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Traversing the Digital Frontier: Culture's Impact on Faultline Emergence in Virtual Teams

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TRAVERSING THE DIGITAL FRONTIER: CULTURE'S IMPACT ON FAULTLINE EMERGENCE IN VIRTUAL TEAMS

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ABSTRACT

As organizations continue to spread across geographic boundaries, we must understand the complex interplay between an individual's cultural values and the effects of distribution. Despite the fact that almost half of all organizations utilize virtual tools to collaborate across nations, there is a dearth of research on this topic. Without considering cultural differences in this context, issues can emerge ranging from increased social loafing to decreased trust. In this study, I argue that the lack of social cues in virtual teams renders high-/low-context cultural differences imperative and that variations therein can cause the emergence of faultlines, thereby leading to negative team outcomes. This study uses data from 135 global virtual teams engaged in a decision-making task over the course of three weeks to test these ideas. These data show that in the global virtual team context, task conflict does not significantly impact proximal outcomes like faultline emergence, nor distal outcomes such as effectiveness. However, it stresses the importance of avoiding relationship conflict in these teams, as they can both trigger faultline emergence and impact a team's viability. As such, it serves to answer the calls of multiple researchers by merging the interconnected contexts of virtuality and national culture and by moving beyond the Hofstede (1984) cultural dimensions. Additionally, it furthers faultlines research by uncovering antecedents of their emergence in this unique context. Finally, the incorporation of an exploratory machine learning component takes the first step towards showing that faultline emergence can be predicted based on individual differences, with deep-level characteristics mattering more.

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There is a very good reason that I saved this section to be the last that I wrote. Specifically, I thought that it would be the most difficult to get through and boy was I right. There is no realistic way for me to thank all of the people over the years that have helped lead me to where I am now – But here we are… With that said, first and foremost, I need to thank my family who have been there for every step of my long, complex path and supported me in any way they possibly could. To my amazing mother, you have done nothing but steer me in the right direction in all aspects of my life. You are a beacon in the dark and I largely have you to thank for the man I am. To my grandparents who are with me: you have supported me more than you could ever know and have made it possible for me to continue down this road regardless of the twists and turns. To my grandparents no longer with me: I made a promise to you both *very* long ago that I would make this happen against any odds that came my way – And with your support and love, I did. Thank you so much and I truly hope you would be proud.

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"How lucky I am to have something that makes saying goodbye so hard" – Pooh

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CHAPTER 1

INTRODUCTION

"Today for show and tell I've brought a tiny marvel of nature: a single snowflake. I think we might all learn a lesson from how this utterly unique and exquisite crystal turns into an ordinary boring molecule of water just like every other one, when you bring it in the classroom."

- Calvin & Hobbes

The realm of psychology is one which covers such a vast number of domains that the standard answer to many of the questions posed by those that study it is: "It depends." In its own right, Industrial and Organizational Psychology has taken a step toward better understanding such broad queries by examining one specific slice of how psychology applies to our world: the workplace. However, much like the aforementioned snowflake, we must be wary to not assume that, by studying a particular construct or phenomena the same way across different contexts, we will see the same results. Instead, it is important that we embrace contextual differences and understand the intricacies of the new setting that distinguish it from what we already know. By ignoring what makes a context unique, and not adapting our approach to measurement or methodology, we are fundamentally biasing our understanding of the context and doing a disservice to the academic community.

A good example of how such inherent biases might emerge can be found in the study of national culture (Matsumoto, 2007). Out of simple convenience stemming from the difficulty of obtaining multinational data, there has been a trend in the past fifteen

years for researchers to incorrectly label individuals from different cultures (Gibson, Huang, Kirkman, & Shapiro, 2014). Specifically, due to the prolific nature of the Hofstede (1984) dimensions that provide country-level values across five different dimensions, researchers have taken to using these values as a proxy for an individual's true value on the dimension (e.g., Diamant, Fussell, & Lo, 2009; Cheng, Chua, Morris, & Lee, 2012). By this logic, if multiple individuals in a sample come from a specific country, it is assumed that they all share the same cultural values. Such an assumption is not only inaccurate but it grounds our understanding of how multicultural teams operate in flawed assumptions (Kramer, Shuffler, & Feitosa, 2017).

Recent meta-analyses have also stressed the importance of context as a moderator of performance at both the individual level (Cerasoli, Nicklin, & Ford, 2014) and the team level (Joshi & Roh, 2009). Specifically, for the latter, it was found that the finite amount of time that is inherent within a short-term, project team results in a positive relationship between diversity and performance and the opposite was found for long-term teams. For the purposes of this study, I will not only be examining such a multicultural team context, but also a task environment that is virtual and dispersed. By coupling these contexts, this research will serve to mimic the current trends and norms seen in the modern workplace. Indeed, a SHRM survey showed that 49% of organizations employing virtual teams use them as a tool to collaborate across different geographic locations and nations (SHRM, 2012).

However, there is a gap in research that examines both virtuality and culture. Specifically, Gibson and colleagues (2014) found that, from the year 2000 to 2013, only

eighteen articles empirically analyzed culture in virtual teams and of these, nearly half used an individual's country of origin as a proxy for individual culture. Due to the fact that virtual teams are so heavily tied to cultural differences via dispersion, all aspects of this unique context need to be considered concurrently. Moreover, without properly considering individual cultural differences in a virtual task environment, issues such as increased conflict, decreases in trust, or the creation of demographic faultlines can emerge (Edwards & Sridhar, 2005; Polzer, Crisp, Jarvenpaa, & Kim, 2006; Staples & Zhao, 2006; Mockaitis, Rose, & Zetting, 2012). Ultimately, this study aims to provide a better understanding of how multicultural, virtual teams work together by examining how cultural values and individual differences serve to affect team behaviors and, in turn, the emergence of faultlines.

