clear that finding the right expertise is not a problem, but ensuring that these people can work together despite their differences is half of the job. This prompted me to decide to study GVTs for my master's thesis. During my Master's thesis in 2014 and 2015, while studying interpersonal relationships among GVT members, my main finding was that these individuals are task-focused. When someone is unable to meet their team members' expectations, emotional display is used as a tool to communicate feelings of unhappiness. With this understanding, I started my doctoral journey to understand relationship development among the members of GVTs. I joined a research group at TSE, focusing on different aspects of GVTs.

Table 1. The Abductive Research Process

Time	Phase	Source of Re/direction	The Observed Issue	New Focus
2015 (Start)	Background data generation based on a Master's degree	Observation at a micro-firm	The interactions of people working in GVTs are drastically different than face-to-face teams	How the members of GVTs work together without actually knowing one another
		Theory	Discovering the literature on relationships in teams – Interpersonal relationships among GVTs influence their work behaviors	How interpersonal relationships develop among project-based GVTs
		Data	In a singular GVT in a micro-firm, members have strong convictions about one another	Relationships develop with regard to the perceptions of individuals' ability to perform tasks and are displayed through emotions
2016	Data Analysis Phase 1: Reading and writing responses to student reflections / Engagement with GVTs	Data	Relationships do not develop in a singular process but are a combination of different processes	Emotions are just one explaining lens – The broader social setup is much more complicated – Social Exchange theory (SET)
		Theory	The dichotomy of reward and punishment in SET does not explain the social construction part of relationships	Relationship development processes are multilayered embedded in the interactions of individuals
2017	Further iterations of data collection and analyses / Engagement with GVTs		Individuals form perceptions and develop relationships through the tasks they perform and in their means and ability of communication	How does the GVT members' engagements regarding multiple tasks shape the unfolding of relationship development?
		Data	–	How do different forms and nature of communication affect relationship development in GVTs?
2018	The iterative process between data analysis and theory	Data	Later in the life of GVTs, relationship development processes are influenced more by the team climate than task and communication	How do relationship processes develop unfold with regard to team climate?
2019		Theory	Multiple structures and interactions explain multilayered and multi-process relationship development	Structuration theory provides a framework for the explanations relating to structures and human agency
2020		Theory	Exploring multiple processes through structuration exposes the too wide nature and incoherent sub-frameworks	Sensemaking provides a more coherent alternative to structuration theory for explaining relationship development processes
		Data	Identifying different sensemaking processes involved in the task, communication, and team climate	Relationship development processes in GVTs

Multiplicity of Processes (2016). In 2016 I started to interact with GVTs in our social lab (explained in detail in Section 4.1). While interacting with these teams, a tremendous amount of data was generated in the form of participants' self-reflections on the process of working in GVTs. I wrote individual responses to these reflections (Appendix 2) and provided reflective feedback to their group assignments (Appendix 3). Although I did not realize it at the time, this material proved to be my preliminary analysis of relationships within GVTs. The first round of data analysis revealed that relationships do not develop in a single process but are a combination of different processes, and the explanations of social exchange theory and emotion research are limited. The empirical data made it clear that the GVTs predominantly focused on their tasks and collaborative efforts, to ensure they could be completed through virtual communications. During this time, I engaged with the GVTs regularly and often, which led to the development of the first two research questions.

Further Data Collection and Analysis (2017). After formulating the first two research questions and performing a manual data analysis, I continued conducting conversations with the participants as I collected more textual data. During these conversations, I started digging into the previously collected data in conjunction with the new data set, with the difference that my focus in my data analysis had shifted to the aspects of communication and tasks. This new focus revealed that it was the way in which members of the team contributed to the task in a timely fashion and how quickly and clearly they communicated their concerns or questions relating to tasks and about others in the team that influenced relationship development processes.

Role of Team Climate (2018). By 2018 I had gathered a tremendous amount of qualitative data, so I decided to take a structured approach towards data analysis. I started using NVivo 11.0 software to structure the data and later to conduct my analyses. In a way, I played around with the data by structuring it in such a way that I was able to see each individual's reflections on different processes of working in GVTs temporally through different tasks. Similarly, on temporal lines, I arranged and rearranged data by task and communication (without distinguishing among different teams), and perceptions and expectations of others. The main outcome from this exercise was that explanations of relationship development can be attributed to team climate, along with communications and task.

Initial Explanations of Relationship Development Processes (2019). A year of work with the data (see the discussion of data analysis in Section 4.4) revealed two major decision points. One was the observation that task and communication processes influence not only relationship development processes, but also team climate. This led to the third research question, regarding team climate and relationship development processes. The second observation related to theoretical lenses and the idea that the multiplicity and complexity of relationship development processes could be explained through structuration theory (Giddens 1984, 1990).

This was the moment when I thought, "Aha! Now everything falls into place," and I decided to write this paper. And so I did; I wrote a complete dissertation from the perspective of structuration theory and its different variations, explaining the processes of tasks, communication, and team climate, and culminating with relationship development processes. However, the explanations developed through structuration theory left many gaps in my explanations.

Final Explanations of Relationship Development Processes (2020). During this phase, I stepped back from the details and intricacies of research process and tried to form a holistic view. The core understanding I gained from this exercise was that multiple relationships development processes were also multilayered. There were individual and group level explanations of these processes. The theoretical lens of the sensemaking perspective provided the ability to not only explain these two different levels but also their interrelation through concepts such as intersubjectivity, enactment, and shared understandings. Therefore, using the sensemaking perspective, I first wrote out individual narratives for the various relationship development processes and then used the four process types to formulate group-level understandings of the same processes. This exercise resulted in the three theses of relationship development in GVTs.

3 Relationships in Global Virtual Teams: A Literature Review

In this chapter, I present an overview of the literature and previous research on GVTs and relationship development. While it is impossible to take stock of all the research within this domain, I first discuss Global Virtual Teams and their major traits. In the second part, I discuss relationships in the virtual team context before moving on to the three major anchors of the task, communication, and team climate that influence relationship development processes. Through this discussion and literature analysis, I aim to clearly position my study and argue why it is necessary to consider relationship development as a combination of fluid processes rather than a singular, one-dimensional, linear process.

3.1 The Emergence and Relevance of Global Virtual Teams

The advent of computer-mediated communication over long distances, facilitated by access to the Internet in the 1980s, paved the way for employees to collaborate virtually (Daft and Lengel 1986). The Gartner Group found that more than 60 percent of professional employees now work in virtual teams (Kanawattanachai and Yoo, 2002), and the Society for Human Resource Management (2012) found this number has inflated to 66 percent in multinational companies. A more recent survey showed that participation in global virtual teams grew from 64 percent in 2010 to 89 percent in 2018 ("Virtual Teams Survey 2018 Executive Brief," 2018). As societies and organizations are becoming more diverse, GVTs have been gaining prominence. The recent pandemic has accelerated the pace at which the use of remote work and GVTs is being adopted. Such unanticipated societal change has forced the modern workforce to resort to remote work and virtual collaborations, and many of us have experienced it in the recent past. It is a long-term change which seems as though it will stay with us for the long-term future, giving rise to a new normal. In this new normal, during and after the pandemic, the sudden shift and increased reliance on the virtual means to collaborate has a number of implications.

To compete globally and capitalize on the global workforce's competences, technological advances play a critical role, and GVTs have consequently appeared as a new organizational form (Zander et al. 2013). Martins and Schilpzand (2007) named several fields where GVTs have increased in prominence. This trend of employing GVTs extends across the globe, including in Finland. According to Eurostat, in 2017 Finland was third among European nations in this regard, with 12.3 percent[3] of its working population opting to work remotely. Similarly, data from the country's Ministry of Economic Affairs and Employment shows that at least one third of the working population has worked remotely within Finland[4]. These statistics were recorded before the COVID-19 pandemic accelerated the use of virtual means of collaboration.

These changing work patterns have broader implications for many areas of organizations. The management of international human resources is one area that is strongly influenced by such structural changes. This field still mostly focuses on developing selected employees from among a company's existing work force (Mockaitis et al. 2018). Such new developments present new HR challenges and opportunities for organizations. They could potentially benefit from GVTs by adopting practices at the individual, team, and organizational level. At an organizational level in particular, HR's critical role is to develop and support a coordinated HR system to tap into the potential benefits of GVTs.

In many cases, the organizational-level systems needed for recruitment, training, and career development across industries are already in place. However, even with the provision of such systems, the success rate in GVTs is not promising. A survey of 70 GVTs showed that only 18 percent of the GVTs considered themselves successful while the rest fell short of achieving their intended outcomes (Gupta et al. 2008).

In GVT literature, one central and repeated observation is that positive, productive relationships among GVT members are especially crucial for GVT success but are at the same time incredibly hard to achieve (Gilson et al. 2015; Gluesin and Gibson 2003). On the one hand, the drivers (i.e., people and their interactions) of structure and strategy are taking center stage in this new organizational form; on the other hand, within GVT literature, it is somewhat unclear how relationship development processes among different team members unfold over time. It seems that the constant flux is becoming the norm of working in GVTs, with the sporadic evidence of managing trust, cultural diversity, structural aspects, and the communication system. In this ambiguous situation, it is essential to take a step

[3] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180620-1
[4] https://yle.fi/uutiset/osasto/news/finnish_experts_say_telecommuting_has_its_downsides/10383320

back and understand the processes through which these structural and human factors interact within and with one another to constitute relationships that promote success.

3.2 Global Virtual Teams

Virtual teams are a well-accepted norm of the modern workplace, and some research has shown that they now play a critical role in organizations' success. Despite the increasing volume of research, however, there is no universally accepted definition of the GVT (Curseu et al. 2008). Some examples of existing definitions are listed in Table 2.

Table 2. Examples of Definitions of Global Virtual Teams

Reference	Definition
Jonsen, Maznevski, and Canney (2012)	Groups of people who a) work together using communications technology more often than face-to-face, b) are distributed across space, c) are responsible for a joint outcome, and usually d) work on strategic or technically advanced tasks, as well as being e) multifunctional and/or multicultural.
Hertel, Geister, and Konradt (2005)	Virtual teams consist of (a) two or more persons who (b) collaborate interactively to achieve common goals, while (c) at least one of the team members work at a different location, organization, or at a different time, so that (d) communication and coordination are predominantly based on electronic communication media.
Gibson and Cohen (2003)	A functioning team—a collection of individuals who are interdependent in their tasks, share responsibility for outcomes, see themselves and are viewed by others as an intact social unit embedded in one or more social systems, and collectively manage their relationships across organizational boundaries (Hackman, 1987; Alderfer, 1977). The members of the team are geographically dispersed. The team relies on technology-mediated communications rather than face-to-face interaction to accomplish their tasks.
Zigurs (2003)	A collection of individuals who are geographically and/or organizationally or otherwise dispersed and who collaborate via communication and information technologies in order to accomplish a specific goal.
Maznevski and Chudoba (2000)	Groups that (a) are identified by their organization(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the organization's global strategy; (c) use technology-supported communication substantially more than face-to-face communication; and (d) work and live in different countries.
Lipnack and Stamps (1997)	Virtual teams that work across time and space as well as organizational and cultural boundaries with links strengthened by webs of communication strategies.

All the definitions listed in Table 2 mention different traits of GVTs, such as geographical dispersion, non-face-to-face communications, interactions in virtual spheres, and consistent efforts directed at attaining mutual goals. Based on these traits, it can be understood that teams develop over time through continuous interactions and therefore are dynamic. As communication among GVT members

develops continuously, the level of trust would be affected due to the frequency of contact among employees. The study of the dynamic nature of teams would therefore lead to developing a better understanding of the work processes, including the relationship development of these teams.

In this study, I follow Maznevski and Chudoba's definition that GVTs are

> groups that (a) are identified by their organization(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the organization's global strategy; (c) use technology-supported communication substantially more than face-to-face communication, and (d) work and live in different countries. (2000, 473)

Different disciplines have studied virtual teams, and their view on the virtuality of teams differs. One of the leading arguments is that virtual teams differ from co-located teams: Some scholars argue that virtual teams stand for a new type of team and cannot be integrated into existing typologies (Bell and Kozlowski 2002). Others have argued that, due to the evolution of technologies, all types of teams today do have some level of virtuality, and therefore it is unrealistic and artificial to differentiate between co-located and virtual teams (Gibson and Gibbs 2006; Gluesin and Gibson 2003; Griffith and Neale 1999).

Building on previous literature, Kirkman and Mathieu (2005) asserted that virtuality exists in most teams in recent forms of organizations. The level of virtuality may differ based on the extent of virtual media, informational value, and communication synchronicity. Townsend, DeMarie, and Hendrickson (1998) propose that virtual teams are possible due only to the tools available in the form of internet, computers, and other non-face-to-face communication means and that the level of virtuality would depend on how extensively these tools are used. If face-to-face interactions occur more often than virtual team meetings, those teams would be on the lower side of the virtuality spectrum, and vice versa.

This prompts the question of how traditional teams and GVTs differ. One significant difference is the time dimension: working in different time zones affects these teams' virtuality. Time differences themselves affect GVTs in three different ways: performing work asynchronously bridges different time zones, resulting in enhanced productivity; positioning GVT members in different time zones gives rise to coordination and management difficulties; and finally, time works more subtly on GVTs due to different time visions (perceptions of time), which must be managed for the full potential of the team to be realized (Saunders et al., 2004). Due to the heavy influence of time, it is especially relevant to look at virtual teams' traits, including synchronicity of communication, use of virtual tools, and informational value, as these factors are all used to distinguish between traditional and virtual

teams and help define the level of virtuality. Within this discussion, then, it can be argued that all GVTs have many commonalities with regard to temporal and physical distance, virtual means of communication, and cultural and experience diversity. Nevertheless, not all GVTs are created equal; there are marked differences in the form or type of GVTs, its influences on the kinds of tasks performed, and duration of the partnership. In a broader sense, project teams are used to solve unique problems and promote creativity, while operational teams focus on administrative and routine tasks (Alahuhta et al. 2014). In the following sub-section, I discuss these differences and their implications for this research.

3.2.1 Types of GVTs: Operational vs. Project Teams

There are many different configurations of virtual teams, depending on the task the members of such teams are required to perform. Duarte and Snyder (2006) discussed GVT types in their research, arguing that the type of task affects the ways a virtual team is managed (see Table 3). They asserted that although GVTs can undertake almost any kind of task, developing an understanding of team members' attitudes toward their virtual team would make them conscious of the type of challenges they might face. Gibbs, Sivunen, and Boyraz (2017) conducted a comprehensive review of the impact of team type and design on virtual team processes. They argued that the fit between task and team type has a reciprocal relationship with its leadership, cultural composition, and technology use—in other words, leaders would behave differently in project teams compared to operational teams.

Although there are marked differences between the described types of GVTs, they can be roughly classified into two major categories: operational teams and project teams. This classification is based on their lifecycle—i.e., project teams are appointed for specific tasks and dissolved once their task is completed. In contrast, operational teams deal with administrative and routine work and are ongoing, with no particular end in sight. Consequently, service teams, management teams, network teams, and parallel teams can be both operational and project-based, depending upon whether their work is to support the operational and ongoing nature of work or if they are there to support a project. Similarly, action teams are one type of project team in which members are directed to work together to solve a crisis, and return to independent work once a solution is found.

Table 3. Different Types of Virtual Teams

Team Type	Description
Networked Teams	A networked virtual team consists of individuals who collaborate to achieve a common goal or purpose. At the same time, the membership is frequently diffuse and fluid, with team members rotating on and off the team as their expertise is needed. Team members may not even be aware of all the individuals, work teams, or organizations in the network.
Parallel Teams	These are short-lived teams formed to carry out a specific assignment or function that the regular organization is not equipped to perform. Different from networked teams in that the team has a distinct membership that identifies it from the rest of the organization.
Project or Product Development Teams	Team members conduct projects for users or customers for a defined but extended period with outcomes in the form of a new product, information system, or organizational process. The difference between a project team and a parallel team is that a project team usually exists for a more extended period and has a charter to make decisions, not just recommendations.
Work, Functional or Production Teams	Virtual work, functional, and production teams perform regular and ongoing work. Such teams usually exist in one function and have clearly defined membership.
Service Teams	These are the teams tasked with supporting an organization's products with members spread around the globe, making use of 24/7 clock to provide support to the customers. The staff "follow the sun" and are situated so that one team is operational at all times
Management Teams	These are the teams of managers or executives, who are spread around a country or world, and they work collaboratively on a daily basis.
Action Teams	These are immediate response teams, collaborating virtually often to emergencies.

(From Duarte and Snyder (2006))

Project-based GVTs differ from operational GVTs in multiple ways. Functional and operational teams perform operational and management tasks daily, with no set time for the team's dissolution. The ongoing nature of operational teams means that their functions could be repetitive, developed based on previously established norms, and that they are focused on the smooth administration and management of the organization (Lee, To, and Yu 2013). The virtual nature of such GVTs is more focused on control and less on problem-solving.

This study focuses on project-based GVTs, which are formed to address novel problems and usually dismantled after completing project work (Furst et al. 2004). However, the members of such teams are generally experts in their areas, and therefore conflicts among team members would negatively influence the team's performance and, consequently, relationship development (Sivunen and Hakonen 2011). The nature of tasks in such teams is highly complex, requiring the application of analytical and problem-solving skills (Massey et al. 2003). When members collaborate on a single short-term project, it is not necessary to consider relationship development in depth because the team's primary focus is on getting the job done.

When these project teams work on multiple tasks, the need to for positive relationships increases.

3.2.2 The Nature of Tasks in Project-based GVTs

Because GVTs are used in every sphere of business, the type of tasks project-based GVTs perform influence how these teams function. As opposed to operational GVTs that perform routine tasks, project-based GVTs are formed to address novel issues and focus on problem-solving. As such tasks are complex and must be completed in a limited amount of time, the interdependence level among GVT members is higher than it is for operational tasks; they must also communicate more than operational teams.

Operational teams regularly convert input into output to meet customers' needs, so their tasks are routinized. Managing operational teams' challenges is unlikely to be similar to managing professional teams, such as top management teams and product development teams, whose members are usually younger and less educated than those of professional teams (Lee, To, and Yu 2013). The problems faced by these teams are markedly different from those of project-based teams who must solve problems using critical thinking without the presence of long-term routines and a higher level of interdependence.

Higher task interdependence is a dominant feature of GVTs working on different projects. Considering that these tasks are being performed through virtual means, frustrations can arise when members cannot accomplish them on time. In their research on high-technology teams, Somech, Desivilya, and Lidogoster (2009) found that a higher level of task interdependence is positively associated with cooperative styles of conflict management. Aubé and Rousseau (2005) found that individual goal commitment is crucial for team performance in top task-interdependent teams. In explaining their concept of management by interdependence, Hertel, Geister, and Konradt (2005) provided a basis to further elucidate the idea of relationship development in virtual settings. This concept is an outcome of the notion that to compensate for spatial and temporal distances, higher levels of task, goal, and outcome interdependences would force members to communicate frequently, resulting in an increased experience of togetherness (Hertel, Geister, and Konradt 2005). Lack of regular communication in highly interdependent tasks could also frustrate team members in the event that they are unable to proceed without a colleague's response (Joinson 2002). Not only is the overall task interdependence crucial by itself, but during the accomplishment of these tasks and end outcomes, mundane tasks such as scheduling a meeting also become complex and could create frustration, because when one team member might be sleeping at night, another might be in the middle of his or her work day (Zigurs 2003).

GVTs that focus on tasks requiring problem-solving and creativity are of interest in this study. The members of such teams are highly educated and have the level of expertise required to perform complicated tasks. One aspect of the previous research on the complex nature of tasks that require greater interdependence focuses on individual factors such as goal commitment, conflict management, and influence on leadership styles. Understanding these individual factors is necessary to understand the relationship development processes that occur in GVTs; however, "fixing" these factors and pitting them against complicated tasks would again lead to a singular, linear model of relationship development. I therefore focus on the novel but logical approach of following GVTs as they work on different tasks to understand relationship development processes. Factors such as leadership, trust, individual capabilities, time management, etc., are incorporated in the task.

3.2.3 The Tenure of Project-based GVTs

One characteristic of project-based teams is that they involve groups of people focused collectively but temporarily on a specific task. The team will eventually disband and may or may not collaborate again in different arrangements (Sorenson and Waguespack 2006). Due to the temporary nature of such teams, time and temporal challenges are important influences on individual members' behavior as they work on their task (Mohammed and Nadkarni 2011). There could be multiple types of project-based GVTs, e.g., action teams that come together to deal with an emergency but know that they might not see one another again. Such teams are formed and dissolved quickly, and are therefore entirely focused on the task. There could be GVTs that come together to solve a one-time problem (not emergencies); the duration of these teams' work is short, such as a parallel team trying to overcome a specific problem in the production process. Some GVTs work on a long-term project or work for a longer duration on multiple short projects on the other end of the spectrum. The time duration for which GVTs work together can change the amount of time that team members need to interact to attain the perceived benefits of investing in social and working relationships (Ortiz De Guinea et al. 2012).

The time dimension captures the degree to which a team is focused on the present rather than the future (Twenge et al. 2003). In short-term teams, relationship development might not be a priority due to the collective focus on getting the job done, which makes the present the team's priority. During my research, I followed GVTs working on multiple short-duration projects with a long life cycle. The problem-solving projects such teams work on often tend to be ambiguous and unpredictable, requiring a significant amount of within-project planning and intense social interaction (Barrett and Sexton 2006). Bakker et al. (2013) asserted that team members who expect to collaborate for extended periods in the future behave

differently from those for whom the time of termination of the project is imminent and, consequently expect to interact for less time. It is argued that time is likely to be involved in both teamwork and the task itself (Saunders and Ahuja 2006). The common understanding of the task and how it is to be accomplished is known as the task dimension. In contrast, the teamwork dimension represents a shared understanding among team members about how they will interact with one another, their norms, and their roles (Bakker et al. 2013).

All in all, project-based GVTs where the members are involved in multiple problem-solving tasks and use their analytical and social skills over an extended period, call for researching relationship development processes. This research focuses on such GVTs to understand the different processes involved in relationship development.

3.3 Relationships in GVTs

Relationships in teams have been a subject of research for quite some time in different research spheres, including anthropological (Cohen 1955) and business studies (Bartlett and Ghosal 1998), where relationships have been researched from a personal perspective and business aspects, respectively. Zimmermann defined interpersonal relationships as the "the positive or negative feelings that team members hold towards one another, which includes liking and dislike as well as attraction, attachment, and affection" and contended that it is limiting because "feelings" explain the interpersonal aspect (2011, p. 70). She also argued that this limits the explanation of relationships. We must therefore look at other aspects of relationships, such as shared understanding, communication, satisfaction, and trust. Relationships therefore become more than emotions and feelings regarding *how one person or thing is connected with another*; rather, they become *the manner in which individuals repeatedly interact with other team members.*

Relationship development processes are shaped by the repeated interactions of GVT members, which influence different aspects of relationships. Following a number of GVTs for the duration of their life revealed several aspects of unfolding and influencing relationship development processes. These aspects confirmed previous research conducted by Zimmermann (2011) and include team identity, subgroup formation, role expectations, shared understanding, trust, communication, knowledge creation, the contribution of effort, conflict, interpersonal affect, and satisfaction, all of which transpire differently among team members of a single GVT and across GVTs. These differences are discernable through, for example, different levels of satisfaction, trust, and shared understanding, indicating that multiple processes are unfolding among GVT members based on their interactions. Relationship development in GVTs can thus be defined as "a combination of fluid

processes of making sense of reoccurring interactions to relate with other team members while performing different tasks through virtual means of communication."

In GVT literature, one central and frequently repeated observation is that positive, productive relationships among GVT members are crucial for GVT success but incredibly hard to achieve (Gilson et al. 2015; Gluesin and Gibson 2003). Stronger relational links have been associated with better task performance (Warkentin and Beranek 1999) and information exchange (Warkentin, Sayeed, and Hightower 1997). These relationships involve different group members and vary based on their abilities and interests (Seers et al. 1995); they are a mutual commitment between members where reciprocity is perceived as a resource contributing to relationship development (Seers 1989). When the level of reciprocity is lower, relationships are limited to task completion. In contrast, when reciprocity is higher, members exchange resources and offer support beyond what is required to complete their task.

Team members build the perceptions necessary for driving relationship development processes through reciprocity. Wech (2003) argued that these perceptions help develop a group identity and give individual team members a sense of their importance. However, the literature on interactions also posits that better relationship development involves more than reciprocation between the parties (Seers 1989): Maslyn and Uhl-Bien (2001) argued that psychological processes are also involved, such as the relative effort exerted by both parties and the level of expectations met for one another. This suggests that the role of team climate, defined as "a set of perceptions that reflect how work environments, including organizational attributes, are cognitively appraised and represented in terms of their meaning to and significance for individuals" (Joyce and Slocum 1984, p. 124), is crucial to relationship development processes. Intersubjectivity and developing a shared understanding of the sensemaking perspective helps explain such climates' development. One of the sub-questions of my study therefore deals with relationship development processes in the light of team climate from this perspective.

As the phenomenon of relationship development is situated in the context of global virtual teams, virtual communication is a fundamental construct; it is thus imperative to understand interactions in this sphere. It is not possible to form a comprehensive set of processes explaining relationship development without understanding virtual communications. Virtual communication channels are varied and comprise synchronous and asynchronous media. GVTs usually use multiple platforms: These technologies are often formally linked together to form groupware, an umbrella term used to describe "electronic technology and group processes that support teams and organizations as they work together" (O'Hara-Devereaux and Johansen 1994, p. 78). The influence of these channels on individuals' interactions

is explained by media richness theory (Daft and Lengel 1986), which essentially argues that the more synchronous the media in use, the lesser the ambiguity and resultant conflicts among the team members, meaning that relationships can develop positively. However, while electronic communication channels support the networked organization by providing tools to solve collaboration-oriented problems, Coleman, Paternite, and Sherman (1999) also drew attention to the human aspects of communication, arguing that focusing only on technical issues can lead to expensive failures while focusing on the people and organizational issues dramatically increase the probability of success. From the human perspective of virtual communication, the frequency of communication (whether too much or too little) (Marks, Zaccaro, and Mathieu 2000) and its content and quality (Keyton 1999, 2010) significantly affect individuals' interactions.

While these different studies elaborate on different facets of communication channels and the human aspects involved in explaining how teams function, a holistic take on communication requires that relationship development processes also be explained. To do so while following the life of GVTs, I therefore analyze the interactions of individuals to unearth the interactivity of both the channels and human actions relating to these channels, with a focus on relationship development processes. One could at this point ask why it is necessary to focus only on task, communication, and team climate, and not on other countless other influencers of relationship development processes, such as routines, leadership, team diversity, team cohesion, etc. There are two reasons for choosing these three areas to develop the processes explaining relationship development: First, most individual-level factors, such as leadership, individual routines, language capabilities, and assigned roles, are already situated in tasks and communication; and second, isolating one or more of these factors would explain relationship development processes from that aspect alone. I therefore focus on how, during tasks and communication and in team climate, these factors result in perceptions that contribute to relationship development processes. It is essential to clarify that relationship development processes are not a linear outcome of team climate, fed in by task and communication; on the contrary, task, communication, and team climate develop simultaneously and continuously influence relationship development processes.

3.3.1 Team Functioning Models

This study argues that linear singular models are incorrect, and that a multiplicity of relationship development processes take place at multiple levels. It is necessary to take stock of some of the previous models on team functioning to explain the previously linear and singular approaches. Table 4 lists a few of these models,

categorized into group development models, IPO models, and individual factor studies.

Table 4. Models of Team Functioning

	Author(s)	Model
Models of Group Development	Individual Change Model (Lewin, 1947)	Unfreezing, change, freezing
	Stage Model (Tuckman 1965)	Forming, storming, norming, performing, adjourning
	Integrated Model of Group Development (Wheelan 1990)	Stages I–V (Dependency and inclusion, counter-dependency and fight, trust/structure, work/productivity, final
	Time, Interaction and Performance Theory (Mcgrath 1991)	Inception, technical problem solving, conflict resolution, execution
Input-Process-Outcome	Multinational Team Model (Earley and Gardner 2005)	Core team characteristics, intervening states, team outcomes
	Socio-Work Structure Model (Earley and Gibson 2002)	Social structures, team processes, work structures
	Dimensions of GVT performance (Maznevski, Davison, and Jonsen 2006)	(challenges, team characteristics) → processes → performance
	Work Process, Action and Feedback (Zander et al. 2013)	Welcome phase, working phase, wrapping-up phase
Individual Factor Studies	Trust (Jarvenpaa and Leidner 1998)	Matrix model based on the initial and final levels of trust
	Sub-Group Formation in GVTs	Ethnocentrism vs. cross-national learning

The group development models usually follow a pattern where the group is seen as developing through different stages. Most of these models follow a linear approach where the teams move from one stage to the next before developing a cohesive unit. Below is a brief analysis of two prominent linear and stage-gate models focusing on the group development models: the individual change model and the stage model.

Kurt Lewin is widely considered the founding father of change management, with his unfreeze–change–refreeze model for change management (Cummings et al. 2016). In essence, this model posits that an entity (organization, team, or individual) realizes the need for change during the unfreeze stage and encourages the needed change to old attitudes and behaviors. In the change stage, new behaviors are adopted by enhancing the learning of the individuals. In the refreezing stage, the changes are reinforced and leaders make them part of the entity's day-to-day life. This model is considered fundamental to change management. Many researchers claim that all change theories are "reducible to this one idea of Kurt Lewin's" (Hendry 1996 p. 624), indicating that it can be interpreted as a model that provides abstract explanations for change management at different organizational levels. Others argue

that the model is linear and too simplistic to explain complex phenomena (Child 2015; Clegg et al. 2015; Kerber and Buono 2005). Relationship development processes are dynamic and complex because each team member's interaction contributes to their development, meaning that these processes are always in flux. Therefore, it is impossible to explain the change process by dividing it into different stages.

Tuckman's (1965) stage model is based on the stages of group development with the notion that, regardless of the context, groups would go through different stages while completing different tasks. Simultaneously, while completing tasks, these individuals will relate interpersonally using the same task completion behaviors. The criticism of Tuckman's model is similar to that of Lewin's model. Based on the study of groups collaborating in extreme conditions in Antarctica, Smith (1966) argued that the lack of regard for the context in which teams operate is not accounted for in Tuckman's model. Smith argued that these teams do not follow the stage model and require a higher level of cohesiveness despite being incredibly focused on completing their task.

Others have also observed that team development often does not follow the sequential steps proposed by Tuckman (1965). In many cases, teams omit certain phases, follow a different sequence, or develop in a manner not explained in Tuckman's model (Seeger 1983). Another criticism arises from the inability to differentiate between phases because certain group dynamic aspects are ever-evolving and not sequential (Arrow 1997). Davis (1969) suggested that relationships between members are pivotal to maximizing team potential and unlikely to be achieved without cohesion, meaning that the teams would never progress beyond the storming stage. All in all, Tuckman's model assumes that the members of a group enter into an exchange relationship without providing any explanation for the cohesiveness arising from the group task or goals.

The next category of team functioning models is based on the IPO models. Ilgen et al. (2005) argued that before 1996, empirical research on teams was mainly focused on outcomes such as team performance and viability. Earlier IPO frameworks thus limited research by implying a single and linear path from inputs through outcomes. The next iteration of IPO models extended team research by realizing the feedback loop where one cycle's outcomes fed into the next cycle's inputs. Such potential was realized with the thought that team performance is an outcome of not only the team members' capabilities and team structures but also factors such as diversity and multiculturalism. For example, the Multinational Team Model of Earley and Gardner (2005), who studied cultural intelligence's influence on multinational team experiences, assumes a linear progression from multinational team experiences to team-level cultural intelligence to team relational processes, thus

influencing team performance. Team performance then influences the team's multinational team experiences again, which becomes the next cycle's input.

Similarly, Zander, Zettinig, and Mäkelä (2013) proposed a stage model in which the team goes through welcome, working, and wrapping-up phases, whereas what they learn during the wrapping-up phase serves as input for the next task of the same team. The failure to identify the feedback loop in the IPO sequence limited the earlier research on teams, but the second iteration of IPO models addressed this concern by delineating different cyclical processes. Nevertheless, these IPO frameworks tend to suggest a linear progression from inputs to processes to outcomes. However, in practice, interactions are visible between various inputs and processes and between various processes (Ilgen et al. 2005). For example, the dialectic processes through which GVTs address their conflicts feed into the evolutionary processes involved in relationship development.

The last set of team functioning models were formulated based on single-factor studies, such as the role and development of trust in GVTs (Mockaitis, Rose, and Zettinig 2009; Jarvenpaa, Knoll, and Leidner 1998; Jarvenpaa and Leidner 1998; Crisp and Jarvenpaa 2013), the nature and the emergence of sub-groups within the team (Durnell Cramton et al. 2004), and the influence of leadership on GVT functioning (James and Ward 2001; Xu and Wang 2020; Zander, Zettinig, and Mäkelä 2013). However, although these single-factor studies contribute to a better understanding of various processes within GVTs, they have only a limited ability to explain the whole process.

The different models presented above show the effect of the linear approach, the IPO mindset, and single-factor situations on the functioning of teams and relationship development processes. Zimmermann (2011) noticed the dominance of these approaches in team literature and conducted an extensive study on such models. She proposed a "configurational approach" wherein, once relationship development aspects were identified, these aspects could be used to formulate unlimited configurations in combination with one another. I used the aspects of relationships identified by Zimmermann (2011) (see Table 5) to guide my study.

The argument that there are as many configurations as possible influencing relationships (Zimmermann 2011), based on cognitive, affective, and behavioral aspects, holds. However, contextualizing these aspects and understanding the processes rather than taking an inventory of configurations provides a clear understanding of developing and managing relationships among GVT members.

Table 5. Relationship Aspects

Team Identity	Subgroup Formation	Role Expectations
Shared understanding	Trust	Communication
Knowledge creation	Contribution of effort	Conflicts
Interpersonal affect	Satisfaction	

This approach is in line with the theoretical model of teams developed by McGrath et al., (2000) which describes three levels of dynamic causal interactions (local, global, and contextual). Similar to McGrath et al.'s (2000) approach, this study contends that relationships develop at multiple levels simultaneously, where several processes at one level interact with the processes at another level.

3.3.2 Task and Relationship Development Processes

The nature and complexity of a task are defining features determining how closely team members must work with one another (Axtell et al. 2004). This introduces the concept of the level of interdependence of members on one another. It has been argued that the level of interdependence moderates relationships, e.g., conflict in GVTs is more harmful when members are required to be highly interdependent to achieve their end goal (Hinds and Bailey 2003). Kirkman & Mathieu, (2005) believed that the nature of interdependence (i.e., pooled interdependence, sequential interdependence, reciprocal interdependence, or intensive interdependence) defines GVT members' frequency of interactions. Therefore, the nature and number of interactions are responsible for relationship development in GVTs. These interactions relating to tasks influence relationship development attributes, such as conflict, trust, and individuals' perceptions of one another.

Team tenure, or the lifespan of a task, is another factor that may influence relationships among members of GVTs. In previous research, tenure has long been considered to influence group development (McCain, O'Reilly, and Pfeffer 1982), but it has also shown mixed results about the effect of duration of work on relationship development in GVTs. While the general perception is that the longer the duration of a task, the smoother and more automatic its processes become, thereby positively influencing relationship development by reducing conflict among team members (Jehn et al. 2008; Jehn and Mannix 2001), Stahl et al. (2010) argued that teams staying together for a longer period will exacerbate conflicts and less effective communication than teams with a shorter tenure. They attribute these effects to the cultural diversity of GVTs. Shorter team durations help reduce task-related conflict, but longer durations are a consequence of the nature of more complex tasks, which affects relational conflict. Jehn and Mannix (2001) reported on the nature of conflict in long-term teams and found out that in such GVTs,

consensus on work values leads to patterns of task conflict and lower levels of relationship conflict over time. GVTs with longer tenure deal with complex tasks, which offers the opportunity to connect at a deeper level rather than at the surface level (Stahl et al. 2010).

The findings of Stahl et al. (2010), and Axtell, Fleck, and Turner (2004) indicate that task characteristics (complexity, duration, and team lifespan) influence relationship development in GVTs. The findings of these studies were mixed in terms of the influence of these characteristics on team functioning, which means that these characteristics manifest at the individual level based on the team's context. Although these characteristics are perceived and interpreted differently from individual to individual, a certain level of shared understanding is achieved at a team level. It is through this shared understanding that GVTs enact social structures to deal with these characteristics. From a task management perspective, through shared understanding, GVTs employ technologies to help plan, distribute, execute, and close a particular task (Beranek et al. 2005; Karolak 1999). However, task characteristics are not the only influences on relationship development processes in GVTs: because the shared understanding reached in teams does not mean perfect agreement, other issues related to the task also need to be studied. These issues are related to individual members' management capabilities and their ability to learn from the application of such capabilities while working on a particular task. With regard to tasks, these capabilities include time management, workload management, members' reflections on achieving the task, and learning from the management team's feedback. There are fewer studies on these issues in organizational theory and GVTs, but these have been discussed in detail in the project management domain, where they are referred to as informal project characteristics because of their psychologically rooted phenomenological explanations with a background in organizational psychology (Wastian et al. 2014).

3.3.2.1 Time Management

In their study on managing time in virtual projects, Braun et al. (2003) consider time management as the effort to plan, coordinate, and complete one's assignments and tasks efficiently in professional life, and allow enough time for private life. While this broader explanation helps in understanding the concept of time management, Saunders et al., (2004) believed that the "clock vision" of time is not helpful in managing work in virtual teams. However, teams also focus on time management issues using "time vision" management. They elaborated on the concept of different temporal uncertainties, arguing that the realities of different members in different parts of the world make it challenging to follow clock time, and thus synchronization among team members regarding time would reduce conflict. It would also influence

relationship development processes positively by making the execution of activities smoother.

Another aspect of time management that could influence relationship development relates to how team members approach tasks. After dividing the main task into sub-tasks, if those sub-tasks are conducted sequentially or simultaneously, it would influence both the time management and relationship development processes. The task's nature dictates part of the choice, but it would mostly be agreed within the team to define the approach they want to use (Duarte and Snyder 2006).

Lastly, time management is also influenced by the communication media that GVTs choose to use. Asynchronous media helps members manage their time better, thereby reducing pressure, but it may not be feasible for discussions and brainstorming. Alternatively, synchronous media such as video conferencing offers the opportunity to have discussion sessions but is challenging to manage due to temporal differences (Daft and Lengel 1986). It comes down to striking a balance among multiple media channels to reduce time management stressors and information overload. If this balance is achieved, the teams' relationship development processes benefit; otherwise, increased stress levels and an overload of information could become negative influences.

3.3.2.2 Workload Management

Workload management is an extension of time management because GVT members need to balance tasks with their daily life commitments. While the team members are required to contribute to tasks in a timely fashion, they are also part of a broader social system in their physical surroundings, putting them under pressure to share their time (Zander et al. 2013).

Workload management is also influenced by the sense of identity and commitment to the task at hand and the team. A low level of commitment to the task could foster a non-serious attitude, and such members would not be able to pull their weight (Hoegl and Weinkauf 2004). Such situations have a negative influence on the normal functioning of the GVT, where other members would take on others' work along with their own, leading to a poor performance. Such crises create conflict and cause poor relationship development in GVTs.

Similarly, how team members relate to one another to create team identity also influences relationship development. If GVT members are more task-oriented than relationship-oriented (Kankanhalli et al. 2006), the social aspect of teamwork can feel like an additional workload. In the earlier case, members might be focused solely on productivity and effectiveness in terms of the performance outcome and would therefore see team cohesion as outside the periphery of their team.

Workload issues also arise due to poor person-job fit. In GVTs in particular, which are self-monitored and self-functioning, members choose their tasks according to their capabilities. Due to self-serving bias, members tend to overestimate their capabilities and either take on a too big task or work on something that does not match their actual capabilities (Gibbs et al. 2017). These situations become complex due to these tasks' virtual nature, as backing up is not available in real time because of communication gaps (Kirkman and Mathieu 2005). This in turn leads to delays in task accomplishment, and as a result negatively influence relationship development.

Temporal distance and other factors affecting the means of communication in GVTs highlights the need to put extra planning into time management, considering that some members might not complete their share of the task (Hoegl and Weinkauf 2004). Therefore, the buffer times used in traditional project management should be extended. As in any project, it is always a case of balancing resources, time, and the scope of the project, so GVTs investing in extra planning and allocating extra time for workload management plays a critical role in task completion (Oertig and Buergi 2006). Such steps would reduce the chances of conflict and negative relationship development.