Currently, there is an abundance of research on demographic faultlines in face to face teams. Indeed, a meta-analysis of this literature was conducted by Thatcher and Patel (2011) who found that the demographic faultlines led to a number of negative outcomes for teams such as increased conflict and decreased cohesion and performance. However, a majority of the studies focused on teams with very high levels of active faultlines. There is some current support found for the idea that there is a curvilinear relationship between faultlines and team performance such that it might be possible to leverage moderate levels of demographic faultlines to a team's advantage (Chen, Wang, Zhou, Chen, & Wu, 2017). In the proposal that follows, I will argue that it is of *particular* importance to examine the antecedents to faultline emergence in global virtual teams. Due to the decreased salience of demographic differences and the low informational

value of certain tools, it might very well be the case that constructs which traditionally impact teams negatively, such as task conflict (e.g., Gonzalez-Roma & Hernandez, 2014), can actually decrease the amount of faultlines that emerge. Therefore, grounded in contextual differences, instead of taking the standard approach to examining how faultlines impact team processes, I will try and determine what actually causes faultlines to activate in these unique teams.

Finally, in an effort to do so and acknowledging the inherent complexity of the context being examined, the proposed research also incorporates an exploratory component which applies machine learning to the functioning of global virtual teams. Such an approach is traditionally used when there are extremely complex interactions between variables of interest and research finds that clear results are hard to tease apart (Walker & Milne, 2005). By applying machine learning, via artificial neural networks (ANNs), to global virtual teams, we might be able to garner a more holistic view of how multiple demographic differences across individuals interact and affect team processes and performance on complex tasks via faultline emergence. Thereby providing the scholarly community a better understanding of how individual differences affect global virtual teams, generating novel research questions based upon the findings that emerge, and also taking an initial step towards creating a tool that can predict whether or not a specific team's composition might result in negative outcomes such as faultlines or conflict.

In the sections that follow, a detailed operationalization of the context will be presented, an introduction given to the specific antecedents, mediators, moderators, and

outcomes being explored, and a discussion of how ANNs serve as a beneficial tool when studying GVTs. It is my hope that including an exploratory component of research, future studies can benefit from the information gleaned regardless of whether or not neural networks are able to predict team outcomes - for as we well know, when exploring a topic, finding nothing at all is actually an important finding (Kepes, Banks, & Oh, 2014). More importantly, however, the empirical portion of this paper will serve to answer the calls of multiple researchers by merging the two interconnected contexts of virtuality and culture and by highlighting cultural variables that are not directly tied to the traditional Hofstede (1984) dimensions (e.g., Leung, Bhagat, Buchan, Erez & Gibson, 2011) and will also serve to further faultlines research by uncovering antecedents of faultline emergence in this unique context.

THE GLOBAL VIRTUAL TEAM CONTEXT

As a response to the continuing increase in task complexity and the multinational nature of many organizations, it has become necessary for workers to find effective methods for coordinating and interacting with others across time and space (Taras, Kirkman, & Steel, 2010). Therefore, there are a number of questions that must be considered in such a context. For example, how do issues caused by having dispersed team members affect a team? How do individuals with different cultural norms work together to complete their tasking? Also, how does the use of a virtual tool affect team processes? Global virtual teams lie at the intersection of these questions by incorporating aspects of dispersion, culture, and virtuality. To best understand how teams in this unique

context function, however, it is necessary to step back and define what constitutes a traditional team.

Defining Teams

In the past there has been rich debate in academic literature surrounding the specific characteristics that comprise a team. For instance, how is a team different from a group, if at all? Typically, teams are thought of as a more specific type of group seeing as each individual shares a common, interdependent goal (Sundstrom, DeMeuse, & Futrell, 1990). However, there has been much debate as to whether or not this distinction is enough to warrant groups and teams existing as separate entities (e.g., Sundstrom, McIntyre, Halfhill, & Richards, 2000; Kerr & Tindale, 2004). Reviews of literature seem to point to the fact that the distinction between the two constructs is neither consistent nor clear and, for this reason, it is acceptable to use the two terms interchangeably (Cannon-Bowers & Bowers, 2011).

For my purposes, however, I adopt one of the more traditional definitions of teams proposed by Salas, Dickinson, Converse, and Tannenbaum (1992). They explain that teams have the following characteristics: (1) are comprised of two or more individuals, (2) interact in an interdependent fashion, (3) have a common set of goals or objectives, (4) carry out specific roles, and (5) have a specific life-span of team membership. The reason this conceptualization of teams was chosen over others that might arguably be more complex or detailed (e.g., Kozlowski & Ilgen, 2006) is because it does not clarify that teams need to be embedded within an organization. While all teams do operate in a specific, unique context, by forcing their existence within an organization,

it can exclude student project teams which many argue are a viable sample for examining organizational research (e.g., Greenberg, 1987; Gordon, Slade, & Schmitt, 1986; Demerouti & Rispens, 2014; Wheeler, Shanine, Leon, & Whitman, 2014).

To further incorporate the idea that a team's context can impact team processes and outcomes, I adopt the input-mediator-output-input (IMOI) model of team effectiveness. Originally proposed by Ilgen, Hollenbeck, Johnson, and Jundt (2005), the IMOI model builds upon the input-process-output (I-P-O; Hackman, 1987) model which explains that contextual variables such as a team's information system act as an input and are static throughout the team process phase. Instead of this more static approach to contextual factors, the IMOI model takes a dynamic stance of teamwork effectiveness by incorporating emergent states as mediators and adding a cyclical feedback loop. Additionally, while there have been a number of other models proposed that specifically focus on a team's life cycle (e.g., punctuated equilibrium, Gersick, 1998; team evolution and maturation model, Morgan, Salas, & Glickman, 1993), for my purposes, these are not adopted solely because it is arguable that more impromptu, short-term teams might not engage in all of the stages of team development (Offermann & Spiros, 2001).

Teasing Apart Global Virtual Teams

Over the years there have been multiple different terms which try to encapsulate a team that operates both across cultures and physical locations. Examples include both transnational teams (Earley & Mosakowski, 2000) and multicultural distributed teams (Connaughton & Shufler, 2007). While not explicitly highlighting the integral nature of technology in each of these titles, it is understood that teams with distributed members

must use collaborative tools of some sort to interact and maintain interdependence (Bell & Kozlowski, 2002). Further, the implication of having a distributed team is that individuals can come from vastly different locations. Regardless of whether or not these locations are across national or county lines, there is always a degree to which cultural differences will come into play seeing as different regions of the same country can embody differing values (Fischer & Schwartz, 2010). Therefore, to best understand and define global virtual teams, one must understand the interplay of culture and virtuality in teams.

Virtuality & Teams

Amid the increasing examination of virtual tool use in team settings, there have been multiple conceptualizations of what is meant by 'virtuality.' Ranging from frequency of virtual interaction (e.g., Lu, Watson-Manheim, Chudoba & Wynn, 2006) to degree of distribution (e.g., Cohen & Gibson, 2003), researchers have adopted unique methods for examining this construct. Most frameworks of virtuality are multidimensional and address physical and temporal dispersion (e.g., O'Leary & Cummings, 2007). Moreover, as aforementioned, it is understood that distributed teams rely upon virtual tools, defined here as the modes of communication used by teammates to interact virtually, to perform the functions essential to a standard team (Hertel, Konradt, & Orlikowski, 2004). Therefore, acknowledging that virtuality is a multifaceted process which requires multiple foci (Martins, Gilson & Maynard, 2004), Kirkman and Mathieu (2005) delineated three dimensions that together comprise team virtuality: the extent of reliance on virtual tools, informational value, and synchronicity offered.

The first dimension, extent of reliance on virtual tools, describes the proportion of team interaction that occurs via virtual means. On one end of this continuum, teams interact face-to-face and use no virtual tools. On the other end are teams that interact solely through virtual means. Teams can fall anywhere along this continuum, for example, having a face-to-face kickoff meeting but interacting for the rest of the team's tenure using virtual tools such as videoconferencing and email. Informational value is the extent to which virtual tools transmit valuable data for team effectiveness. Kirkman and Mathieu (2005) argue that, when technologies convey rich, valuable information, exchanges are less virtual than those which provide fewer social cues. For example, videoconferencing offers a great deal of informational value by providing not only dialogue but also verbal and non-verbal cues that help to facilitate team interactions. Finally, synchronicity is the extent to which interactions occur in real time or incur a time lag. For example, email is much more asynchronous than video conferences where team members can interact in real time.

As such, a highly virtual tool can be thought of as one which has little informational value and low synchronicity. Indeed, common virtual tools considered to be highly virtual include email and message boards (Kirkman, Cordery, Mathieu, Rosen & Kukenberger, 2013). Conversely, tools on the other end of these spectra include video-conferencing and tele-conferencing. Unlike their highly virtual counterparts, tools low in virtuality permit more detailed forms of communication such as the ability to non-verbally communicate. Specifically, these tools are said to be richer media because they often include the social cues and real-time communication that one would experience in a

face to face situation (Daft & Lengel, 1986). The degree to which virtual teams use tools low in virtuality has been found to be important for virtual team processes such as knowledge sharing (Gajendran & Harrison, 2007). Other processes that have been found to be of particular importance due to the unique context of virtual teams include cohesion, communication, trust, and leadership (Driskell, Radtke, & Salas, 2003; Bowers, Smith, Canon-Bowers, & Nicholson, 2008; Rosen, Furst, & Blackburn, 2007).

Culture & Teams

With a distributed team comes the necessity to work with individuals from different backgrounds and abilities. While, for my purposes, culture will be purely based on nationality and values, it is not limited to this view as it can also reference the values or vision of an organization (Lee & Kramer, 2016). As such, I adopt the definition of culture provided by Hofstede (1984) which explains that one's culture is a sort of mental programming grounded in values that distinguishes a member of one group from another. This definition was chosen due to the fact that: (1) individual values are the key determinant of culture, (2) it does not *assume* that all individuals from the same country of origin necessarily have to share cultural beliefs, and (3) there is clear indication that national culture can cause individuals to create and perceive subgroups based on values. In this sense, culture is a collective phenomenon that can flex and mold to the individual's context in which they are operating (Hong, Morris, Chiu, & Benet-Martinez, 2000).