3.3.2.3 Reflections and Self-management

There are multiple approaches to resolving conflict in virtual teams. Edmondson and Smith (2006) recommended that members consciously put more effort into becoming aware of their feelings during such times, reflect on their reactions, and reframe the situation. Edmondson and Smith focused on the emotional aspects of interactions and reactions happening in real time and proposed using self-reflection as a tool to access and control the overall situation at the individual level.

Conflict is a dimension of relationship development. While it is essential to look into self-reflection techniques, self-reflection is part of the broader domain of self-management, which deals with challenging situations such as conflict and guides task management from an individual perspective. Wastian et al. (2014) and Braun et al. (2003) both described self-management as the goal-oriented direction of one's behavior. Weisweiler et al. (2015) believed that people can influence their thinking, feeling, volition, and behavior. They further expanded on Muller's (2003) framework, which defines self-management as a set of activities through which an individual consciously controls psychological processes relevant to their job, beyond the simple accomplishment of work requirements. Job-related self-management focuses on independent thinking and acting within pre-defined tasks, job contents, or performance goals.

Through the lens of self-management, individuals can reflect on the compatibility of their individual goals with team goals, which enables them to work on intention management, time management, knowledge management, stress management, and conflict management. Individual focus on these areas helps GVT members keep their expectations in check and remain grounded in formulating and accomplishing realistic common goals through better task management.

Starting with self-awareness and self-management, individuals with knowledge of their competencies (both professional and social) can contribute positively to different stages of a task. This also helps team members establish a more robust team identity while they move from one task to the next and reflect on their past performance. Knowledge of self and knowledge about others strengthens trust by creating interdependencies related to multiple dimensions of the task, thereby positively influencing relationship development processes.

3.3.2.4 Task, Goal, and Outcome Interdependence

Higher task interdependence is a dominant feature of GVTs working on different projects. Considering that these tasks are being performed through virtual means, frustrations can arise when members cannot accomplish a task on time. In their research on high-technology teams, Somech, Desivilya, and Lidogoster (2009) found that a higher level of task interdependence is positively associated with a cooperative style of conflict management. Aubé and Rousseau (2005) found that individual goal commitment is crucial for team performance in high-task-interdependence teams.

Hertel, Geister, and Konradt's (2005) concept of management by interdependence provides a basis for further developing the concept of relationship development in virtual settings. This concept was founded on the idea that in order to compensate for spatial and temporal distances, higher levels of task, goal, and outcome interdependences would force members to communicate frequently, resulting in an increased experience of togetherness.

Task interdependence can be increased by dividing the project into sub-tasks that require a higher level of coordination, which would then necessitate frequent contact among GVT members. Hertel, Konradt, and Orlikowski (2004) argued that breaking down tasks in this way would increase team members' familiarity with one another and influence their sense of their own contributions to the team's success, thus creating positive motivation. However, teamwork does not always create a sense of security: Korsgaard, Brodt, and Sapienza (2003) made similar findings, but argued that team members experience a sense of isolation when their tasks are not interdependent, leading to the members of such GVTs establishing only loose ties. As both of these studies focused on the interdependencies rather than individual capabilities, the argumentation on the negative influence of higher task

interdependencies is less evident. Hertel, Konradt, and Orlikowski (2004) argued that the disadvantage of such dependencies is their need for mutual agreement, which could lead to potential conflicts if members are not fully invested. If GVT members are overconfident in their capabilities, higher task interdependencies could potentially mean delays in task completion due to overpromising, leading to conflicts and negative relationship development.

GVT members participating in project work are there to attain common goals, but they also have personal goals and motives. Hertel, Konradt, and Orlikowski (2004) asserted that when individual goals are dependent on other members and are intertwined with the project's overall goal, it improves the sense of identification and climate of trust among the members. Team members can lose focus on common goals over time, and so other members or team leaders would be there to remind others on their team not to lose track. These kinds of reminders not only reduce the chances of conflict but also encourage members to connect socially, and chances of fostering positive relationships and better performance would thus increase.

3.3.2.5 Tasks and Interactive Relationship Development

This section presents a synthesis of Sections 3.3.2.1–3.3.2.4. In GVTs working on multiple tasks, the team members' interactions are shaped by the task characteristics, individual members' characteristics, and task interdependence, goals, and outcomes. Figure 3 illustrates the connections between these three task-related aspects.

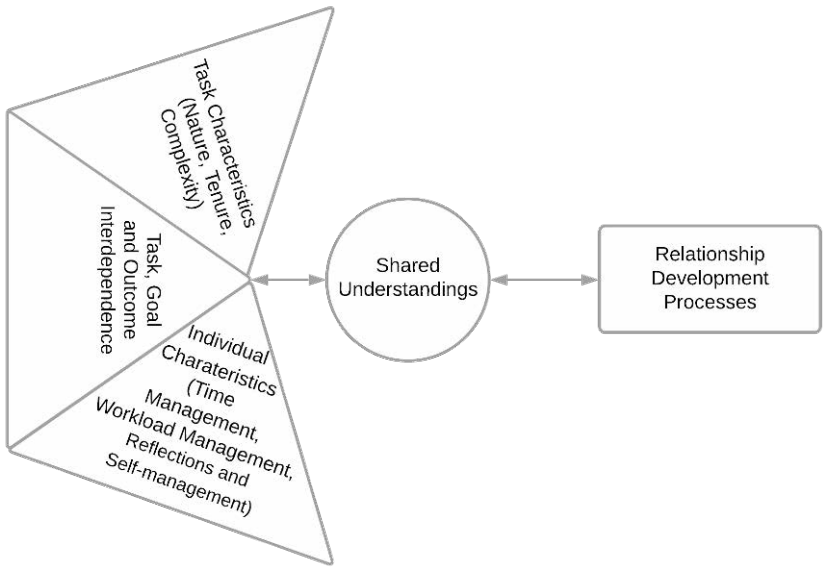

Figure 3. Environment and Relationship Development Processes

When GVTs start their collaborative journey, the team members develop individual understandings of task-related aspects. Over time, these teams reach a shared understanding through brainstorming. Task characteristics such as the task's nature, time duration, and complexity are interpreted differently by each individual because of how he or she interprets the alignment between their personal goals and task objectives. The fit between personal goals and task objectives are an outcome of the individuals' perceptions of time and workload management. Individuals compare the time and workload of the task with their daily life responsibilities, prompting them to consider whether their self-management abilities are sufficient to accomplish the task objectives. Through brainstorming, GVT members reach a level of shared understanding, which removes ambiguities regarding task characteristics and helps members realign their personal goals with the task objectives and manage their commitments to the task. This process continues in GVTs iteratively over the life of the team during multiple tasks.

During these iterative interactions, both for a single task and across multiple tasks, shared understanding contributes to relationship development processes. A greater degree of shared understanding implies that the common ground and group identity formed among the team members positively influence relationship development (Liu et al. 2011). If a team faces many task-related conflicts, conflict might be considered a productivity-enhancing activity before reaching a satisfactory shared understanding level (Simons and Peterson 2000), thus positively influencing relationship development processes. However, when a task conflict becomes a relationship conflict (De Dreu and Van Vianen 2001) due to insufficient time and workload management or misalignment between personal and task goals, it negatively influences relationship development.

The task characteristics of shared understanding, individual perceptions of time management, workload management, and self-reflective activities are crucial to relationship development. However, due to the virtual nature of remote work, communication is another sphere where a lot happens in GVTs. The complexity, duration, and interdependence of tasks influence communication in such teams. To be effective, management strategy must address the specific needs of virtual teams' globally distributed nature by implementing an effective communication structure (Casey and Richardson 2006). Below I discuss the nature and role of communication on relationship development processes in GVTs.

3.3.3 Communication and Relationship Development Processes

GVTs depend on various technologies for task management and communication. Depending on the type of technologies used, the structures of tasks and

communication could differ. Depending on the resources available to them, GVTs either deploy generic productivity (Google docs, Teams) and social media tools (WhatsApp, Facebook) or sophisticated project management (SAP) and communication tools (e.g., Slack, Teleconferencing). Team communication is considered central to most team processes and task performance (Sutanto et al. 2004) and to enhance team performance through conflict resolution (Fletcher and Major 2006; Kankanhalli et al. 2006), disseminating and dealing with environmental and situational information (MacMillan et al. 2004), and coordination and proper information distribution (Marlow et al. 2018). It also influences the behavior of interdependent team members (Kankanhalli et al. 2006). All these influences are considered to impact teams in multiple ways (Espinosa et al. 2015; Marlow et al. 2017, 2018). The process and behavioral influence of communication ultimately lead to the development of team emergent states (Marlow et al., 2017; Salas et al., 2005), which are responsible for multiple outcomes such as team performance, relationship development, and level of satisfaction among members.

Relationships are developed by interaction and communication (Zimmermann 2011), which in GVTs often take place in virtual environments. Communication in itself is the exchange of information among team members(s) while working on a particular project (Mesmer-Magnus and Dechurch 2009). In GVTs, communication is critical because face-to-face interactions are often not possible. Interactions happening in virtual environments are heavily reliant on communication tools. Communication in teams is defined in multiple ways; however, this study follows a broader definition whereby team communication is an exchange of information, occurring through both verbal and nonverbal channels, between two or more team members (Marlow, Lacerenza, and Salas 2017).

3.3.3.1 The Influence of Technology-mediated Communication on Relationships

Relationships develop over time, so it is essential to note the length of time a team will be together to study the effect of technologically based communications. Social Information Processing theory proposes that if there are expectations of future interaction, then communications via technology will be personal and friendly (Walther 1995; Walther and Burgoon 1992). Therefore, it is possible to overcome the weaknesses of relationships and form a better working environment.

Building relationships through communication technology can be a more extreme and intense process than doing so face-to-face. The hyper-personal perspective (Walther 1995) proposes that such relationships are based on limited information revealed in technology-mediated communication and via group identity cues, which are then over-attributed due to the absence of contradicting evidence.

Thus, team members' relationships may be exaggerated either positively or negatively (Wather and Burgoon 1992). Another aspect of communication in GVTs relates to the choice of media used to communicate in virtual environments. Media richness theory (Daft and Lengel 1986) describes a communication medium's ability to reproduce the information sent over it and argues that richer communication media are generally more effective for communicating complex situations than less rich media. In the case of GVTs, this implies that media such as phone calls, text messaging, and email are less effective in complex situations than tools that provide synchronous communication, such as video conferencing, because richer media can relay visual and social cues that are otherwise impossible to capture. Therefore, a higher level of media richness plays a substantial role in mitigating the negative impact of spatial and temporal distance. Greater media richness is helpful in reproducing more accurate accounts of interactions and leads to an elevated level of cooperation among team members, which in turn promotes healthy relationships (Daft and Lengel 1986; Dennis 2009).

It is essential to understand the difference between different types of communication. Instead of relying on a combination of visual, aural, and physical communication, GVT members are often limited to one or two of these means when interacting and behaving in virtual environments. Computer-mediated communication, a defining characteristic of GVTs, can occur via several media types, including video conferencing, phone, email, blogs, instant messaging, and text messaging. Although recent technological and infrastructural advances have made richer media options (like video conferencing) more accessible to employees, less rich media like email and texting still feature prominently in the day-to-day activities of virtual work (Hill et al. 2014; Weimann et al. 2010). From the media choice viewpoint of communication, Pauleen and Yoong (2001) found that the GVTs with a higher the level of diversity needed a proportionately greater extent of relationship building as compared to less diverse teams, and should thus use richer communication media. Consistent with this suggestion, Maznevski and Chudoba (2000) found that as the level and number of boundaries GVTs crossed increased, effective GVTs spent more time and effort on boundary-spanning activities.

Synchronicity refers to communication among team members that happens in real time without any lag. Kirkman and Mathieu (2005) defined the concept of informational value as the extent to which virtual tools send or receive communication or data that are valuable for team effectiveness, and argued that employing technologies that convey rich, valuable information reduces the effect of virtual communication effect. Informational value concept propagates that teams use virtual tools for much more than communicating. Thus, the lower the informational value of virtual tools, the higher the level of virtuality (Kirkman and Mathieu 2005).

Mathieu et al. (2014) referred to synchronicity as temporal difference and took it as a basis to describe virtual teams' dynamic nature. Temporal dispersion becomes relevant at more considerable spatial distances when spontaneous communication becomes difficult, decreasing the potential for synchronous interaction and thus the need for real-time problem solving (Burke et al. 1999). Kraut et al. (2002) suggested that proximity enables easier collaboration among team members because it makes it easier to initiate communication and conduct a conversation, and it allows one to more comfortably maintain awareness of what other members are doing. However, it should be noted that asynchronous communication also presents the opportunity for members to think and form replies better than spontaneous communication.

GVTs rely on advanced technological-based communications to lessen the adverse effects of temporal dispersion. The above discussion proposes that temporal distances will weaken ties, and technology can play a role in mitigating this even if it is not as effective as face-to-face communication. From a task viewpoint, media richness also plays a substantial role in relationship development because it influences the task outcome. Tasks vary in their media richness requirements, which may increase or reduce complexity. If a task is highly interdependent, it requires extensive information and coordination from GVT members. In such cases, richer and synchronous media is preferred (Gibson and Cohen 2003). Task complexity and a level of high interdependence give rise to coordination problems and may lead to conflict. In this context, Hinds and Bailey (2003) argued that due to such potential problems of working interdependently via technology, team design should be structured for independent rather than interdependent work; otherwise, it may lead to lower performance and negative relationships.

3.3.3.2 Measures of Communication

Studies have emphasized the need for GVTs to set ground rules and develop consensus about when, how, and how often to communicate (Munkvold and Zigurs 2007; James and Ward 2001). These ground rules affect at the different constructs of communication within GVTs, e.g., "when" considers the temporal distance among the team members, "how" focuses on communication channels, and "how often" deals with the availability of team members. However, these ground rules are dynamic, so team members must adapt their behavior whenever there is a change in a team or project environment (James and Ward 2001). These adaptations should take the form of communication frequency, content, and quality.

The literature concerning communication in virtual environments has used several measures of effective communication, the most common of which include the quality, frequency, and content of communication (Marlow et al. 2017). Within the broader literature on teams, both the quality (Charlier et al. 2016; Sorrentino and

Boutillier 1975) and frequency (Mullen et al. 1989; Stein and Heller 1979) of communication has been found to play a critical role in developing team members' perceptions and subsequent relationship development.

Quality of communication is "the extent to which communication among team members is clear, effective, complete, fluent, and on time" (González-Romá and Hernández 2014, p.13). Frequency of communication in teams refers to the number of times team members communicate via different media (Marks et al. 2000). According to Keyton (2010), in terms of content, communication in teams takes place at two levels: it can be task-oriented (i.e., geared towards task accomplishment) or relational (i.e., interpersonal). In such circumstances, the three different measures of communication mentioned above (Espevik et al. 2006; González-Romá and Hernández 2014; Keyton 2010) have a significant influence on relationship development processes. I discuss these concepts below.

3.3.3.3 Communication Frequency

One of the common ways of assessing virtual environments is to look at the communication volume or frequency. The communication frequency must be distinguished from other communication elements because earlier research has provided inconclusive evidence as to whether a relationship exists between frequency and team performance (Marlow et al. 2018). A higher level of frequency does not necessarily translate to better performance; many teams can perform well in a complex environment despite limited communication. The literature shows that teams perform better despite less frequency due to other factors such as team members' familiarity with one another (Marlow et al. 2017). As there are mixed findings on the influence of communication frequency and team outcomes, it can be argued that findings relating to frequency are not consistent because they are an outcome of individuals' abilities to interact with different team structures. These abilities are different for every individual, so it is impossible to establish unique results regarding the frequency at team performance directly; instead we must first understand relationship development and frequency before judging performance.

Multiple measures are used to understand communication frequency; specifically, in GVT literature, communication frequency is considered an outcome of communication ability and communication apprehension of the team's members (Charlier et al. 2016). Therefore, it is logical to understand both communication frequency constructs regarding their influence on relationship development processes. Communication apprehension is defined as a fear or anxiety related to real or anticipated communication with others (Craig Scott and Erik Timmerman 2005; McCroskey 1978). Individuals with high communication apprehension are usually reluctant to communicate, which can negatively influence their propensity to

engage in conversations with others and in turn negatively influence communication frequency.

Charlier et al. (2016) suggested that because 80 percent of communication among virtual team members occurs through asynchronous media such as email, team members' text-based communication ability is an appropriate measure of communication frequency. This approach provides a good basis for developing a quantitative measure for frequency. However, it risks ignoring communication through rich, synchronous media like video conferencing through Skype tools. This study argues that while looking at communication frequency, it is worth considering both types of media to understand communication frequency better; this would clarify the number of times a particular GVT member communicates and answer why this frequency is at the level where it is. For example, the ability to communicate may be low due to cultural and language apprehensions, technological know-how, or both. Knowing this would also contribute to formulating a better understanding of communication quality among team members. In the context of this study, a two-pronged approach has been used to measure communication frequency: calculating text-based communication frequency and looking into the communication content to establish why a particular communication volume are common among GVTs.

3.3.3.4 Communication Content

Communication in virtual teams usually takes two forms with regard to content. Task-oriented communication is focused on different stages of the task, such as task planning, work distribution, task completion, and task evaluation, whereas relational content is interpersonal rather than task-focused (Keyton and Beck 2009). While task content is necessary to achieve a project's results, relational content has been found to influence relationships by enhancing trust and cohesion among team members over the team's life through multiple projects (Burgoon and Hale 1984; Henttonen and Blomqvist 2005).

This content is produced during both synchronous and asynchronous use of different media. Based on the media richness theory, Daft and Lengel (1986) argued that media without cues capable of conveying information such as tone tends to obstruct relationship development. However, studies on GVTs have argued that it is possible to share relational information in virtual environments (Chidambaram and Bostrom 1997; Walther 1995; Wather and Burgoon 1992). Such relational information exchanges ultimately influence relationship development by influencing trust and team cohesion (Jarvenpaa and Leidner 1998). Marlow et al. (2017) argued that even though the evidence regarding the role of content on relationship development is sparse, extensive research on the role of communication content on team outcomes is nonetheless necessary.

Both types of content must be analyzed through the lens of relationship development. Different studies have discussed the relational aspect of communication. For example, Jarvenpaa and Leidner (1998) contended that communication's interpersonal nature is essential to develop trust in GVTs. Zimmermann (2011) focused on interpersonal affect in communication, which could lead to conflict diffusion. These studies on GVTs focused primarily on the behavioral outcome of relational communication, but how these different behavioral processes develop over time with regard to communication is less evident in GVT literature. Marlow et al. (2017) highlighted this issue and proposed a conceptual framework of the communication process in GVTs. While this study develops on their work, this process model focuses on relationship development rather than performance management. This study also extends Marlow et al.'s (2017) conceptual work into the empirical world.

In order to frame a focused viewpoint on communication content and relationship development, this study further explored the literature regarding relational communication in groups rather than only in the context of GVTs. Here relational communication does not mean that the focus is on relational content only, but also that it analyses task content through a relational communication lens. Relational communication theories differ from interpersonal theories because in the former, understanding of relations is formed through a relationship-centric approach, while in the latter an individual's behavior is the center of attention. The relationship-centric approach dictates that a relationship is a social unit of two or more individuals, so the relationship perspective combines a view of these individuals rather than the one-sided description (Rogers 2009).

3.3.3.5 Communication Quality

The concept of quality is very subjective, and so studies have provided a multitude of different definitions of the quality of communication. Chang, Hung, and Hsieh (2014) pointed out that communication quality corresponds to the content quality of the communication transferred among the virtual team. Desanctis and Monge (1999) used message understanding to describe the quality of communication among team members. Marlow et al. (2017) believed that the timeliness of communication and a closed-loop communication system represent communication quality. All these definitions of communication quality tend to deal with one or another aspect of it. To frame a holistic image of communication quality, this study follows González-Romá and Hernández (2014), who defined the quality of communication as "the extent to which communication among team members is clear, effective, complete, fluent, and on time" (p. 1046).

Based on the above definition, it can be argued that communication quality refers to the degree of accuracy and understanding of the message among GVT members and contributes to the development of shared understandings (Gibson and Manuel 2003). Such shared understandings can be an outcome of shared stories and help build team spirit and collaboration (Sivunen 2006). Along with the degree of accuracy, timeliness of communication also contributes to the quality of communication. As GVTs use both synchronous and asynchronous communication, communication delays can negatively influence task planning and processes (Kayworth and Leidner 2002), giving rise to time and workload management issues. Timeliness of communication and communication frequency are also interrelated because high-quality communication involves the timely transmission of useful, clear information directly relevant to the task, while providing unnecessary information risks overloading the listener with irrelevant information, thus reducing comprehension (Cruse 1986). However, it is also important to note that there are relational aspects involved even when communication is carefully focused on the task, so it is important to differentiate between constitutes information overload and what enhances team members' relationship. Therefore, to establish the quality of communication among team members, this study argues that developing an understanding and knowing the dynamics of communication frequency and content is of utmost importance.

Quality is also an outcome of content and frequency. Following the above definition, clarity of communication depends on the content of the communication, as well as the sender's ability to understand the situation and articulate the message accordingly. Similarly, the extent to which communication is effective, complete, and fluent depends on the language comprehension abilities of the group members. Figure 4 presents an interactive and summative form of communication frequency, content, and quality.

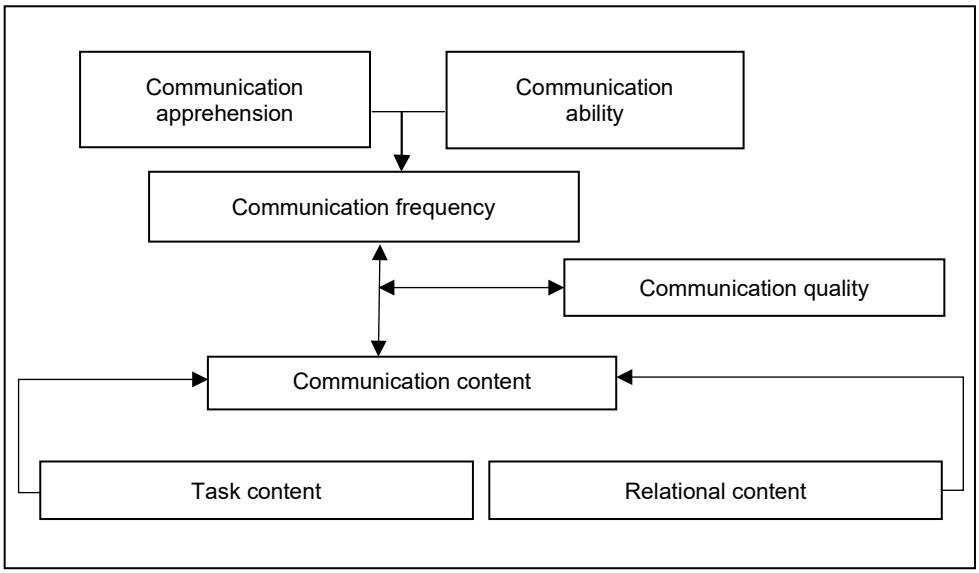

Figure 4. Interactive Aspects of Communication

When GVT members undertake project work, what ultimately happens is that they enter into repeated interactions to complete the task using the virtual means of communication. With these repeated interactions, members indulge into the process of "impression formation" (i.e. the process in which an individual develops a schema of some object, person, or group) (cf. Himmelfarb, 1972). Examples include the impressions of others such as genuinely professional, not motivated enough, only involved because they are required to be, etc. Once these impressions are created, future interactions with a particular individual are evaluated against their impression, which gives rise to the overall team climate. I argue that the communication and task performance are inseparable from the overall team climate while researching the relationship development processes. This concept and how it relates to relationship development processes is discussed in more detail below.

3.3.4 Team Climate and Relationship Development Processes

3.3.4.1 Multiple Social Climates

The use of employee perceptions to develop the concept of "social climates" (Lewin et al. 1939) has received considerable attention in organizational literature. It has been used to predict multiple organizational- and individual-level outcomes (James and Jones, 1974; Parker et al. 2003), and studies have reported links between

employee perceptions and job satisfaction, burnout, and job performance at an individual level (Berberoglu 2018; Inegbedion et al. 2020; Kim et al. 2017). Aggregating individual employee perceptions has enabled researchers to study group-level phenomena such as customer satisfaction, relationship development, and learning (James et al. 2008).

However, the conceptual uncertainty regarding climate perceptions has been perpetuated by researchers' use of various terms such as psychological climate, collective climate, organizational climate, and organizational culture when referring to individuals' perceptions of their work environment. Collective climate, organizational climate, and organizational culture refer to variables analyzed at the individual level (Ostroff et al. 2012), although these terms can be reserved for research where the theoretical analysis level is the workgroup and organization. In contrast, the psychological climate uses individual perceptions to understand individuals' interactions and understanding of their work environment. Collective climate, organizational climate, and organizational culture are thus all group-level constructs that can be measured by aggregating psychological climate perceptions (Parker et al. 2003).

Collective and organizational climate are two terms used to define climate at a higher level than the individual (i.e., the group and organizational levels). Payne, Pheysey, and Pugh (1971) defined organizational climate as how employees perceive their organization and its purposes. Griffin and Moorhead (2014) explained organizational climate as individual perceptions, recurring patterns of behavior, attitudes, and employees' feelings. Many psychology researchers believe that organizational climate is the aggregate of psychological climates, which are individuals' perceptions about their work environments. No matter how the concept of organizational climate is defined, it is clear from the literature that individuals' perceptions of their work environment are at its core. How a single individual perceives his or her work environment is referred to as a psychological climate, whereas the shared perception among organization members of their work environment is described as a collective or organizational climate. The psychological climate has been defined as "a set of perceptions that reflect how work environments, including organizational attributes, are cognitively appraised and represented in terms of their meaning to and significance for individuals" (James, Joyce, and Slocum 1988, p. 129). Parker et al. adapted this definition and conceptualized a psychological climate "as a molar construct comprising an individual's psychologically meaningful representations of proximal organizational structures, processes, and events" (2003, p. 24). Both of these definitions consider individual interpretations according to their perceptions relating to the processes, structures, and different events, thus constituting the psychological climate.

The multiple definitions of climate led to different antecedents and outcomes. In the meta-analysis they conducted to address this issue, Parker et al. (2003) categorized the antecedents and outcomes, arguing that perceptions of job, role, leader, workgroup, and the organization act as the antecedents of climate. These antecedents influence motivation and work attitudes such as job involvement, job satisfaction, and commitment. They also argued that these attitudes and motivation contribute to performance, but performance is not the only outcome. Climate certainly has a strong influence individuals' attitudes at multiple levels; it influences employees' sense of belongingness, interpersonal relationships, and job performance (Griffin and Moorhead 2014). Studies have also found that the perceived climate influences factors such as job satisfaction, sense of achievement, affiliation and power, overall organizational effectiveness and performance, and organizational commitment (Barth 2005; Berberoglu 2018).

The idea of organizational climate is vague and the literature relating to it is sparse. Two schools of thought emerging from the fields of psychology and organizational sciences view organizational climate as either an outcome of individual perceptions (Griffin and Moorhead 2014; James and Jones 1974) or an organizational attribute (Glick 1985, 1988), respectively. The sensemaking perspective application provides a middle ground by focusing on the social, active, and practical sides of climate. It is thus possible to apply the concept of climate at multiple levels, including organization, subgroup, and even individual processes. This perspective indicates that to make sense of organizational events, employees share their perceptions, interpretations, and opinions about these events with one another, thus serving as a source of social influence for those with whom they interact. Through this social interaction organizational events acquire socially shared meaning; sensemaking is thus a social construction process in which individuals interpret and explain their experiences, which become rationalized and objectified, thereby influencing individuals' view of reality (Hardin and Higgins 1996; Higgins 1992). During these interactions and social constructions, members of the organization exchange the stories and descriptions about different aspects of an organization and simultaneously become source of social influence for one another, as a result, climate emerges as structure and reality.

Due to these interaction and social constructions, the concept of climate becomes intersubjective rather than a mere aggregation of individual perceptions or an organizational property. Therefore, the climate is essentially the perceptions shared among organization members and their interpretations of those shared perceptions, meaning that individual employees might consider open communication within their organizational climate without knowing what their co-workers think and whether they interpret the information in the same way. As each individual's interpretation of what constitutes open communication differs, only the aggregation of perceptions

can reveal whether there is agreement on this matter. According to the sensemaking perspective, however, to understand climate one must focus not on aggregation but on these individual differences, which are crucial to climate because they extend the climate discussion beyond aggregation or organizational attributes. These differences highlight the role of individuals' awareness of the existing climate and help create co-orientational accuracy among individuals regarding the reproduction of this climate. Therefore, the climate, as perceived by the individuals, acts as a social structure against which they evaluate their perceptions.

3.3.4.2 Team Climate

Team climate reflects the affective reactions of members towards one another (James et al. 2008). Anderson and West (1998) asserted that team climate is employees' shared perception of organizational events, practices, and procedures. They also described teams as proximal workgroups, which they defined as "either the permanent or semi-permanent team to which individuals are assigned, whom they identify with, and whom they interact with regularly in order to perform work-related tasks" (p. 236). Janis, (1989) argued that a group's climate influences its decision-making. Groups must often take many decisions simultaneously, thereby influencing multiple outcomes. When groups foster a competitive climate where the individuals' persistence dominates them in pursuing their individual goals, the team climate negatively influences relationship development processes. When group members are keen to maintain positive feelings, the team climate could negatively influence relationship development because of biased decision-making, resulting in poor performance (Agreli et al. 2017; González-Romá and Hernández 2014).

Barge (1996) was of the view that the task of members of a group, especially those in a dominant position, is to create a climate in which individuals have a positive effect on one another but are not willing to maintain such an effect at the expense of rigorously debating and challenging ideas. This requires members to be skilled at eliciting the various group members' perceptions and feelings regarding the situation to mesh the competing views. While Barge (1996) focused on leadership's role in creating and maintaining a positive team climate, the above argument also highlights the role of communication in negotiating difficult issues while still maintaining a positive climate. Climate is processual and emerges only as a result of the continuous interaction of members, so communication is essential (Glikson and Erez 2020). Jehn, Rispens, and Thatcher (2010) referred to team climate as a group atmosphere and argued that it is constituted of positive attitudes and conditions among a group's members, as well as the level of trust, respect, and commitment in the group.

Barge (1996) asserted that the purpose of leadership and communication is to understand individuals' perceptions. Perceptions, as an individual attribute, form the basis of the climate in groups and lead to attitudes that act as triggers for the outcomes of trust, cohesion, and commitment, thus contributing to the team climate. Zimmerman (2011) considered trust as an aspect of relationship development. In this sense, these two studies provide a converging synthesis that relationship development and team climate are interdependent. Individual team members' perceptions regarding different kinds of interactions in GVTs provide the basis for relationship development. Individuals are more committed to their tasks and teams when they feel included while interacting with others.

Similarly, trust is interpersonal and occurs when one team member is willing to act based on others' actions in the team. Conflicts in teams are resolved when each member is open in terms of his or her communications. All these aspects of relationship development are outcomes of individual actions based on that individual's perceptions of others and of different conditions.

It is essential to understand that different studies have highlighted different outcomes of perceptions and resultant attitudes. Commitment, respect, cohesion, and trust are simultaneously antecedents to and outcomes of these perceptions and resultant attitudes. As trust contributes to both relationships and team climate, it is vital to differentiate between trust as an outcome of individual perceptions and trust as an aspect of relationship development. From a relationship development perspective, trust is a combination of cognition-based trust (CBT) and affect-based trust. In terms of team climate, trust refers to different levels of it members have in one another. Therefore, trust from a relationship development perspective and trust in the sense of team climate is complementary but not the same. The changes in trust level from the individual member's perspective influence CBT and affect-based trust (ABT) at the team level. Next I will discuss the recursive nature of perception regarding expectations, commitment, attitudes, and trust, culminating with an analysis of team climate and how it influences relationship development processes.

3.3.4.3 The Expectations of Team Members

Much of this literature review focuses on perceptions through the lens of expectations (de Lange et al. 2018; Mayo 1947, 2004; Rosenthal and Fode 2007; Summerfield and Koechlin 2008), and yet it is impossible to study team climate based solely on individuals' perceptions. However, the role of expectations must be understood to study perceptions. Expectations are a phenomenon in which perception and behavior changes due to personal expectations or the expectations of others (Lidwell et al. 2010). In GVTs, initial expectations can be formed before members are familiar with one another because such teams require immediate action

and there may simply not be enough time for team members to get to know one another (Sleesman et al. 2018). In the case of GVTs working together for the first time, the initial expectations are not grounded in the knowledge of past team performance but are likely shaped by preexisting perceptions team members have about groups or group work in general (Karau and Elsaid 2009).

As soon as teams are formed, the members try to infer their colleagues' competencies, which helps them establish the initial expectations. These initial expectations are pre-learned in broader societal culture and originate from perceptions of demographics (age, gender, race), personality traits, or individual activity level in early interactions (Bendersky and Shah 2013; Bunderson 2003). In the early interactions, assess one another's task expertise by sharing their knowledge on a particular task or similar tasks performed in the past (S. E. Bonner et al. 2000).

In addition to the task, the interactions as a communication means may also influence the GVT members' expectations. Fragale (2006)believes that using verbal and nonverbal cues such as gestures, smiling, and speaking and displaying emotions are different types of cues that lay the foundation for one another's expectations. Through these displays, the members signal their different capabilities and resources in leadership qualities, task expertise, and level of willingness to work together (Bonner and Bolinger 2013; Curhan and Pentland 2007).

At this point, the proposition is that team members formulate general perceptions about other individuals in the team and how they might help achieve the end goal due to initial expectations of task accomplishment. These perceptions tend to change in later stages based on individual-specific experiences within GVTs, while adjusted expectations feed into the perceptions of the team climate. The expectation effect refers to the ways in which expectations affect perception and behavior. Generally, when people are aware of a probable or desired outcome, this affects their perceptions and behavior. The three expectation effects relevant to the context of this study are as follows: the halo effect (Elfenbein et al. 2007), where team members rate some members better than others based on their overall positive impression; the Hawthorne effect (Lidwell et al. 2010), where team members are more productive when they perceive that changes made to their environment are productive and positive; and the Pygmalion effect (Lidwell et al. 2010), where several team members' expectations of a particular person affect that person's performance. This study implies that members' expectations of one another play a substantial role in developing their team climate. The (non-) fulfillment of these expectations creates a positive or negative perception of individuals among these team members. These perceptions are temporary, as they are related to specific actions. However, the ongoing cycle of expectations forming perceptions leading to expectation adjustment leads to a permanent state that is evident in the team members' overall attitude. These

attitudes substantially influence the team climate and, as a consequence, relationships among team members.

3.3.4.4 Level of Commitment

The interplay and iterative development of expectations and perceptions influence the other attributes such as commitment and trust level, which are crucial to team climate (Brahm and Kunze 2012; Buvik and Tvedt 2017; Jiang and Probst 2015; Mahembe and Engelbrecht 2013). Perception is such a fundamental element that it influences the overall team climate and has been found to influence individual members' commitment and work attitude (Parker et al. 2003; Paul and Dennis 2018).

"Commitment refers to a sense of duty that the team feels to achieve the project's goals and to the willingness to do what is needed to make the project successful" (McDonough 2000, p. 246). Multiple reasons have been cited for the emergence of such willingness among team members; for instance, they may feel more committed to a task that is new and innovative (Hoegl and Weinkauf 2004). Commitment among team members is also enhanced when there are strong interdependencies (Ashforth et al. 2014). Previous research shows that commitment exists both at a project level and interpersonal level (Fung 2014). Fung (2014) further argued that affective commitment, technological support, and organizational support are important factors that influence project performance among virtual teams; it could also be argued that commitment to the task influences the team climate.

Based on the above argument, it is plausible to say that commitment to project work is a result of interactions geared towards the outcome, and commitment to one's team itself is mostly an outcome of the social need to connect (relationship development). The strength of team members' commitment to a task depends more on the structure of the task, responsibility within the group, and the effectiveness of communication structures; it has been argued that commitment is also influenced by organizational and technological support (Fung 2014), which, in the case of this study, translates to the perceptions and interactions of individuals within group structures and technological structures, respectively.

Commitment to team and team members is an outcome of the perception of belongingness and team identity, as influenced by an individual's perception of and contribution to the team. Commitment in teams is dynamic and can be maintained and enhanced by team managers by explaining different stages of the group's mission and the objectives of those stages while working on a particular task. Understanding a task structure and its stages thus plays a crucial role in maintaining a friendly team climate from a commitment perspective (Hoegl and Weinkauf 2004). The concept of commitment is also strongly intertwined with trust. Morgan and Hunt (1994) argued that work relationships characterized by trust help increase team

commitment. Powell et al. (2006) suggested that a positive relationship exists between trust and commitment, arguing that high trust with team members increases commitment to a relationship, whereas low trust decreases it. When individuals trust their colleagues within a team, they would be more comfortable due to the reciprocal psychological comfort, thereby willing to commit to the team and task. On the other hand, perception of low commitment from team members decreases trust, and perception of high commitment increases it. When individuals perceive that their efforts are valued and their commitment is acknowledged, it results in a higher level of trust, and vice versa (Sheng et al. 2010).

3.3.4.5 Level of Trust

The last factor influencing the team climate is the level of trust. The literature on trust is more focused on its influences than on its outcomes, and has tended to favor affect-based and cognition-based trust. It has been argued that teams start from CBT and, over time, establish affect-based trust. Most such GVT studies acknowledge that trust is a multidimensional factor and is dynamic. However, there is no distinction in terms of the role of human agency in the level of trust leading to a typology of trust; rather, the discussion is more focused on the cognitive, affective, and behavioral factors leading to the development of trust.

Previous research has studied intergroup cooperation and relationships through constructs such as trust, arguing that trust significantly influences team members (Ferrin et al. 2007). Cooperation among group members is crucial for the survival of organizations and goal attainment, and trust, along with monitoring mechanisms, is frequently recognized as an essential antecedent of cooperation. Kline (1977) saw trust as one of the most influential factors influencing team members' relationships.

Trust can be defined in multiple ways depending on the nature of relationships, including individual or organizational context. On a broader scale, "trust is a psychological state that provides a representation of how individuals understand their relationship with another party in situations that involve risk or vulnerability" (Dirks and Ferrin 2001, p.456). Ferrin, Bligh, and Kohles (2007) argued that members often have motives for cooperating and competing with one another to maximize the collective interest and their self-interest, at the expense of the collective interest. Trust, therefore, presents team members with both benefits and risks.

Most research on trust appears to position trust as a variable that directly affects the workgroup process (Dirks 2000). When trust is increased, a group is expected to experience a higher level of cooperation; when trust is decreased, a group is expected to experience a lower level of cooperation and sometimes competition instead of cooperation (Mayer et al. 1995). However, it has also been argued that groups with

higher levels of trust do not necessarily have better processes and better performance than groups with low levels of trust. Instead, trust has a moderating influence on relationships and other behavioral factors, which are translated into group process and performance. Dirks (2000) argued that, in high-trust groups, it is the motivation that transforms joint efforts and thus leads to better performance, rather than motivation being transformed into individual efforts, as happens in low-performing groups. Thus, trust impacts relationships by stimulating either cooperation or competition among team members, which impacts teams' performance.

Different studies focus on different aspects of trust, such as close relationships based on faith. Trust is also known to have a moderating effect in an organizational context through communication quality, organizational performance, or organizational citizenship (Abdul Hamid 2008). Therefore, it is essential to focus on the context in which trust plays a moderating role.

McKnight, Cummings, and Chervany (1998) researched the team members' initial level of trust. They found that it is often strong from the very beginning of a team's work, even when there has not been any prior contact among the members, because this trust is a function of individuals' general disposition to trust and other shared organizational factors. However, initial trust is assumption-based and only occurs in the absence of contradicting evidence (Axtell et al. 2004), so it is likely to decrease as unexpected and negative information about the parties becomes evident. Crisp and Jarvenpaa (2013) therefore hypothesized that trust would decrease over time in virtual teams. Jarvenpaa and Leidner (1998) also found that the level of social information shared among the members of GVTs is also detrimental to the level of initial trust members will build. However, they also observed that this high level of trust is only sustainable if further task-based communication also takes place.

Virtuality of teams affects different components of trust at different levels. Evidence suggests that CBT (including competence, reliability, professionalism, and integrity) is crucial in initial phases to develop cohesiveness in these teams and to develop similar co-located and virtual teams (Axtell et al. 2004). On the other hand, in GVTs, affective trust (refers to emotional connections and welfare of partners) may be lower initially, making it harder to develop over time (Hofer et al. 2000).

Based on previous research on the components of trust and virtual teams, Beach et al. (2013) presented their five-stage model, observing that members of GVTs "Engage," "Learn," "Perform," "Reflect/Re-engage," and "Evaluate" one another's behavior and develop trust over time. The authors explained that the first four stages develop over time, starting with CBT and merging it with ABT, which gradually becomes dominant. This last stage continuously and iteratively reinforces and helps to sustain the trust being developed. Trust is likely to differ depending on the development stage of the team. Jarvenpaa, Knoll, and Leidner (1998) studied globally dispersed teams and found that in the initial stages of projects, members

have CBT, whereas over time, towards the end of a project factors related to ABT became more important. To a limited extent, previous research also focuses on predictors of trust. As mentioned above, the level of communication (especially informal and non-task related communication) and time-related factors play a significant role in order to develop trust among GVT members (Jarvenpaa and Leidner 1998). Apart from a continuous and high level of communication, key factors that can influence the extent to which team members trust one another include the familiarity of members with local customs and cultures and a sense of shared identity with other GVT coworkers (Hofer et al. 2000).

The above discussion shows that trust plays a significant role in relationship development, which also affects the teams' performance. All in all, trust plays a mediating role in performance through relationships among team members. Trust depends on the level of communication, familiarity, cultural factors, and shared values among the members of GVT. Although there is no conclusive evidence, however, some studies have suggested that trust does not need physical presence to develop. It may occur immediately in virtual settings, but it would be fragile in the face of contradicting evidence. Social information exchanges at initial levels of team formation and task-related information sharing at later stages may help to develop and maintain trust among members of GVTs.

In this study, trust is viewed from two different aspects. In one case, the focus is on relationship development and follows the traditional approach of cognition- and affect-based trust. However, in the other case, trust is achieved through the team climate and is a highly dynamic process based on individual interactions among team members. This study argues that the road to establishing any kind of trust is through team members' first interactions with one another; they do not immediately establish relationship-based trust. However, the process of establishing trust goes through multiple stages. Initially, the structures around the team provide the members with psychological safety to work together. The next step involves the team members' trustworthiness, where members take one another's claims about individual skills and capabilities at face value. The further interactions related to tasks, communication, and group dynamics that confirm such claims' correctness lead to a positive work environment and establish CBT among team members. If such assertions cannot be established as expected, the perceptions of members change, and thereby diminish the level of trust among them.

3.4 Research Framework

Section 3.3. provides a literature overview of different aspects of the task, communication, and team climate. By reviewing this literature, a few conclusions can be reached. The attributes of task and communication constitute operational and

human elements that influence relationship development processes. In the case of tasks, the operational elements constitute project management stages such as task understanding, planning, conducting work, and reviewing of the results. These elements are partly an outcome of the teams' nature, the task's nature, and the teamwork duration. The human elements related to the task include time and workload management (see section 3.3.2 its sub-sections). These elements reflect individuals' capabilities while working on different tasks. While working on tasks, the GVT members interacted to reach a shared understanding of these elements. The combination of the operational and human elements of the task influenced relationship development processes in GVTs.

The operational elements of communication include the decisions related to using different communication media and productivity tools. The human elements, in this case, include communication quality, frequency, and content. While the operational elements of communication are established during the early stages of team formation, human elements are embedded in team members' interactions. Team members come to a shared understanding of one another's needs regarding information overload and the clarity of their message.

During the life of the team, members interact countless times, creating a team climate that can be positive or negative, based on the members' perceptions and expectations regarding their task and communication. A favorable climate would result in a higher level of shared understanding, while an adverse climate would result in a lower level of shared understanding. Altogether, the shared understandings achieved from different aspects of the task, communication, and team climate drive relationship development processes.

Due to the multiple and diverse dimensions of the task, communication, and team climate at the individual and group levels, relationship development in GVTs is similarly complex and requires an understanding of these dimensions' manifold contributors. The sensemaking perspective framework implies that analyzing interactions and social structures that operate both at the team and individual levels in the above-mentioned three areas is a prerequisite for explaining relationship development processes.

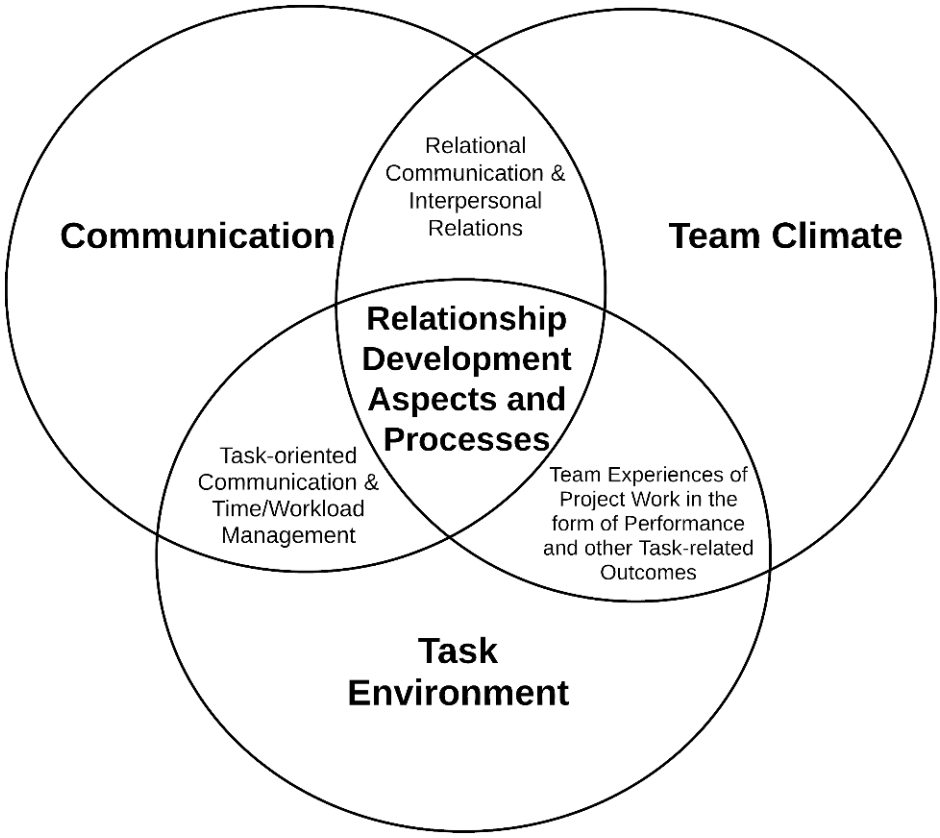

Figure 5. Research Framework

Figure 5 shows the interactive research framework of a task, communication, and team climate, all of which influence one another as well as relationship development processes. Although I will explain these different dimensions step by step, it is crucial to understand that they work together simultaneously while GVT members work on their tasks. In other words, the members' dyadic interactions, the multiple operational and human elements that provide GVT members boundaries to interact within, and the intersubjectivity within the shared understandings all function at the same time, and they all influence one another as well. For example, the level of commitment (a trait of team climate) of a particular GVT member may be influenced by their understanding of a task (or a component of a task) depending on the frequency and clarity of communication (traits of communication), which in turn could be an outcome of the communication media used. These levels are represented in Figure 6.

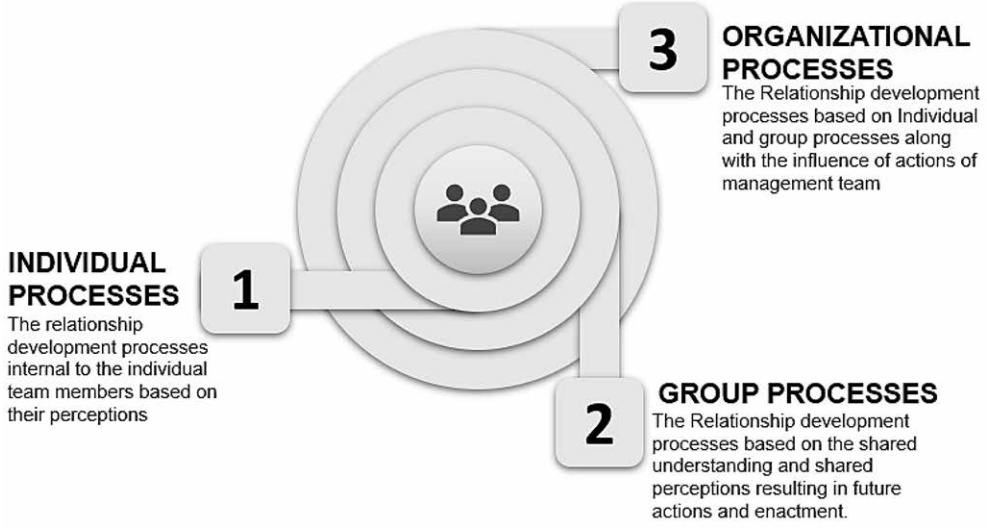

Figure 6. Levels of Relationship Development Processes

Relationship development can be considered an outcome of interactions relating to a task, communication, and team climate. To date the extant literature has focused on the performance, behavior, and attitude outcomes both at individual and team levels; however, to understand relationship development, it is vital to acknowledge that interactions happen at multiple levels. Figure 6 depicts the different levels of relationship development processes in GVTs. At an individual level, these interactions take place between individuals, while at a team level they occur both with multiple members and the operational and human elements that hold the team together. At the organizational level, relationship development processes encompass individual perceptions, group-level interactions, and externalities in the form of management team interventions.

4 Methods of Research

In this chapter, I introduce the research setting for this study. I also review the methodological underpinnings of the study, the data collection and analysis, and the trustworthiness of this research. The discussion on data collection highlights the need and different types of data collected. In the data analysis, I highlight the multiplicity of methods used for this purpose. The trustworthiness section is focused on assessing qualitative studies, particularly the measures taken to enhance the trustworthiness of this research.

4.1 Research Setting

This study focuses on relationship development processes in GVTs. My observation of these processes starts from the initial creation of these teams; this was necessary to avoid the effect of previous joint work experience, which could have skewed the findings. It was also crucial that the team members not know one another personally prior to the formation of the GVTs. This approach allowed me to start with "a clean slate," i.e., to observe how the teams come to be and how they go through transition while working together. While it is challenging to capture and observe a full process of becoming a team, working on different projects, and then dismantling after the completion of specific tasks, at the same time, I consider it elementary in order to answer the problem under investigation.

In order to conduct a longitudinal study among GVTs in which the team members did not know one another beforehand, I joined a research group to set up a "social lab" for the study. At first, our research group negotiated with firms regarding a study on GVTs in similar settings (i.e., working on consulting projects). However, this plan failed for several reasons, including: (1) the intensity of observation needed to follow their interactions, the individuals and their sensemaking processes; (2) the longitudinal aspect required to observe teams over the more extended period within multiple projects; (3) the sensitivity of company data; and (4) extra workload implied for participants to document their actions, interactions, feelings, the processes they observe, their perceptions on roles, rules, routines, and conflicts. Therefore, to overcome these challenges and maintain the focus on relationship development

processes, the research was conducted among GVTs composed of students who were participating in an IB strategy. Figure 7 illustrates our social lab platform.

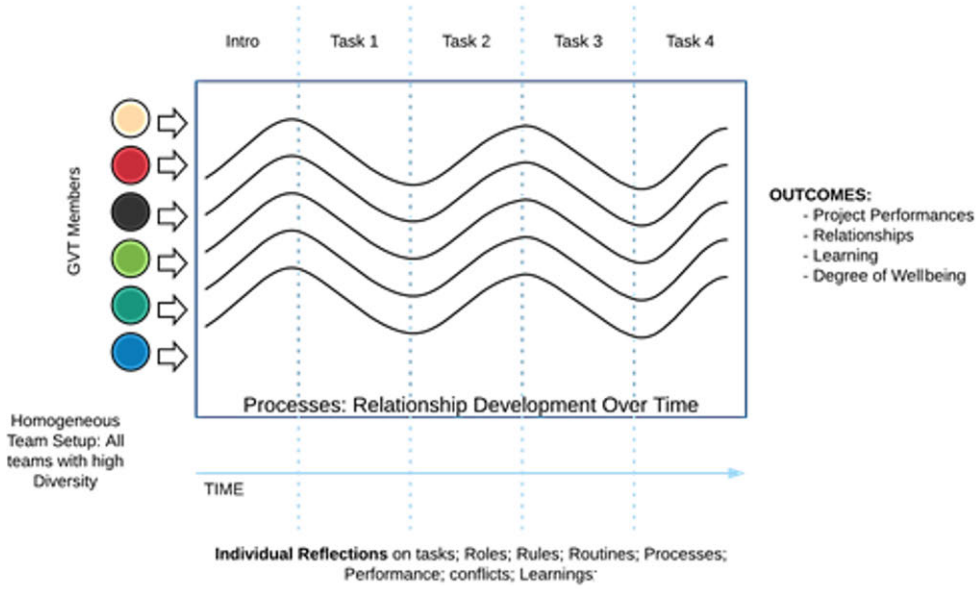

Figure 7. The GVT Social Lab Platform

The students taking the course were enrolled in Master's degree programs and executive business education groups in different universities. They came from four different countries in Europe and represented more than 20 nationalities. This setup was established in 2014; as of autumn 2020, it is still in place, and data is collected every year. I joined the research team in 2016 following the departure of another research group members. This empirical setting allowed me to design and conduct investigations to understand the different relationship development processes thoroughly, right from the start when the GVTs are formulated to the conclusion, once the GVTs have achieved their end goals multiple times. The research setting consists of four components: team composition, tasks, processes, and formative feedback.

4.1.1 Team Composition

The students were divided into teams of five or six individuals in an attempt to make the GVTs as diverse as possible in terms of age, cultural background, geographical location, and work experience while at the same time ensuring a relatively similar composition for all the teams. There were changes in some cases: Some team

members withdrew from the course, while others were moved to other teams, although such cases were rare.

The focus this study is relationship development processes, and so it was essential that the teams evolve on their own with little external interference. The teams had total freedom in designing the team's structural elements, such as communication systems or project management. Similarly, it was up to the teams to allocate responsibilities such as individual members' roles, organization of work, and task division. The only external intervention came from the team instructors, who asked the students to meet the deadlines to submit their consultancy work solutions.

In the literature it has sometimes been argued that student teams are different from teams operating in organizations (Gilson et al. 2015). This is true in case of pre-established working norms and tools; organizations use such temporary project-based GVTs where employees are required to be innovative and adapt to the changing requirements of the work. In our setup, we mimicked those requirements for these university GVTs. The student teams were sometimes criticized because the stakes are low for them, but Gibbs, Sivunen, and Boyraz (2017) highlighted that for student teams collaborating with industry project the stakes are as high as those for businesses, because they are rewarded with both a grade and industry experience, thus greatly reducing the difference between such students and professional teams (Gibbs, Sivunen, and Boyraz 2017). The lively ongoing debate over the use of student GVTs rather than professional teams has highlighted multiple differences in leadership, culture, and technology use (c.f. Gibbs, Sivunen, and Boyraz 2017). Such criticism is valid for newly inducted students at an undergraduate level; however, students pursuing Master's degrees and executive education have practical work experience, and thus they tend to take such tasks seriously (Bello et al. 2009). In essence, in my research I am dealing with social aspects of individuals forming their relationships in a work context, so the social dynamics might be slightly different than those found in an organizational setting. However, by controlling the composition of teams in terms of different levels of education, work experiences, and age groups, this research setting covers most of the bases of an organizational setup. Table 6 outlines the main traits of the GVTs used for analysis in this thesis.

Table 6. Composition of the GVTs

Team	Gender		Nationality	Locations	Work Experience (no. of years)	Education	
	Women	Men				E-MBA	MSC
1	4	2	3 Russians, 1 Estonian, 1 Finn, 1 Vietnamese	Finland, Russia, Estonia	≤ 15	1	5
2	3	2	2 Finns, 1 Vietnamese, 1 Estonian, 1 Latvian	Finland, Latvia, Estonia	≤ 6	1	4
3	2	3	1 Estonian, 1 Russian, 1 German, 1 Vietnamese, 1 Belarussian	Finland, Estonia, Latvia, Russia	≤ 15	1	4
4	4	2	2 Latvians, 1 Finn, 1 Italian, 1 Indonesian, 1 Estonian	Finland, Estonia, Latvia	≤ 5	1	5
5	2	4	1 U.A.E. citizen, 1 Finn, 1 Latvian, 1 Estonian, 1 Chinese, 1 French	Finland, Latvia, Estonia	≤ 10	2	4
6	3	2	1 Finn, 1 Russian, 1 Estonian, 1 Italian, 1 Vietnamese	Finland, Russia, Estonia, Latvia	≤ 6	1	4
7	4	1	1 Estonian, 1 Finn, 1 Russian, 1 Italian, 1 Vietnamese	Finland, Russia, Latvia	≤7	1	4
8	2	4	2 Finns, 1 Latvian, 1 Russian, 1 Estonian, 1 Pakistani	Finland, Estonia, Latvia	≤ 10	1	5
9	3	3	2 Finns, 2 Latvians, 1 Estonian, 1 German	Finland, Latvia, Estonia	≤ 10	2	4

4.1.2 The Nature of Tasks

In our social lab, the GVTs conducted five collaborative tasks iteratively. For teams to develop a vision of the GVT they want to form, the first task was a team organizing exercise. GVTs members were asked to introduce themselves with regard to their identity, preferences, background, and future aspirations. They were also asked to explain the resources they brought to their teams in the form of their different competencies and skills. At the initial stage, these GVTs were asked to define what they envisioned their teams should become in the process of working on consulting assignments. We encouraged them to formulate common goals, what the team should ideally want to accomplish in their collective efforts, and what level of aspirations they wanted to attain. We asked them to establish coordination, design their technological systems for information gathering and sharing, integrate various means of communication (synchronous and asynchronous), and form effective means of decision-making. The purpose of this task for GVTs was to define their roles, rules, and routines. The students were later asked to reflect on these intentions and consider how their organizational practices altered over successive projects.

The rest of the four tasks were consultancy assignments. Each task was the same for every team and was communicated to the teams three weeks before the deadline (see Appendix 1). The nature of the tasks changed with each assignment. We started with standard case studies used in academic and business schools in all the data collection rounds over the years. These first cases were well-structured and were designed to gauge the students' analytical and problem-solving skills. As the course progressed, the cases became more open-ended and less structured, requiring participants to be more creative with the increased workload. The teams were given two weeks to solve each task and submit their teamwork. The course's focus was on problem-solving in international settings; therefore, apart from the first academic case, the teams worked on real industry problems in collaboration with different industries. Considering that these cases required the teams to invest a substantial amount of time in developing solutions, formal teaching and lecturing were kept to a minimum. The lectures were intended to outline the cases in order to pass on the critical IB strategy theories the students needed to solve the cases. Figure 8 presents the different tasks and associated timelines.

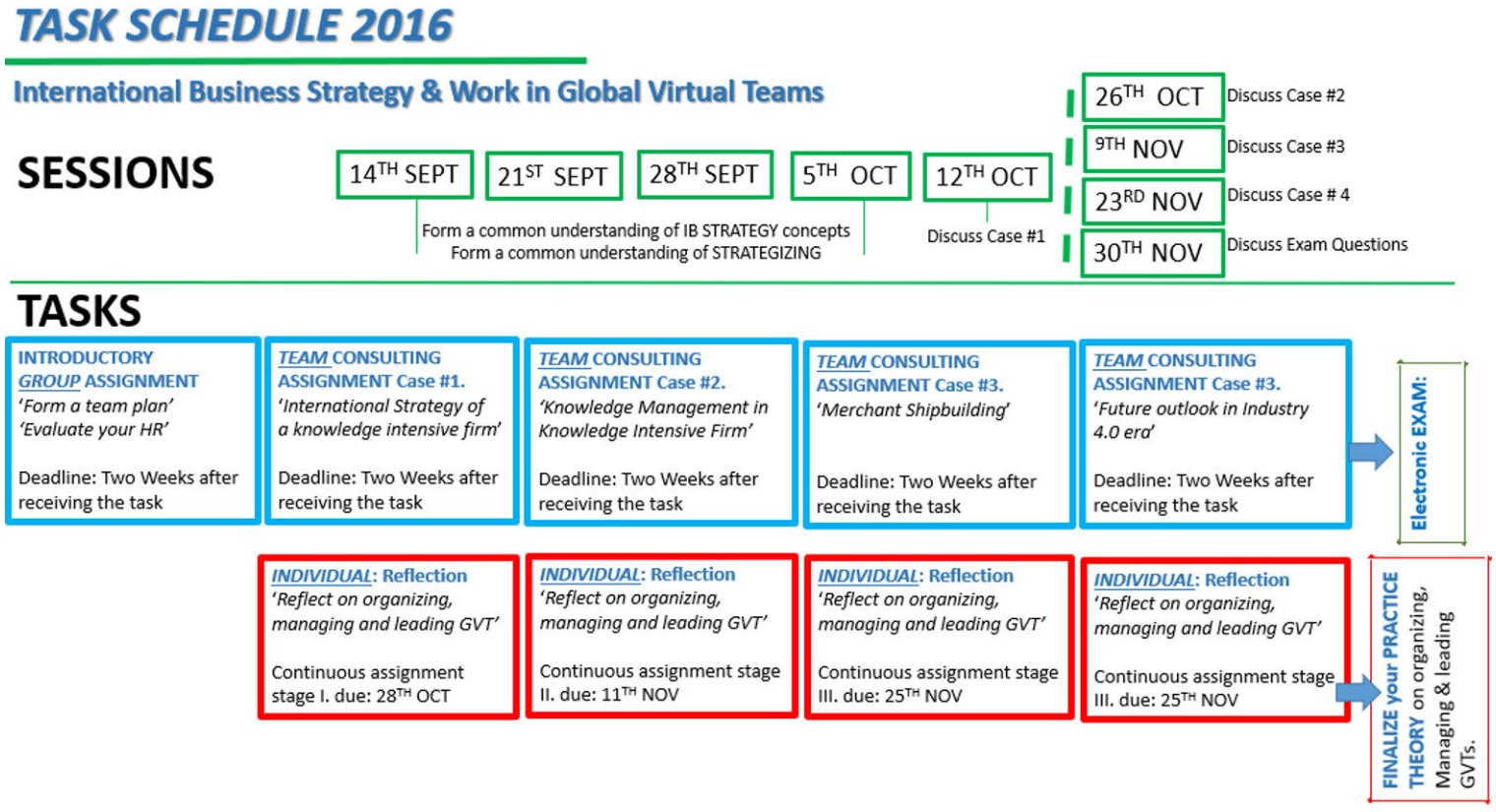

Figure 8. Task Schedule

4.1.3 GVT Work Processes and Outputs

The introductory assignment was intended to start the team formation process. The majority of the participants did not know one another before we placed them into teams. After dividing them into teams, we shared the email addresses of members within each team. The members' responsibility was to get in touch and get to know one another via the introductory assignment.

Textbook cases were intended for the teams to design their structures and processes and implement them relatively easily. These first tasks were useful for establishing roles, rules, and fast organizational routines that quickly generated efficiency for most teams. With the subsequent tasks, the GVTs were challenged on their intended work designs and routines and had to adapt and reestablish their structures and processes. These added pressures were introduced to mimic an organizational setting where every new project is different from the previous one. Nature and difficulty levels were also different. Changing routines thus led to the various complications that can occur over time in GVTs, such as adjusting task plans, readjusting team mechanisms, conflicts, role changes, changes in communication patterns and tools, etc.

The teams reacted to these challenges in a variety of ways. At the extreme points on the continuum, teams progressed on severely negative or entirely positive trajectories as work organizations and social entities. These disruptions were intentionally introduced to keep relationship development processes dynamic, based on the consulting cases and their teams' organization.

Outcomes materialized in the form of two final individual assignments. The first assignment was related to the course content of IB strategy, where participants were to "create a consulting framework for multinational enterprises." This assignment was designed to gauge theoretical learning concerning IB and its implementation in real life. This assignment was not considered part of this research.

In the second assignment, participants were asked to write a "personal handbook for project work in Global Virtual Teams." In their handbook, participants took stock of their experiences of working in GVTs. It required them to revisit their individual reflections retrospectively to make sense of their experiences and feedback. Through this assignment, participants reflected on their learning from multiple perspectives. They discussed their perceptions regarding establishing the structures and processes needed for the functioning of such teams. Most of them highlighted the importance of the "early organization" of resources and establishing effective communication systems. They also elaborated on what they had learned from one another. One of the aspects of sharing their experiences was related to relationship development among GVT members while focusing on task and communication in long-distance cross-cultural settings. In sum, this assignment reflected on the organizational,

managerial, social, and interpersonal aspects of working in project-based virtual teams. This outcome was analyzed as part of the data for this research.

4.1.4 Feedback to the GVTs

I provided formative feedback to the GVTs on two levels. This feedback also was my first step towards data analysis. I formally assessed the teams' outputs, including the video presentations they produced to solve different tasks. This feedback followed a structured approach (see Appendix 3): I pointed out the merits and flaws in their work, and suggested further methods of improving the quality of their teamwork. Secondly, I provided feedback on individuals' reflections, which each participant in the laboratory submitted after each consulting project was completed. Participants based their reflections on semi-structured questionnaires in which they documented how task-related, organizational, relational, and socio-cultural processes were unfolding (see Appendix 2).

As part of the teachers' team, I wrote detailed comments on these reflections and offered guidance for diverse individual problems. I also openly shared my perceptions with these GVTs regarding their development as a team. By reading and commenting on the individual reflections, I was able to create an overall picture of the different team situations, which enabled me to understand different team dynamics. I shared these understandings with the teams, highlighting their team-level strengths and weaknesses. I encouraged the GVTs to use these comments to overcome their team problems. The participants' interactions over an extended period and the formative feedback helped me formulate explanations for different relationship development processes.

4.2 Data Collection

Over the years, our research group at Turku School of Economics has observed 57 teams, consisting of 309 individuals. Of these teams, nine teams consisting of 50 individuals were selected as the data collection source in 2016. The data from 2016 was chosen because I followed the teams in this year more closely than in any other year. Diversity was another factor in the choice of the nine teams, which included members of all age groups and represented the maximum possible heterogeneity from the nationality and cultural perspectives. The studied team members included students with no work experience, some participants with few years of work experience, and some with substantial work experience in executive positions. The participants represented 11 nationalities and were physically located in Finland, Russia, Latvia, and Estonia (see Table 6).

This mix of GVTs was also selected based on their task performance. These teams included high-, average-, and low-performing teams. Finally, the teams were selected by keeping in mind the General Data Protection Regulation guidelines for academics. At the start of the project, the social lab participants were informed that the data gathered during this course could be used for research purposes. They were asked to inform the research team in writing (via emails) if they preferred that their output not be used for such purposes. None of the members of the nine GVTs objected to the use of their data for research purposes.

This study's empirical data consisted of 198 individual reflections and 36 videos, each of which was 7 minutes long. The data also included the 234 individual and team-level feedback statements and the final exam completed by the Finnish participants (18), who reflected on the process of working in GVTs. Informal conversations with the locally present participants provided a final overview of the team dynamics. These conversations were based on the students' emails to the instructors, classroom interactions, and activity on the Facebook forum.

Within this setting, while performing different tasks, the individuals reflected on their experiences with written documents after every task. These individual reflections were free-form where the participants reflected on the execution of tasks, the rules of engagement with others, the roles they create, and the routines they intended to follow in the start of teamwork and later on the changes in these routines. Along with my research group, I provided individual feedback on these reflections—these reflections and feedback served as data sources for developing explanations for relationship development processes. Apart from individual reflections, these GVTs provided us with a video presentation to share their solutions to different tasks. Our teacher team also provided feedback on these videos: The project performances were gauged and some advice on improving future performance was provided. While these videos were primarily for the task's solution, they also highlight the intricacies of team dynamics and serve as yet another source of data. Many members of these teams were based at the Turku School of Economics, giving me the opportunity to interact with them formally once a week during the course and in cafeterias where they shared their insights, problems, and perceptions of working with others in virtual environments. These informal interactions often produced a great deal of information that was not present in the formally documented reflections and feedback systems and proved to be a crucial data source. Lastly, at the end of the course, the participants were provided with the opportunity to reflect on the experiences of working in GVTs as a whole. I call it "post-course synthesis," during which the participants had the chance to bring their conceptual and experiential insights together. The retrospective opportunity to discuss their actions, reactions, perceptions, and work environment provided a rich data source to further explain relationship development processes. Table 7 presents these different sources of data

and the purpose for which the data was utilized. It also shows the level to which it pertains to in teams.

Table 7. Overview of the Data Sources Used in this Study

Data Source	Who/What	When	Why	Level
Seven-minute videos	Four presentations each from the nine teams (36 video presentations in total)	Every two weeks during virtual teamwork	To gauge task performance and team cohesiveness	Team
Individual reflective essays	Every participant in every team produced four essays (198 documents in total)	At the end of every group task, every two weeks during the virtual teamwork	To gauge relationship development in GVTs and learning individual perspective on the processes	Individual
Personal handbook for GVT project work	The Finnish participants in the social lab produced 18 documents	At the end of the GVT collaborative work	To understand the participants' sensemaking perspective of relationship development processes	Team and individual
Formative feedback	The 198 individual reflection documents and the 36 seven-minute videos	Throughout the course	To provide comments for further performance	Team and individual
Field observations (emails, Facebook classroom interactions)	Email correspondence related to teamwork following the group interactions on Facebook and the in-class interactions conducted every Wednesday	Throughout the course	To gather granular information and observe GVTs in real time to corroborate individual reflections	Team and individual
Conversations /informal interviews	The participants available on campus met for multiple informal coffee break meetings and informal discussions	During and for about 6 months after the ending of the social lab	To better understand and resolve the ambiguities emerging during multiple data analysis phases	Individual

4.3 Data Analysis

Due to the study's abductive nature, a combination of different strategies was used for the data analysis. Because this is a process study where the outcome is unknown beforehand, it was impossible to have a pre-planned data analysis structure. Langley (1999) proposed using multiple strategies while dealing with such process studies. In a single phenomenon such as relationship development, there are multiple processes taking place, so it is difficult to rely on a single model or theory to systematically find explanations without making the study overly simplistic. One of the objectives in such studies is to move beyond simple explanations of how and why, and move towards theorizing instead.

I used multiple strategies of analysis, including manual reflections, individual narratives, and the Gioia method (Gioia et al. 2013) to organize a tremendous amount of data and reach group-level explanations. The Gioia method does not propagate a step-by-step approach, advocating instead the use of a two-step coding process to identify the major themes, which then are used to explain the phenomenon under consideration. It fits my abductive study in the sense that the Gioia method considers that the first order codes shall emerge from the data, and the second-order codes are then constructed by comparing first order codes to different theoretical concepts. This method of analysis is in line with the sensemaking perspective, as Gioia (2004) explained:

> I pick people's brains for a living, trying to figure out how they make sense of their organizational experience. I then write descriptive, analytical narratives that try to capture what I think they know. Those narratives are usually written around salient themes that represent their experience to other interested readers. (p. 101)

The interpretation and analysis of data and the narrative accounts of events from the sensemaking perspective provide rich accounts of individuals' understanding of the unfolding of relationships. These accounts reveal the existence of multiple relationship development processes. However, to capture the group-level explanations of these processes in a structured manner, I used Van de Ven and Poole's (1995) four basic theories regarding change processes (life cycle, teleological, dialectical, and evolutionary theories) as tools to capture the group-level relationship development processes in GVTs. The use of these change process theories helped me formulate a connection between the individual explanations and their influence on the unfolding of relationship development processes at a group level. Below is a step-by-step explanation of the implementation of this data analysis strategy.

Step 1: I did not start this study with a single theory in mind but an initial theoretical understanding of the phenomenon of relationships and GVTs. I delved into data collection and followed the teams and different events that unfolded over time. While conducting the course, I wrote extensive feedback on group tasks and individual reflective essays. This process of writing manual feedback constituted the first step in the data analysis. Through this exercise, I developed an initial understanding of why and how different events occur in these teams and unfold over time (Langley 1999) from multiple perspectives, as explained in the research framework.

Step 2: After formulating the initial understanding of the dynamics of different GVTs by understanding their explanations of different organizational, social, and interpersonal processes, I realized that multiple relationship development processes were taking place within these GVTs. At this point, I went back to the literature to figure out how to present these processes to the reader. Among different group development theories, I used the framework advanced by van de Ven and Poole (1995) as a method theory (Lukka and Vinnari 2014) to progress my analysis of relationship development processes in GVTs for task and communication. The framework proposed by van de Ven and Poole (1995) brings group development theories together in four distinct "motors" that generate change.

These models explain both first-order and second-order changes in any development process. Life-cycle and evolutionary models deal with first-order changes processes that build on what has happened before. Future adaptations to any given scenario are founded on deterministic laws that have governed how things have operated in the past (van de Ven and Poole 1995). This implies that these models follow an iterative path, learning from the previous patterns and making iterations to improve decision-making. By contrast, "second-order change" is "constructive", which means that it does not follow a pattern but is emergent (van de Ven and Poole 1995) and is explained by dialectical and teleological models.

This method of understanding relationship development goes hand-in-hand with data collection and the sensemaking perspective. The lifecycle and evolutionary models are particularly useful to explain the role of social structures (e.g., different project management phases in the task) connected with individual factors. In comparison, the last two models help understand the dominant role of individual factors (e.g., time management and workload management in the task) in the social structures to explain relationship development processes.

Step 3: At this stage, I already realized that the sheer amount of data I had at hand was sufficient for many aspects of this research. I also realized that the aspects of task and communication are directly responsible for the team climate and relationship development processes. Unlike communication and task, it is not possible to explain team climate and relationship development processes using

Poole's process models. In contrast, the thematic analysis provides comprehensive explanations of team climate. From there I moved to the next step of structured data analysis using NVivo V.11 software, which helped me formulate thematic explanations and structure the inbuilt task and communication processes.

Step 4: After organizing and reorganizing the data (appendix 5), I analyzed each document from every member of all the teams and created different "nodes" within NVivo 11.0 to represent different areas the GVT members in each team touched upon. These first-level nodes were further categorized into higher-level nodes to identify similar discussion areas under one head to formulate a clear understanding of the different influences on relationship development processes (Table 8). These combinations were achieved using manual analysis (appendix 4) of the first-order nodes, which also helped me to understand the links among multiple nodes. For example, while members of a particular GVT were discussing the purpose of a particular task, they might attribute some of the problems in understanding to the communication systems. Therefore, formulating such interlinks was critical to the understanding of the overall relationship development process.

Using NVivo 11 software, I imported the participants' individual reflections and the written feedback (provided earlier on these reflections). I coded the textual information under different headings (e.g., task understanding, task distribution, and task contribution) until I had generated "first-order concepts." I then consulted the literature to combine these first-order concepts into "second-order themes," Lastly, I created the categories based on these themes. The above data analysis technique is very similar to the Gioia method proposed by Corley and Gioia (2004) for conducting qualitative process research, although there are marked differences between the two approaches. The most significant difference in this research is that the purpose of formulating the nodes was not to look for commonalities among different teams or individuals to develop a generalized model; rather, in the form of nodes, the categories were developed to identify both the commonalities and the divergent thinking that occurred among the GVT members. Apart from this difference, the overall pattern of this research follows tandem reporting (Gioia et al. 2012), a coding approach rooted in organizational theory and ethnographic research (Gioia et al. 2012). The results of the coding exercise for this research are presented in Table 8.

Tandem reporting suits the data analysis process used in this research, both in terms of its social setting and the sensemaking approach, where the researcher's own experiences are part of the research process. This approach to data analysis highlights informants' voices and present the emerging theoretical patterns, referred to as first-order analysis; where the purpose of the researcher is to identify links between his and informants' voices in an organized manner and to generate abstract theoretical contributions.

Table 8. Codes and the Coding Tree of Data Analysis

Name	Sources	References
Communication*	179	593
Frequency**	54	95
Purpose**	145	235
Tools**	149	235
Task*	198	1203
Project Management**	198	861
Task Completion*	46	61
Task Contribution*	86	106
Task Distribution*	148	320
Task Planning*	103	130
Task Understanding*	149	244
Individual Task Factors**	145	342
Subgroups*	19	21
Flexibility*	32	36
Variation*	67	85
Management*	90	150
Workload*	39	50
Team Climate*	196	974
Attitudes**	71	101
Negative*	10	13
Positive*	68	88
Commitment**	33	41
Conflict**	36	49
Expectations**	35	53
of Others*	24	28
of Oneself*	21	25
Leadership**	89	121
Perceptions**	62	74
Team orientation**	171	414
Trust**	74	121
Emotions*	162	548
Negative Feelings**	73	179
Anxiety*	21	24
Demotivation*	24	41
Dissatisfaction*	47	79
Frustrated*	24	35
Positive Feelings**	95	369
Happiness*	47	54
Motivation*	76	132
Satisfaction*	114	183
Personal Experience*	22	27
Problems*	44	56

*Black represents first-order concepts; **Green represents second-order themes; ***Blue represents the highest-level categories.

Step 5: The data were organized using multiple techniques and NVivo 11.0 software. I used tasks that the participants were given to solve as cases. In order to obtain varied perspectives from the data, I further organized it according to the individuals, the teams, and their respective tasks and teams only. This triangulation approach made it possible to ensure the reliability of results. I used "network matrices" to cross-tabulate the data based on the task types (tasks, teams, individuals, and team and tasks) and "nodes" (representing different aspects of relationship development). This process was followed for all the nine teams and their members separately. Such analysis helped explain relationship development processes from a timeline perspective while GVTs moved from one task to another.

4.4 Trustworthiness of the Study

The qualitative research tradition is relatively new compared to established quantitative research, so the former was evaluated in terms of authenticity and trustworthiness based on the latter criteria. Such evaluation has led to qualitative researchers struggling to establish the rigor in their methods and analysis (Guba 1979). Agar (1986) suggested that terms like reliability and validity are relative to the quantitative view and do not fit qualitative research details. He proposed instead using different languages and explanations to establish the trustworthiness of qualitative research. According to Agar (1986), terms such as reliability and validity should be replaced with *credibility*, *the accuracy of representation*, *and the writer's authority.* As the knowledge claims made by naturalists are different from those of positivists and are therefore divided in qualitative and quantitative research, ultimately influences the criteria against which produced knowledge shall be evaluated (Agar 1986; Guba 1979; Krefting 1991; Shenton 2004; Sinkovics et al. 2008).

Lincoln and Guba (1985) proposed four evaluative criteria (credibility, transferability, dependability, and confirmability) and multiple techniques that can be used to establish the trustworthiness of a qualitative study. Qualitative research's credibility is equivalent to internal validity in quantitative research and addresses how congruent the findings are to reality. To establish the credibility of relationship development processes in GVTs, the researcher engaged with the participants and the project for a prolonged period. The purpose of prolonged engagement is to spend long enough time in the field to understand the social setting or the phenomena of interest. From this perspective, the researcher evaluated the phenomenon of relationship development in GVTs, starting from his Master's thesis in 2014. Before formulating any ideas, the researcher engaged with the participants for several years (2015–present), thus ensuring that he acquired a proper understanding of the social setting. During this prolonged engagement, the researcher identified core areas such

as task, communication, and team climate and the factors influencing these areas with regard to relationship development processes. This process is known as persistence observation.

After identifying these core elements of research in the data collection process, I completed the triangulation of sources described in Table 7. The data was not collected from a single source in reflective essays but was triangulated with emails, Facebook groups, instructor feedback, and somewhat limited individual face-to-face interactions with the participants. These multiple data sources helped capture relationship development processes over time and are in line with the sensemaking perspective. Maitlis and Christianson (2014) argued that our understanding of the sensemaking perspective and what it helps to achieve comes from data that provide revealing descriptions over time. Gathered through reflective assignments, the textual data, participants' feedback, informal conversations, and observations of the GVTs provided rich qualitative data that helped explain relationship development processes from a sensemaking perspective (Bechky 2006; Gioia and Chittipeddi 1991; Maitlis 2005; Weick 1995). I triangulated the data analysis at the case, team, and individual levels using NVivo 11.0 software, in order to establish the findings' credibility from multiple viewpoints. The use of software such as NVivo 11.0 makes such triangulation possible, and the results are traceable to the sources, providing credibility to research and establishing rigor of the study.

Lastly, the process of theory triangulation was used to assess the data from multiple theoretical lenses before making the final selection of the theoretical lenses applicable to this research (Chapter 2, Section 2.4, Table 1). I used the lenses of emotions research, traditional social theory perspectives, and structuration theory before settling for the sensemaking perspective and Poole's (1995) four process types.