Specific to the impact of national culture on teams, there has been a good deal of misalignment as to whether multicultural teams are beneficial or detrimental. While it is

not my intention to resolve this debate in the study that follows, it is important to note that sometimes organizations have no choice but to leverage multicultural teams and my sample will reflect this. Therefore, this study empirically examines what you need to consider as an organization or teammate if you *know* you will be working with others from around the world. In these cases, multiple cultural identities will be present. However, the important question becomes: are these cultural differences salient enough to impact the team? Research shows that when a majority of team members have the same cultural identity, teams are more likely to pick up on differences and form detrimental subgroups (Randel, 2003). On the other end of the spectrum, we find that the opposite is true: completely heterogeneous teams will be less likely to cluster into subgroups because there are few others who are similar to themselves (Earley & Mosakowski, 2000).

For teams with moderate heterogeneity, differences in something so integral to team formation as shared beliefs, can take a negative toll, particularly those which are ad hoc and in early stages of formation (Shapiro, Furst, Spreitzer, & Von Glinow, 2002). For instance, a review by Feitosa, Solis, and Grossman (2017) explains that in early stages of multicultural team development, the challenges that emerge range from basic visual differences, such as race, to more complex processes such as communication effectiveness. Additional research has shown that perceived cultural differences amongst team members have negative implications for cooperation (e.g., Kirkman & Shapiro, 2001), conflict type (e.g., Mortensen & Hinds, 2001), adaptation (e.g., Harrison, McKinnon, Wu, & Chow, 2000), decision making (e.g., Kirchmeyer & Cohen, 1992),

and performance (e.g., Matveev & Nelson, 2004). However, there is a silver lining in that, if these teams are able to overcome their initial hurdles, heterogeneous teams can outperform homogeneous teams, specifically if their team has creative outcomes (e.g., Watson, Kumar, & Michaelson, 1993; Standifer, Raes, Peus, Passos, Santos, & Weisweiler, 2015; Verhoeven, Cooper, Flynn, & Shuffler, 2017). Ultimately, what we see in multicultural teams research is that, it depends. Not only does the context of the team matter, but so do their tenure and task.

Where Culture and Virtuality Meet

So what do we know up to this point? Organizations use virtual tools to help their workers achieve goals when they cannot be collocated and those virtual tools can vary in informational value. The same organizations also rely on global teams to perform large scale, multinational projects whose success can completely depend on whether or not a team forms damaging subgroups. When these two are put together, the term for this unique context is known as global virtual teams. I conceptualize such teams using the definition provided by Piccoli, Powell, and Ives (2004) which explains that they are groups of individuals performing some interdependent, shared task while using information sharing virtual tools due to team member dispersion across time, space, or organizations. This definition has been chosen specifically because it targets the key process of information sharing as being integral to these teams and also includes organizational dispersion as a factor which can impact global virtual teams.

As previously explained, there has been a surprising dearth of literature which attempts to examine the impact that virtual tools have on multicultural teams. However,

we do know that virtual tool characteristics and cultural values interact in a manner that can greatly help or harm global virtual teams. For instance, consider the cultural construct of uncertainty avoidance/tolerance for ambiguity which has clear ties to the degree of virtuality provided by a virtual tool. It represents the way an individual perceives and processes information about ambiguous or unfamiliar situations (Furnham & Ribchester, 1995) in such a way that an individual who is high in uncertainty avoidance is said to succumb to pressure in challenging, novel situations and desire finding the easiest solution (DeRoma, Martin, & Kessler 2003). Additionally, seeing as those high on uncertainty avoidance rely on indirect communication processes for interpersonal interaction and team processes (Massey, Hung, Montoya-Weiss & Ramesh, 2001), it is tied to psychological detachment when an individual is using a virtual tool with an absence of social cues amongst team members (Ollo-Lopez, Bayo-Moriones & Larazza-Kitana, 2010).

Traditionally in organizational psychology research, when culture is measured and examined, the Hofstede (1984) cultural dimensions, such as uncertainty avoidance, are the standard. This is largely due to the following reasons: ease of availability in that there are many validated measures, they were the first set of cultural dimensions to be validated within a major organization, and the constant use of these cultural dimensions perpetuates future use (Baskerville, 2003). However, as found in a review of the virtual teams literature by Kramer and colleagues (2017), there are at least ten additional cultural constructs that might have theoretical implications for an individual's virtual tool preference. More importantly, an argument can be made that some of these dimensions

might be more important to the global virtual team context than traditional Hofstede dimensions.

In the theoretical framework that follows, I will take a deep dive into how one such novel cultural construct (i.e., high and low context culture) can impact the emergence of faultlines within global virtual teams, determine whether or not this relationship can be mitigated by a compatible individual difference variable, and try to understand the proximal and distal impacts on team performance. This will bring us closer to understanding how culture and virtuality overlap in global virtual teams and build a nomological network for this novel construct. Also, by *matching* the cultural dimension being examined to the context, it is my hope that results will provide a unique understanding as to how team composition can differentially impact global virtual team outcomes and the role team processes play in this relationship.