The negative case analysis parameter was taken into consideration in selecting cases. As described in Section 4.1.1 on team composition, the GVTs formed for this research, while diverse in many respects, also shared a number of similarities. However, some teams were able to perform better than the others. This kind of negative case analysis helped elucidate the extent to which factors such as national cultural attributes contribute to or hinder relationship development processes in GVTs compared to individual learnings and experiences. After the first round of writing the feedback for individual reflections and group tasks, I used data from one team that performed the best but faced many hurdles in team dynamics before analyzing the other teams. Although at the time of analysis of the first team, the thought was simply to verify the observations during the feedback process. It later became clear that establishing the research's credibility through referential adequacy was crucial.

The transferability of qualitative research means that the research findings are applicable in other contexts. Unlike quantitative research, where data is standardized, this study considers the researcher's subjectivity from the long period of involvement with the research setup and participants and considers it to be part of the data. Therefore, it is necessary to point out that this research's findings would result in contextualized explanations. This does not mean that these findings are not transferable—on the contrary, it is essential for those looking for the transferability to apply this research design in similar settings within the MNCs or universities. Therefore, for the reader, thick descriptions of the process have been provided in the above parts of the methods sections, wherein the details of the setup, process, and timeline of this research have been delineated.

The dependability of qualitative research refers to the possibility of repeating the same procedure and obtaining the same results. The idea of an inquiry audit is to ask someone not involved in the research process to evaluate it and the results of the analysis, to see whether the same conclusions are reached. In practice, this means that the research is geared towards finding the absolute truth. In a sensemaking perspective and abductive study, understanding is co-created, so there is no objective truth or reality to which the results of a study can be compared. This process may produce confusion rather than clarity. An external auditor cannot be familiar with the data and the researcher immersed in the study and may not share the same point of view, which could lead to different understandings of the data. Managing these different ways of seeing can be problematic. However, the explanation for transferability holds for dependability too: If the external auditors had experience with similar projects, they would be better positioned to comment on this research's dependability. This process was carried out informally in this research, with the same setup members but working on different topic areas related to GVTs.

Several informal discussions were also held with two more researchers who were neither part of the research setup nor involved in research on the GVTs. This "informal double related-unrelated external audit" helped the researcher identify his own biases and look for further alternate explanations contributing to the theory-building process. Lastly, it was possible to confirm the relationship development processes that occurred in GVTs due to the triangulation of analysis and triangulation of theory. Analyzing the data from multiple perspectives made it possible to confirm the results from different viewpoints. Triangulation of theory (emotions, social exchange theory, structuration theory, and sensemaking perspective) helped provide sufficient explanations of those multiple analysis viewpoints. Furthermore, as explained above, informal double-related-unrelated external audits helped establish the validity of this research.

5 Findings 1: Task and Relationship Development Processes

This chapter presents relationship development processes by focusing on the core activity in different tasks that the GVTs perform. There is some overlap of communication tasks in this discussion because tasks cannot be performed without communication. However, the main discussion focus remains on tasks. The chapter starts with a presentation of the individual understandings of tasks through the narratives of GVT members. Then, by synthesizing these subjective understandings, I draw on a shared understanding model while still focusing on the intersubjectivity of individual understandings. Towards the end, the findings are presented with regard to the four process types to explain the pattern(s) of relationship development processes in GVTs.

5.1 Individual Task Narratives

For this narration I will use the accounts provided by a couple of team members to show how multiple processes unfold simultaneously within a team. The purpose here is to show the development of a team from one task to the next while a multiplicity of factors and events unfold, revealing many aspects of relationship development processes. Later in the section on different process types I will explain relationship development processes using multiple teams' data. For this narration, let us call this team A. Team A consists of five team members, each of a different nationality. Using two team members' narratives, I present a step-by-step narrative of the tasks, including the different factors, events, and practicalities they encountered. Through this narration, I will explain the complexities and multiplicity of work processes involved when human beings interact in teams.

In the first task, when Team A received the case and completed their task, were asked to reflect on the process Although all the team members were similar in terms of the ease with which they familiarized themselves with the communication technology, their reactions to one another differed greatly at times. To ensure the privacy of the participants, I have assigned them numbers instead of providing their names while narrating their perspectives.

> **P1**: We studied the text provided by the teachers, then found all the relevant online materials or articles related to the case. In the next step, we held a Skype meeting to introduce ourselves and immediately divide the tasks. Any findings and results [were] added into Google Drive so that the whole group [could] check and supplement [them]. Finally, we reached a conclusion regarding the content, as well as the format of the slide and how to conduct the video. As mentioned in the Global Heroes Group's introduction, each member in our group had majored in totally different fields, with diverse backgrounds, hence we split the assignment depending on each other's strengths, understandings and even hobbies.

In her reflection, P1 immediately mentioned the initial steps her team took to form social structures necessary for a project management setup. The effort to understand the task, conduct meetings, and get to know one another reflects the desire to become a team while focusing on the task. Similarly, the use of a combination of productivity and communication tools to form a cohesive unit is a logical step towards goal achievement. Lastly, she talked about assigning or selecting roles by dividing work. While these steps seem logical in terms of task achievement, P1's expression of feeling reveals more about how she feels about others in the team. She continued on this theme:

> **P1:** I feel released and satisfied now that the case is completed after two weeks of long discussion and conflicts sometimes. Henry Ford once stated about the success of teamwork: "Coming together is the beginning. Keeping together is progress. Working together is success." In my opinion, our team has achieved great success after a long way. We devoted all of our time until 11:59 [before] the deadline, together, and stayed awake…to create the most fascinating and satisfying video. However, we had to go to work early [the next] morning. From my point of view, the most valuable lesson I gained after Case 1 is that teamwork is simply [to rely] less [on] "me" and more [on] "we." Each member should sacrifice his/her pride and individualism for the sake of the whole team.

She acknowledged the emergence of some conflicts, but overall she showed a positive mindset and thought that her team members were committed to the team. Displaying a helping attitude from her perspective is essential if a team wants to succeed. This was reflected in satisfaction with the team's overall progress, despite their conflicts. The satisfaction, commitment, and helping attitude are all early indications that, from her perspective, the relationships among team members would develop positively. However, the second participant gave a completely different description. Participant 2 explained her experiences in the following manner:

> **P2:** We [had] 6 members and unfortunately despite many trials we failed to organize a "kick-off" Skype meeting together [that] I had planned in order to introduce each other, although I managed to talk to each member separately when they had time to get to know them better. In order to communicate we manly used a chat and a group on Facebook and Skype. All documents were [uploaded to] Google Docs to share all needed info, such as notes from the classes, time-schedule, and so forth. Only three of us actively participated in dividing Case 1 task into individual assignments, making the slides and audio…the fourth member joined us to create the video. The leader suddenly stopped answering messages during the second week and on the deadline day he did not have his computer at home, [so] he could not help us.

P2 described the process in a manner similar to that of P1 when establishing the working norms, communication mechanisms, and managing the task. However, she also highlighted crucial differences with regard to: 1) how difficult it was to get hold of all the team members; 2) the workload being distributed among the active team members, showing that those inactive could not be trusted to finish their work in time (and increasing the workloads of the active members); and 3) the lack of leadership. Regarding the relationship development perspective, she shared the following thoughts:

> **P2:** I would like to change the attitude of team members towards each other, to respect others, their time and efforts, to contribute more actively to the group work. The most noteworthy lesson I learned was that even though team members seem to be nice and motivated, it does not guarantee that they will actually participate. About myself, I learned that despite the fact that I felt offended I tried to complete the task with the resources we had. …my aspiration to get the job done properly [probably] helped me…learn [how] to overcome challenges, because I felt devastated and was thinking [about] dropping out of the course…

P2's expressions, such as wanting to change others' attitude and expecting the group members to be more active and motivated to achieve their the goal, all point towards the fact that she was not satisfied and wanted things to change for the better, although she did not elaborate on what actions she would take to do so in her first reflection.

The two accounts provided by two different individuals above already show how relationship processes could lead to very different understandings of relationship development in these teams due to the individual capabilities at different stages of the task. It is crucial to mention that in all nine teams, similar developments could be seen. The next task illustrates how the future relationships developed in this team.

> **P1:** The steps we applied in Case 2 were quite similar [to those of] Case 1. The first action was to dig into the materials provided by our teacher, along with conducting some research on the internet and watching relevant videos to have an overview about McKinsey, as well as [to] explore the company's characteristics. After that, we again held a Skype meeting….
>
> …looking back at the progress we have been through together, I cannot totally affirm that it was an easy task or Case 2 [was a] complete success, but I am still proud of what we achieved together—not only the knowledge obtained, but also how we coped with [the] several conflicts arose, [which] turned us into a close-knit pack.
>
> Honestly, this time **[P2]**…totally [took] the lead [and] patiently guide[d] us [through] every step and explain[ed] the model thoroughly, which [brought back the whole team's] faith…that we are on the right track.

These three accounts highlight the multiplicity of processes in GVTs. The first set of processes dealt with the core task and the second set of processes dealt with team development as a cohesive unit. The last set of processes (a single action in this particular instance, i.e., to take control of leadership) dealt with individuals deciding to take action (or non-action) based on their previous perceptions and how those actions were viewed by the others in the team.

In her second reflection, P1 points towards the setting up of routines when she says that the steps taken to complete task 2 were similar to those of task 1. Even though the team is still going through problems and conflicts, the work never stops, and the roles assigned to each member start to take shape. The group is becoming more cohesive, as she pointed out that they had made progress together as a team. In the process of setting up roles and routines, she perceived that the tasks would become easier to achieve. The highlight of the whole process for her was the team's capacity to deal with the conflicts. At the individual level, she pointed out a team member's ability to take the lead role. The member who took the lead role, P2, had already pointed out that the appointed leader was nowhere to be found in her first reflection. It reflects on the sensemaking tenet of action and enactment. P2 decided to fill the gap based on her perception that the leadership was missing, so she had to step in to fill this role. She took this action in task two, when the other members failed to become more active, as she had expected. Overall, P1 felt that the relationships among team members seem to develop positively. Let us move on to P2 and discuss her thoughts on working on the second task.

> **P2:** First of all, having learned [our] lessons from the previous assignment, when, due to technical issues, our video was delivered with a delay, this time we began preparations early. We divided the case analysis between the team members and agreed on several intermediate deadlines, [which] allowed us to have few extra days for potential unexpected difficulties related to the video creation process.

In this instance, P1 reflected back on the issues that might have caused delays in their previous team task and worked on better time management. Although these modifications were made to smoothly achieve the end goal, the processes relating to the task remained the same. The task understanding, task division, and task completion remained the same, albeit with different time allocations.

> **P2:** …despite frustration caused by their [team members'] irresponsibility, I kept trying to motivate them. Only few days before the final deadline some of the colleagues reacted and started contributing to the existing material. With only several hours before the final deadline we managed to secure support from our team leader, who was willing to discuss and contribute to the existing material. Eventually, without any exaggeration, it is fair to say that we managed to pull off a miracle by compiling a reasonable end result…

In this instance, P1 was still frustrated and has negative feelings towards others, mainly originating from a negative attitude. The poor time management of team members, the long periods of silence, and coming together just before the deadlines, all led to the thought that the team members were not motivated enough. The team leader was still displaying the same erratic behavior, and hence she thought that being able to produce a reasonable result would be a miracle.

> **P2:** Having completed the second assignment, I felt upset and devastated again, but I did not give up on the team as I still saw…room for improvement in communication and collaboration processes. Going forward we should discuss our problems together and agree on further steps to improve the situation. I would like to know what the teammates thought about our group work and also share my point of view with them.

> **P2:** These two assignments made me realize that I need to improve my ability to evaluate different situations and make responsible decisions in difficult, often time refrained circumstances. [The] above-mentioned skills are essential in today's work environment.

Here P2 is presenting her personal view and understanding of others' behavior. Although she had negative feelings and pointed to what could be done to make the teamwork better, she was willing to take further steps based on her understanding that engaging in conversations and understanding others' views would lead to a better working relationship. She further explained the necessity of being flexible towards tasks and others even if there are time constraints.

In this section, we have reviewed two tasks while looking at just two team members' narratives. While including accounts of all members of the same team would enrich the description, in my view, these two narratives are rich enough to take a step back and look at these accounts from a sensemaking perspective.

As discussed earlier, we as humans are always concerned with what is going on, at least in ambiguous or new situations, be they in an organizational setting or life in general. When members of an organization or organizational entity encounter moments of ambiguity, they try to clarify what is going on by extracting the cue from their work environment, using these as the basis for plausible accounts for what is going on to make sense of the events that have occurred and through which they continue to enact the future work environment.

In this backdrop of sensemaking, we see that the team members are making sense of the ambiguous situation related to tasks and establish norms and routines to accomplish the tasks. This shared understanding among the members helps them to utilize their resources efficiently in later group work. However, that is just a first step in the sensemaking process, because we know that the events do not trigger the sensemaking process within the teams: rather, it is triggered when the difference between what one expects and what one experiences is significant enough to cause the individuals or teams to ask what is going on what shall they do next. In this case, a core example of that is the role of leadership. Initially, P2 noticed the absence of a leader, and in Case 2 she had already taken "action" for the further enactment of the team actions. Another aspect of sensemaking considers that sensemaking still might not be triggered if the organizational norms or group culture mitigates against it, but only when the individuals and teams see a particular event as a threat to established roles and routines. Comparing the above two accounts reveals that, in the case of P1, the change of leadership was just a routine change—she did not notice the absence of it, or if she did, she did not think it important enough to reflect on it. In other words, her past experiences and current expectations somehow dictated that people in leadership positions can act this way. However, when P2 took charge, P1 appreciated the effort and thought it to be better for the team, and P2 thus also earned P1's respect.

On the other hand, although P1 took responsibility, she perceived this to be an extra workload that required her to sacrifice even more of her time. She also felt that the team's success was paramount even while she was trying to improve the team's

relationships, and therefore she had no other option but to take charge. This is an example of the intersubjectivity of meaning created by team members. The leadership event triggering the sensemaking led to the construction of the intersubjective meaning of the same event. The individuals in the teams encountered the same event and understood it in similar ways. However, due to their differences in their roles, positions, or backgrounds, they constructed different meanings.

Let us continue with task 3 and 4 for both the participants. I will walk you through their journey from a sensemaking perspective and with a focus on relationship development processes. This will highlight the influence of the changing nature of the task, along with the previously explained stages of relationship development.

> **P1:** Case 3 – Merchant Ship Industry was a real challenge for our group, as the issue and solution proposed by the case are brief and open, so that we had to figure [it] out by ourselves. If the first two cases provided quite sufficient information for us to come up with [a] problem-solving and business model proposal, Case 3 really raised the level of difficulty.

In the research setting (described in Section 4.1), I mentioned that our goal was to replicate the IB environment from an organizational viewpoint. Task three was considerably different from the first two tasks in its requirements. The difficulty level was enhanced and the participants' information was limited, which meant that they had to increase their efforts as a team. P1 acknowledged these changes in the task. The changing nature of the task influenced multiple areas of the management of the task:

> **P1:** For Case 3, our team basically applied [a method similar to the one we used in] the first two cases. The main difference…when studying Case 3 in comparison with the first two cases was that every member took part in designing the content…[this made me realize] that we really are a strong and close-knit team now. As long as we were all in this together, we figured out quite fast the shortcomings.

The routine was similar to the first two cases because the team gathered the information to "understand the task," planned how to approach the task, divided the task into smaller assignments, and worked to complete it together. As expected, the team increased their combined efforts due to the enhanced task requirements.

> **P1:** Another core criterion that greatly helped us to complete the case was the teacher's feedback from both previous cases. For example…in Case 1, [where]

> we [did] not thoroughly answer the main question, this time in Case 3 we concentrated on the requirement so that the developed contents strictly followed it.

The management team (teachers and researchers) helped them approach this task in a more meaningful way. They spent more time understanding the task and its outcome requirements. The reflections of P1 indicate that the team dynamics and the relationships among team members developed positively. In a way, she built upon her earliest perceptions of her members. She took a positive stance, and despite the problems inherent in group work, she considered the problems a part of the work environment. This perception of hers also influenced what she reflected on, and she often skips details, e.g., how it happened that the team suddenly became more cohesive. To get these details, let us look at the reflections of P2, who assumed the leadership role in the absence of the assigned team leader.

> **P2:** I changed the strategy and used email to propose particular relevant topics for every member to analyze, and set the deadlines and suggested dates for meetings to share obtained knowledge and agree on further actions to tackle…Case 3.

As the sensemaking perspective implies, P2 changed her approach based on previous task performances and other team members' inactive roles. To get the task done comprehensively, she changed the communication method to more formal communication. This change improved the task performance at the individual level, as the individuals were made responsible for specific parts of the task. She reflected on this change in the following words:

> **P2:** As every member had personal responsibility for their own assignment, most of us did [our] individual tasks on time. All individual tasks were completed with a delay. The team leader again disappeared, despite the fact that he was very interested in the topic. The main differences [from previous cases] were [the] more official style of communication, which forced people to do at least their individual parts.

Regarding relationship development processes, P1 believed that although leadership and other members' behavior did not change, she became more self-reliant in completing the task. This change—her shift from a team-based approach to independent work—is the first indication that she was no longer willing to trust the other team members, but at the same time she wanted an excellent outcome for the

task. It shows in her reflection that she was not satisfied with her teamwork, but it was for personal development reasons that she continued to work on different tasks.

> **P2:** I was proud of myself because I managed to accomplish the task myself. Of course, I used the knowledge I had, so if all five members thought of the task profoundly and on time, the analysis and proposals could be done better, and a more professional video could be created before the deadline. I [was] not satisfied with our teamwork and I am still hopeful to find a way to develop it, as I find this knowledge and skills essential for future career.

Lastly, her reflection on the feedback on previous tasks acknowledges the management support, which made her realize that in the time-pressed project teams, focusing on what is wrong with the team might hinder the progress, so she should focus on the solution to those problems. She explained this as follows:

> **P2:** The feedback provided for videos and the individual assignment had a positive impact on my motivation, as I felt understood and inspired to try to change the situation. [The] feedback shifted my focus from what problems are to how to solve them, which was extremely important and timely.

For the last task, both participants acknowledged that it followed the same pattern of task understanding, planning, distribution, and completion. The leader showed up this time because it was the last task. The active members dealt with the workload, time management, and task variations. Regarding relationship development, there were two contrasting views: P1 saw the relationships developing in a positive direction, while P2 saw them as a disaster. The following two statements demonstrate their respective views of the teamwork experience:

> **P1:** In the very first introduction of our group, we have come up with one statement describing what my team stands for—"Each of us can make a difference. Together we make change." We really do make change, indicated in the positive results for each case, but more importantly, we [became] more responsible, dedicated, and faithful [group] members and friends in real life. After what we have been through together, I just can think of a new statement that can represent our great effort—"a team is more than a collection of people. It is the process of give and take." We sacrificed for the whole team, and got the best [outcome].

> **P2:** All the difficulties that we had helped me to learn new about myself, about work in groups, and about leading a group. I had to rely on people whom I did

> not trust, because they disappointed me several times with unmet deadlines and disappearing when they were needed. I also had to encourage [my] teammates who did not answer messages in a group chat to work, and I had to keep myself motivated despite feeling stressed and anxious. I am very grateful to the members who tried hard and did their best despite missed deadlines and assignments [that were] not perfectly done. I also thanked them [as a] group and personally, as I appreciated their help.

I narrated and assessed these two members from a team whose internal dynamics were not as smooth as they had hoped for. At an abstract level, it can be seen that relationship development processes are different from individual to individual even when they are part of the same team. The earliest perceptions of other team members had already established the trajectory of relationship development for most of the members at some level. Although I did not present an example of a team where most of the processes were smooth in this study, my analysis nevertheless showed that relationship development processes, even if positive for all the members, were explained and perceived differently. In other words, the intersubjectivity embedded within the shared meaning is the driving force for the GVT members. Such intersubjectivity is also a cause of different types of actions and enactments to complete the tasks. In the case of this particular GVT as well, for some, the relationship processes and developments were both positive and negative. I performed similar analyses for the members of all nine teams and created Figure 9 to illustrate the task perspective and relationship development processes.

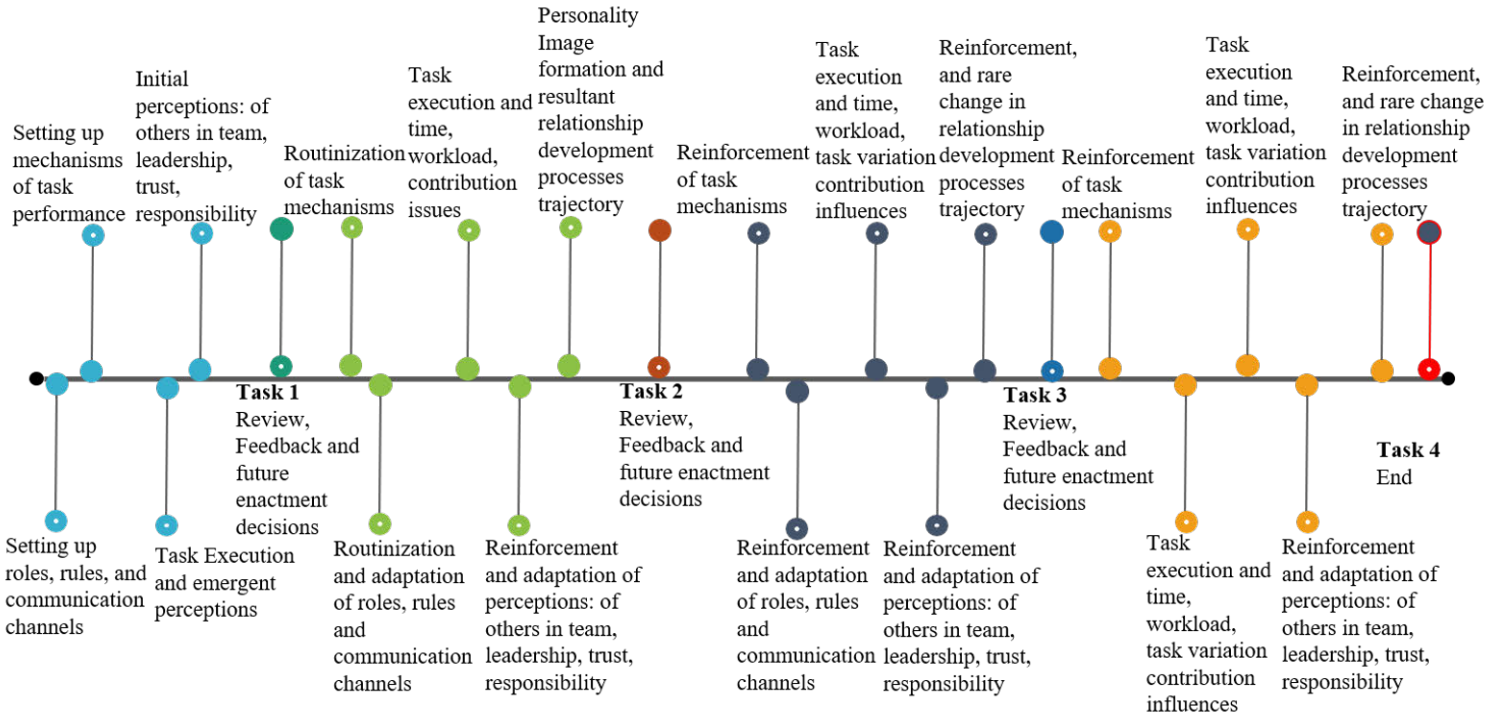

Figure 9. Timeline of Tasks and Events

5.2 Group-Level Explanations of Tasks

To formulate the group-level explanations and to use these explanations to elaborate on relationship development processes, Figure 9 can be further extended as discussed below. There are at least two different types of elements at work in these GVTs with regard to the task perspective of relationship development processes. First, I call the elements of project management focused on the task execution the operative elements of the task. A task's elements comprise a series of stages, including task understanding, planning, distribution, scheduling, and execution. Second, individuals' behaviors and attitudes toward the task are reflected in their actions and inactions while performing these tasks; I call these the human elements of the task, and they include contribution, flexibility, variation, time management, and workload management. I discuss these two aspects below before moving on to relationship development processes.

5.2.1 The Operational Elements of a Task

GVT members are involved in multiple processes that take place simultaneously. I observed that these GVTs follow a project-management-based lifecycle approach when it comes to individual tasks when moving from one task to the next. When these GVTs move from one task to another, they tend to adjust their approach based on the previous task's outcomes. These adjustments are made in the life cycle of the new tasks, depending on the area needed to be adjusted, e.g., management of time, workload, and performance orientation based on feedback. The adjustments to the human elements are made according to need and do not follow a particular pattern. However, the task life cycle remains the same and follows the same stages. Table 9 shows a couple of examples from the GVTs, where they have commented on the process of approaching multiple tasks throughout the life of their teams. The stages are not separately marked because the GVTs were not guided in their approach to answers the questions in a specific manner. However, they did follow a path where they were involved in discussions about the task, planned to approach different tasks differently based on the nature and changing requirements, sub-task distribution, and completion of the task.

Table 9. Examples of the Operative Elements of a Task

Tasks / Team	1	2	3	4
1	As I see it, we should discuss the assignment and a concept, then prepare material, combine and analyze it together, improve the content, create a video. We neglected the part of improving the content, as we did not have time for that, and we felt left [out] and offended because the rest of the team ignored the work. Clear allocation of responsibilities and that all team members are creative and are able to joke for the healthy atmosphere which don't litter in any way or complicate our work	First action is to dig into the materials provided by our teacher, along with conducting some research on the Internet and watching relevant videos to have an overview about McKinsey, as well as explore the company's characteristics. After that, we again held a Skype meeting to summarize the case, point out key issues related to the teacher's requirement, as well as decide on individual tasks and the concept of this upcoming video. The next immediate step is creating a new Google Drive page for Case 2 so that we can directly get to work and upload any findings and results for all the team members to check and supplement for one another.	I think the end result was better than before – we had better materials and the dictation of the narrators was more understandable.	therefore, first and foremost, we sat down to think of which business subject to focus on, which is the most crucial part for Case 4. And as XX is the most creative person with the most "crazy but still making sense" ideas in our group, and more importantly, a passionate desire for technological advances, he is the one who devotes the idea of solar roof which reaches the consensus from the whole group
2	First, we read and analyzed it independently for two days, then we discussed it in Skype, then we continued contributing to a common Google Doc. However, as mentioned, my views dominated. So, the understanding was hopefully shared, but was not fully common among the members.	For the understanding…the case it turned out quite helpful that we had enough time at the beginning to get familiar with the task. …our Skype Meeting was good with everybody on equal parts participating (except X, he did not contribute anything). I really appreciated that we as a team supported one another to think through our ideas more in detail and also consider the risks etc. It was more open minded then the last time. I can see a real improvement here.	We had followed the structure of the work we had before, i.e. we made Google docs and wrote our ideas there until the first Skype discussion, where we choose the structure of the industry, as we had two variants and as well divided parts for the further writing. Then until the agreed date each of us wrote [our] part and commented on the work of others.	The steps were exactly the same. The aim was to reduce XX's…work, but it didn't work as he is workaholic and if he has one idea in head then it was hard to change. The biggest difference lies with step of case identification, at which each of us started with an idea of what problems we liked to resolve, preceding debating and voting to choose the one inspiring us. As far as I am concerned,

In Table 9 above, the comments reveal a pattern emerging in both teams with regard to the operational elements. In task one, team one already recognizes that they could not manage the "improving the content" stage. During task two, however, they did not mention this problem, although the operational detail they provide is much more detailed, highlighting operational issues and using multiple tools to improve on them. By task three, team one had already recognized the improvement in their operational aspects of the task. In task four, team one acknowledged the changing nature of the task and the readjustments they had to make to different operational elements to achieve the end objective.

Team 1 was similar to team one with regard to the different operational elements of the tasks. However, there are two significant differences. First, Team 2 realized the changing nature of the tasks very early, in task 2. This helped them to streamline their operational elements. This is evident in their reflection on task three, where they acknowledged the structural development. Second, Team 2 dealt with individual issues because of the early clarity gained in operational elements: This is evident in their reflection, where they mentioned investing in workload management issues.

The nine teams analyzed for operative structures displayed similar task structures, as evident in Table 10, which shows the frequency with which different task stages were mentioned in the analyzed documents.

Table 10. Frequency of the Operative Elements of the Tasks

Step	Task 1	Task 2	Task 3	Task 4
1. Completion	12	20	13	16
2. Scheduling	27	31	27	21
3. Distribution	94	92	70	64
4. Planning	39	29	28	34
5. Understanding	61	59	60	47

It is crucial to note here that multiple structures were operating simultaneously. For example, the GVTs attributed the delays in delivering the projects on time to other members, poor time management, or technological issues, while issues such as poor time management were related to the human elements in a task and other technical problems were related to communication and productivity tools. Such issues are discussed in the processes of communication (Chapter 6); however, for clarity, it is essential to mention that different operational elements related to task and communication operate simultaneously while shaping the development of relationships in GVTs.

5.2.2 The Human Elements of a Task

When the GVTs move from one project to the other, their behavior is guided by different influences, such as time management, workload, project variation, feedback, members' flexibility, and contribution to the previous project work. Simultaneously, GVT members form perceptions of other individuals in their team depending on those individuals' contributions to the work, resistance or willingness to take on more work (workload and flexibility), and the quality of their contributions.

Of the various elements mentioned above, the most prominent issues in human agency elements was time management. A query used to match the exact term of "time management" returned 150 references in NVivo among the 198 individual reflections, not including synonyms and similar terms. The virtual nature of the work was new to many of the individuals working in these GVTs. Therefore, it influenced their working routines. They were used to work in face-to-face teams, who were quite fluent with brainstorming processes and came up with new solutions. However, the temporal distance and the reliance on technology to conduct these basic tasks were new. These differences were difficult to overcome, especially at the start of the virtual work. Setting times for virtual meetups, conducting multiple brainstorming sessions rather than one, and using online tools to aid these sessions led to overestimating individual skills. Members were not able to work within the given timelines. The way in which they were asked to present their solutions (in video format) also presented these GVTs with a challenge. Those responsible in GVTs ended up underestimating the time required to produce such outputs. It was clear that time management was a pressing issue for many teams, both from the individual capabilities and team coordination perspectives.

Workload is another contributing factor to the adjustment of operative elements of tasks. From the GVT perspective, teams needed to adjust how they approach the tasks to manage the work. The variations among tasks and increasing complexity were the predominant factors forcing GVTs to adjust their workload. Time management also affected GVTs' need to adjust their workloads: The initial estimations of the time required to complete a task would either lead to managing the work within the deadlines or surpass the deadlines requiring teams to adjust accordingly. In the former case, GVTs focused on improving the quality of outcome by taking on extra workload, while in later cases, the focus was on improving the performance and reducing the time available for other activities. From an individual perspective, the workload added to the frustrations of the GVTs when individuals overestimated personal capabilities but were not able to complete the task by internal deadlines. This put additional pressure on the other team members by making them cover for such members' work.

The issue of workload management brings into play the role of individual contributions to the group work and the extent of flexibility to which these teams can adapt to the changing internal circumstances. In cases where some individuals could not perform their assigned sub-tasks, their contribution to the outcome was questioned and reported in the written reflections. However, rather than just complaining, the GVTs, sometimes as a group and other times as individuals, attributed their flexibility to the more active members picking up the slack, leading to the successful completion of the tasks.

Lastly, feedback from the course instructors led teams to adjust their task structures. The feedback provided at both the individual and team levels offered these teams commentary on their performance and guidance for dealing with inter-team issues, which ranged from technological guidance to leadership management and, in rare cases, restructuring the teams. Such guidance was provided only when the teams approached the instructors' team to help with a specific situation. The purpose of keeping the interference to a minimum was to ensure that the research setup had minimum influence on the team dynamics and relationship development processes. Table 11 presents the frequency table of these human elements of tasks within the analyzed GVTs.

Table 11. The Frequency of the Human Elements of the Tasks

	Case 1	Case 2	Case 3	Case 4
1. Contribution	27	31	27	21
2. Flexibility	7	12	11	6
3. Variation	3	21	39	22
4. Management	50	37	29	25
5. Workload	7	18	12	13

These human elements neither work in a sequence, nor do all of them work parallel with one another. At a given time, one or more of these elements are at work. They also work in an action-reaction sequence. Similarly, when talking about task flexibility, the teams mentioned the problem of time management and others' inability to complete work on time. However, in response to such comments, team members coordinated their efforts in a better manner to satisfactorily complete the task at hand.

It is understandable from the theoretical perspective that individual actions and human attitudes do not follow a cycle but instead work from event to event. At this point it can be extrapolated that some GVT members responded to a negative situation by becoming more motivated and efficient to achieve the outcome. However, if other members repeat the same negative pattern, motivated individuals

could soon become discouraged and stop taking over others' work. Table 12 presents a glimpse of the task's human elements in these GVTs concerning the tasks they are performing. Table 9 presented the data from Teams 1 and 2; to make full use of the diversity of available data, Table 12 uses examples from Teams 5 and 9.

Table 12. Human Elements of the Tasks

Team	A. Contribution	B. Flexibility	C. Variation	D. Time Management	E. Workload
5	All in all, we are managing our task very well and every team member tries to perform best. I am really excited about doing the other cases with my team and I really appreciate to be a part of this global virtual team.	But in the last day, our group had a problem in completing our slides before exporting to a video. In that situation, I and XX have cooperated very effectively!	Even though the case was difficult in terms of many moving parts and openness in terms of assignment structure we were able to overcome these challenge through collaboration.	At first, I was frustrated because of the poor time management and lack of communication but now I become more open minded as some progress is seen. We unconsciously start to help one another to grow as team members.	The workload was shared somewhat similarly than before. Some of the people took more active role in providing content while others focused on the presentation. The difference from this case was that everyone contributed to the presentation part somehow.
9	The team members expressed what she/he would like to do and prefer not to. Some of the groupmates who did not participate as much in the strategy planning put all the work in making the video.	Last time I was in charge of preparing the video, so this time we decided to [take turns,] and another member of the group was responsible for the creation of the video (with the help of all the group members).	This case at the first sight was really hard to deal with, and contrary to the previous one, we had no ideas coming on how to proceed, how to organize, and even after reading few times, no ideas on the strategy.	Our team still has problems with deadlines. We tried to implement inner deadlines but as those teammates who are the most participating in solving the case are also the busiest ones, it did not work for us. We will have to try that again in the next case study.	Two of our team members were again missing almost the whole time during the Case 2, which was not very nice, as I think that despite the other tasks one is required to carry out along with this course's projects, one should contribute even a little, or make clear when he/she is able to join and how much.

5.2.3 Task Progression within GVTs

From the above observations of operative and human elements of tasks, it is clear that there are multiple activities taking place that lead to multiple processes. These activities and processes contribute to the development of relationships. Before trying

to deconstruct these activities and processes to understand relationship development, it is necessary to understand the progression of tasks within the life of a GVT. Tasks progress temporally from one task to the other, until all the tasks assigned to GVTs are completed. GVTs followed two significant consecutive steps in accomplishing this goal. First they focused on the operational aspects of the task, and second they reflected on the completed task before beginning the next. From a sensemaking perspective, these operational step constitutes the enactment of the social structures of these GVTs, while the reflection step constitutes the intersubjective meaning and future action. Social structures also exist in human elements of tasks. Based on the empirical observations, these two steps can further explain the different stages GVTs follow.

In the operational stage a team is focused on the task, and the members' first step is to develop an understanding of the task through virtual communication and using a number of tools. Once everyone on the team understands the task, the team determines the common objective they want to achieve. Next is the planning phase, wherein a GVT discusses multiple pathways to achieve agreed-upon goals within the provided time frame. This step also requires that internal deadlines be set and the main task be divided into sub-tasks. The third step in the operational stage focuses on task distribution, where GVTs assign sub-tasks according to the individual members' capabilities. The penultimate step is to set up the logical flow of the activities to be completed by each GVT member. This step, called task scheduling, resembles project management practices, where one sub-task must be completed in order to perform the next. The last step, task completion, concentrates the GVT's efforts on bringing all sub-tasks together to produce a single solution for the main task according to the goals set in the first step of this operational stage.

These steps are followed in a life cycle where one step follows the other until the task is completed. Figure 9 depicts this cycle: Different interconnected steps are shown in circles and the thick arrows represent the logical flow from one step to the next. At least part of the relationship development process is based on the interactions that take place during these steps.

The thin arrows in Figure 10 represent the movement from one task to the next after completing the first one. The learning that GVTs bring forward to their next task comes from the human elements, factors that include the variation or difference between two tasks, the flexibility of individual team members, their ability to manage their time and workload, reflection on individuals' contributions to the previous task, and learning from instructors' feedback.

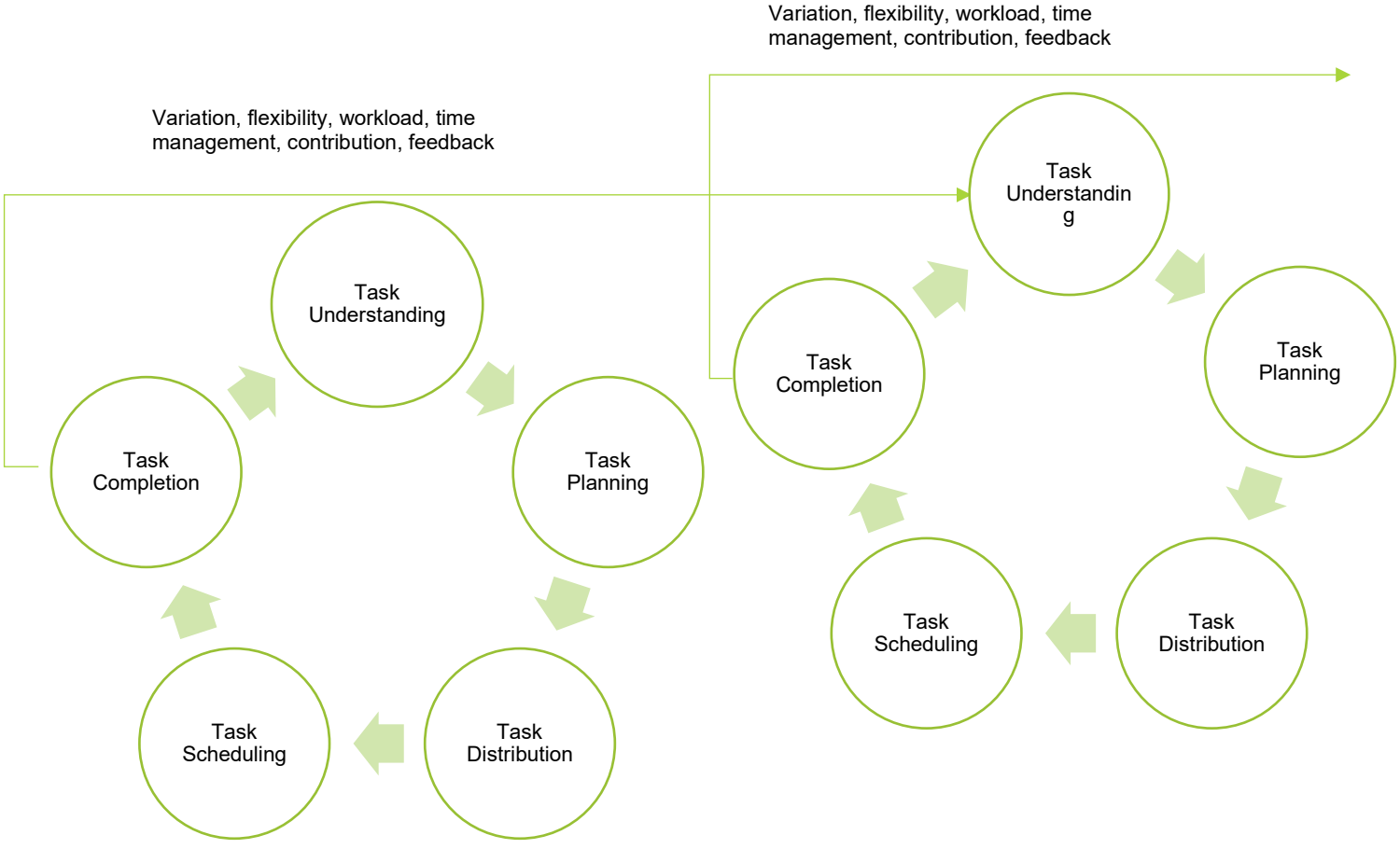

Figure 10. Task Progression

These factors do not follow a particular order; neither factor comes into play from one transition to the other. Some GVTs waited for feedback from the instructors, especially those who could complete their tasks on time. In such cases, they were concerned about the quality of their work, and feedback highlighted improvement areas. These GVTs refined their approach to the tasks based on the feedback they received. In many other cases, GVTs faced internal problems such as finding times when all the members could participate in the discussion or dealing with non-responsive members, and there were some cases where an individual's capabilities were misjudged. In most cases, GVTs did not wait for feedback; they already knew the sources of their problems. Many of the members acknowledged these problems in individual reflections, already discussing better time and workload management, redistribution of sub-tasks according to capabilities, and making the schedules more flexible by keeping time slots free to make adjustments during the operational phase. On top of that, they took their feedback into account to further improve their upcoming performance on upcoming tasks.