HIGH- AND LOW-CONTEXT CULTURE

Often a staple construct in international marketing research, proposed by Hall (1976), and grounded in the theory of initial interactions from communications research (Berger & Calabrese, 1974), the cultural construct of high and low context cultures exist on a continuum and represent the amount of contextualizing that is performed by an individual during interpersonal communication. Contextualizing information, in this sense, refers to the preprogrammed ability for an individual to screen information that they feel is unnecessary to the situation, thereby avoiding cognitive overload (Kittler, Rygl, & Mackinnon, 2011). For instance, a high-context culture relies upon the use of indirect communication via contextual cues such as body language to transmit

information. These individuals garner imperative behavioral cues from their environment to inform their actions in social situations, such as those that occur when working in a team (Kim, Pan & Park, 1998). Alternatively, a low context culture communicates directly through spoken word and there is little ambiguity in statements, regardless of whether or not the words have a positive or negative connotation (Wurtz, 2005). As such, these individuals tend to filter out nonverbal and behavioral cues instead of relying on them. Although high and low context culture shares some overlap with Hofstede's (1984) individualism and collectivism by directly tying to the need for saving face and maintaining trust and relationships, it moves beyond this dimension to find details as to how one's environment can cause changes in his or her actions (Korac-Kakabadse, Kouzmin, Korac-Kakabadse & Savery, 2001).

The original thought behind *why* individuals from specific cultures either pay attention to or ignore situational context during communication falls on the behavior of the people who live in the nation as a whole (Hall, 1976). For instance, it is explained that individuals in low-context cultures such as Switzerland are very isolated and engage in minimal interaction with others versus high-context, Eastern nations with complex social systems, a familial structure, and formal hierarchies (Korac-Kakabadse et. al., 2001). In this sense, a high-context person is much more apt to discuss topics tangentially related to the main purpose of the communication and take his or her time expressing their main point. This can partially be due to the idea that by directly bringing up a topic, the individual will be losing face with the other person (Hall, 1989). This idea was also taken a step further by Hall (1976) and was applied to business practices in different countries:

High-context cultures operate via relationships to others in social networks while low-context cultures use contracts which use clear, unambiguous written word.

There is some academic criticism of this cultural dimension for the reason that it is empirically unclear as to where different countries exist on the continuum (Kim, et. al., 1998). For instance, while some countries such as China and Japan are thought to be high-context cultures, other countries like France and Spain are thought to lie somewhere in the middle between high- and low-context (Onkvisit & Shaw, 2008). This begs the question: what exactly does it mean to be in the middle of this scale? Does it mean that the individuals in the country are tolerant of both high- and low-context situations or that there is a mix of individuals who prefer one over the other? While there is currently no good answer to these questions, I argue that to better understand high- and low-context cultures, we must: (1) embrace the interpersonal nature of the construct by taking it down from a national level of analysis, (2) understand that individuals can vary *within* their country of origin and avoid creating intuitive groupings of countries that serve to further the use of culture as a proxy for accurate measurement, and (3) examine the construct in a setting that is best fit to highlight its unique properties. By tying the specific cultural dimension to the context of virtual collaboration in teams, we will be able to garner a more realistic understanding of how and why it matters, if at all.

Contextualizing in Global Virtual Teams

Whenever we try to understand how an individual will act in different interpersonal, social situations, regardless of context, it is imperative to build our theoretical understanding in the social identity perspective (Reynolds & Turner, 2006).

This framework is a merging together of social identity theory (Tajfel, 1978) and self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) which, together, explain that an individual has three different identities that must be managed in any given situation: individual, social, and human. For my purposes, the social identity will be the foci seeing as it refers to the degree to which an individual feels like they are part of an in-group (Hornsey & Hogg, 2000). It is also important to note that, within specific situations, if one identity is primed, the other two identities will become less salient (Hornsey, 2008). In a virtual team, there is clear priming of the social identity; not only is it necessary for the individual to work with others to achieve goals, but there is also a virtuality component that can naturally make it harder for one to feel part of an in-group (Jarvenpaa & Leidner, 1999). Coupling this with the idea that individuals who feel like they are part of an out-group will be less likely to express opinions, challenge norms, and communicate novel information (Hogg & Reid, 2006), we see the major impact this theory has for teams across all contexts.

Taking this one step further and acknowledging how closely tied variations in high- and low-context culture are to communication and information sharing, it is understandable how differences across this variable could have major implications for global virtual teams. For instance, a study by Koeszegi, Vetschera, and Kersten (2004) examined how individuals from both high- and low-context cultures would react to a text-based, virtual tool used for the purposes of negotiation where messages would be received in real-time, but there would be no visible social cues other than words. Results showed that individuals from high-context cultures try to make up for the lack of social

cues by sending significantly more messages to their partner to create a mutual social context. Not only does this unnecessarily take time away from performing the task, but members of high-context cultures rated the virtual tool as significantly less useful than those of low-context cultures. Ultimately, across research, one finds that this focus on relationship maintenance is a common theme for high-context cultures (e.g. Huang & Mujtaba, 2009).

Furthermore, in an examination of differences in website layouts across high- and low-context countries, Wurtz (2005) explains that high-context cultures typically use images conveying body language to relay information whereas low-context cultures use spoken and visual word. Seeing as these verbal, linguistic cues are necessary for low-context cultures to exhibit essential affective behaviors such as trust, without them, there tends to be increased conflict within teams (Damian & Zowghi, 2003). Indeed, it has been proposed that when multicultural teams experience interpersonal conflict, it might be better to simply communicate in visual or aesthetic outlets instead of verbally (Von Glinow, Shapiro & Brett, 2004). Therefore, when an individual from a high-context culture is working in a global virtual team, and using a tool that has less salient social cues (e.g., e-mail, open forum posting, etc.; Kirkman & Mathieu, 2005), it would take them significantly more time to adapt to the situation and feel integrated as a member of the team. If this is actually the case, the implications for ad hoc global virtual project teams would be extremely significant. It would imply that if these teams did not actively use a virtual tool that offers the ability to interpret social cues, valuable time would be

lost and there would be a lag between when those who are high- and low-context feel identification with the task and team. This leads to my first hypothesis:

Hypothesis 1: There will be a significant, negative relationship between the variance of low-/high-context culture and team identification.