5.3 Tasks and Processes of Relationship Development in GVTs

At a very abstract level, relationships can be dialectic in a given instance. It can also be argued that at a particular time, they are either positive or negative. In a team context, positive relationships mean that the level of trust among GVT members is high; the conflicts rising within GVTs are handled with a positive mindset and, more importantly, positive outcomes. The overall satisfaction level regarding tasks is better among the GVT members. At the interpersonal level, members can connect while positively fostering one another's expectations. Negative relationships are the reverse of the above descriptions. While it would not take much time to understand where most GVT members stand at a particular time, how these members and GVTs reach that point is rather complicated and involves multiple relationship development processes. During these processes, GVTs need to cultivate trust, manage conflict, attain satisfaction, enhance interpersonal affect, and manage expectations while working on virtual communication tasks to attain a positive work climate. In this section of the thesis, I discuss multiple processes that contribute to relationship development processes in GVTs from a task perspective.

5.3.1 The Lifecycle Process

The life cycle process of relationship development follows operational stage logic. In some cases, as soon as GVTs are allocated a particular task, the members begin working on understanding it individually before their first group meeting takes place.

In other cases, the introductory meeting is set up to agree on the procedure to understand the task. It does not matter how the GVTs approach the task, because in essence, all of them follow the operational steps presented in Figure 10 (task understanding, planning, distribution, scheduling, and completion). The lifecycle process of relationship development is an outcome of the interactions that happen during these steps.

In the relationship cycle, team members initially establish rapport by introducing themselves through the first assignment. This rapport includes discussions about educational backgrounds, work experiences, individual capabilities, and group work expectations. After discussing the requirements of the task in the planning phase, the GVT members divide the tasks. During this stage, the GVT members initiate trust development by relying on one another to complete the assigned task. It is critical to note that some members start with a high level of trust in their fellow team members, while others take a cautious approach and wait for the first output before they invest more trust.

The next contributor to the life cycle of relationship development is the level of satisfaction that the GVTs experience after completing the task. Perceiving a better level of performance and meeting the task's objectives within the assigned deadlines tend to positively influence the satisfaction levels, resulting in positive relationship development.

GVT members express their understandings about others in the team differently because individuals perceive the same phenomena differently. It is also noteworthy whenever such individuals meet for the first time, they usually start with others' positive perceptions. These findings are reflected in the following quotes from different teams, where building rapport depended not only on what a member had to say but how the other members of the GVT perceived it.

> It is useful that our team members are different, either in their experiences, in their way of working and therefore in their functions within the group.

> If we [are] constantly working and improving our teamwork strategy, [as] how we are doing now, I feel confident with my team that we can accomplish our assignments smoothly. I [am] fully aware that each individual has his or her own strengths and weaknesses; that is why we are all trying to improve and better understand one each other. Being [united means that we must]…be open if we are struggling with something because we know that others will happy to help, free to express [their] opinion, …well-balanced, quick to make decisions—I believe we can overcome whatever challenges might arise during this course.

These two comments reveal that individual perceptions work differently and tend to culminate in the others' initial image or rapport in a GVT. In the first statement above, the participant's overall view of the GVT is that it is diverse on multiple levels, and that this quality would help the GVT accomplish its goals. In the second example, the team member compared the perceptions of his current GVT colleagues with those of previous working group, and expressed an expectation that the current team would be different from previous teams, as would the team's performance. The two significant findings are that GVT members start with a positive reputation, leading to the establishment of a positive rapport, but personal information processing vary; however the resulting perceptions are positive, leading to the establishment of rapport.

The initial rapport leads to the development of trust, which starts at the task planning and distribution stages. When the GVT members meet using virtual means of communication, they start approaching the task and plan the steps needed to conduct these tasks. The next step is the distribution of the sub-tasks. During this stage, the members put their trust in one another's capabilities, which was described as following by a team member:

> "X" [is] our technical expert and notorious hacker, the Professor "Y" of our group would handle the tech-savvy mumbo-jumbo. "Z" [is] our true fierce leader, a true Wonder Woman of the group had the organizational skills of an Elon Musk on steroids, kicking us to always strive for better. "A" [is] the video-wizard with a heart of gold, she handles the Global Heroes visuals to ensure our message of a better world is eloquently presented to the world. "B" [is] the Hulk, smashing things and of course me, the joker, wild card, all-round American cowboy in love with myself and making sure the morale stays high, "C".

While the above description might seem too positive and a start in the right direction when it comes to trusting the GVT members' capabilities, this is not always the case. Some GVT members were not willing to take risks at all, and even though they pretended to be team players they had their plans regarding the completion of the tasks:

> When we received the assignment, I quickly [grabbed] the facilitator's role (which is usual for me), then the rest went on according to [my] plan B. Plan A was idealistic—that everyone is active, motivated, etc., to make his/her work excellent. Plan B was realistic—that things go as usual, and people will deliver [work of a quality] below my expectations,…I'll simply have to do more to make the deadlines, and so on. As this is not a one-time event, but a series of tasks, I

> have [an opportunity] to educate [my] peers and influence our future work so that we [will] succeed more as a team.

In these situations, the other GVT members tried to convince such individuals that duplicating efforts will only lead to poor performance, and the concerned members should trust the others in the team.

> He claimed that he needed to finish the task in his way to feel safe, as his proposals are correct and the best ones. Nevertheless, I had to argue [with him. I] believe that he is not [my] teacher, and even [a] teacher [would] never [speak to] us in [such] a black-and-white manner. From my perspective, studies organized in the form of teamwork [are meant] to build a network [and] help [us help] each other to study better, not to get the task done in one's own way, whatever it costs.

> [We tried to tell him nicely] that this is a group work and that he has to learn to trust that we will deliver our work in time, and that the result is [still going to be] top quality.

The next stage in the life cycle process is the completion of the task. The time between the completion of one task and the start of the next task provides GVTs with the opportunity to look back at the completed task and compare and evaluate their performance against the set objectives of that task. During this time, GVT members had the opportunity to reflect that if they achieved the desired level of performance, they could achieve that level of performance within the given deadlines if the individuals were able to deliver what they promised. The answers to these reflections resulted in a certain level of (dis)satisfaction, which further influenced the relationship development trajectory of these GVTs. Below are a few of the individual reflections highlighting the level of satisfaction for members of different teams:

> [From] my perspective the strengths of our team are that we are very organized and everybody is adhering to the deadlines. Our communication is really friendly and we are supporting each other, viewing one another not as competitors. Is it a very respectful climate, especially the way we work and talk with [one another].

> I feel thankful for being part of this team, because of the professional and friendly atmosphere…we were able to establish.

> I'm very pleased with the end result, but unfortunately I'm not pleased with how we got there.

> We finally managed to record the voices and films and create the video, but [it was] too late, and the result is far from my expectations (I am in charge [of] creating and uploading the final video). Because of the bad time management, we delivered a work which is not really representative of the real efforts made by the whole team.

The above statements show a spectrum of levels of satisfaction, from extremely good to extremely unhappy, starting from the situation where the members view everything to be extremely good in their GVT, moving to the situations where members are happy about the outcome but not with the ways their GVT approached the task, and finally the members who view both their outcome and the GVT practices to be sub-standard. The ultimate effect of the satisfaction level is that it shapes relationship development trajectories, where a higher satisfaction level led to better relationships and vice versa.

The last stage of the cycle process translates into interpersonal affect. While the level of satisfaction was predominantly reflected the GVT members' views about the task completion and achievement, the interpersonal affect was an individual level outcome where members formulated their opinions about the other members. These views acted as lenses through which they viewed their relationships, which also determined the future trajectories these relationships would take. The use of interpersonal affect was not apparent in the initial phases of group work but became evident with time.

The life cycle process is repeated among GVTs with every new task. While different stages of the life cycle remained the same, members adapt to these stages according to their continually developing perceptions of their teams' tasks and individuals. While the first life cycle results in the initiation and establishment of rapport, trust, satisfaction, and personal affect, the subsequent cycles developed on these factors influence relationship development.

Once affect-oriented trust was established within a team, the members established cognitive-oriented trust, which strengthened their relationships. However, the number of such GVTs was considerably less. GVTs that did not develop cognitive-oriented trust were not poor performers and maintained their focus on the task at hand. Therefore, in these teams, task-related trust grew over time and kept the teams together to perform at an optimum level influencing their relationship development positively. It should be noted that although GVT performance was a significant contributor to trust development, it was not a sole indicator of better relationship development. Some of the GVTs that performed poorly also displayed

a higher level of trust and attributed their lower performance to the group's newness, a need to understand one another's capabilities better, or a need to find a better person-job fit. In such GVTs, relationship development trajectories were also positive. GVTs whose members could not establish trust in others early on but completed the task as required saw negative relationship development, with the blame shifting from one member to the other.

The level of satisfaction increased with time when teams reflected on their performance internally. It was further enhanced when the GVTs received feedback according to their expectations. In cases where there was a discrepancy between the expected performance and the feedback, the level of satisfaction was influenced negatively. However, the level of satisfaction was one contributor to the positive or negative relationship development trajectory. In cases of discrepancy GVTs analyzed the feedback during the reflection period. If they agreed with the feedback, they were still satisfied with their performance and committed to performing better. In instances where they were not satisfied, they tried to place the blame on some externality or the internal functioning of the GVT. Overall, the higher level of satisfaction contributed to the positive trajectory of relationship development and vice versa.

It was through multiple life cycles that the overall relationship development processes were unveiled. The life cycle process explains some parts of relationship development, but only partially. The next section focuses on the teleological process explains the movement from one life cycle to the next. It also partially explains relationship development processes. The dialectical process that takes place within both the life cycle and teleological process is discussed below. Lastly, the overall relationship development processes over the life of GVTs are discussed in terms of the evolutionary cycle by bringing together the life cycle and the teleological and dialectical processes.

5.3.2 The Teleological Process

Relationship development relating to tasks in GVTs is not only influenced by the lifecycle of the task but also follows a teleological process that develops as a cycle of goal formulation, implementation, evaluation, and modification of goals based on how the GVT learns. However, unlike the lifecycle process, the teleological process does not follow a sequence of stages but adjusts the GVT processes when and where required based on what is learned. As GVTs work on many projects during the time they are convened, not just one, the members of these teams tend to reflect on their work after each project. Factors such as task variation and team members' flexibility, workload, time management, individual task contribution, and feedback from

previous evaluations tend to play a significant role in relationship development processes.

The above factors are related to the factors discussed in the lifecycle process. Task variation influences the task understanding and task planning, workload, and time management, which in turn influence task distribution and task scheduling. Similarly, team members' flexibility contributes to task distribution and completion. These influences contribute to relationship development processes either directly or through the task lifecycle factors. However, these particular factors do not follow a life cycle but contribute in a teleological manner: They usually come into play when GVTs are transitioning from one task to the next. In this sense, the teleological process factors act as a bridge between multiple lifecycle processes. Therefore, relationship development processes in a lifecycle process differ from every previous cycle in terms of the trajectory the overall process might take.

Task variation forces GVTs to adapt according to a tasks' changing needs. As each task we assigned was unique and they grew in complexity with each iteration, the GVTs inevitably had to adjust according to the resources they had at hand.

> However, if the first two cases provided quite sufficient information for us to come up with problem-solving and business model proposal, Case 3 really raised the level of difficulty: …[step-by-step] our team had to…investigate such [a] huge industry context, diverse customer target and [what was to me] a brand new concept…service-dominant logic.

Task variation has a snowballing effect on the other elements of teleological factors and thus influences relationship development in the teams. Task variation questioned team members' skill levels, resulting in the change of roles and requiring different problem-solving approaches. In this case it required the GVT members to put more synergies into the task at hand:

> We tackled this task in a very professional manner, so that everyone [did] their best…one member [wrote out] the main ideas about the task, another…looked for necessary information and [wrote out] the content, and one more [shaped the] text and ideas logically and took care of the pictures and the whole outlook. I feel more or less satisfied about the work we have done and found this assignment quite successful. Unfortunately, our team leader did not participate, as he was travelling during these days.

> I am also aware that in this case, we were open to creative ideas, but the difficulty…of [this] case was the highest [compared to the] previous cases [and

> the] concrete requirements seemed to be harder. It is obvious that our approach in this case was not the same as other cases.
>
> Case 4…continuously proved our ability of working under high pressure, because unlike the previous cases, [it] truly challenged us the most, even from the very first [step] of searching for a desired field that could lead to business opportunities.

Task variation also influenced other factors, such as team members' flexibility regarding task accomplishment and how they dealt with increased workloads in a timely fashion. Flexibility was also influenced by the team members' perceptions of themselves and their coworkers with regard to personal capabilities. In some cases, some team members perceived others as less capable and therefore tried to assign those members less complex tasks; however, this led to those members feeling that they were being deliberately pushed aside, causing demotivation and dissatisfaction, which in turn led to poor relationship development. There were a few cases where members acknowledged a mismatch between their capabilities and the task at hand; these individuals were more focused and willing to achieve the end goal, so in these instances relationship development was seen to be developing in a positive sense.

Most of the teams acknowledged that due to the variation in tasks, the level of difficulty increased with each new assignment. This increase in difficulty caused workload issues, as they needed to put more effort into completing the task. Apart from task complexity, a few external factors also influenced the workload for team members. Most of the teams acknowledged that other courses and projects required more work as their semester progressed. In such circumstances, the management of workload was key for teams that established harmonious relationships. In teams where team members were considerate of these issues and flexible, individuals were willing to allow busy members to take on less workload. This kind of positive attitude led to satisfaction and better interpersonal relationships among GVT members. These positive relationships helped the teams be more caring for others' needs. Those who could not participate and were accepted by the GVTs were motivated to contribute more to upcoming projects, further strengthening the positive relationship development. There were instances where many GVT members wanted to stick to the primary roles assigned to them and therefore showed less flexibility, thereby creating more friction; this increased friction led to dissatisfaction and anxiety, resulting in negative relationship development.

Time management was another area in which teams improved over time. Some teams faced problems during the first task regarding time management when creating their video presentation. Later on, after completing the first task, while reflecting, these teams acknowledged that they underestimated how much effort the task would

require and therefore ended up being late. However, the positive attitude and learning from the first task led to positive relationship development. The teams were happy to learn something new and seemed motivated to manage their time properly in the subsequent tasks. However, in the later stages of the team life cycle, time management issues arose again when they were required to create video presentations, leading to negative relationship development. GVTs considered those responsible for the task to be either negligent or not sufficiently motivated, which negatively influenced the outcomes and dragged the whole team down. In sum, the difficulties with time were caused initially because content of the presentation was not of the quality that the teams were expecting, which was attributed to the individuals' motivations and later to the technical problems with creating a video.

Time management issues also occurred in one-time instances, influencing relationships one way or the other. There were instances where a team member was traveling and was not able to complete his or her allocated tasks. In one instance, a member was not technologically capable of performing the task due to either poor research skills or software handling issues. In such instances, the teams reflected later on that their time could have been appropriately managed if the members had explained their limitations in a timely fashion.

Relationship development took a negative hit due to poor time management resulting from miscommunication. A member responsible for part of a task was traveling and believed that he had informed his team of his travel plans well in advance; he therefore felt that he was not at fault and blamed the team's inefficiency. In a later case, the rest of the team members were willing to help and develop the skills that one of the members lacked, which triggered positive relationship development on the part of the team as a whole. These examples illustrate that prior management and planning are vital for teams to build positive relationships and environments. However, this is not sufficient by itself, and teams also have to be agile and willing to adapt to unknown environmental factors to maintain positive relationship development—otherwise it is possible that relationship development could take a negative trajectory.

Lastly, relationship development was influenced by the feedback provided by the panel of evaluators. Although we kept our involvement to a minimum in terms of team dynamics and how they develop, evaluating task performance was our key role. The feedback provided to teams gave them not only an outsider's perspective on their performance but also motivated them to resolve issues of time management, enhance their technological skills, and improve their group communication in order to become more flexible and adaptive to both externalities as well as the needs of others in the team. In an organizational setting, we see our role as equal to that of management. Therefore, we suggest that management intervention should be kept to

a minimum; however, GVTs should be guided and motivated to enhance team spirit and manage their work in a pleasant environment when necessary.

Teleological relationship development in GVTs takes similar trajectories, albeit relating to entirely different factors. Positive relationship development throughout the life of teams was observed when teams were willing to tackle task variation and time management issues. When team members were more flexible regarding their needs and were willing to improve based on the feedback, positive relationship development was reinforced. In some cases, even when time management issues were not dealt with properly, the positive relationship development still existed, although only in the initial stages of the team's life. Negative relationships developed when insufficient attention was paid to task variation. Not making adjustments according to the task's requirements in the review process led to dissatisfaction, demotivation, and sometimes frustration. The author observed teams moving from positive to negative relationship development in cases where they worked on teleological factors. Furthermore, the performance of the task was not up to the mark in evaluations. The author attributes the non-improvement in performance to individual skill levels in these cases. The cases where the author observed a development from negative to a positive trajectory were mostly those where teams addressed the issues related to the project life cycle and worked on factors related to the teleological process.

5.3.3 The Dialectical Process

Along with lifecycle and teleological relationship development, the author observed a dialectical process based on multiple factors, including conflict among members, expectations from other team members, perception of other team members, sub-group formation and emergence in the team, and level of commitment. The theoretical bases of the dialectical process lie in the concept of friction, where two opposing views compete until a stable state is reached.

During this research, I found that, in congruence with the above mentioned two processes, the dyadic factors such as conflict and individual perceptions and group-level factors such as sub-group formation also influenced relationship development processes in GVTs. In some cases, these factors exerted a direct influence; in other cases they influenced the lifecycle and teleological processes, thereby indirectly influencing the trajectory of the relationship development processes.

The nature of conflict in these teams was mostly dyadic, and there were many reasons for disagreement between two team members. Some of the events included the choice of sub-task to be performed, underperformance of the task, and lethargy or aggression towards others in the team. These kinds of conflicts lead to friction at the individual level, triggering distrust in and dissatisfaction with others in the team,

and therefore the relationship development processes were influenced negatively. However, there were some highly competitive GVTs where the reason for a conflict was usually related to the approach used to solving problems. These GVTs appeared to be highly dysfunctional—when such conflicts arose, it influenced interpersonal relationships negatively—but these disputes ultimately positively influenced the relationship development processes due to the desire to come up with the best ideas and solutions and the better outcomes these teams achieved.

In some instances, the aftermath of the conflict in GVTs had been the emergence of sub-groups. These sub-groups were formed based on personal likes and dislikes, and were aware of one another's existence. At a group level, the feeling of us versus them influenced relationship development processes negatively. Some GVTs opted to create sub-groups purely to enhance their synergies and use it to perform the tasks better, viewing this as an effort to control and reduce virtual environments' complexities by overcoming geographical and temporal distances. In these cases, the relationship development processes showed mixed results.

The results of intentional sub-groups largely depended on the outcome of the task at hand. GVTs whose members believed that they achieved the end goal according to their expectations preferred to continue working in sub-groups; GVTs whose performance was sub-par did not abandon the idea of sub-groups right away, but they did look into the possibilities of addressing capability and coordination gaps. If successful, the GVTs continued with a similar approach to task completion; if not, they dismantled the sub-groups and worked together. The relationship development processes in the case of intentional sub-groups took all kinds of trajectories. In cases where sub-groups did not work out due to the members' capabilities and the task they undertook, the realization of working as a whole was enhanced but the performance that prompted this realization had already damaged the trajectory of relationship development. In cases where teams realized that to bring the work of different sub-groups together requires extra time, this did not directly influence the relationship development processes, but it did prompt feelings that the group work could have been managed better as a single unit. Agreement or disagreement regarding whether to work as a single unit at this stage of realization drove the relationship development trajectory positively or negatively, respectively.

Perceptions of self and others played a huge role in relationship development. Teams who were willing to acknowledge differences in the qualities and skill levels of their various members were more willing to accept mistakes and improve on those rather than make it a point of contention. In some cases, others' perceptions were built on the premise that because each member is part of a course that requires a certain level of skills, the members must therefore perform to a certain level. When there was a performance gap between expectations and actual performance, members developed negative feelings and were not satisfied with others' work. Such

dissatisfaction was more pronounced in cases where teams did not make a deliberate effort to look at individual-specific issues, such as the ability to use particular software. In cases where teams did try to address issues at the individual level, negative feelings subsided quickly and relationship development continued to be positive.

Relationship development in teams as defined by the dialectal model followed four different trajectories. Positive relationship development and its reinforcement were apparent when conflicts were related to the task rather than personal likes and dislikes. In cases where team members were more open and willing to help others in the team in individual capacity building, positive relationship development was also apparent, even though negativity was initially observable. Negative relationship development and reinforcement happened when team members criticized one another due to the performance gap and were looking for faults in others rather than addressing the situation. In such situations, conflicts were intensified rather than resolved. This situation led to the formation of subgroups, which further reinforced negativity.

Positive relationship development took a negative trajectory in cases where even though team members acknowledged individual shortcomings and offered help, those who needed help were unwilling to accept. In such cases, due to one or two members, the overall team environment suffered, leading to negative relationship development. Such influence was not devastating, but it did impact relationships in a negative manner.

The above discussion about the dialectical process prompted significant observations about the conflict, perceptions, and sub-groups. However, there is a need to understand that conflicts can happen at any moment during the life of a GVT, and they can take any form and shape. It could be a task conflict or personal conflict, either of which could push relationship development processes towards either a positive or a negative trajectory. Similarly, perceptions are formulated in real-time, and therefore it cannot be pinned down what event skewed perceptions in a certain way. The added complexity comes from the fact that the perceptions are individual, and a single event would have a different influence on two different individuals in terms of its intensity and direction. Intentional sub-groups are one category where it can be established if it is influencing the relationship development processes in a particular manner, and actions could thus be adjusted accordingly.

With this discussion in mind, it is crucial to note that an unlimited number of events take place simultaneously that are made further complex by the virtual nature of work, so it is not possible to highlight all such events that influence relationship development processes. However, it should be understood that the most fluid process among all different processes is the dialectical process, which is at work during the lifecycle and teleological processes. In other words, the dialectical process is the

most basic unit driving the other processes and influencing relationship development processes.

5.3.4 The Evolutionary Process

An evolutionary model of development consists of repetitive sequences of variation, selection, and retention events in a group. In the context of this research, the evolutionary process exists at a higher level where the lifecycle, teleological, and dialectical processes contribute to it. In essence, the evolutionary process of relationship development is an accumulation of routines and decision-making practices. The accumulation of trust, satisfaction, and interpersonal affect during each lifecycle, transition between lifecycles through teleology, and dyadic interactions provides a positive trajectory to the relationship development processes. On the other hand, events resulting in routines and decision-making practices leading to dissatisfaction, mistrust, and negative interpersonal affect create a negative relationship development trajectory.

The above explanation is ideal because not all the relationship development factors are influenced positively or negatively by the same events and decision-making practices; the influence is mixed. For example, in one GVT, the individual who assumed the leadership role was satisfied with the task performance, but was nonetheless unwilling to trust others when it came to distributing tasks and how the sub-tasks were completed. This behavior caused the deterioration of trust between this individual and the rest of the team. To tackle this issue, the GVT decided to make this individual an observer without interfering during task 3. To the surprise of this individual, the team performed even better than before. The assumed leader acknowledged the difference and agreed to make changes in the routines and decision-making style. This led to the restoration of trust and further enhanced the team's satisfaction level, ultimately influencing the interpersonal affect positively. These changes altered the trajectory of relationship development from negative to positive.

With every lifecycle process, the GVTs analyzed what worked and what needed to be changed. The things that worked for the GVT were usually left unchanged. In other words, the things that worked constituted the selection and retention part of the evolutionary process. In the data, it is clear in the comments where GVTs illustrated that, for example, the process of task understanding and distribution did not change when they moved from one task to the other. Implicit in the evolutionary process is the concept of adaptation and relinquishment, where GVTs tend to either change the things that do not produce the desired outcome (e.g., routines and decision-making processes) to improve them, or in some cases, just relinquish such practices altogether.

Some GVTs opted to use email as a means to collaborate on sub-tasks. The initial thought behind using asynchronous media was to provide flexibility to each member and to minimize the need to find suitable time windows. However, it also influenced the time required to complete the task. These teams relinquished the practice in favor of Google Docs, which allowed them to continue working in their preferred time frames but enabled more meaningful collaboration. While this example deals with the choice of tools, the trigger for the change was the task execution. The same example also illustrates the teleological process in the sense that it addresses the issue of time management.

The above examples highlight how different processes included in tasks merge into an evolutionary process, influencing the final trajectory of relationship development processes. The analogy of the heartbeat fits in this situation. The dialectical process relating to tasks can be imagined as a rapid heartbeat, which explains relationship development processes from an individual's perspective; the lifecycle and teleological processes can be considered the regular heartbeat of the relationship perspective, encompassing both individual- and group-level developments. These heartbeats come together in the evolutionary process of the task, where the change is gradual and happens at longer intervals. All these processes together contribute to relationship development in GVTs. There is a larger quantity of rapid heartbeats, but these heartbeats have the least lasting influence on the relationship development processes. In contrast, there are fewer slow heartbeats but they have a gradual and long-lasting influence.

5.4 Discussion

In Section 5.3 I discussed the development of individual processes and their influence on relationship development. This section discusses how these processes interact with one another based on the level, valence, and temporal dimensions and their combined influence on the relationship development processes.

The relationship development processes of a task encompass multiple sub-processes. A single process can be complicated and difficult to predict, and it becomes even more confusing and complicated when these single processes do not operate independently but are interrelated. The above discussion shows how lifecycle processes evolve in GVTs by being dependent on the teleological process, while dialectical process operate at all levels, making development processes even more fluid. In such a situation, to make sense of these different processes contributing to the relationship development, it is crucial to understand the nature of the sub-processes' interaction with relationship development processes.

Ahmed and Poole (2017) focused on these interrelationships of different processes in their study of virtual research environments. In this research, I use their

framework to develop the discussion. Type of interrelationships among different processes can be understood by their "level," "valence," and "temporal" attributes. Regarding the level of interrelationship, the lifecycle process is "nested" within the teleological process. A nested level exists when one process is hierarchically linked to another process such that the earlier process is causally affected by the later process. In section 5.2.3 I highlighted that after each lifecycle process, the GVTs entered into a reflection phase. These reflection phases formulated the teleological process bases, resulting in adjustments to the next lifecycle process. Similarly, the lifecycle process and teleological process are nested in the evolutionary process, which formulates relationship development trajectories.

The dialectical process is "entangled" with the other three processes. An entangled level of interrelationship exists among processes when processes influence one another but also develop independently. During the discussion of the dialectical process, it was observed that, for example, a conflict could arise during any stage of the task and reflection on the task. Therefore, this study considers that the dialectal process is entangled with all the other processes: It influences the lifecycle and teleological processes and is influenced by them.

In terms of valence, at the top level, the evolutionary process of a task in GVTs is positively related to the teleological and life cycle processes. If the life cycle process leads to a task's positive and expected outcome, the evolutionary process enhances the relationship development positively. On the other hand, if the lifecycle process leads to sub-par outcomes, the evolutionary process accumulates negatively and influences the relationship development trajectory negatively. The teleological process behaves similarly concerning the evolutionary process. If, as a result of the teleological process, GVTs can positively address time management, workload, and other factors, evolution will lead to the retention and accumulation of positive feelings, influencing the trajectory of the relationship development positively and vice versa.

The dialectical process has both a positive and negative valences on the three other processes. The core driver of the dialectical process in GVTs is conflict, a detailed discussion of which is presented in section 5.3.3. At a general level, any type of conflict can generate both positive and negative outcomes. In some instances, task conflict can result in better lifecycle and teleological processes but negatively affect interpersonal affect, while in other instances interpersonal conflict can cause negative lifecycle and teleological processes.

Lastly, activities encountered in different process paths also exhibit temporal interrelationships. One such relationship is relative velocity, where activities in one process move faster than the activities in the other process. In the GVTs' task processes, the highest velocity was exhibited by the dialectical process, where the activities that took place all the time may that be the different lifecycle stages of

reflection phases. Individual interactions also happen and influence the other cycles constantly. The lifecycle track velocity is usually slower than the dialectical track due to the multiple stages involved in the completion and complexity of the task. The reflective period is usually shorter than the lifecycle of a task, and therefore GVT members have less time to make adjustments compared to the lifecycle process. In this case, the teleological track's velocity is higher than that of the lifecycle track but lower than that of the teleological track.

The second aspect of the temporal interrelationship among different processes is the duration necessary to complete a process. Due to the course design, the duration of the lifecycle process took up to three weeks to complete. The teleological process took approximately one week to complete, usually based on the time available to the GVTs for moving from one task to the other. The evolutionary process spans the life of the GVTs until they complete all of their assigned tasks. Depending upon which process has a more significant degree of control over the relationship development processes, differences in velocity and duration of processes can influence how relationship processes develop and how effective these developments are.

This research on GVTs and relationship development related to the task shows that the lifecycle process entirely controls the relationship development processes. Regardless of other processes, if GVTs are unable to attain the desired outcome of the task, the relationship development trajectory will suffer. If the lifecycle process's outcome is as per expectations, GVTs are likely to overlook the task conflict, time management issues, and workload issues, and make few adjustments to the teleological processes.

The next process to exert the maximum influence on other processes and relationship development is the dialectical process. The intensity of its influence is less in the earlier stages of the life of a GVT, but it increases as the GVT works for a more extended period. Conflicts and cracks start to appear in multiple processes based on the individual likes, dislikes, perceptions of others, and acknowledging one's efforts. Here, the lifecycle process works in conjunction with the dialectical process from the outcome quality perspective. GVT members tend to ignore their grievances and modify their perceptions of others and team routines if their outcomes are positive, but in the event of a negative outcome the dialectical negativity tends to have a multiplier effect. In this case, the GVT members tend to pin blame on others and lose sight of what went wrong when addressing core issues. Although GVTs should be able to identify and address such developments, this tends to change the relationship development processes' trajectory from negative to positive.

The teleological process exerts somewhat less influence on relationship development processes. The teleological process is instrumental in changing the relationship development processes' trajectory by influencing the dialectical process, especially when the relationship development trajectory is negative. In the

case of a positive relationship development trajectory, the teleological process's role is less visible than other processes and is usually focused on the reinforcement of the life cycle process with minor changes.

The most passive process in the relationship development processes is the evolutionary process. This process does not exert any influence on the primary processes; rather, it is observed to be a retention and accumulation process. It is useful to understand where a particular GVT stands in its relationship development even if little is known about the contributing processes.

I found that relationship development in a GVT can take four different trajectories throughout its life. These teams start on neutral ground, especially when they are newly formed and have the least knowledge of other members. However, once they delve into their task(s), different factors emerge that influence relationship development, which happens simultaneously in different spheres.

Four different process tracks contribute to the relationship development processes relating to tasks. These process tracks explain different factors that influence the relationship development at multiple levels, individually and in conjunction with one another. One overarching observation is that positive relationship development is more of an outcome of task and goal orientation. In contrast, negative relationship development is usually related to individual issues and, to a lesser extent, to the teams' actual goal. Relationship development can take four different trajectories: positive development and reinforcement; negative development and reinforcement; positive development changing to negative development; and negative development changing to positive development. These different trajectories are shaped by the production and reproduction of GVT members' positions regarding their interactions.

In most cases, positive relationship development and change from negative to positive relationship development are two instances that result from favorable positions the members tend to take. When GVT members can distinguish between the task and interpersonal problems and address them accordingly, the overall relationship trajectory is either reinforced positively or changes direction from a negative to a positive trajectory.

Negative relationship development and change from positive to negative relationship development are two trajectories resulting from individuals' negative positions. These negative positions by GVT exist both at the team and individual level. During the dialectical process, if the situations are moderated by those who hold power in the groups, the chances of negative relationship development are reduced. Personal conflicts start to influence the lifecycle process when members do not employ their capabilities to their full potential. Similarly, in teleological processes, they are not open to deal with time management and workload issues but instead deliberately tend to cause them. In cases where such actions are related or

directed to one individual in the team, the overall team relationships suffer negatively, but to a lesser extent. The trajectory shifts from positive to negative in GVTs when few have reinforced perceptions that many other members are losing interest in the teamwork. Such situations prompt the phenomena of freeloading. Active members will initially try to save the situation by trying to motivate others, but if the freeloaders' behavior does not change over the prolonged periods, the relationship development processes change direction and start to evolve negatively.

During this research, I observed that task or project work is not the only factor influencing relationship development processes. In this chapter, I highlighted a few instances where communication in GVTs is also at work in parallel with the task. These instances are few not because they occur rarely but because this chapter's focus is on the relationship development processes from a task perspective. The communication channels, the kind of language used in communication, and the individual interpretations of these communications significantly influence the relationship development processes. Therefore, to further explain the relationship development processes, I focus on studying the role of communication channels and the use of language in virtual environments in the next chapter.

6 Findings 2: Virtual Communication and Relationship Development Processes

Communication in virtual environments is a crucial feature of relationship development processes. Virtual means of collaboration and communication are a distinguishing feature of GVTs. At the start of this chapter, I present the individual narratives of GVT members, reflecting on different dimensions of communication. Analysis of these narratives help me arrive at a timeline that highlights the operational and human aspects of communication. After discussing these operational and human aspects of communication, I present explanations of relationship development processes from the communication perspective.

6.1 Individual Narratives of Communication

For this narration, I use the statements of a couple of team members to illustrate the multiple processes that work simultaneously within a team from a communication perspective. These team members are different from the teams discussed in Chapter 5, because they produced a broader range of data. The purpose here is to explain the role of different communication dimensions in a virtual environment from an individual's viewpoint. These dimensions include, e.g., communication tools, communication technology, and the role of team composition in communication.

I further explore how communication is carried out in the form of communication frequency, communication content, and communication quality. In order to present the diversity and richness of the data collected, in this chapter I chose to present quotes from a different team than in Chapter 5. Through these narrations, I intend to take the reader on a journey to explain the complexities and multiplicity of work processes when human beings interact in teams. Let us start with task 1.

> **P1:** Mostly we communicated via email and had two Skype meetings. We who study in TSE also met many times after classes and talked about the case and what everybody should do. For transparency we [uploaded] all [the] information in the Google Doc. We also created a PowerPoint [presentation], where we

> started to create the final presentation. After completing the videos, one of the team members created the file and sent it to everybody for comments and corrections.

P1 elaborated on the tools the team used to achieve the first task, which included a mix of synchronous and asynchronous media. The media type ranged from email and Skype for meetings and discussions and different productivity tools to achieve the tasks collaboratively, such as PowerPoint and Google Docs.

> **P2:** In general, communication channels are mostly via email for proposals and suggestions, via Skype for a group meeting, whereas [the] built-in chat [feature] in Google Docs was used [to] comment on proposals. Besides, the phone was for urgent SMS or calls. The agreed channels of communication were checked as regularly as possible (at least once per day). I think we used all means to make the communication more convenient and information seeking easier as all key information was at just one place. I also tried to create a Facebook group chat, but it seemed that just Hanna and I talked via this channel.

P2 mentioned using the same tools, but he further elaborated on the use of the phone and SMS for the urgent clarifications. He also highlights the frequency of using these tools, arguing that they were used to provide an excellent communication and productivity platform. While most teams used similar tools to communicate and complete the tasks, it is the individual behavior that brings in exciting insights. For example, in this case, most of the GVT members felt that one of their colleagues is over-communicating and needs to be dealt with as it influences their performance.

> **P1:** In every conversation we had in Skype I would say that X was talking 80 percent of the time and [the] others 20 percent. Unfortunately, I think the same percentage applies to the whole case. Everybody [did] his or her part but [X] usually overruled [everyone]. Mostly both ideas are good but arguing with X is very exhausting because of his strong opinions, so most of the time we just did it his way.

> **P2:** We have in our team a member who has millions of ideas and who thinks that his ideas are the best (usually ideas are really very, very good), then I see that to achieve the result I can't offer my ideas.

The participant who was called out for dominating the discussions was of the view that:

> **P3:** The best way to solve interpersonal problems is to talk. I wrote approximately 10 letters about [my relationship with the group] during the rules phase and this first assignment. [This] was in addition to two Skype sessions where these issues were always [raised] by myself. Some letters were personal to Andres and Kathrin, in response to their personal concerns. Other communication was addressed to all, because I wanted to create the spirit of openness, sincerity.

P3's motivation to solve the interpersonal problems by communicating his concerns backfired in the sense that some saw it as over-communicating and creating confusion, and the rest of the team saw it as a power struggle. They considered it an attempt to control them and steer them according to the wishes of P3. As P3 reflected:

> **P3:** Initially, my main motivation was to become capable of doing QA—checking if others' ideas are providing at least higher than zero value. So, I needed to test everything on my own so as to be able to control the quality of others' work. Then I simply shared what I did, so others could also benefit in the process, not only after they're completely done.

The above quote shows that P3 was not willing to trust others and their capabilities, and rather than putting that problem in the light, he tried to increase the frequency of communication. Others in the team also felt that they and their ideas were not taken well by P3. Others reacted to this situation and expressed them in the following manner:

> **P2:** The dominant member just removed the contributions [made by] other members and replaced [them] with his. It seemed that though there is likely hidden dissatisfaction about this situation; other members kept completely silent and followed (perhaps they found it meaningless to talk or just a waste time),

> **P4:** Too much information and emails are killing the communication. We wrote many long emails and in the end nobody read them…. Less communication is sometimes better. I hope that my team members learn from me that for achieving the result there is needed to step back sometimes—to win the war you may need to lose some battles.

P2 talked about his perceptions in this case. P3's authoritative approach did not sit well with P2, as P3 again showed a lack of trust in others by considering their work subpar. P2 talked about how it leads to dissatisfaction among the group members, but yet again, most members took no action because it was the start of the teamwork,

and also according to him, the rest of the team thought it to be meaningless. P4 considered it to be a case of too much information and a desire to control the process of achieving the end task from P3's perspective. However, P4 also considered that it was necessary to let the others work as they deemed fit, in order to maintain harmony in the group. In a way, it was a positive mindset where the achievement of the end goal mattered more than anything else.

> **P2:** Personally, I figured out that dominance is not always a good way to complete…group work, in contrast; it might become counterproductive if abused. It is interesting to reveal that I am a much more dominant person, regularly fighting my thoughts and feelings. However, in this case, I [was] determined to be patient and have a different approach: pretty much more listening, "conceding the stage to others," exposing myself to see my limitations and accepting things outside my control. I was patient enough and did listen more.

In the above quote, P2 also reflects on the dominance of P3, revealing that he has a similar attitude when it comes to controlling the processes but also is aware that such actions in a team environment could lead to a counterproductive environment. Although he displayed similar behavior to that of P4, he decided to be patient for the team's good. Let's move on to task 2 and see how this situation transpired further.

> **P2:** With respect to **[P3]**, it was better that **[P3]** seemed to be nicer in this case. I guessed he might well know that his dominance style was probably reported to the Teacher by **[P1]** and I. In a word, that was a positive change in terms of respecting others and share a team spirit, I suppose.

Here P2 along with P1 acted based on his perceptions of P3's authoritative behavior, which helped the enactment of future actions during task 2 in a different manner. As P1 noted in her own reflection:

> **P1:** [P3] didn't get offended by our comments about his domination, and actually looked at himself and tried to figure out a solution that satisfied us all.

P3 also reflected on this incident:

> First, I want to thank [the teacher] for her advice to myself to go for an experiment and keep silence for a while so as to let others do something as well. it worked better. "Better" means that some ideas were generated by other team members, they were used and…importantly, people seemed to be happier about

> that. For example, P1 and P4 personally thanked me for that new way of working.

At this point, it seems that the environment of open communication in the team flourished when two issues were tackled simultaneously. One, by making P3 realize how his actions created mistrust among others in the team and two, by making him realize that over-communication was creating more confusion in the team rather than producing quality content. P2 reflected on these areas in the following words:

> **P2:** I learned that building trust could be built on punctuality, level of task completion, dedication to the work, giving a hand to other mates in need, and even [an] acceptable level of communication. It is possible that the high levels of communication might cause a member to become suspicious that others are monitoring him/her, and hence his/her satisfaction with the team decreases. Those were exactly what I did so as to enable other mates trust in me. At present, I can feel their trust in me after the first case. It was also worth noting that it was a minor mistake [on P3's part] that he sent a lot emails to remind others of the task, [which] sometimes disappointed me. However, I can learn from that experience.