The Role of Adaptation

Much like culture, as an individual difference variable, adaptation has been subject to some construct confusion across teams research. For instance, Baard, Rench, and Kozlowski (2014) explain that the numerous conceptualizations of adaptation have been inconsistent and confusing, sometimes blurring levels of analysis and call for a four-part theoretical approach to adaptation: (1) an outcome, (2) as an individual difference variable, (3) changes in performance, and (4) a process. For my purposes, I will be using the second approach to adaptation by examining the construct at the individual level and aggregating to the team level. While there is some debate as to the stability of this trait within-individual and over time, it has been described as mostly stable and generalizable across contexts (Chan & Schmitt, 2002). Moreover, it has been found that adaptability is an important construct to consider across cultures due to its impact on proximal and distal organizational outcomes (Wang, Zhan, McCune, & Truxillo, 2011).

At an individual level, adaptability is the degree to which a team member is capable of acclimating to novel or shifting task environments (Chan, 2000). With high levels, it is less necessary for the individual to respond to change (Dokko, Wilk & Rothbart, 2009), thereby permitting more of a focus on the necessary behaviors to complete the task. On the other hand, low levels of adaptability result in increased time

and resources for both the individual and his or her team to adjust plans and goals so that they correspond to their new task environment (Pulakos, Arad, Donovan & Plamondon, 2002). In this sense, especially in interdependent teams of individuals with mixed levels of adaptability, one person can hinder the entire team and ultimately affect how others view their performance. Moreover, if the entire team does not have similar shared mental models of the task and each other, they can succumb to the fluid task environment that exemplifies the modern workplace (Kozlowski, Gully, Nason, & Smith, 1999).

There is, however, research which shows that virtual teams have a natural inclination to be more adaptable than the sums of their parts (Zaccaro & Bader, 2003). This conclusion is grounded in the idea that everyone brings unique abilities to the team that can be leveraged at opportunistic points whenever their task environment shifts. While I do agree and acknowledge that this is an important consideration, I make the argument that research should also consider when in the team tenure the trigger for adaptation occurs and if it affects the entire team equally. Namely, in ad hoc virtual teams, individuals begin tasking without a good understanding as to everyone's unique abilities. In addition, if the team is using a tool that has high virtuality (e.g., email or forums), there is a barrier to learning about others. Therefore, I feel that an individual's adaptability is integral to the early stages of ad hoc, virtual project teams when team members have little knowledge of those they are working with.

As individuals in global virtual teams begin to communicate with one another, such differences begin to emerge. For instance, those who are high-context might begin by introducing themselves and trying to get to know everybody on the team on a more

social level while those who are low-context might begin by laying out a plan of action for the task. It is important to note that while neither of these approaches are wrong, the disparate actions of individuals can lead to individuals creating initial sub-groupings of those who are most like them. However, if the team, on average, exhibits high levels of adaptability across its members, they might be more likely to acclimatize to the cultural differences of the others on their team, thereby decreasing the prevalence of high-context individuals feeling like they are not part of the team due to low-context team members ignoring or becoming frustrated with their approach (or vice versa). For these reasons, I suggest the following:

Hypothesis 2: The average level of adaptability will moderate the relationship between the variance of low-/high-context culture and team identification such that as adaptability increases, the relationship will be attenuated.

FLIPPING THE SCRIPT ON FAULTLINES

As alluded to with the importance of the social identity perspective, at the very heart of teamwork is the idea that individuals need to work with others whom may or may not share similarities. Such individual differences can be thought of in several different ways: personality characteristics, cultural differences, demographic differences, location, etc. In recent years there has been a push to understand how demographic diversity, or the distribution of differences across a team on a given attribute, affects a team's functioning (Harrison & Klein, 2007). While a full explanation of the background literature of demographic differences is beyond the scope of this proposal, the important message has been that there is little agreement as to how specific demographic

characteristics (e.g., age, gender, education, etc.) affect a team's performance (Bell, Villado, Lukasik, Belau, & Briggs, 2011). Instead, there is a call to take a more complex approach to examining demographic diversity as multiple characteristics can impact teams in different ways based on the level of diversity and interplay with other characteristics (Bezrukova, Jehn, Zanutto, & Thatcher, 2009).

One such method of considering how multiple demographic differences exist and interact to effect teams is via the study of demographic faultlines (Li & Hambrick, 2005). Defined and popularized by Lau and Murnighan (1998), a faultline can be thought of as a hypothetical divide between individuals on a team that splits them into homogeneous subgroups on a specific characteristic. It is also important to note that multiple faultlines can exist at any one time within a team (Bezrukova, et. al., 2009). For example, if there is a team of two males and two females and three of them are from the United States, while the other is from Canada, there are two clear faultlines: (1) 2/2 split on gender and (2) 3/1 split on country of origin. Upon further examination, there could also be additional, less recognizable faultlines such as cultural norms, tenure, etc.

Additional support for this idea can be found in reasoning and problem solving literatures via the dual process theories of higher cognition. The basic idea behind these theories is that there are two different processes vying with each other to influence our behaviors (Evans & Stanovich, 2013). The first, type 1 processing, is automatic, autonomous, and does not require an individual's working memory (Stanovich, 1999). It is typically used for heuristic-based decisions, categorizing the things an individual sees in his or her environment, and/or expert decision making processes (Evans, 2010).

Alternatively, type 2 processing is much more resource heavy and requires the use of working memory, it also includes analytical thought processes such as mental simulation or decision making, and is mainly rule-based (Evans, 2010). Additionally, it is important to note that the type 1 processes are grounded in dated evolutionary structures (e.g., in-group vs out-group biases) and they typically occur without our being cognizant of them (Mithen, 2002). Following this logic, when presented with a global virtual team context, type 1 processing will be used to immediately scan the team for similarities and differences between oneself and others. If differences are noticed, it is then the job of type 2 processing to recognize and suppress any biases that might come with the recognition of differences. However, thanks to this unique context, there might be significantly fewer differences for type 1 processing to pick up on and biases might take longer to form.

Faultlines research has also moved beyond demographics and is now considering individual difference variables, such as identity, as foci for faultlines (e.g., Carton & Cummings, 2012). In this sense, it is perfectly plausible to have hundreds of faultlines within a team at any given time. However, not *all* of these faultlines necessarily have a major impact on team performance as they can be either dormant or active (Pearsall, Ellis, & Evans, 2008). Like their earth science namesake, a dormant faultline is one which is not salient to the team but still exists and can be activated by triggers in the task or relationship environment (Jehn & Bezrukova, 2010). An activated faultline, on the other hand can greatly harm a team by generating clear subgroups that hinder team processes such as collaboration and communication (Edmondson & Roloff, 2009;

Phillips, Mannix, Neale, & Gruenfeld, 2004). Interestingly, however, mixed findings do exist and, in certain cases, faultlines have been found to increase learning and performance (e.g., Lau & Murnighan, 2005). Such disparate findings have led to a debate as to if faultlines take the specific interactive details and strengths of the multiple differences into account (e.g., Gibson & Vermeulen, 2008). For instance, if researchers are examining the impact of gender and age faultlines on a team, they might interpret findings while missing other key differences such as tenure within the organization or how big the age gap is. Currently, the general consensus is that, in face to face teams, strong faultlines will lead to increased levels of conflict and decrease cohesion, ultimately having a negative impact on performance (Thatcher & Patel, 2011).

Following suit with multiple different researchers (e.g., O'Leary & Mortensen, 2010; Jiminez, Boehe, Taras, & Caprar, 2017), I argue that it is time for faultlines research to move beyond examining face to face teams and begin developing an understanding as to how findings might change across contexts. Specifically, for global virtual teams, when one considers that individuals will be collaborating using a virtual medium that can wash away the immediate perception of certain demographic differences (e.g., age, race), an interesting question emerges: Are there different triggers which cause the activation of faultlines? Until this point, research has focused on examining faultline strength grounded in perceivable differences (e.g., proportion of men vs women, variance of age, etc.) but with less salient perceivable differences, what happens? In the sections that follow, I hypothesize that, for global virtual teams operating in a low informational value environment, we should think less about the outcomes of faultlines and consider

what leads to their activation instead. The basic question I aim to answer is: When we have less information about those on our team, what causes faultlines to emerge? Indeed, perhaps we should consider constructs that are traditionally outcomes of faultlines in face to face teams as antecedents to activation (e.g., conflict). Answering this question would lead to an expansion of our knowledge on this team-based construct and permit the development of interventions that can potentially intervene before faultlines are activated in global virtual teams.

The Case for Conflict

Conflict has a long history of being examined within organizations and the two are thought to be so inherently tied together that some say it is impossible to have a workplace devoid of conflict (DeDreu, 2011). When one thinks of the word conflict, it connotes unpleasant disagreements with coworkers that lead to negative affect and tension. Indeed, one standard definition of conflict is the clashing of principles, beliefs and aspirations such that one person is stopping another from achieving his or her goals (Tjosvold, 2008). Multiple researchers have found that it is detrimental to team performance and results in a variety of dysfunctional behaviors such as the abuse of power and social loafing (de Jong, Curseu, & Leenders, 2014; Lee, Lin, Huan, Huang, & Teng, 2015). There are, however, conflicting findings which explain that having no conflict at all might actually increase a traditional team's satisfaction but hurt performance (Shaw, Zhu, Duffy, Scott, Shih, & Susanto, 2011). Moreover, in global virtual teams, it is significantly more likely that conflict will be experienced to some degree (Montoya-Weiss, et. al., 2001; Orr & Scott, 2008). This is largely due to the fact

that these teams have trouble finding an efficient and practical way for communicating information and problem solving, particularly in periods of high workload (Daim, Ha, Reuitman, Hughes, Pathak, Bynum, & Bhatla, 2012). As such, many organizations view these team types as inferior to face to face, but a necessary evil for task completion.