His reflection is similar to that of P1 because he understands that trust is a two-way street and is willing to consider the whole incident as a minor mistake. He is also self-aware, and elaborated on the steps which he took to create a trusting environment. Further, he also reflected on the role of communication and the need for balance in it. From a sensemaking perspective, it can be argued here that in this case most of the GVT members had similar perceptions of one of the authoritative members. Through positive attitudes, the team members were able to reach a level of shared understanding, which helped them focus their energies on the task rather than the interpersonal conflict. Therefore, future interactions could focus on the task rather than team cohesiveness.

Before moving to tasks 3 and 4, I wish to remind the reader that the nature and level of difficulty of these task were considerably different. At this point the team had already set up its task routines following a project management approach. A third influencing factor came in the shape of increased workload outside this team setting, where participants have to manage their time among multiple spheres of life. With these changes in the background, let's move to tasks 3 and 4 and see how the tools and human elements of communication further influence these teams' interactions.

> **P1:** I have to admit that for this work we have to mainly thank [P3]. Most of our group was occupied with trips, exams, etc., so our participation was not really good. I also think the case was much harder. I personally did not understand what was wanted from us. Compared to the first [task], where the concept of the business was familiar to everybody, this was super hard.

P1, in discussing task 3, highlighted the changing nature of the task, the daily responsibilities from the other spheres of life, and the resultant shift in the workload. She went on to explain the changes in communication patterns based on these changes in the following words:

> **P1:** Difference between the communication between this and Case 2 was that in Case 2 we really tried to overcome the problems we had in Case 1, so we had more Skype meetings and more emails were exchanged. But here again the problem was that half of the team was not available [for] the whole case.

The highlight of this reflection is that from Case 1 to Case 2, they worked on interpersonal issues and tried to reach the optimum level of communication frequency to and focus on the quality of communication. The recent changes in the form of exams and other externalities, along with the more complex nature of the tasks, forced them to communicate more frequently once again.

> **P2:** On the one hand, the positive thing is the time for decision-making is substantially shorter. However, on the other hand, other members gradually formed the belief that finalizing the product was the responsibility of [P3] and I; they did not care anything after the group discussion with the repeated reason and excuse for being busy.

The shared understanding among team members is highlighted in task 3. The members who could not participate acknowledged their absence, and those who had to take on extra work also knew the others would be absent. However, the perceptions developed were different for each individual. P1 wanted to focus on other areas of her life and considered this to be a genuine reason to allocate less time to her teamwork. P2 noticed her and others' absence, and thought that their reasons were simply excuses. P3 also felt that the work was distributed unequally:

> **P3:** I decided to stop working like a horse instead of others [and] informed my teammates about it, clarifying the reasons. I said: I just cannot do more, [I] cannot threaten my health and [my] other courses. I even apologized that I [was not able to] completely keep my own word. I also said that I would not do

> anything for the video in the next assignment. I did not say much, but I think everyone understood what I meant. Everyone said the same—do not kill yourself, we understand you. But I guess they got my message: please work.

Until this point, this GVT had been able to resolve its differences by acknowledging one another's hard work and accepting individual shortcomings. It was a team of high achievers, and therefore, everyone expected a lot from themselves and others. That is one reason why they were open about their problems and willing to discuss them openly. While these events were unfolding, further communication tools and patterns emerged. The members started to communicate more through emails again, as they had in Case 1, not for personal reasons but because the active members wanted to include those who could not participate for one reason or another. The members started to communicate one-on-one as well. P3 reflected on this phenomenon:

> **P3:** No common Skype sessions this time. One personal meeting (resulting in approval of my concept). Then mostly communication in Skype (chatting with P2, P4) and emails to the whole group. P2 video-called me in Skype a couple of times. I responded because I felt it was a sign of the relationship getting warmer and more personal. Team-building ☺

Among all the chaos and differences in the team, the relationship development processes seemed to be developing positively. As I argued earlier, even though the task performance is a significant contributor to the relationship development processes, the role of communication cannot be ignored, especially in virtual environments. The team's ability to see where problems lay instead of blaming one another and focusing their communication on the final goal helped this team develop their relationships positively. Connecting at a dyadic level among the most authoritative participants also helped the relationship development processes. In task 4, a significant observation concerned the use of multiple tools. Although until this point I had observed that the multiplicity of tools was helpful for this GVT to adapt their behavior according to the emerging situation, in Case 4 this multiplicity backfired.

> **P3:** P2 contacted me frequently in Skype. P1 worked more through Facebook. I guess it was more convenient… However, the use of multiple channels turned out to be bad (this is what I warned them about in the beginning) when I was late for the filming. I sent a message [via] FB, thinking that it was sent to the group, but I did not notice that I sent it only to P1. …P2 was not aware that I would be

> late and why. Therefore, in future I would avoid multiple channels and keep emailing only so as to avoid the loss of information.

P3 blamed the technology in this instance, and to some extent P3 was accurate. The multiple tools and time pressures can cause such an error. However, in the end, it was a lapse at an individual level, not the fault of the technology. When I analyzed these interactions in conjunction with the task, the group level patterns emerge. In Figure 11, I present the events and changes in communication behavior.

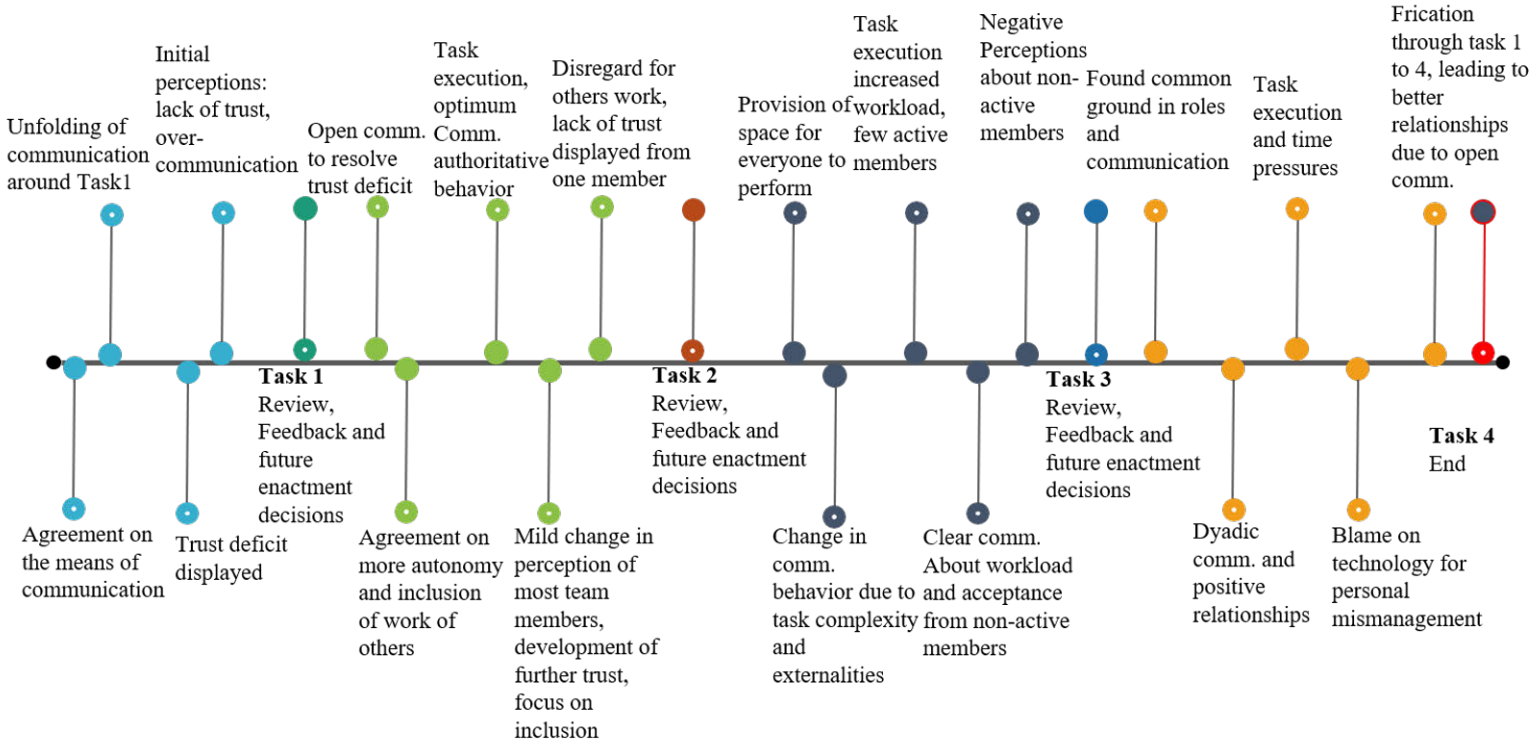

Figure 11. Adaptation of Communication to Suit Events as they Unfold

Figure 10 above illustrates the unfolding of communication in one of the GVTs. Figures 10 and 8 (the timeline of tasks and events) are interrelated: First, communication tools and the discussions of tasks influenced the initial perceptions of different task stages, optimum communication levels, and different kinds of operational agreements; and second, communication perceptions also influenced tasks where the team members might have felt overwhelmed due to the volume of information. In the following sections, I discuss many such overlaps between communication and tasks. It is essential to note that the unfolding of communication was not the same for all the GVTs, so after analyzing the data from all the teams, I produced group-level explanations of how their communications unfolded, which are presented in the following section.

6.2 Group-level Explanations of Communication

In this section, I present three operational elements of communication and three human elements of communication that influence relationship development processes. The operational elements include communication tools, selection of technology, and the power dynamics within GVTs. The human elements include the frequency, quality, and content of the communication.

6.2.1 The Operational Elements of Communication

Without background knowledge of media richness theory, the participants in this study chose a variety of media to communicate. The tools used to formulate and further enhance the communication structure among individual team members varied according to the purpose of communication. The following table 13 lists different tools and the purpose of each, as used by the GVTs.

Table 13. Use of Communication Tools

Tools	Purpose
Google Docs, Office 365	Brainstorming, collaborative writing
WhatsApp, Facebook	Instant messaging for solving small problems
Skype	Group meetings
Video editing tools	Final presentation

When the GVTs started to work on their projects, most of them used the tools mentioned above to coordinate their communication to achieve the end goal, a video presentation detailing their solutions to different problems posed in the form of project work. These media choices played a substantial role in establishing and developing relationships among the team members.

Another element of communication among these GVTs came from the organization of work through meetings. Although not in direct communication, individually most teams came up with a similar meeting structure. As soon as they received a new project they would hold a video conference to formulate an understanding of the problem. Afterwards, most of them would agree to study the relevant information from different sources and brainstorm while writing up their ideas in a single document. A second video conference would be held to debate different solutions and how to divide the work. Teams would write a formal script for their proposed solution, and few members would be assigned the responsibility of creating a video presentation to explain their solution.

Technological structures depend on communication structures because of the technologies employed by GVTs to achieve their end goal. However, the choice of these technologies and resultant technological structures are an outcome of the ease of use, accessibility, and cost of using a technology (Zhang and Chen 2010). In this study it is apparent from communication tools perspective that a technological structure is for the most part an outcome of freely available tools. The participants did not have to pay for these tools, as they were free to use or available under the participating universities' subscriptions. The only tools the participants had to find on their own were video recording and editing tools.

The power structure in GVTs is another element visible in the communication patterns. Both formal and informal power structures exist in GVTs. For this study, GVTs were divided into two groups. In one group, formal leadership roles were assigned based on the initial assignment from the individual members. In the other group, teams were not assigned formal leadership but were nominated by the members, who also had the option to work as a spontaneous work team without a specified leader. In Section 5.1, we saw that in the absence and non-participation of formal leader, another member took the initiative to fill the void. Her communication showed her displeasure at having to take on an additional workload. In comparison, her teammates expressed their admiration for her initiative. On the other hand, we saw that a struggle for power among team members could result in over communication, and team members had to focus on this issue right in the start of group work (Section 6.1). Therefore, along with communication tools and technological structures, power structures also influence communication patterns in relationship development processes.

6.2.2 The Human Elements of Communication

Communication frequency, quality, and content are heavily dependent on individual behavior, e.g., within a team, individuals' language abilities, knowledge of communication technologies, and communication apprehension, among other things, influenced relationships developed via communication.

In the individual narratives, I showed a glimpse of communication frequency where one individual's frequent use of emails, Skype meetings, and short conversations left his other team members baffled. The team had to intervene to tell the member that he was over-communicating, and it was creating confusion regarding the task. This is one dimension of the frequency. My data analysis showed that, at the other end of the spectrum, participants working in GVTs proved to be a radical concept. These individuals were cautious about communicating even during the most critical parts of the task, such as brainstorming. Other members in such teams noticed this behavior and first attributed it to shyness. However, at the same time, all the team members encouraged one another to speak their minds, thereby increasing the communication frequency to make all the members feel included and valued.

Quality and content of communication go hand in hand. For example, in the individual narratives presented in Section 6.1, P3 pointed out that he had many ideas for completing the tasks, and he wrote these ideas up in Google Docs. However, the team members did not understand those ideas right away; instead, he had to invest considerable time to clarify his ideas in further discussions, which could have influenced relationship development processes. If the discussions (the content of communication) are focused on the task's solution, relationship processes might develop positively. However, in the case of P3, if the discussions are focused on fighting for the validity and applicability of only own ideas, the quality of discussion would deteriorate quickly. Therefore, the relationship development processes might follow a negative trajectory.

In Table 14, I present a snapshot of individual reflections focusing on the human elements of communication. The cross-tabulated data shows the influence of these human elements on different aspects of relationship development. These aspects are the driving force of relationship development processes, so demonstrating the link between communication and relationship development is the first step towards building the process explanations. The table offers a glimpse of how different individuals perceive their peers based on communication frequency, content, and quality. For example, in the case of trust, one team took time to look into the practicalities of how often they would need to communicate and create an environment that acknowledged one another's capabilities. In another team, the level of trust suffered a lot where one team member acknowledges the capabilities of peers but seemed to disagree with their work approach and how they came across as team members. Table 14 also shows how the actions and expectations of team members differ from one another with regard to aspects such as role expectations, satisfaction level, subgroup formation, conflict, sub-group formations, and interpersonal affect. In the following section, I present holistic discussions on different relationship development processes in connection with communication.

Table 14. The Human Elements of Communication

	Communication Frequency	Communication Content	Communication Quality
Trust	Communication is the key in all group works… And again more in virtual teams! When you work with a team you need to communicate a lot to inform them of what you did or what you will be able to do (when you will be able to work ect). It's quite important because the others need to know how your work is advancing and when you are going to finish. It's the same thing in virtual teams but with higher proportions because the others don't know you and the only way for them to know you is your work.	I would not employ anyone from my team. This idea often comes to my head when I analyse our work – all through the cases 1-3. Andres would be the best candidate so far and Y has the right qualities, but her experience and knowledge are her main barriers. X has the right ambition, but he lacks systemic approach. N lacks nearly everything :)	Communication is the key in all group works… And again more in virtual teams! When you work with a team you need to communicate a lot to inform them of what you did or what you will be able to do (when you will be able to work ect). It's quite important because the others need to know how your work is advancing and when you are going to finish. It's the same thing in virtual teams but with higher proportions because the others don't know you and the only way for them to know you is your work. They can't trust you because they don't know you, so you need to inform them about our timetable and progress at any time.
Sub-Groups	During the meeting the case assignment was splitted to 3 pieces. Analytical, proposal and conclusion part, each part has 2 members. There was 1 week to complete three parts with three groups. Next was a skype again to link all three pieces into one document. Each group recorded their part into voice as well. One member made a visual presentation included records text-voices.	We split into three groups of two people and divided the questions between the groups. Having answered the questions and done the analysis, we created slides and one person from every group narrated their part of the slides.	I suggested that me, N and B would brainstorm together at XXX. Supporting her and overcoming the language barrier could be a lot easier face-to-face, where you can easily demonstrate, coordinate what the other is doing and use expressions as well as analyze the other's expressions.
Role Expectations	One aspect that made the teamwork a bit uncomfortable for me, was that it seems the other teammates are full time students and don't have a day job. Because of this a lot of the discussion took place during the day. Since I have a pretty demanding and intense job I was not able to actively participate in many of these discussions and could contribute more during the evenings when people were less active.	We all had an aspect of knowledge from the McKinsey case that we should analyze, which I did and so did the rest of the team. For X the 'content' was lacking in all of them. I tried to explain that given the timeframe left (8h to deadline) we would not have enough time to finish analysis on the final research question on how to 'better distribute' knowledge within the firm.	As every team member can write anything to the Google Docs it was somewhat unorganized in the beginning. However all of the main concepts and ideas were visible. I now start to realize that our group consists of individuals that like to think before saying anything. This is why utilizing Facebook group chat and Google Docs is probably the best fit for our team rather than for example Skype! Yet, I would state that the main difference between teamwork in Case 1 and Case 2 was that we started to communicate more openly. Some jokes were stated during conversations. This is always good sign of enhanced team spirit.

Satisfaction	Everyone knows what to do and when to do because in the group there is a continuous communication on Facebook and a nice basic organization; the death-line, until now, have always been respected. We all row in the same side and I believe that this is the basic, maybe sometimes also to obviate our technical deficiencies.	I was happy to notice, that also some others were too contributing in this case from the very beginning by searching articles and studies concerning the Knowledge Management and Organizational Learning.	A very good point in our team I mentioned in the first reflective essay and would like to repeat is the harmonious and positive atmosphere for teamwork. Everybody in our team always respects to other members or ideas. It helps us not hesitate to talk about our new ideas as well as giving comments for others. In case we have different opinions, we can find a peaceful way to explain for others and go to the conclusion together.
Interpersonal affect	Two of our team members were again missing almost the whole time during the case 2, which was not very nice, as I think that despite the other tasks one is required to carry out along with this course's projects, one should contribute even a little, or make clear when he/she is able to join and how much.	when one member missed the conversation and the deadline was chasing fast, the others still worked to cover his/ her parts as much as possible, and then noted down all the discussion so that the other member could catch up with the group. We do not let anyone feel abandoned or misunderstood about the case. That is when I realize the significant value of friendship, sympathy, tolerance, loyalty and responsibility of a team, which can encourage and impulse our willingness, ambition and innovation for the task assigned	This time we had something more: everyone has actively participated to the video's realization, everyone has constantly and daily shared relevant and useful information and the most important, everyone has expressed his/her own opinions and ideas without any kind of fear or reverence in order to obtain the best possible. In the previous reflective essay I underlined the fact that this last characteristic represented one of our weakness; that's why I'm really happy that this time, finally, each of us was determined to give his/her opinion just to improve our final work.
Conflict	It wasn't too long before I noticed that even the seemingly most simple and straight-forward requests, schedules, and instructions can be misunderstood. People would just disappear out of reach for days with either letting everyone know at the last minute, or with not telling anyone anything (which ended with me letting out some steam on our team's Whatsapp group, and after that to a mutually respectful burial of weapons with one member).	I was pretty upset, since I had to explain to him that none of us is familiar with the cases beforehand, and that is why everybody is expected to study the cases on their own before we start discussing them. I had just closed about 15 browser tabs related to KM and McKinsey, so the knowledge didn't actually fall into my head from the sky. I told him that I understand everyone is busy in their private life, and I don't expect equal contribution from everyone, but I expect every team member to take part in adding value to the project, and I asked him to read what he wrote about himself in our team presentation. He didn't answer.	Right now, as I'm writing this IA on November 8th, I have gotten back X, Y and Z answers. M emailed me today that he refuses to answer since my questions are not a part of the course officially, and "I'm sorry but I'm not involved in this course to please you". To be honest, I understand that my survey was extra work but I did it solely with the team's benefit on my mind, not for 'others to please me'. That is why I was actually really hurt by his email

6.3 Communication and Processes of Relationship Development in GVTs

The operational and human elements of communication, the resultant social structures, and the individual interpretations concerning the shared understanding formulate the essential ingredients of the relationship development processes from a communication perspective. Relationship development processes are an outcome of the development of different relationship aspects, including managing trust, analyzing sub-group formations, managing conflict, individual expectations, understanding the development of interpersonal affect, and the level of satisfaction exhibited by GVT members. Analyzing the unfolding of events around these aspects and applying the sensemaking perspective would reveal multiple relationship development processes.

Through the use of group development processes during the analysis phase, I found that the choice of communication tools influences relationships in GVTs in a lifecycle process. These teams already chose different tools to aid their task at the start of the process and continued to use those tools throughout their time together. Communication frequency and quality influenced the relationships from an evolutionary perspective where, over time, GVT members increased or decreased their frequency of communication and focused on the quality of the communication content. Communication content is related in a more dialectical way to relationship development with regard to relational content, while task content is predominantly teleological. It is important to note that these developmental processes do not operate in isolation but simultaneously, and they are not mutually exclusive to one component of communication—e.g., there are instances when teleological development is observable in relational content and vice versa. Following this, this chapter further discusses the relationship development processes in GVTs.

6.3.1 The Lifecycle Process

Communication and technological elements interacting with human elements of communication influence relationship development processes among GVT members through a lifecycle approach. In line with the theoretical discussion, communication tools, being part of the operational elements of communication, significantly influence relationship development. This lifecycle of social structures and operational elements of communication transpires in multiple ways in relationship development processes.

During the coding process, I observed that communication tools are influenced by the lifecycle of a task, which is based on the different stages of the tasks a GVT performs. Apart from this lifecycle approach, there was constant communication

throughout the life of GVTs while performing different tasks. This communication took place on messaging and social media applications. Table 15 shows the different stages of a single task and the associated tools of communication used to complete those stages.

Table 15. Task Stages and the Communication Tools Used

Task Stage	Communication Tools
Initial planning	Skype
Brainstorming	WhatsApp, Facebook, Google Docs
Task distribution	Google Docs, Skype
Writing task	Google Docs
Reporting/presentation	Multiple Video Creation Tools

Most GVTs agreed to communicate with one another via email as soon as they received a task. After developing an understanding of the task, individually, team members communicated through one of the social media platforms/messaging applications (Facebook messenger or WhatsApp messenger) to agree on a time for video group meetings through Skype. During these meetings, task planning and brainstorming took place and these thoughts were written up on Google Docs. Teams divided and allocated their task into sub-tasks during these meetings, and afterwards the team members performed their sub-tasks either individually or in smaller sub-groups and updated those to Google docs, so that the whole team is on the same page. Again, at this point, a meeting was usually held via Skype to finalize the results of the task before creating the final video presentation. In the end, after the presentation creation, the final output was discussed among team members before the final submission for evaluations. Throughout this life cycle, team members kept in touch with one another through instant messaging applications.

During this cycle of using multiple tools, there were instances that influenced relationship development processes. In some cases, the members assigned to create video presentations were not competent enough to use those tools, but they accepted the task without informing others of their capability limitations. This influenced their role expectation from others and left a negative image for others due to deadlines. On the other hand, those who took on the workload of such members made extra efforts to familiarize themselves with those tools, which others appreciated. On a personal level, those putting in such extra efforts found it to be an additional workload. Their satisfaction level suffered and led to a low level of trust in teams where high achievers were trying to control the situation.

Most participants from one particular country usually had accessibility problems with tools such as Skype and Facebook Messenger, but such problems did not

influence relationship development processes because others in the teams were considerate of the fact that these situations were not under the control of individual members; however, they did influence the working methods of the GVTs.

Power structures had the most negative influence on relationship development in lifecycles of different tasks. Even though the GVTs were diverse within but homogeneous across teams, many differences emerged. The leadership decisions in GVTs related to the formulation of communication and technological structures led to negative relationship development in instances where leadership was solely goal-oriented and did not discuss others' personal opinions. This effect was more pronounced in GVTs with assigned leaders than in those which chose their leaders. Therefore, in cases where the leadership was not considerate of the individual members, members did not feel part of the team, leading to negative relationship development.

The GVTs that were unable to address these issues through the adaptation process had negative relationships throughout the life of the GVT. One primary reason for such relationship development was that, even when such GVTs altered their technological structures, either they did not adapt their communication methods or the sole focus of their adaptation was to achieve the end goal. This process of suppressing individual thoughts strictly to focus on the end goal led to a more profound feeling of aloofness among team members. Therefore, the relationships among team members grew only negatively.

GVTs that experienced positive relationship development throughout their work on different tasks made structural decisions differently from those experiencing negative relationship development processes. These teams started with open discussions about such structures with simple questions such as what would work, what might not work, and if it does not work, how it should be dealt with. In these GVTs, the choice of media tools was an outcome of open communication processes where the members provided ideas regarding the ease, access, and (un)availability of technological choices, thereby influencing the technological and operational elements of communication. In such GVTs, the power structure was like the rest of the GVTs in their composition; the only difference was in terms of how the members of these GVTs approached their roles. Leaders in such teams were focused not only on the operational elements of communication and technology but also on the human elements. Most team members in such teams not only focused on their capabilities but also their limitations. The members of these GVTs, within the structural limitations or the group, tried to understand others better. They acknowledged the issues related to pronunciation, for example, and tried to understand the basics of other members' cultural backgrounds. This awareness of operational and human elements helped them understand one another better, and thus enabled them to analyze their mistakes through open discussions rather than blaming one another.

Operational elements in such GVTs adapted positively, where after the completion of each task they reflected on and tried to understand the technological, communication, and group dynamics problems. Focusing on the resolution of such problems lead to better relationship development, which was achieved through peaceful conflict resolution, understanding others at the interpersonal level by appreciating one another's limitations, and developing a level of trust over time as members tried to fulfill their roles as expected by their teammates.

During this research, I observed that in some GVTs, even though the team members had little trust in one another after the feedback on their first tasks, were still able to come together and perform better in subsequent tasks. These GVTs were able to turn themselves around by making operational changes and adapting their communication processes and initiating and developing positive relationship development processes within their teams.

There have been issues in teams when it comes to communication tools. These issues did not strongly influence relationship development, but it did give rise to some initial task conflicts, moving relationships among team members in a slightly negative direction. There were instances where some team members did not show up for Skype meetings, and other members considered this irresponsible behavior because missing member(s) were unable to update others about their absence. In other instances, teams as a whole agreed that specific tools (mostly Facebook Messenger) did not work well in terms of the flow of communication due to distractions from other contacts on these platforms, and therefore they decided to shift to more convenient applications such as WhatsApp.

Before reaching such a consensus, there were a few instances of individuals being criticized by others in the team for being irresponsible and not working in a timely fashion, giving rise to dissatisfaction and making others anxious about the deadlines. However, this initial negative development changed to neutral when teams realized that it is not an individuals' fault but rather the choice of communication tools. This communication and technological adaptation process helped GVT members mend the trajectory of their relationship development. It is evident here that the adaptation of operational elements is only possible when GVT members are willing to communicate their concerns precisely, indicating that the adaptation process at both operational and human sides of communication can help improve relationships among team members.

Relationships in GVTs sometimes did deteriorate due to drastic operational changes. The GVTs where operational elements were altered substantially to improve the team's performance further backfired. Few teams altered their video conferencing schedules to allocate more time to brainstorming and a better understanding of the task: In such cases, GVTs operated under the premise that the tasks to be solved were becoming more open-ended and would therefore require

more time for real-time discussions, but a few members were unable to participate in this process. This led to interpersonal conflicts and also raised questions about the commitment of those team members. Similarly, in cases where teams tried to change the tools they were using to produce their video presentation in order to achieve a better output and thus elevate their performance, they ended up hurting their relationships with one another. Such technological capabilities were not required of the GVTs, so they had to dedicate more time to learn and master such tools. Due to the limited time available to solve the problems, it was simply not possible for members to undertake such technological and operational changes, and thus this shift was detrimental to the overall performance. It led to dissatisfaction among team members, resulting in changes to the trajectory of the relationship development processes.

A substantial role is played by the power structure when it comes to such situations. The members' willingness to look at the problem rather than blaming one another has been seen to save certain situations. The role of leaders is also essential: In cases where the team leaders were able to detect the early signs of problems in the technological and communication structures, they could put the teams back on track. However, in many cases, it was a firefighting drill where leaders were trying to root out the dissatisfaction and dejectedness among team members by motivating them to work better next time without dealing with the actual issues, thus harming relationship development. Another cause of such negative development was the rotation of leadership. Certain teams had agreed at the start that leadership roles would be switched and that individual roles would be similarly dynamic: This translated into ever-changing power structures, causing confusion and ultimately dissatisfaction and role ambiguity. The result of such activities was negative relationship development.

The changes in power structures, the decisions on the use of tools and the open discussions about the practicality of operational elements of communication drove the team's lifecycle when moving from one task to the next, although it can be argued that relationship development processes are directly driven not by these operational elements but by how individuals feel about using these operational elements. Hence, I also argue that relationships in GVTs evolve in a lifecycle manner, where at the end of each task, the members are willing to reflect on and understand the value of these operational elements. At the same time, through shared understanding, they are willing to adapt these operational elements to improve the team's function, hoping that the team's relationships will develop positively.

6.3.2 The Evolutionary Process

The roots of evolutionary development consist of a repetitive sequence of variation, selection, and retention events in a group. While the operational elements and communication tools usually change with each life cycle, communication quality and communication frequency are constantly evolving and play a significant role in relationship development in GVTs. Both of these components tend to evolve. During this research, it was found that teams have to maintain an optimum, parsimonious level of communication frequency in order for the relationship development processes to keep on a positive trajectory. Too much or too little communication can lead to negative emotions in these teams. In order to maintain the optimum level of communication, over different task cycles the GVTs had to decide how much communication was necessary to complete the task, as more or less than that would create problems in the GVT dynamics.

While it is not possible to set a standard for every GVT in terms of optimum communication level, the empirical data indicates that every GVT achieved their balancing act through an evolutionary process. This evolutionary process worked around simple questions such as talking more and focusing less on the actual task or doing more discussions relating to a task or conflicts to rectify cohesion problems.

When the frequency of communication was too low at the team level, members felt that they did not have enough information to complete the task at hand, creating confusion among members as to who is responsible for what. However, in specific cases, teams were able to resolve this issue by communicating openly. There were cases where one or a few members were communicating less, but this did not negatively influence relationship development. Instead, other team members felt more responsible and tried to motivate non-participative members to contribute more.

On the other hand, too much communication also negatively influenced relationship development processes. It left members with information overflow, creating confusion among them regarding individual responsibilities. This confusion also influenced the group structures by making initially decided roles irrelevant. As a result, a significant effort was required for both technological and communication adaptation. In instances where teams could not adapt these structures in time, it led to distrust and dissatisfaction. At the individual level, a higher level of communication frequency also influenced relationship development processes among team members in a negative fashion. One member communicating too much at odd times and with many emails was usually considered too dominant and to be trying to micro-manage the team. In such instances, team members felt that one participant was in conflict with all the others, leaving most of them dissatisfied, non-participative, and demotivated.

Teams have been able to achieve an optimum level of frequency by using multiple approaches. Few teams kept their communication related to the task at hand in the initial tasks while still being open to their other commitments. These teams used their time wisely by setting up fewer meetings and ensuring that all the members showed up. Each member's responsible behavior contributed to the creation of an environment where none of the members felt the need to micro-manage things. Furthermore, during initial tasks, the team members were able to identify and acknowledge one another's strengths and divided their task more suitably. It provided them with more time to connect at a social level because members could create set roles for one another for task-related issues.

The quality of communication is mainly subjective, and it depends on how the others comprehend the message. The subjective nature of the quality of communication emerges from the language skills and the cultural understanding of one another in the GVTs. The idea that Finnish participants, for example, are direct in their communication and immediately addressed the steps required to complete a task instead came across as these members being rude to others, while the participants from Asian cultures usually tried to get to know one another personally before approaching the task, which struck others as a time-wasting activity.

Language skills are equally crucial for ensuring the quality of communication. When one team members had poor language skills, the relationship development processes largely depended upon how that person's teammates handled the situation. In some cases, the other members were willing to help, and the particular member facing the problem was also willing to work on his or her language capabilities. The relationship development processes did not become positive instantly, but it was an evolutionary process based on the shared understanding of the problem and willingness to create positive events involving language skills. The role of technology in this example is amplified and recognized by the team members. Here it acted more like a hurdle than an enabler for learning and developing the capabilities of others.

Another factor related to language skills and quality of communication influencing the relationship development processes was the number of members in a GVT facing language issues. One GVT faced such a problem, as it included more individuals with poor language skills. The result was a lower quality of outcome resulting in dissatisfaction among a couple of other participants. Although the GVTs were composed carefully to make sure the homogeneity across teams, due to the different numbers of participants there was such an outlier. While it can be ignored as an outlier, it highlights the importance of balancing the teams from an individual capabilities perspective. From the communication quality perspective, it reinforced the trajectory of relationship development negatively. Even though the members

tried to help one another, the workload imposed by dealing with the language issues ate away at the time they should have invested in solving their task.

In sum, the quality and frequency of communication is crucial to the trajectories relationship development processes can take through an evolutionary process. This evolutionary process has its antecedents in language skills, cultural awareness, and the optimum level of communication frequency. However, apart from providing the initial triggers, these antecedents operate in the background. Individuals can nevertheless produce and reproduce their positions relating to frequency and quality, which make evolution happen. In other words, it is a process of group and individual reflection and self-reflection relating to the frequency and quality of communication that makes the evolutionary process dynamic and fuels relationship development processes in GVTs.

6.3.3 Dialectical and Teleological Processes

Communication content influences the trajectories of the relationship development processes among GVT members in a dialectical fashion. During this study, dialectical relationship development was observable in both the relational and task content of communication. As the relational and task content of communication are difficult to distinguish, because they are both part of the same message, this section discusses these two processes concurrently.

It was found that communication content largely influences the role expectation, sub-group formation, trust, interpersonal affect, and conflict aspects of relationship development in GVTs. Communication shows us how members interrelate with one another through their communication behavior. Relationships are temporal and based on the interpretation of communication messages by individuals, so it can be argued that relationship development processes reinforce or change trajectory following a dialectic process over time, where members receive, perceive and act towards one another based on their communication. The basis of the dialectical process is rooted in conflict. The dialectical process indicates that decisions and end states among group members are reached through constant challenging of one another's narratives until a common end goal is reached. It implies that conflicts are mostly dyadic, where two members engage in a situation at any given time. Dialectics refers to creating meanings continuously as a struggle between competing and opposing labeled as a centripetal-centrifugal struggle. This is in line with the sensemaking perspective, where the interactions are at the core of the enactment of social structures relating to communication to reach a shared understanding, which, in turn, guides future actions. Relationships are constructed socially by the dynamic interplay of opposing views (dialects) emerging in interactions. As these are social

constructions, they are always in the process of development—they do not reach an end state.

In this research, the communication content shows both positive and negative trajectories for relationship development processes related to the aspects mentioned above. The difference between individual members' reported and actual communication capabilities influenced the relationships to develop in multiple ways. Team members either took on or were assigned different roles based on the capabilities which they claimed to have. However, in cases where they were unable to perform their roles as expected, they usually ended up in conflict with other team members and team leaders. These conflicts did not surface immediately after performing a single task, but if the performance remained poor after the second task there were heated arguments. Task-related communication shows that the members responsible for a role blame situational factors such as time limits. In contrast, other members are looking to change the roles of such members through structural changes, leading to negative relationship development among team members.

Conflict among team members did not always influence relationship development negatively. The analysis of communication content showed that conflict relates to different approaches to the task resulted in positive relationship development; this was seen as a trait of open communication by GVT members. However, in cases where conflicts related to relational content, this negatively influenced the relationship development processes. In some cases, sub-groups emerged in GVTs due to conflicts with the added dimension of proximity. Members who felt uncomfortable culturally or disagreed on approaches to the task tended to suppress their feelings, resulting in the formulation of sub-groups. The conflict and resulting negativity were not perceptible right away; however, with time, members from these teams revealed the friction among themselves by writing in their reflections about why and how they tend to avoid conflict.

In the long run, these situations emerging from dyadic interactions tended to influence the level of trust among members of GVTs. The instances where teams focused on conflict communicated their concerns concisely and politely helped to bond the members together. On the other hand, when members used different tactics to suppress their true feelings and did not communicate in a timely and concise manner, this led to a trust deficit and hurt relationship development.

Teleology is used as a fundamental principle in describing and explaining actions. The basic concept of teleology is the assumption of an actor engaging in intentional, goal-oriented behavior (Verlag 2009). Goal setting is an outcome of the interaction of an individual's internal motives and the environment in which it operates.

Given the above explanation, individuals working in GVT settings must be focused not only on team goals but also self-reflection, through which they are also

aligning their personal goals to those of the team. When these personal goals are not in line with the team goals, it would lead to negative relationship development and vice versa.

This study is focused on communication, part of which are communication issues related these goal discrepancies and their influence on relationship development in such GVTs. It is crucial to note that communication content is omnipresent in GVTs, such as the inter GVT communication, communication with instructors in the form of feedback, communication relating to a task, or communication with team leaders. Communication-related content also emerged regarding multiple structures present in the team, including leadership (power structures) and the dyadic relationships among team members (social structures). Because of the omnipresence of communication in general and relational communication content, relationship development processes are highly influenced. As most relational communication content is dyadic, it helps the production and reproduction of individual positions. In a teleological process, these positions are produced and reproduced based on the reinforcement or changes in the personal goals and team goals.

The group structure of GVTs is the first sign of teleological relationship development. Some teams with eastern European members faced this issue: These members stated in their reflections that culturally they did not trust their teammates, and so they had to spend more time on the job to get to know the capabilities of others to establish trust. In such cases, these members were too critical of other members' work approach—they did not trust the process but wanted to achieve the highest level of performance. In their reflections, they accepted that they raised their concerns but, at the same time, did not force their ideas. In later tasks, these members worked individually on the whole task without informing other team members. They would present their solutions at the last moment and would try to convince their whole team to work with their proposed solutions. This led to much dissatisfaction with other members of the GVTs, resulting in negative relationship development.

The role of leaders in such teams proved to be of the utmost importance. In cases where leaders could convince such members about the wastage of time and effort while working individually, the relationships among team members improved. However, it was not just a matter of convincing; some leaders proposed a better solution, to create a conducive environment of open communication where members who suspected another were asked to put forward all their concerns and discuss the matter with their teammates. They were also encouraged to put forward their solutions for the tasks at an early stage for others to comment on those solutions. Such steps increased trust among suspicious members, and they felt more included and accepted in the process. Their solutions might or might not have been accepted, but the effort to make them feel included and respected helped them align their personal goals with those of the team.

As the feedback from instructors was provided both at the team and individual levels, it influenced the teleological development in communication like the teleological development of the tasks. The communication content relating to individual feedback operated in a dialectical process where the individuals could formulate a dyadic relationship with the instructors. However, this dialectical process led to a teleological process within the GVTs, where feedback helped the individuals align their goals with those of the team and thus influenced the team's relationship development processes to take a positive trajectory.

6.4 Discussion

Multiple processes take place in GVTs that involve operational and human elements of communication and, shaping the relationship development. This chapter has discussed four different process types related to communication that shape the relationship development processes. These processes serve multiple purposes. They provide us with an outlook of the velocity with which activities occur within processes and the duration of time it takes to complete one process. It also clarifies the interrelationship of different processes with one another in terms of different levels and valence.

The literature discussed above in Section 3.2.2 shows that communication quality, frequency, and content are interrelated and formulate human elements of communication. These human elements are contained in every message exchanged among team members, and thus operate at the same level. It also implies that the teleological and dialectical models are entangled with one another, as the driving force for these two processes is communication content. The velocity of dialectical and teleological processes is much higher than the evolutionary process of relationship development. In other words, these two processes account for more events and the change is quicker as compared to evolutionary and lifecycle processes. As content drives the dialectical and teleological processes, a higher frequency of content production with a lower quality of communication negatively affects the evolutionary process, thereby negatively influencing the trajectory of relationship development processes. A higher frequency of communication with a higher quality of content can affect the trajectory either negatively or positively. If GVT members can absorb more frequent messages and process a higher quality of content, they could achieve their goals swiftly, thereby increasing their satisfaction with their performance and positively influencing interpersonal relationships. However, regardless of the quality and content, the higher frequency of communication poses the threat of negatively influencing the trajectory of relationship development in the GVTs due to information overload and the low level of synchronous communication available. This could lead to the loss of details

regarding the task and ultimately a lower level of satisfaction among GVT members because of a lack of communication processing resulting in poor performance.

The lifecycle process of communication is a result of the tools used to communicate in virtual environments. Teleological and dialectical processes are nested in the lifecycle process. The choice of media used to carry out virtual work revolves around the quality, frequency, and communication content. If the members of a GVT found their communication breaking down due to the quality, content, and frequency, their first thought was likely to be to switch to better communication tools. They followed a similar pattern throughout multiple tasks.

The interrelationship of different processes of AST related to communication shows the influence they have on one another. While the individual understanding of these processes provided an opportunity to elaborate on different structural and human elements relative to the trajectories of the relationship development processes, the interrelationship of these processes highlights different elements' connectedness within different processes. The implications of such interconnectedness are many. For example, the lifecycle process can influence the trajectories of the relationship development processes, although it is for GVT team members to figure out if it is the choice of the tools influencing the process or an inability to communicate being projected on the tools.

This study can provide directions for managerial steps, which could help to develop better relationships in GVTs. The operational element of communication should be thought out collectively to formulate a harmonious environment. The members' technological knowhow should also be taken into consideration, and if needed, training opportunities should be provided. Similarly, team composition in the group structure should consider members' professional and social skills. After the initial teaming and operational decisions, it is essential to revisit these structures by keeping track of GVTs' performance or periodic discussions.

The human elements of communication are usually not controllable in project-based GVTs; however, encouraging open communication and evaluating the root causes of conflicts rather than blaming other members in GVTs is a good starting point to develop positive relationships. These attributes can be developed over a more extended period, and members of GVTs must be made aware of cultural differences and that each member of the team possesses different capabilities, which could ensure better relationship development.

In a nutshell, these relationships develop in three different ways. In the first case, GVTs are initially very cautious of one another and trust is low. Over time, because of performance, feedback, and working in the groups, they develop positive relationships. In the second case, GVTs start from a very neutral ground and take it as a professional job where they have to perform a particular task optimally while relying on one another. Such GVTs quickly develop cognitive trust among

themselves. Based on their performance, their relationship development could be either negative or positive. In the third case, the team members had a high level of cognitive trust based on the profiles they had shared among themselves. When these GVTs came together to perform their first task, they started by getting to know one another personally, thereby initiating affect base trust, which grew with time. In such teams, the relationship development stayed mostly positive; however, there were instances where a drastic drop in performance, delays in communication, in some cases, the total unresponsiveness of some members to others created a non-conducive environment. This led to a drop in satisfaction levels, changed members' perceptions towards one another, influenced role assignment and expectation, and reduced trust, moving the relationship from positive to negative development.

7 Findings 3: Team Climate and Relationship Development Processes

In this chapter, I present the findings relating to the influence of team climate on relationship development processes. Team climate is an outcome of recursive interactions of the GVT members through virtual communication relating to a task. Repeated communication and task performance reinforce individuals' perceptions in a team and help them formulate a shared understanding of multiple teamwork dimensions while maintaining marked differences at the individual level. In this chapter, I discuss these dimensions in the form of themes and the shared understanding and individual perceptions of these themes. At the end of the chapter, I discuss the team climate's influence on relationship development processes.

7.1 Emerging Themes Related to Team Climate

Team climate reflects the team members' affective reactions towards one another. These reactions are eclectic and can range from positive to negative. Perceptions of job, role, leader, workgroup, and the organization act as the antecedents of climate, influencing motivation and work attitudes such as job involvement, job satisfaction, and commitment (Parker et al. 2003).

It is interaction and social construction that make the concept of climate becomes intersubjective instead of a mere aggregation of individual perceptions or an organizational property. Therefore, the climate is the shared perceptions among the organization members and their interpretations of those shared perceptions, which means that individuals in an organization might perceive open communication within their organizational climate without knowing whether others think and interpret it the same way as they do themselves. GVT members formulate their perceptions, attitudes, and reactions towards others in their teams based on their interactions with team members, which occur within multiple social structures. These include the social structures relating to communication and tasks. On the other hand, individual members display behaviors of commitment, motivation, positive or negative attitudes, and their own and other members' expectations, all of which help

formulate perceptions within the framework of the social structures mentioned. These perceptions are dynamic and adaptive over time. The adaptation process helps produce and reproduce team climate, which consequently influences relationship development processes in GVTs.

Chapters five and six discussed lifecycle, teleological, dialectical, and evolutionary unfolding relating to task and communication and influencing relationship development processes. During my analysis, I noticed these themes and conducted further data analysis using NVivo 11.0 software, which produced three team climate themes: open communication, leadership, and trust.

Table 16. Individual Interpretations of shared Themes

Open Communication	Leadership	Trust
Open communication and Task	Leadership Voids	Cognation based trust
Open communication at interpersonal level	Leaders as Managers	Affect based trust
Open communication and Conflict Resolution		

While the overall themes represent the shared understanding among the members of GVTs, their interpretations reflect on each member's perceptions. These perceptions are aligned with shared understanding and yet GVT members have a different view of these themes. In the following discussion, I present the shared understanding and individual interpretations and describe their influence on relationship development processes.

7.2 Shared Understandings of Open Communication

Most of the GVT participants acknowledged the importance and presence of open communication. The team-level explanation on which the members share their perception of the need for open communication originates from communication's virtual nature. They believe that because virtual communication and communication tools are limiting in many ways and flexible in others, open communication is needed and exists for performing the tasks in optimal ways. While there is agreement on the need for open communication, following quotes from different teams highlight the individual perceptions of open communication.

> I was able to see that our team managed to communicate in an open way that served the team.

> Both of these platforms served as good platforms to communicate, [because] when talking via text messages people in general are more open to emphasize problems and challenges.
>
> We had an open conversation with X and Y. They reproached me for "doing everything," being egoistic, not respecting others, not trusting others, etc.
>
> We were open to the level that I could dare to ask members' views [on unmarried couples having] sex, as [to me this is] very sensitive and not socially accepted.
>
> I think this task would have been easier if we had a leader in the group. The role of a team leader is to create an environment oriented to trust, open communication, creative thinking, and cohesive team effort. He can motivate and inspire team members by highlight interesting ideas and ensure a dynamic collaboration between each team members.

Open communication can mean many things to individuals in teams. It is considered fundamental to reach the task objectives. It operates at the interpersonal level as team members' deal with trust issues. It can also mean connecting at an affective level with others in the team, as well as the responsibility of a team leader to foster a supportive environment. Trust and leadership are discussed under their core and surface themes. Open communication's surface themes include open communication in a task, open communication at the interpersonal level, and open communication for conflict resolution influencing the team climate, as observed in the data.

7.3 Open Communication: The Interpretations of Individuals

The GVTs studied had a shared understanding of open communication, but each member deliberated on a different facet of it. Some of the participants used the lens of the task to explain open communication; some acknowledged open communication at the interpersonal level, while others saw it as a method to resolve conflicts in their teams. These individual explanations of open communication influenced relationship development processes differently. The sensemaking perspective dictates that the individuals enact their environment and future actions based on both shared understandings and individual perceptions, so acknowledging that open communication is required in a team that demonstrates a shared understanding. However, if, for example, it is required for better task performance, the team focus could be on enacting and further refining social structures and human elements of the task. This would mean the actions of such members would be focused

on the different stages of the task. If team members are more focused on conflict, open communication would be needed to resolve disagreements. Therefore, through their enactments and actions, they would focus on conflict resolution. In the end, the relationship development processes would develop differently, even within the shared understanding of open communication. I discuss empirically developed understandings of open communication below.

7.3.1 Open Communication Relating to Tasks

The need for and presence of open communication have been mentioned several times during different stages of the task in the reflections of GVTs. Multiple GVTs highlighted that decision-making relating to a task was achieved through brainstorming. This was evident in the different stages of a task, such as planning, role distribution, and performance. The members of such GVTs have mentioned that they used the online tools to put together their ideas and then conducted discussions on these ideas through tools such as Skype.

Some GVTs believed that they had open communication from the start regarding the task and followed a "democratic" decision-making process. This led to the agreement to choose from among multiple solutions available for the task at hand. Although decision-making was democratic, it also meant that those individuals whose ideas were not taken up at times did not agree to their teams. After completing the task, depending upon the performance of the GVT, the open communication climate flourished in such teams. In case of poor performance, the members who were not in the majority were able to convince their GVTs to take an alternate route for subsequent tasks. Although stuck with the democratic decision-making model, these participants were more open to the ideas of those in the team whose views were not taken up before.

Another set of GVTs focused less on brainstorming, instead quickly breaking down the main task into smaller sub-tasks. The individuals responsible for sub-tasks completed their tasks, and very close to the deadline, all the members brought their work together. These GVTs sometimes suffered in their performance, and it was through learning that they decided to change their working patterns. These GVTs acknowledged the need for more brainstorming and reassessment of individual capabilities before assigning the sub-tasks. In such GVTs, the open communication regarding tasks was evolutionary because they learned from their mistakes and tried to overcome them. The members who favored the earlier approach of merely dividing the task and those in favor of more discussions had different individual perceptions. However, after performance reviews and feedback, they agreed to have more open communication regarding the task and their first approach. Even after such agreements, individual differences existed with regard to favoring one approach

over another, as those in favor of dividing the task right away deemed it a waste of time and resources to hold more discussions. However, the open communication climate evolved positively after the next feedback and performance review, resulting in satisfaction.

7.3.2 Open Communication at the Interpersonal Level

GVT members are connected at an interpersonal level. While this helped foster trust in and personal esteem of one another, interpersonal communication phenomena were overall less evident. The virtual nature of work, tight deadlines, workload, and other aspects of life left members less time to focus on interpersonal connections. Most of the focus was on task-related relationship development. Nevertheless, when members discussed their personal activities outside of work, this helped create an open communication climate.

Few GVTs recognized the need to connect at an interpersonal level due to a mix of cultural backgrounds. The GVTs that included members from Asian cultures realized early that to create a conducive work environment, it was essential to such members connect at an interpersonal level. This was particularly true for GVTs with Asian participants who were working with an international team for the first time. The participants from more individualistic cultures initially did not recognize such a need. However, the quiet nature and less participation in brainstorming sessions by the Asian participants motivated those from individualistic cultures to open up to their colleagues. Establishing rapport with these members was perceived as open communication by the others in the team. It led to interactive brainstorming sessions, and shy members also started to provide their input in multiple stages of the task. The overall GVT environment improved and helped these teams sort out issues such as time and workload management.

It should be noted that this sort of development of climate was not apparent in all the GVTs. The GVTs that included Asian members with previous international team experiences already knew that they would need to take the initiative to describe their needs of an open environment. Therefore, it is not a matter of national culture; rather, individuals' experiences contributed to the development of climate through open communication.

7.3.3 Open Communication and Conflict Resolution

Conflict in teams and conflict resolution has been researched extensively in many areas of business. One significant observation is that conflict can be both beneficial and harmful at any functional level. This abductive study's findings are in line with

the literature that conflict resolution resulting in a better climate is highly dependent on communication among GVTs.

The members of GVTs formulated their perceptions of open communication relating to functional and interpersonal conflict. The overarching observation is that talking about points of contention leads to either conflict resolution or some type of agreement among members, helping them create a conducive environment and focus their energies on the task at hand. However, the climate outcome of communication relating to conflict is influenced differently depending on the type of conflict.

Task conflict and the discussions related thereto were viewed as influencing the team climate positively. The task conflict sources included discussions regarding different solutions to the task and the procedures and processes used to complete the tasks. GVT members perceived it as a healthy activity and a sign of participation on the part of others in the team, contributing to the outcome's quality. In a few instances, where the GVT members were not used to working in teams, they preferred to create parallel solutions apart from the agreed-upon solutions among the GVT. Such members viewed it as their insurance against a failure of the GVT rather than an activity projecting mistrust and a questioning of their peers' capabilities. However, the members working as a team perceived it as a sign of mistrust. To resolve such task conflicts, all the participants resorted to discussion and persuading the less trusting members to work with the team because it would reduce workload and time management issues. Such anxious members were provided with management roles within the team so that their need for a sense of control could be used to create synergy in the GVTs. The members attributed these resolutions to open communication and willingness to learn from one another.

Interpersonal conflict resolution presented a more complex situation and had a varied influence on open communication and resultant team climate. Interpersonal conflicts were comparatively intense, and one source of such conflicts was individual responsibilities. In a few GVTs, it was observed that some members were not able to attend group meetings and were unresponsive for some time. The other members perceived it as a sign of non-seriousness. For example, in one such instance, the member blamed for such behavior told the group members that he was had travel plans, and that he had informed the group of this at the start of the teamwork. However, rather than perceiving this as a communication problem, the other team members blamed this individual. The situation escalated quickly, and instead of resolving the issue, members started to shift the blame. It was only after an instructors' intervention that the members were able to partly resolve the situation. However, in their further reflections, both sides argued that they continued to work with one another only because there was only one task left and in order to complete the job. The team climate was damaged, and towards the end of project work, some members stated that "it is good that the teamwork is over." Such examples show that

recovering from damage done to open communication and group climate is more difficult than when the conflict is only related to a task.

7.4 Shared Understandings of Leadership

Leadership plays a substantial role in creating and maintaining a positive team climate. This theme was apparent throughout the GVTs. The sense of direction needed at times, resolving conflicts related to a task, managing day-to-day activities of the GVT, and distributing roles among team members were considered few of the leaders' responsibilities. A couple of individual understandings originated from this theme. The GVTs were divided into two sets, one of which had appointed leaders, and the other was permitted to use their discretion to choose team leaders in whatever way they saw fit. The main role of leadership was explained as follows by one participant:

> I think this task would have been easier if we had a leader in the group. The role of a team leader is to create an environment oriented to trust, open communication, creative thinking, and cohesive team effort. He can motivate and inspire team members by highlight interesting ideas and ensure a dynamic collaboration between each team member.

Most of the GVTs with appointed leaders kept the individuals in a leadership role, however, there were instances when such GVTs found their leaders to be inadequate, and some other members of the team took on an informal role of leadership. The members of one team described such an experience as follows:

> **Formal Leader:** First of all, it was kind of surprising that I was chosen as a leader by you. While doing the intro we [had] already decided each other's roles and we thought it should be someone from Turku who [could] get the relevant info and materials in the classes, who had previous experiences in team work, and of course who can participate almost every day.
>
> **Assumed Leader:** The leader suddenly stopped answering messages during the second week and on the deadline day he did not have his computer at home, [so] he could not help us. I felt that all the team members relied on me, so I took responsibility to confirm the material provided by other members.
>
> **Other Members:** Honestly, this time X…totally took the lead…she patiently guided us in every step and explained the model thoroughly, which [improved]…the whole team's spirits [and made us feel] that we are on the right

> track. After this case, I really admire her leadership style and working enthusiasm.
>
> [She] is a great informal leader of Global Heroes and her schedule was well-thought-out. Okay, once again we have failed [to meet] our own deadline within our team, despite…X's schedule, and you [are] probably tired of hearing about it. I wonder, was [this a] problem [for] all the teams or [only ours]?

The above quotes provide a snapshot of problems that arise when the assigned leader is not willing to take responsibility. The team dynamics change quickly, and someone else emerges as a leader with whom others are happy to work. Even then, it is observable that with such leadership issues, the members are not motivated enough, and it affects their commitment towards their teamwork. Therefore, in such GVTs, perception of leadership void emerges, leading to an adverse team climate.

The GVTs who chose their leaders were happy to control their team structure and approached the leadership role in two different ways. One set of GVTs chose a single individual as a team leader, and irrespective of the team performance, they carried on with that person. It is not clear, though, whether this was due to the members' unwillingness to change leader even when the team performance was poor, or that they had very strong trust in their leader. The other set of GVTs used the concept of rotational leadership. In such teams, individual roles relating to tasks were defined at the start of the work and retained throughout the life of GVT. However, leadership's responsibility was moved from one individual to the next with the completion of every task. Apart from the underlying reason, the rotational leadership model worked only in those teams that had decided at the start of the teamwork on the leaders for upcoming tasks. The teams that relied on the argument that they would assign leadership based on the task's nature were at times without leadership, losing their direction and ultimately negatively influencing the team climate. Such an experience, where the team decided to work without a leader and later on realized the importance of having one, was described as follows:

> **Working without Leadership:** We do not have a leader right now and I am not sure if we will choose one. For me it seems that everybody takes care of the task, that we work efficiently, and that we will come along with our assignment. We are working in a very supportive team.
>
> **Importance of Leadership:** At the end of Case 1 we all agreed that it is necessary to have a leader. There are two [or] three people who are okay with [being] the leader and we decided to change the leadership for each case. But at the end and while starting Case 2, we have not had a leader for this case. One

> person said that he would be the leader for this case, but now he [does not] have enough time [to do so]. We never talked about choosing another leader. Nevertheless, in my opinion we have a leader, without exactly saying it. One person really takes care [of] the task, gives directions, and points out which parts are missing.

The above views again reveal individual perceptions of a leadership void, which is different from a void in the assigned leadership role; nevertheless, this has a similarly negative influence on a team's climate. In cases where GVT leaders performed their role successfully, the other team members saw them as managers. Such thinking prevailed primarily due to the perception of equality both in terms of individual capabilities and from the same level of formal education of all the team members.

7.5 Individuals' Interpretations of Leadership

Leadership is one of the crucial elements for GVT success and relationship development processes. Although the leadership research field is vast, in this study leadership voids, and leaders as managers were the two most prevailing individual sets of perceptions within the shared understanding of leadership's role. These overarching themes of leadership are diverse within. Leadership voids have been perceived as the inability of leaders to act timely. The inactions relate to multiple aspects: dealing with the conflicts, making decisions on different approaches to task management, or being absent from the assigned role altogether.

In cases where leadership has been perceived as a management role, mainly stems from the idea that team participants are almost equally qualified and educated. Therefore, members view team leadership as a role like any other within the team with different requirements.

7.5.1 Leadership Voids

The perception of leadership voids is perceptible irrespective of the approach to selecting a leader. The role of leadership was acknowledged among the GVTs as a support activity leading to teams' smooth functioning. The voids in leadership appeared when the individuals assigned these roles are not able to carry out their expected duties. In GVTs leadership voids can emerge for one or a combination of the following reasons: Leaders are unable to provide clear direction for task management, are indecisive in conflict situations due to their own lack of motivation, or an inability to make themselves available for the role.

I have already discussed a couple of examples of these voids appearing in the GVTs in the preceding section. In the first case, the assigned leader was surprised at

being assigned this role, and although he accepted the role formally he was not motivated to fulfill the role. It was apparent in the reflections of other members that the leader was not available during meetings or whenever the team needed to make decisions. A byproduct of such behavior from the formal leader was the emergence of an informal leader who, according to the group members, did an excellent job in this role. However, the focus here is on the team climate, which was affected adversely, and the individual perceptions resulting in the surface theme of leadership void influenced the individuals' behavior. In the second case, due to the inability to decide who would serve as the leader at the start of the teamwork, in later stages everyone in the team maintained the status quo and did not take the initiative to opt for the leadership position. In practice, this meant that everyone chose the sub-task of their liking without discussing the broader outcome. From an individual perceptual perspective, no one wanted to take responsibility, and everyone hoped that someone else to do it for the team.

The outcome and influence of leadership voids were not directly observable in individual perceptions, apart from the extent to which the team with assigned leadership complained about the non-responsive behavior of the leader and appreciated the informal leader. The intermediate effect of leadership voids is apparent in the reflections where individuals described how they repeatedly missed internal deadlines or how they thought that having a team leader would have made it easier to bring the different sub-tasks together.

The team climate influences a team's sense of belongingness, motivation, and performance. Irrespective of the reasons for a leadership void, the absence of leadership of any kind influenced individuals' behavior where either the members were not motivated enough to work in the team or did it solely for individual gain.

The fact that individuals in leadership positions did not make it to team meetings had a doubly negative effect on the rest of these teams: First, the leaders were not there to guide the teams, and second they were not part of the discussions, so inevitably they were unaware of the tasks they were supposed to perform. This affected the workload and time management to task completion in the GVTs, and thus the teams' overall performance. The teams' motivation and the sense of belongingness of other individuals were negatively affected.

In a few instances, such negative perceptions among individual members did lead to an adverse climate, but the teams' overall performance remained positively consistent. The members acknowledged their performance and felt that due to the leadership void, it would not be possible to maintain the same performance level over an extended period. They believed that they continued to put in their best efforts in the tasks only because they knew that it was a temporary situation that would end after four assignments. They believed that for a sustainable team, it is necessary to

have someone in the leadership role; otherwise, it would create a climate where it would not be possible to keep the collaboration going.

7.5.2 Leaders as Managers

The second set of perceptions observable in GVTs regarding leadership is of "leaders as managers." The individuals in GVTs perceived their team leaders as managers while reflecting on their teamwork. The leaders were expected to help manage the regular meetings, and they were responsible for task distribution even when their team's decision-making was a democratic process. They were also considered responsible for bringing different sub-tasks together to come up with a beneficial solution to the main task.

The leadership role was considered just another role in the team, and while in its absence, the GVTs performance and team climate suffered negatively, its smooth functioning did not have a substantial positive influence. Instead, management control attributed as leadership helped maintain the positive climate within the GVTs. The following quotes from different members of GVTs highlight their perceptions of their team leaders as managers.

> We had several organizational problems for Cases 1 and 2, [and] it was difficult to work because our tasks weren't really divided and we didn't know what to do (only [the leader] knew because she was the leader and she did a lot).

> From the beginning our team leader [X] has been the one getting things started when others, including me, have sort of even expected her to [do it]. So she was the one creating the Docs, etc., this time as well.

> I believe we have a democratic way of doing things. As a team leader I have tried to…be a leader and not a boss giving orders. I have tried to lead other team members actively to think…participate in discussions, and also give freedom to choose the tasks everyone wants to do, but keeping an eye [out] that tasks are…equal…for everyone.

It is evident from the above statements that the role of leaders as managers was perceived both positively and negatively. In instances where this role emerged as unfavorable are different from those explained in the leadership voids. The negative climate development in the case of leaders as managers is not because of the absence of leadership but because of leadership style. The participants perceived these leaders as harsh, using their positional power to steer the tasks and providing limited information regarding others' roles in the GVTs.

These perceptions created a climate where some members considered confusion as the cause of negativity. Others considered the unjust role and work distribution as the cause of adverse climate development. In contrast, the rest considered it the leader's failure to put everyone on the same page that created the negative climate. Cumulatively, these individual perceptions point to negative climate development in the teams, but the sources of such perceptions differed. The members of such teams tended to accumulate different sources after discussions with one another. This is similar to the snowball effect, where one team member is not satisfied with the leader's task distribution and raises this concern with others. Others tend to agree with the perception and enhance it by making their perceptual contribution by highlighting the confusion all around in the GVT. Such snowballing leads to the negative development of climate. The participants agreed on the negative role of leaders and develop such shared perception further by contributing their differing perceptions of negativity.

7.6 Shared Understandings of Trust

Trust in GVTs emerged as another core theme contributing to team climate. The level and type of trust are not rooted in tradition or culture but in individuals' active reflections. Such active reflections by individuals have both positive and negative consequences for a team's climate. The inability to trust one's boss, coworkers, and higher management leads to a feeling of instability, and others in the team might come across as a threat. When an individual works in such a way that it raises ongoing concerns about trust, the team members would raise these concerns in their everyday talk and thus raise distrust to be part of the climate.

I observed significant discussions regarding trust in GVTs. Trust plays a significant role throughout the life of GVTs and influences the team climate, which in turn contributes to relationship development processes among GVT members. The teams generally agreed that a higher level of trust contributes to a better team climate. The individual perceptions of trust focused on its development in multiple ways.

GVT members felt that in their teams: 1) they started working with one another with a higher level of trust, which benefited the team climate positively; 2) they started working cautiously with a lower level of trust, but over time they began trusting their team members more, which improved the team climate; 3) they started working with a higher level of trust, but with time their trust in their team members deteriorated, and the team climate was negatively affected; or 4) they started working with a cautious approach that was maintained throughout the teamwork, so the level of trust never improved, creating a nominal working climate.

7.7 Individuals' Interpretations of Trust

During the initial stages, GVT members tried to get to know one another, particularly regarding the skill sets each member brought to the team. After the initial phase, GVTs tended to develop routines related to the opportunities and challenges posed by the virtual nature of the GVT, including setting up communication channels and preference for one channel over the other. At this stage, GVTs also tended to establish routines to overcome temporal distances and agree on timeframes for simultaneous communications when needed. It was observed that GVT members tended to be cautious of the different cultural settings of other GVT members and were more open to discussions while trying to establish approaches for completing the final task. It was during these stages that the members established affect-based trust. Figure 12 illustrates that based on these attributes, the members of the GVTs start working with one another with different levels of trust.

Trust was one of the anchors around which these GVTs developed relationships with one another based on the team climate. CBT was most apparent among GVT members; it was only towards the end of the GVT life span that members started developing affect-based trust. During the formation stages, the GVTs were given an initial assignment that required each member to introduce him- or herself and explain their strengths and the areas they felt that they needed to improve upon. This exercise provided the members with an outlook and initial perception of others.

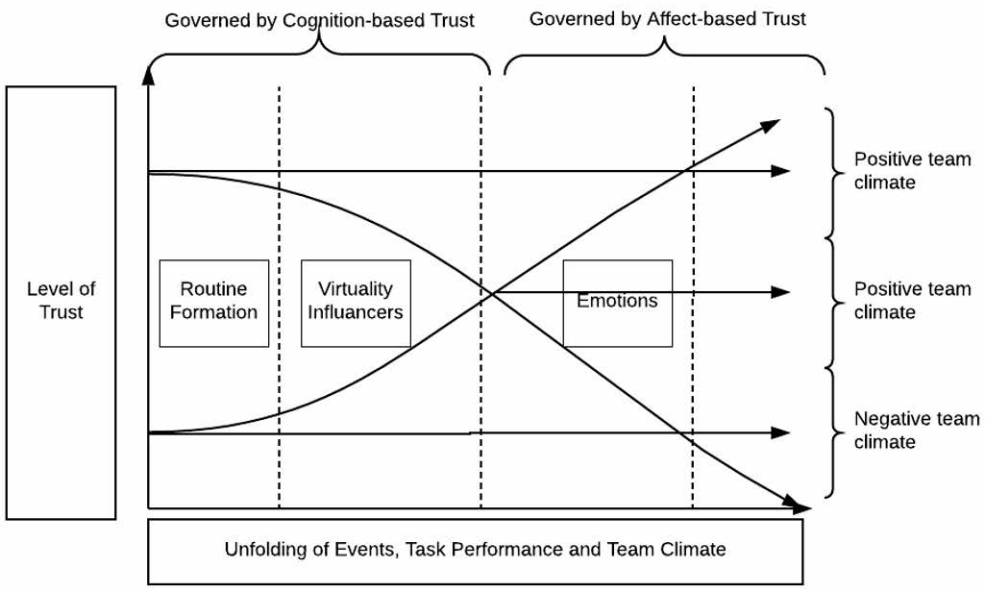

Figure 12. Trust and Team Climate Development

Knowing cultural backgrounds, educational backgrounds, and previous and current experiences in the job market has a considerable influence on how individuals perceive one another. These attributes help to quickly establish trust among team members. Figure 11 depicts different surface-level themes as perceived by the GVT members concerning the team climate. The horizontal arrows represent the development of trust within GVTs.

Figure 11 also depicts routine formation, virtuality, and emotions at different stages of teamwork. These aspects are visualized in the figure where they have the most influence in the life of GVTs but continue throughout its life. The process of routine formation changes to the process of routine adjustment. This continues throughout the life of GVTs, where GVTs adjust their routines related to the task and communication structures and processes. Different factors relating to the virtual nature of teamwork are always at play; however, once they have shaped the routines of GVTs, they operate in the background rather than members putting effort into dealing with the virtual nature of work.

Similarly, the emergence of emotions is a constant phenomenon in GVTs. However, members usually do not reveal their emotions (especially negative ones) in the early stages of teamwork. However, dependent on performance, in the later stages, the role of emotions and the emotional display is evident. In cases where GVTs cannot develop trust, negative emotions further deepen the divide through conflicts. The display of happiness and contentedness, on the other hand, tends to play a decisively positive role in either reinstating or reinforcing the trust among GVTs. ABT in these short-term projects is also visible in GVTs that demonstrate a higher level of cognition-based trust, and such transition happens with the open display of emotions.

At this point I will shift focus to examine the role and the different surface themes representing developmental paths of trust. After the initial assignments, it was evident that members developed stronger ABT in one another. For some members, however, this was not the case. These members attributed this lack of trust to their cultural background; they felt that it was essential to see the performance of others to trust them. Starting with different levels of trust, members developed and altered their perceptions throughout the life of GVTs. Both negative and positive changes influenced the team climate in these GVTs.

These changes were guided by the attitudes of individuals working in these GVTs. For example, in cases where members were open to recommendations from other members and had a positive mindset, they were able to modify their behavior, leading to a positive team climate. However, some members considered their approach better than others and were thus unwilling to change their working habits, which others thought were harmful to the group performance, resulting in negative team climate development.

One such case was when one GVT member had already divided the task before the first group meeting. Because this was for the first case, this individual's team mates appreciated the effort and considered it as an initiative; however, at the same time, they informed this particular member that they wished to have a brainstorming session before dividing the work required for upcoming assignments. Even after this an agreement, this particular member continued to act in the same way for the next task, which led to friction among the members of this GVT. The other members felt that they were not able to trust this member.

Apart from the starting point regarding the level of trust, the development of trust took different trajectories. Some of the members in GVTs perceived that although they started with a higher level of trust and accepted the claims of their team members about their capabilities, their trust in their team mates declined. These declines were attributed to multiple factors, including irresponsible behavior (regarding brainstorming and time management) and contribution to the final task by performing the sub-tasks. On the other hand, many GVTs improved their level of trust with time. Cautious members perceived that they were right to hesitate, as it helped to keep expectations in check. However, with time, the team's performance and the routines that helped them achieve much higher performance restored their confidence in others, leading to a higher level of trust.

The declining or improving level of trust shows one dynamic dimension of the team climate in GVTs. The surface theme of positive or negative reinforcement also influenced team climate. The GVT members starting with a higher level of trust perceived that the team climate improved with time due to the match between their perceptions and the positive attitudes. It led them to open up more and share personal life and professional coordination. The emergence of such ABT was an outcome of better performance and individual responsible behavior. As not all members were equally equipped to manage different types of sub-tasks, a higher level of trust was fostered through their willingness to help one another. Negative reinforcement happened when teams already started with a lower level of trust in one another, and the team outcomes were also negative. In such instances, the lower level of performance created and reinforced the gap between expectations and attitudes, further deteriorating the level of trust.

ABT was not evident in the GVTs until the later stages of their lifecycle. It developed in some GVTs with time when members started sharing their personal lives and challenges, which might hinder their performance for the GVT. One such example was when one of the members shared that he had planned a trip for his birthday long before the course started and would not actively participate in the third assignment. In this particular case, the GVT members took responsibility for his role and made a video message to wish him on his birthday. Other GVTs engaged in similar social activities. In certain GVTs, GVT members agreed to meet virtual

partners after the completion of the course. There were weak signals about the development of ABT among GVTs. Some individuals mentioned in their feedback that if they were to work with the same GVT in the future, they would be more comfortable as they now know one another personally. The development of ABT had a positive influence on the team climate. Members were willing to take on others' work in case of need and had a supportive outlook towards one another. However, overall, ABT and its role in short-term GVTs were less apparent.

All in all, trust and its different developmental trajectories were an outcome of different individual attitudes and attitudes towards others in the GVTs. At the individual level, from the initial phases of teamwork, the members who were able to maintain an overall outlook on others' capabilities were committed to their role in the team and were motivated to move along while helping others in their team, which contributed significantly positively to a positive team climate. Similarly, the members' attitudes towards others in terms of managing their expectations from the ones in the team resulted in a positive structuration of climate.

7.8 Team Climate and Processes of Relationship Development

Team climate is the product of the interactions and reinforcement of perceptions based on the enactment of social structures of the task and communication. The interaction of individuals with one another and social structures leads to outcomes such as a sense of belongingness, interpersonal relationships, job performance and job satisfaction, and sense of achievement. The team climate influences the affiliation and power, overall group effectiveness and performance, and commitment at a group level. These individual- and group-level outcomes of team climate contribute to the relationship development processes. Relationship development processes constitute developing trust, managing conflict, attaining satisfaction, enhancing interpersonal affect, and managing expectations while working on tasks through virtual communication.

Team climate occurs at a perceptual level where shared perceptions form the shared understanding, and differences between shared and individual perceptions formulate the individual differences within those shared understandings. The perceptual nature, dialectical, teleological, evolutionary, and lifecycle processes cannot be differentiated. However, these processes are already part of communication and task, contributing to the themes of open communication, trust, and leadership during the development of team climate. Therefore, in this discussion, the focus is on how team climate contributes to relationship development processes through an interpretive approach.

At an abstract level, the relationship development processes relating to team climate emerged positively due to the positive individual- and group-level climate outcomes. When the climate developed negatively, it influenced the relationship development processes negatively. However, comparing different individual sets of perceptions with climate outcomes provided a detailed picture of the relationship development processes related to team climate.

It can be argued that open communication regarding the tasks contributed to the solutions for the tasks and helped to mitigate the issues of time and workload management. It influenced the sense of belongingness among GVT members convincing one another that they can achieve better performance as a team. It increased their level of confidence and helped to perform tasks on time, resulting in a positive trajectory of the relationship development processes.

Those teams that faced interpersonal friction perceived the team climate development through the lens of dyadic relationships. For these teams to achieve a level of cohesion, they had to improve such dyadic issues. In some GVTs, some members could convince others that interpersonal problems negatively affected the team climate by increasing the negative emotions and disturbing the sense of belongingness and commitment to task consciously tried to eradicate such problems. Such efforts resulted in shifting their focus from interpersonal issues to task. Therefore, these GVTs viewed open communication regarding interpersonal issues as a means of improving team climate, and thus improved their performance through affect-based conflict management. On the other hand, the remaining GVTs who could not respond to interpersonal issues through open communication suffered from an adverse team climate. The negative climate resulted in lesser cohesion and coordination among members while also damaging their trust in one another, leading to a negative relationship development trajectory.

The perceptual theme of leadership influenced team climate through leadership voids and leaders as managers. The perception of voids led to the development of a lack of sense of belongingness among the members. It further encouraged individualistic behaviors and the need to meet personal goals. The persuasion of individualistic goals enhances personal gains and negatively influences the commitment to the team's goals. With the development of such a negative team climate, the relationship development take on adverse trajectories. As the efforts are not coordinated towards a single objective, the resultant performance is lower than expected, worsening the relationship development among GVT members. These GVTs were working on short term multiple projects, so performance was a major deciding factor in developing relationships. If one individual's performance was not up to his or her team mates expectations and there was no leader to motivate the other members in adverse situations, the team's cohesion is lost. This results in the absence of trust, and members are bound to work together just because of the

obligation that they must complete the tasks. While trust and performance are directly affected by the leadership voids, the use of interpersonal affect among members is also reduced, especially between those in formal leadership roles and the rest of the team. Overall, leadership voids negatively influence the team climate, leading to a negative trajectory of relationship development processes.

The better performing leaders in short-term GVTs have been perceived as good managers at best, which can be attributed to the short-term nature of the tasks relating to project management practices. When leaders are perceived as managers, it does not foster a positive climate, but instead is viewed as a role necessary to sustain the favorable climate. The managerial role can also be interpreted negatively in cases where the team climate has developed negatively and the team members are not willing to change their perceptions irrespective of the leaders' efforts. Therefore, due to leaders' active role, either the negative team climate is neutralized, or the positive climate is sustained. Relationship development, therefore, is influenced mostly positively. The presence and acknowledgment of good leaders lead to the smooth function of the tasks' routines and processes. From the perspective of the relationship development processes, it positively influences the team's performance, thereby moving the relationship development processes on a positive trajectory.

The theme of trust and its development within GVTs plays a substantial role in the development climate. Among three themes, this theme is most subjective and individualistic in terms of how individuals perceive the need and development. As discussed earlier, the trust among team members develops without a specified path. The level of trust increases and decreases quickly at the start of the teamwork, and only with time do the members start to see a clear developmental path. While it is important to understand the developmental paths of trust, it is essential to understand that this theme has the most influential impact on the individual level outcomes of team climate such as commitment, sense of belongingness, and the motivation of individuals. The presence of a higher level of trust would lead to a more significant positive influence on the climate. However, negative trust development or a lower level of trust among members in GVTs would have a negative multiplier effect on the team climate. As discussed above, a positive team climate leads to a positive trajectory of relationship development processes and levels of trust. However, it is the direct influence of trust in building a positive climate and relationship development processes and influences other areas of teamwork. A higher level of trust also addresses communication, task, and leadership problems.

Earlier in this study I highlighted the different roles of trust in its contribution to both the development of team climate and relationship development processes (Sections 7.7 and 7.8). The preceding paragraph discussed the role and development of the level of trust, culminating in team climate, which in turn influences relationship development processes. However, trust has a substantial direct influence

on relationship development processes as well. One of the constituting elements of relationship development processes is an interpersonal affect. In its most basic sense, the interpersonal affect refers to the ability to interact with others. It includes the skills to balance priorities and demands in relationships while maintaining self-respect. The role of trust in maintaining interpersonal affect in GVTs becomes direct when individual members are willing to understand that there is a limited time within which all the members have to attend to these tasks and perform in other areas of life. Therefore, trust in individuals and their capabilities forms the minimum ABT influencing the relationship development processes' trajectory. The ability of those who can perform to an expected level strengthens cognition-based trust, and the resulting processes of relationships develop positively and vice versa.

CBT only becomes ABT once the members of GVTs have reached a level of comfort with one another, where all the members believe that a poor performance is not intentional but circumstantial. At that level, even if the performance of the GVTs is not up to the mark, members are still willing to work together while maintaining a positive trajectory of relationship development. However, the evidence regarding ABT within these GVTs is weak. Another explanation for better relationship development with poor performance is when teams have reached a very high level of cognition-based trust. In those situations, the members consider failure or poor performance as a one-time event. If the performance keeps deteriorating, CBT will also suffer because performance is a significant criterion for these GVTs to maintain their relationships.

Overall, the task and communication continuously influence the relationship development processes. The team climate emerges along with the relationship development processes. In this study, I contend that relationship processes take the form of lifecycle, teleological, dialectical, and evolutionary types. Along with task and communication, the team climate shapes these processes throughout the life of GVTs. While the influence of task and communication is powerful at the start of the team life, in later stages team climate is more pronounced. In the next chapter, I present my conclusions regarding relationship development processes.

8 Conclusions: Relationship Development Processes in Global Virtual Teams

This chapter brings the discussion on the relationship development processes to closure by presenting the organizational, human resource, and psychological perspectives contributing to it. I will also discuss the managerial implications and theoretical contributions of each thesis with regard to relationship development processes towards the end.

The starting point of project-based GVTs' work is to get acquainted with their new work environment and their colleagues. This process implies that the management must put a basic setup in place that can create a conducive environment in which the members can operate. The guidance related to the tools available to the teams during an information session would help the GVTs familiarize themselves with their working environment. The use of documents (initially written) in which the members reflected on their capabilities that were shared among the colleagues helped them to get to know one another while also serving as a formal means of building rapport among the GVTs. These two steps do not contribute directly to relationship development processes, but they are the groundwork upon which future interactions and initial perceptions among GVTs members are built, and are thus crucial to relationship development processes.

Dynamic relationship development processes take shape as soon as a GVT starts working on its first task. The earliest interactions are focused on the task and communication tools to operate in the background to support the task. With time, the complexities of the task and the human elements start to influence GVT members' interactions. As GVTs are mostly autonomous, a team manager or leader is crucial to keep the work environment conducive by understanding the individual differences at the task and personal levels.

This research shows four different processes at work when the GVTs start to collaborate on virtual work: the lifecycle process, the evolutionary process, the dialectical process, and the teleological process. These processes move at different rates and complete their cycles either independently or in combination with one another. During these processes, multiple interactions take place at a different pace,

dealing with many problems ranging from task management issues to personal issues. To resolve these issues within teams, understanding the speed with which these processes move provides the timeframe when the leaders need to act. For example, lifecycle issues can be addressed when a single life cycle completes, the dialectical issues are ongoing without a specific pattern, but they start to surface in the later stages of the GVT work and move in fast oscillations. Similarly, the evolutionary cycle moves the slowest and usually is an outcome of other processes; therefore, managing other processes well in time would present lesser challenges with regard to how this evolution takes place.

These processes are present both in the task and communication. While for understanding, in the previous chapters, these processes have been discussed individually, but in practice, processes within task and communication are developing both individually and collaboratively. Communication processes act as a "glue" for tasks, communication, and team climate. Over time, the processes embedded in the tasks and communication give rise to team climate. It is possible to observe the emerging patterns followed by different teams influencing the relationship development processes through team climate.

8.1 Conclusion 1: The Organizational Thesis

The organizational thesis of relationship development shows that all three aspects—task, communication, and team climate—are interlinked, and thus they influence and are influenced by one another. The implication for the people responsible for overseeing the working of GVTs is that they need to first put in place the essential operational elements of task and communication. Putting these structural elements in place in the form of different tools for communication and task provides an environment for the teams to quickly establish early work and interaction conditions.

The second part of the organization comes into play when the action starts happening. When GVTs are working on these tasks during the action phase, the team climate starts to evolve. From an organizational view, a lot of dissonance and disturbance could occur as a consequence of the operational elements. Some GVT members might blame it on their team mates or team leaders, even if it is purely a structural issue. Therefore, the management must foster a positive team climate by ensuring that the dissonance regarding organizational elements is kept to a minimum. The organizational diagram presented below in Figure 13 shows how these three elements work together to drive relationship development processes in GVTs.

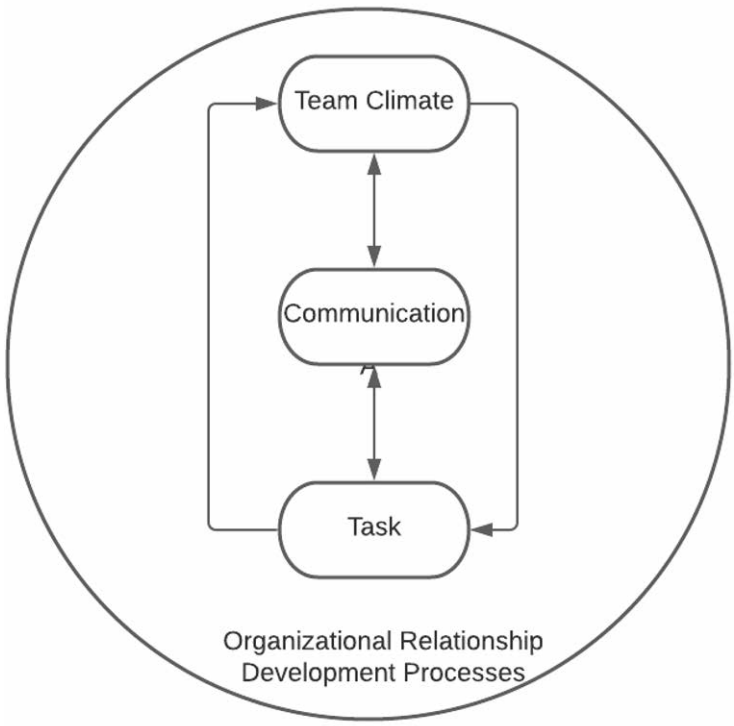

Figure 13. An Organizational View of Relationship Development Processes

In sum, relationship development processes will take positive trajectories if the following conditions are met:

1. The people responsible for the overall project work understand the need to provide necessary tools for a project's smooth functioning. Such understanding is then translated into concrete steps where the GVTs are made aware of the tools and their application at different teamwork stages. It is also vital to make the individuals involved in teamwork realize that not every individual is tech-savvy. Therefore, during their collaboration, they need to leave room for errors.
2. The individuals working in GVTs must be aware of the multiplicity and inter-dependability of different work processes. They must also be aware that while it might seem as though slow-moving processes can be taken care of at a later stage, in many circumstances this is a false assumption. Processes that move faster provide "undercurrents" for slower processes, so rather than waiting for problems to surface in these slower processes, everyone has to try to address them as early as possible.

3. Team climate is not something imposed on the GVTs but an outcome of individual interactions that happen all the time in a virtual environment. Individuals might perceive that their actions do not contribute to the work environment, and it is only people in power roles who influence it; it is vital to deal with such perceptions because the team climate is usually evolving in the background, and it might be too late to change the climate once it has deteriorated. At that point, it might become another firefighting exercise, as presumably such an effort was already underway, which led to the current state.
4. Communication in GVTs is not about tools but how those tools are used. Communication is the glue between different organizational functions such as project management at the task level or the creation and development of team climate, so every individual must understand that, due to the lack of non-verbal cues while communicating in such an environment, their message might be interpreted in a different manner than intended. This can happen in face-to-face teams, but the intensity and chances of such differences are enhanced in GVTs. Therefore, in written communication, the right idea is to read from the receiver's perspective before initiating the communication.

These conditions and awareness relating to these areas flow through the whole organization; in a sense, this puts a responsibility on people at different levels of the organization, including the project managers outside the teams, the team leaders, and the team members. If the structural elements are in place and the individuals are aware of their role in creating the above conditions, relationship development processes would have more chances for a positive trajectory. All in all, the organizational thesis indicates that for relationship development processes to stay on a positive trajectory, it is necessary to establish and implement operational ground rules within the team, acknowledge the individual roles, and incorporate managerial support is necessary.

8.2 Conclusion 2: The Perception, Interaction, and Reflection Thesis

During this research, three basic tenets were observed working dynamically to create multiple outcomes in a plethora of processes, including the relationship development processes. Three dimensions are always there, driving these processes and the resulting outcomes. These dimensions are individuals' perceptions, their interactions with others in the team, and the self-reflection process relating to the project work based on the tools that enable the virtual environment.

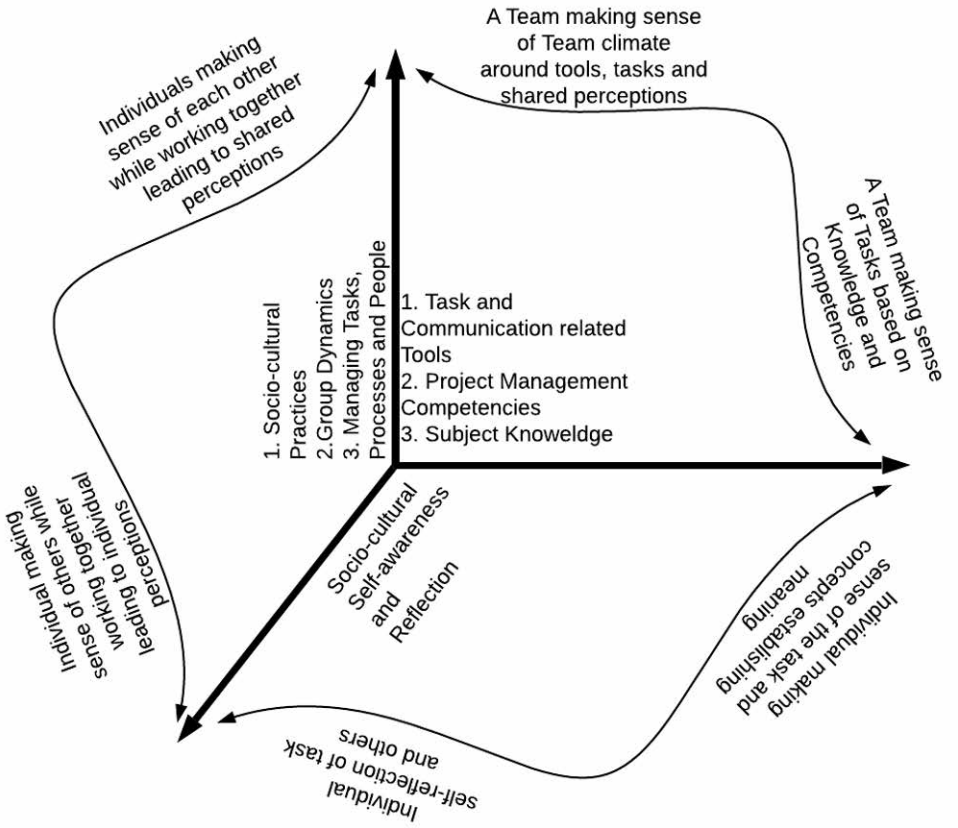

Figure 14. The Dynamics of Perception, Interaction, and Reflection

Figure 14 is a representation of the interactions within GVTs. The first dimension, related to the task and communication tools, project management competencies and subject knowledge related to the task, acts as an anchor to bring GVTs together to initiate their work. The team members select the tools within these GVTs according to their previous knowledge and understanding of the virtual environment. Individuals use their project management skills to unleash these tools' potential to achieve the required performance level. The actual execution of a task involving these tools and project management skills depends mainly on the team's individuals' subject knowledge.

Interactions constitute the core element of the relationship development processes. The second dimension considers that the relationship development is ever-evolving produced by interactions among individuals in groups, leading to a shared perception of one another. These shared perceptions influence and are influenced by the group-level sociocultural practices and group dynamics, and the

actions these GVTs take to manage the task processes and the individuals in the GVTs.

The third dimension focuses on an individual being part of the team. This dimension could be considered the micro-unit of driving the development processes in relationship development. This dimension contributes to the individuals' ability to understand the social situation of their GVT through a process of self-reflection. It means that individuals learn to understand that the unfolding social processes are generated by individuals' actions in a group and are interpreted through their uncontested perceptions about themselves as compared to others. Individuals begin teamwork with perceptions about others' other cultures, but often make the surprising discovery that their perceptions become an unexpected movement toward sociocultural self-awareness: The structuration of their perceptions is the first step to understanding others' logic.

Each dimension drives perceptions and interactions at different levels shaping the individual thinking patterns and dynamically shaping the group dynamics while working together to achieve an outcome with tools enabling a virtual environment. As shown in Figure 13, individual perceptions contribute to understanding tasks and others in the team. These individual perceptions, combined with others' perceptions regarding interactions, create a shared space based on shared perceptions. Along with individual capabilities and knowledge, technology is also crucial to how well the group functions. Individuals' knowledge and competencies help them create the meaning of the task their team is required to perform, while the interactions between individuals based on their capabilities and knowledge related to tasks within the virtual environment help to precipitate personal meanings to a team-level meaning of task. Group-level shared perceptions and the actual execution of the tasks lead to a team climate helpful in further developing the processes of relationships.

In sum, relationship development processes at the group level are an outcome of the aggregation of individual perceptions and self-reflection. However, these aggregations are a first step towards achieving shared understanding and finding common ground continuously. Relationship development processes never stabilize but always remain in a state of change, and these three tenets are the driving force behind such influx.

8.3 Conclusion 3: The Psychological Safety Thesis

From an individual's perspective, the relationship development processes positively shape in GVTs when team members feel comfortable around their colleagues in an environment, which fosters trust. They feel that it is unnecessary to be professional all the time but have the space to talk openly about issues not necessarily related to their job. Team members do not attack one another's knowledge and competence

and do not question their motivation: the discussions are considered fruitful. They do not project other members' personalities. This phenomenon is referred to as psychological safety.

Psychological safety is defined as "the shared belief among team members that the team is safe for interpersonal risk-taking" (Edmondson 1999, p.350). Team psychological safety not only involves interpersonal trust; it also cultivates the team climate, which is characterized by interpersonal trust, mutual respect, and people being comfortable being themselves. In sum, a team feels psychologically safe to its members when members are comfortable that within the team they will not face interpersonal or social threats or threats to their identity when they are engaging with others, especially when asking for help admitting mistakes or lack of knowledge.

The concept of psychological safety dates back to the 1960s but was left behind until its reemergence in the 1990s (Edmondson 1999). Researchers have studied its role in individuals' learning behavior, information, and knowledge sharing in organizations, but there has been little discussion about relationship development in teams in general and GVTs, particularly when it comes to psychological safety. During this research, it has been demonstrated that interpersonal trust, the willingness to resolve conflicts positively, and developing a sociocultural understanding of others in teams can help relationship development processes. Furthermore, many of the practical problems GVTs face stemmed from the lack of the considerations mentioned above. Therefore, it is safe to say that among other areas such as knowledge management, learning, and innovation, psychological safety is crucial for relationship development in GVTs.

The psychological safety thesis shows that an individual within a GVT perceives the relationship development processes through her sociocultural background. With time due to continuous interactions with others in the team, it becomes an entity responsible for the team climate. At the same time individuals interact with technology, and this human-technology interaction also contributes to the team climate responsible for relationship development processes. The evidence of human-to-human interaction and the effect on the relationship development processes is present in interpersonal conflicts. In contrast, human-technology interaction is mostly manifested in task conflicts, although this is not exclusive to the technology but also includes other factors. However, technology failure, lack of understanding of specific technologies leading to increased workloads, and poor time management all tend to shape individual perceptions and self-reflection.

Project Aristotle, launched by Google in 2015, was focused on identifying the best practices that promote psychological safety in teams. The researchers expected high-performing teams to share some practices, e.g., interactions at an interpersonal level or reviewing the work now and then. However, they found out that there are no commonalities among teams: No matter what set of practices these teams chose, the

glue for them was devolving group norms that created a sense of togetherness while encouraging them to take a chance. The insights from this project seem simple, but with the technological resource base Google possesses, other firms still question how to deal with the human-technology interactions. Like many other studies, the focus of Google's research has been on performance as an indicator of success. Intergroup relationships and resultant wellbeing seem to be a secondary objective. In this research, I have deliberated about the trust issues, conflicts, and interpersonal affect arising in relation to the communication tools and processes. However, to understand the development of psychological safety among individuals in virtual environments, there is a need for conducting further research exploring the direct linkages between the two constructs. The implications of such research would not be limited to the relationship development processes. However, it would further refine our understanding of the other processes, such as learning and knowledge transfer in virtual environments. In sum, psychological safety is crucial in positive relationship development, and to establish such safety, the early stage interactions among team members play a substantial role. In these early interactions, members can ensure one another of the consequences of individual actions. Having such reassurances at a personal level would help members provide one another with a realistic outlook of one's capabilities rather than over-promising earlier and under-delivering later. This would also help break the cycle of blame in later stages of teamwork and keep the team climate positive throughout.

8.4 Theoretical Contributions

This research makes three theoretical contributions. The first contribution is that it moves beyond input-process-output models of relationship development in GVTs. The second contribution is that it brings together multiple theoretical lenses in the form of a sensemaking perspective and different process types to explain multi-level and multi-process phenomena. The last contribution is partly an outcome of the second, where the methodological understanding of process research is developed further.

Research on GVTs has come a long way, starting from the introduction of internet technologies and their influence on firms' productivity enhancement and economics. The role these technologies play has changed over time. Before they fueled the global organizational integration, in later stages, they made it possible to keep the businesses above water in pandemics and the re-enactment of borders. During these global developments and the changing role of technologies for collaborative work, much attention was paid to the technologies themselves, the process enhancements, and different performance outcomes. The individuals who are part of these teams have been analyzed against the influence of different tools on

their performance, the mechanisms to establish trust in these environments, and the resulting behavioral changes.

The research on individuals in such teams has been compartmentalized in behavioral, affective, and cognitive domains. The collection of these studies has led us to a point where we understand the different types of inputs at different levels, how these inputs are processed, and the expected outcome. The emergence of IPO models provided us with a rich understanding of the individuals. However, the individuals' compartmentalization is unrealistic in the sense that individuals operate in all these domains and use their cognitive, affective, and behavioral capabilities simultaneously. Based on the previous knowledge and in agreement with the research on GVTs, this research focused on the extension of the domain by turning the tables. As we understand different constituting elements of GVTs from the individual, team, organizational, and technological perspectives explored individually in previous research, this research puts the individual at the center of the process. It explores how the entire development process of relationships unfolds and provides us with a starting point for developing an understanding of how systems encompass an individual as he or she operates in a GVT and influence his or her role in the larger picture. This extension would not have been possible without understanding the individual pieces of the puzzle, and therefore understanding those pieces is crucial to extend the research on GVTs.

The research also further extends the idea that while researching individuals in GVTs, we need to establish the chain among different levels such as individual, team, and organization by understanding concepts such as psychological safety, group dynamics, and organizational support. Developing such chains helps solve many issues that were previously ambiguous, such as why specific teams perform poorly and yet have good relationships and vice versa. Similarly, many issues related to the individual contribution could be attributed to psychological safety rather than the lack of skills. Formulating a holistic chain at multiple levels is essential to understanding the individuals' behavior. The sensemaking perspective has been utilized to explain the individual level and, to some extent, group-level phenomena separately. However, this perspective has been used to develop individual explanations in this research, leading to explanations at the group level through process types. The contribution is novel in the sense that it explains the transition from individual to the group level. The sensemaking perspective acts as a "perspective" rather than a theory for many researchers. Broadly encompassing the social phenomena, the systems in which these social phenomena occur through actions, enactment, shared understanding, and intersubjectivity. It enables researchers to forge their own versions of developmental processes. The sensemaking perspective has helped us understand singularly situated dimensions of social phenomena such as decision-making, communication in computer-mediated

environments, and organizational climates; it has also provided the capability to merge it with other theoretical concepts to construct explanations transition between individual and group level. In this research, where different organizational levels are understood to work fluidly in shaping relationship development, it provides the opportunity to explain the contribution of different constructs to the multilayered and multi-level processes. These insights are essential for further research because multiple theoretical concepts can be used together, complementing one another. Such a theoretical approach helps in understanding and researching multi-level and multi-process phenomena.

The process research is vague because each phenomenon and researcher investigating the phenomena must develop their process methodology. With this research's help, the methodological effort to bring together different theoretical lenses of sensemaking and decision development processes provides a framework for conducting abductive research regarding human-behavior-related phenomena such as relationship development processes, learning processes, and dynamics of knowledge sharing.

8.5 Managerial Implications

In this research the author analyzed multiple facets of teams and their collaborations. The research covers a broad spectrum of areas, including project management, communications, and collaborative tasks. The traditional organizational view of organizations is based on structures and hierarchies; this has implications relating to how work has been managed previously. Over time organizations have become more fluid and adapted innovative techniques to manage work. Teams in general and GVTs in particular have come to the forefront of IB. The management of these teams still relies on the adaptation of existing techniques used in traditional organizations. For example, middle management's role in traditional organizations had been to act as a bridge between top management and frontline workers. In this traditional approach, the focus on productivity has been through training employees to use tools that increase a company's profitability. The teams in traditional organizations have been bound by the hierarchy and the working norms under standard operating procedures. The traditional management has relied on organizational rules and regulations to drive the work in such teams.

GVTs exist in contrast to traditional teams and organizations. In a sense, these teams are not bound by external rules and regulations but are independent of such restrictions and evolve around the individuals who comprise them. They create their own rules, and doing so create their micro-organizations. Therefore, the traditional logic of strategy and goals coming from the top and being operated on in a mechanized manner by the teams is rendered obsolete. While the final goal of GVTs

is clear, they formulate their own strategies and execute them themselves. In other words, what used to control teams is now being controlled by the teams.

The implications of such changes are manifold. The most prominent implication is for human resource management practices: Managers and all the individuals in GVTs need to realize that the focus of their setup is not only to achieve their goals but also to create their team dynamics through the enactment of socio-structural elements in doing so. The organization would provide the skeleton of these elements; however, it is more of a responsibility of the teams themself to use these skeletons to formulate a concert structure that enables them to work in a conducive environment. The teams are not only responsible for productivity but also for the wellbeing of one another. Therefore, the implications of working and managing relationship development among the members of GVTs are far-reaching. The influence of the choice of tools for communication, task execution, and project management presents the organizational side of such implications. The leadership, cultural and process management provides the human side of implications of working in GVTs.

The research design for this study was to explore teams that had not worked together before and therefore provide insights into the implications regarding the choice of tools they use. In my understanding, GVTs shall use professional tools even if they are coming together for a shorter period. Using instant messaging applications and other social media while providing the ability to connect and reach out instantly creates unwanted connections and much confusion among members. This leads to confusion, where some members insist that they provided the right information while others disagree. Professional tools bring the minimum structures required to carry out both the communication and task with minimum distractions and result in fewer misunderstandings.

Similarly, the packages that provide a platform environment by integrating communication, project management, and information exchange are the most suitable among such tools. When GVTs are small enough, the financial cost of using such tools is zero. Therefore, it is the organization's responsibility to make the teams aware of such tools so that these teams are in a better position than using individual and sporadic tools to achieve simple tasks.

A related implication to the choice of tools for virtual environments is the need for training. Most of the GVTs assumed that the tools are simple and straightforward to use, but in the execution phases of tasks, many issues could have been avoided if the GVTs had set a session to use such tools. Therefore, assuming that members, especially those who grew up in the internet age, are well-versed in the use of such tools leads to problems in later phases. These members are well-versed in social media use for personal consumption; however, collaborative work is much more than the understanding of social media. Therefore, the team leaders should help the

members to get acquainted with these tools. It does not require much effort, but it does need a conscious understanding of the management that such training sessions are necessary.

The role of management is not only limited to the tools and their training. In most of the GVTs, the assumption that if they know the tools and can collaborate on their sub-tasks, the relationship development processes would be positive. However, it is much more than that. Team leaders and those in power positions in the teams are required to do more than arranging meetings and distributing tasks. The GVTs need to work on people management in their collaborative endeavors. This can be achieved by creating a conducive environment related to group dynamics, the core of which lies in providing psychological safety to individual members.

The starting point of creating psychological safety is making the members realize and appreciate the individual past experiences rooted in a different cultural setting. The next step would be to use these culturally rooted individual experiences to benefit the group by looking for innovative solutions. Simultaneously, the individuals in teams should be made aware that the individual differences are not a reflection of personalities but the skill sets and a wide range of resources available to them.

As mentioned earlier, there is no formula for creating psychological safety, but it can be achieved through concrete steps. The first is to promote open communication and the sharing of knowledge. In the case of GVTs, the members have to be made aware that communication in virtual environments is fundamentally different from face to face communication. Therefore, it is even more important to ask for further information in case of confusion rather than formulating early perceptions. The individuals shall be further encouraged to experiment and take controlled risks rather than squashing the initiatives in the name of time pressures and limited resources.

The role of constant feedback is also crucial for developing psychological safety. It does not have to be a period of exercise at the end of each task, but during the tasks' execution process GVT members must provide constructive feedback. The members must also focus on self-reflective exercises to consciously control their interpersonal judgments and view the issues as work-related rather than person-related. The need to realize that work is both about execution and learning is crucial to build the relationship development processes positively. It provides the room for making, accepting, and correcting mistakes. Such a space provides the GVTs to enhance their performance and make them open to experimentation and initiate in house change.

In sum, relationship development processes would largely remain positive if the organization, team, and individual tenets are seen in conjunction with one another. The decisions at the organizational level are complimented by the team and

individual level actions. At the same time, team- and individual-level actions and thinking become part of the organizational decisions.

8.6 Limitations and Future Research

The focus of this research has been to explain relationship development processes. I used the data from student teams, which is not a limitation while investigating a social phenomenon. However, the student teams meant that the tools of virtual collaboration were not integrated in a platform. This implies that many of the issues which these teams face while collaborating might not be there in the teams formed from organizational members. It also implies that organizational teams would better highlight the human side of collaborating because their time and resources would be focused more on interaction rather than enacting structural elements. The organizational teams would also present novel problems regarding using the tools that might not be present in student teams. Therefore, this limitation in the form of integrated platforms provides an opportunity for further research. The relationship processes presented in this research could be further refined by using a similar research framework as applied in this study, but by studying the GVTs which collaborate both within and across organizations using the integrated platforms.

This study was abductive in nature, and one of the qualities of such research is that the investigator does not know what he or she might come across during the process. This proved to be the case for this study. The role of leadership of the individuals was not considered during the early stages of this research. The idea was that the leadership influences all kinds of teamwork processes, and deliberated on it in considerable detail. However, leadership proved to be dominant when studying the relationship development processes. In the GVTs under investigation, there was a lot of discussion on the role of leadership, but I believe that using theories and methods such as member-exchange theory and member-member exchange theory to explain and further refine relationship development processes would further the research.

Lastly, the thesis of psychological safety provides some clarifications in terms of what it means in the context of virtual teams. However, most of the research on psychological safety is old and focused on face to face teams. While my thesis presents a starting point in terms of providing insights into this phenomenon, I think by applying more focus to this aspect of relationship development processes would further the research on such processes. In future research I plan to adapt and use the psychological safety survey developed by Edmondson (1999), which has been used to study "psychological safety and learning behavior in work teams." Adapting it to study relationship development processes and the virtual context of work teams

would help refine our understanding of these processes and develop new models for explaining them.

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Appendices

Appendix 1: Sample of Group Tasks

IBS-KVS1 – Consulting TEAMS

CASE 4

TEAM ASSIGNMENT

Client: Venture Capital Management Firm

Our client is a venture capital (VC) management firm, interested in investing on early stage ventures that take into account the important technological, economic, environmental and socio-political trends. They prefer to invest in enthusiastic entrepreneurial teams that work on revolutionary business concepts in the phase of developing minimum viable products. The VC has a policy to invest in high impact innovations that adhere to high ethical standards and benefit society.

The problem setting: Changing Global Business Paradigms

The world as we know it is about to change. That sentence has rung true for the whole duration of the existence of our civilization; however there have been moments in the mankind's history where the sentence has carried more weight. Take the world before and after agriculture, before and after the spinning jenny, before and after electricity or before and after computers as examples, to see that there are changes and Changes. There are strong signals that one of those dramatic Changes is currently unfolding in front of us.

The drivers of change are threefold: technological, economical and socio-political. First of all the concept of "fourth industrial revolution" refers to the several types of technological advances that converge into changes larger than their sum. In economic realm the concept of Kondratieff, or long waves refers to a cyclic phenomenon of economic growth, maturity and decline driven by a set of technologies adopted and diffused in societies at any given moment (Wilenius, Casti 2015). In politics, it's no longer only the nation-states that wield political power, but also the big MNEs and non-governmental organizations like Greenpeace or Amnesty, resulting in unpredictability and political turbulence (Kobrin 2015).

The advanced digitalization has given birth to phenomena and technologies previously imagined only in science fiction. The blurring of physical and virtual space, automation and robotization, artificial intelligence, connectivity and Internet-

of-Things, nano- and biotechnologies are just a few examples of the fourth industrial revolution underway (Hermann, Pentek & Otto 2016). The combined impact of these technological advances is *ex ante* expected to disrupt the industrial realm to the extent that did for example the introduction of electricity and the inventions that utilized it to substitute the old ways of doing things.

The overarching question is, if the world is indeed changing to the extent of these predictions, what kind of businesses will thrive in the new normal? And also, depending on the outlook, one can see the futures as utopian or dystopian: both provide different settings for doing business - and result at least in parts from some kind of business actions. What kinds of businesses could we now engage in to ensure the positive futures unfolding?

YOUR TASK: Create a Business Opportunity for the New World

1. Choose a field going through ***radical technological advances***, and identify technology/technologies that could yield novel business opportunities.

2. Based on that, develop a ***business concept*** for the new world.

3. Map out the ***business ecosystem***(s) that your business a) is in and b) potentially ***disrupts***. Identify the disruptions/implications/impacts of your chosen business on the existing businesses.

4. Think about wider ***implications***: identify the impacts of your chosen business on the ***environment (natural and social***).

STRUCTURE your video presentation in three parts as follows

(NOTE: Overall duration extended to **10 minutes!**)
1. Create an "elevator pitch" to the VC.
- Aim: to wake interest and create the desire to know more about your idea
- Duration: 1 minute

2. Explain your business concept
- Aim: show the business logic and the use of your chosen technology
- minimum viable product is enough
- costs, revenues, customers, suppliers, shareholders…
- Duration: 6-7 minutes

3. Analyze the implications of your business on the natural, social and economic environment
- Aim: show your ability to understand and consider the bigger picture
- business ecosystems and their disruption
- environmental impacts, social influences, potential ethical dilemmas
- Duration: 2-3 minutes

Please submit your **10-minute** video as download link (use for example: OneDrive, Dropbox, Google Drive, etc.). Send the link to: X **AND** X
Name the file: 2016IBS-Team**00-The Teachers** Case **4** (naming examples at the bottom of this file).

Appendix 2: Individual Feedback

INDIVIDUAL ASSIGNMENT (IA) – FEEDBACK

Case 2 – McKinsey

Team:

Student:

Grades	Grading criteria (scale 0-3)		Your IA fits to:
0	**0**	**The essay is overly superficial.**	
1	**1**	**The essay is descriptive**. The essay captures key events and describes the team and the team context. It answers the question *what is going on* without analysing what is really happening under the surface or without making personal observations or sharing inner thoughts.	
2	**1.5**	In between	
3	**2**	**The essay is descriptive and reflective.** In addition to having descriptive elements, the essay goes deeper into understanding *why things are the way they are and how events unfolded*. It also gives evidence of writer's opinions, feelings and thoughts. The arguments are truthful, candid and well justified. Relevant examples are given.	
4	**2.5**	In between	
5	**33**	**The essay shows evidence of an individual learning process.** In addition to capturing and describing key events and being reflective, the writer shows what she or he has learned and how to carry the learning process forward in future.	

Food for thought: Wrítten feedback usually 3,4 paragraphs

Appendix 3: Team Feedback Form

2016 KVS1 Evaluation Case 2

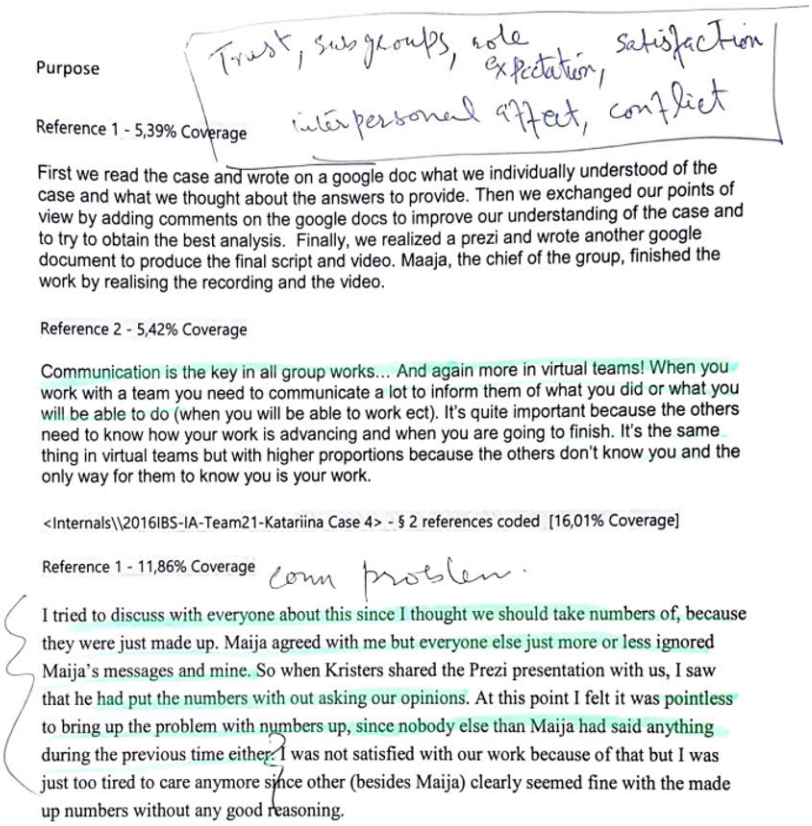
		LESS	Not Good!	Satisfactory	Good	Very Good	Excellent
	EVALUATION CRITERIA	**0**	**1**	**2**	**3**	**4**	**5**
1.	Assignment (video) contains evidence of through contextual or situational understanding of the case						
2.	Assignment has been well structured utilising research questions						
3.	Analysis is utilising a clear theoretical framework or theoretical base, providing a clear picture on the challenge						
4.	Powerful arguments are developed based on analysis, drawing on concepts or frameworks and by synthesising available and new information into feasible solution trajectories						

5.	The presentation is creative, professional, and convincing, overall providing good value to the client						
	Overall summary:						

Written Feedback:

1. (Personal note)
   -
   -
   -
2. (A word of praise)
   -
   -
   -
3. (Room for improvement)

Appendix 4: Manual Analysis



Purpose

Trust, subgroups, role expectation, satisfaction
interpersonal affect, conflict

Reference 1 - 5,39% Coverage

First we read the case and wrote on a google doc what we individually understood of the case and what we thought about the answers to provide. Then we exchanged our points of view by adding comments on the google docs to improve our understanding of the case and to try to obtain the best analysis. Finally, we realized a prezi and wrote another google document to produce the final script and video. Maaja, the chief of the group, finished the work by realising the recording and the video.

Reference 2 - 5,42% Coverage

Communication is the key in all group works... And again more in virtual teams! When you work with a team you need to communicate a lot to inform them of what you did or what you will be able to do (when you will be able to work ect). It's quite important because the others need to know how your work is advancing and when you are going to finish. It's the same thing in virtual teams but with higher proportions because the others don't know you and the only way for them to know you is your work.

<Internals\\2016IBS-IA-Team21-Katariina Case 4> - § 2 references coded [16,01% Coverage]

Reference 1 - 11,86% Coverage

comm problem.

I tried to discuss with everyone about this since I thought we should take numbers of, because they were just made up. Maija agreed with me but everyone else just more or less ignored Maija's messages and mine. So when Kristers shared the Prezi presentation with us, I saw that he had put the numbers with out asking our opinions. At this point I felt it was pointless to bring up the problem with numbers up, since nobody else than Maija had said anything during the previous time either. I was not satisfied with our work because of that but I was just too tired to care anymore since other (besides Maija) clearly seemed fine with the made up numbers without any good reasoning.

Reference 2 - 4,15% Coverage

I have learned even more about the importance of communication and dedication to teamwork. It creates more trust between the members when we can communicate freely and can see that people will do their work with out having to monitor them.

<Internals\\2016IBS-IA-Team21-Katariina Case1> - § 4 references coded [28,07% Coverage]

Reference 1 - 2,79% Coverage

I feel it would have been a lot more beneficial to have a Skype meeting together, where we could have actually had a proper conversation with everyone being present at the same time.

Reference 2 - 5,95% Coverage

Things started rolling rather slow and I think we weren't able to build a proper dialogue between all of the members and this might have had something to do with the

Purpose

Our team has definitely evolved within these 4 cases we have done. We have learned effectiveness by having audio (Skype) with simultaneously using google drive. Bifang told me that to her this had made understanding a lot easier, as sometimes she was unable to understand speech but could then reflect to google drive and seek for translations and hence improve her performance.

<Internals\\2016IBS-IA-Team14-Oona Case1> - § 2 references coded [8,73% Coverage]

Reference 1 - 3,64% Coverage

Handling the case began as agreed on the instruction phase a couple weeks ago: by setting up a skype meeting. Before the meeting we agreed that everyone should familiarize themselves with the Jollibee case as well as think of possible answers to the list of questions.

Reference 2 - 5,08% Coverage

No team leader was assigned to our team, which to me seemed to cause a little bit of stiffness in the beginning. After the assignment was given it seemed that none of the team members was activated to initiate the process. We have established a Facebook group conversation, where I suggested that we would start to work on the case in the beginning of the following week.

<Internals\\2016IBS-IA-Team14-Oona Matinpalo Case 3> - § 2 references coded [10,35% Coverage]

Reference 1 - 4,68% Coverage

In case3 we proceeded the same way than in previous ones; we all read the case assignment individually, had a Skype meeting, created a google drive document and made the videos after the second Skype call.

Reference 2 - 5,67% Coverage

adjustment

An addition that we did in the third case was to use the google drive document simultaneously with the Skype call. This made it easier to highlight main ideas and make sure that we established common understanding and hence avoided miscommunication.

<Internals\\2016IBS-IA-Team14-Oona Matinpalo Case2> - § 2 references coded [12,42% Coverage]

Reference 1 - 8,56% Coverage

After discussion on Skype, we set the google drive document where we all added noticed elements and ideas from the case. I think that this must have helped the thinking process, as not all people notice the same things and sharing ideas might bring us thinking in a broader sense. We all commented on each other's case reflections and then discussed them over a second call. This call was to make final decisions on our suggestions and to divide the work for the video.

Purpose

Reference 1 - 9,35% Coverage

Our discussion again took place in our facebook group, though skype calls and we took notes in google docs. These are good environments to divide relevant information to specific topic. Also for example if someone had written some sort of text in google doc then others could add comments or high light some parts of it which seemed odd, false or unnecessary. We again agreed on deadlines for different phases of work at the very beginning.

<Internals\\2016IBS-IA-Team07-Minni Pajo Case 4> - § 1 reference coded [6,12% Coverage]

Reference 1 - 6,12% Coverage

While solving this case we had less skype calls since we were not able to fine a suitable time for everyone. So our long discussions took place in a facebook group were everyone could add their views on suitable time for them. This was OK for me.

<Internals\\2016IBS-IA-Team09-Alexis Case 3> - § 1 reference coded [12,47% Coverage]

Reference 1 - 12,47% Coverage

My thought is that for this case, we had to have a better communication between the members of our group, as we started to work with less tools and a weaker comprehension of the topic. I think this task would have been easier if we had a leader in the group. The role of a team leader is to create an environment oriented to trust, open communication, creative thinking, and cohesive team effort. He can motivate and inspire team members, by highlight interesting ideas and ensure a dynamic collaboration between each team members. It

<Internals\\2016IBS-IA-Team09-Alexis Case1> - § 1 reference coded [7,59% Coverage]

Reference 1 - 7,59% Coverage

Very fast after receiving the instructions, we agree on how we should communicate. It is a good point, as we are able to immerse ourselves very fast in the Jollibee case. We choose google drive to expose the ideas and give the possibility for everyone to be able to keep-up-to date, and correct each other on what we write.

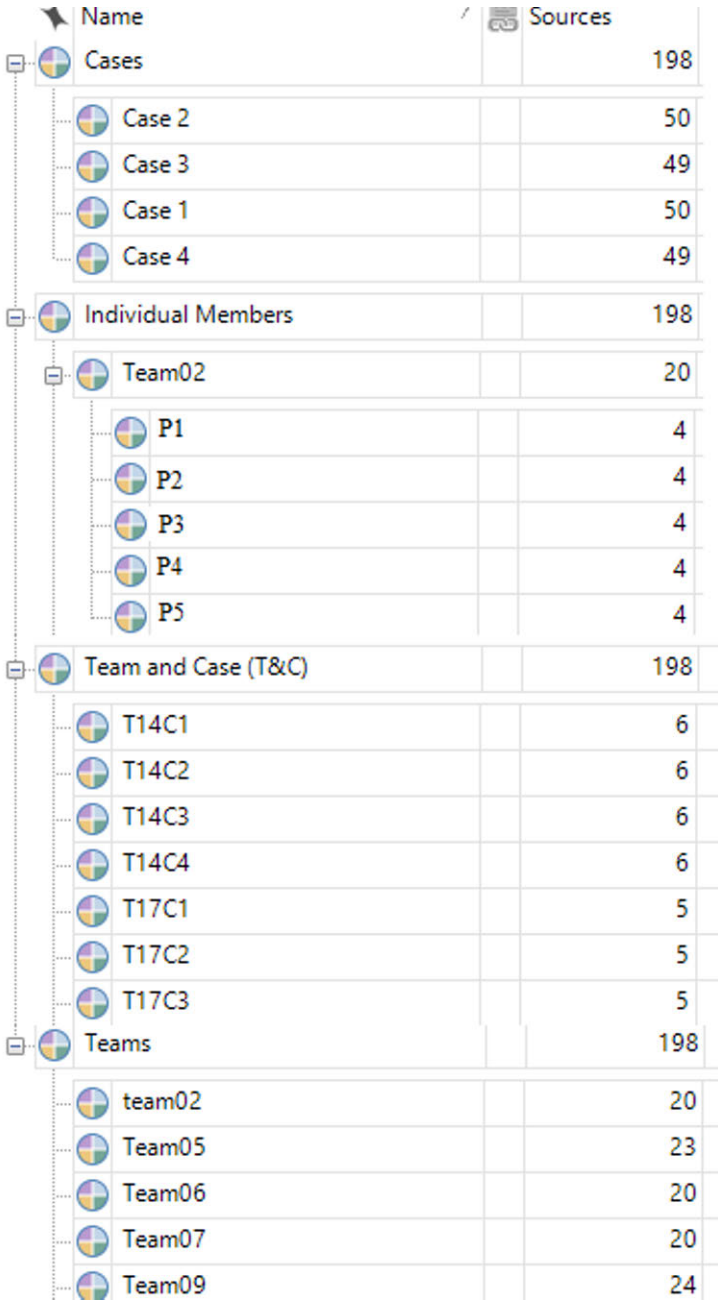
<Internals\\2016IBS-IA-Team09-Anete Case1> - § 1 reference coded [3,57% Coverage]

Reference 1 - 3,57% Coverage

We have created a group chat in Skype and that is the place where we all meet to discuss the assignment. To place our thoughts on one place for each assignment we create a document in Google Drive.

<Internals\\2016IBS-IA-Team09-Anete Case2> - § 1 reference coded [6,69% Coverage]

Appendix 5: Multiple Forms of Data organization



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