To truly understand the nuances of construct interaction occurring in this context, I will be adopting the dichotomous taxonomy of task and relationship conflict that has been suggested and used by multiple researchers over the years (e.g., Jehn, 1994; Simons & Peterson, 2000; DeDreu & Weingart, 2003; Choi & Sy, 2010). The reasoning behind this decision, as will be elaborated in the sections that follow, is twofold: (1) it provides a more focused lens by which I can examine task and social team outcomes and (2) as an *antecedent* to faultline emergence, I feel that the findings will differ based on conflict type in global virtual teams. Furthermore, it is important to note that I have purposefully opted out of examining the impact of process conflict, or disagreements within a team that emerge from delegation of responsibilities, resources, and division of labor (Behfar, Peterson, Mannix, & Trochim, 2008). The reasoning behind this is entirely due to the nature of the proposed task in that there are clear roles and resources for each individual on the team, thereby making process conflict less likely to emerge.

Relationship Conflict in Context

The first of the two types of conflict, relationship conflict, presents a relatively consistent story in teams literature. Specifically, the more relationship conflict present in a team, the worse the team will perform (Jehn & Mannix, 2001). For my purposes, I adopt the Jehn (1995) definition of relationship conflict as being social incompatibilities

between individuals on a team that lead to interpersonal tension and animosity. One of the main reasons that such disagreements can be dysfunctional in teams is that it takes cognitive processing away from the task at hand and shifts it onto the interpersonal issues of the team (Huang, 2012). This problem is made worse in global virtual teams due to decreased levels of social presence, delays in responses to inquiries, and the increased need for scheduling (Henderson, 2008). Indeed, when examining the virtual team context, Stark & Bierly (2009) show that relationship conflict has a larger, negative impact on a team's satisfaction when the virtual tool being used is highly virtual (e.g., email).

Having a good understanding of the outcomes of relationship conflict, it begs the following question: What causes it to emerge within global virtual teams? The most common answer to this question lies in workplace diversity research. Harkening back to the social identity perspective, when there are perceptible differences between individuals, in- and out-groups will form such that people who share similarities will group together (Tajfel & Turner, 1979). Such categorizations can cause problems for the team by dividing a team's culture and reducing collaboration (Virga, Curseu, Maricutoiu, Sava, Macsinga, & Magurean, 2014; Lee, et. al., 2015). Therefore, when an individual feels that they are different from those around them on some meaningful characteristic, they are more likely to engage in relationship conflict behaviors over the course of their team's tenure. This leads to my third hypothesis:

Hypothesis 3: There will be a significant, negative relationship between team identification and relationship conflict.

Once relationship conflict has emerged, most research points to the fact that it is hard to effectively manage and solve (e.g., Lau & Cobb, 2010). Typically it requires strategies such as having an immediate meeting with a leader present (Wakefield, Leidner, & Garrison, 2008), ensuring that there is transparency regarding the conflict (Dimas & Lourenco, 2015), and fostering team identity via training and discussion (Desivilya, Somech, & Lidgoster, 2010). Again, a virtual context makes it much harder to easily carry out these actions as they are naturally missing informational value and social cues that are typical of face to face teams. Indeed, further support for the close relationship between conflict and virtual tool use comes from multiple studies which find that delays in response from team members, that are simply a limitation of the technology being used, are taken to be a general apathy towards the task by the person inquiring (e.g., Montoya-Weiss, Massey, & Song, 2001; Kankanhalli, Tan, & Wei, 2006). Therefore, I argue that in global virtual teams it is significantly more difficult than in face to face or even multicultural teams to rebound from a relationship conflict.

What then does this mean for faultlines? Typically, as previously mentioned, faultlines require some sort of trigger to become activated and take their negative toll on a team. In a global virtual team where an individual's demographics can be hidden behind a computer screen, it is harder for simple visual cues to be such a trigger. Moreover, when there is full distribution on a global virtual team (i.e., every member of the team is in a different geographic location), it is less likely that sub-groups will be formed immediately and consequently; activate faultlines (Lau & Murnighan, 1998). Instead, I argue that in global virtual teams, demographics have less of an impact on

triggering faultlines than they do in face to face teams. In fact, I propose that faultline activation in this context is more reliant upon teamwork behaviors and processes than individual differences. For this reason, I suggest that conflict should be examined, not as an outcome of faultline activation, but as an antecedent, and I propose the following:

Hypothesis 4: There will be a significant, positive relationship between relationship conflict and perceived faultline activation.

Task Conflict in Context

The second type of conflict being studied, task conflict, has had a number of discrepant findings emerge over the years regarding its impact on teams. For my purposes, I again adopt the Jehn (1995) definition which explains that task conflict is any disagreement amongst team members that is grounded in the task. The broad nature of this definition allows inclusion of a number of different misalignments ranging from arguments over how to best approach the task to disputing individual responsibilities (Bang & Park, 2015). However, unlike its more social counterpart, task conflict has been shown in multiple studies to have a positive impact on team performance (e.g., DeChurch & Marks, 2001; Peterson & Behfar, 2003; Bradley, et. al., 2012). These findings led to a number of meta-analyses on the topic which found that there was either a negative relationship between task conflict and performance (De Dreu & Weingart, 2003) or no significant relationship at all (de Wit, Greer, & Jehn, 2012). A more recent meta-analysis by O'Neil, Allen, and Hastings (2013) has breathed some new life into the debate by examining the relationship across different contexts. Findings indicate that task conflict has a negative relationship with performance across all contexts, except decision making

teams. In these teams, a positive, significant relationship was found between task conflict and performance, thereby providing support for the idea that it is important to have opposing viewpoints when your task calls for it.

Thinking within the context of global virtual teams, the task environment is one which is rife with opportunity for task conflict. By definition, there are multiple individuals with different values and cultural norms collaborating. These differences also tend to come with novel approaches to solving problems and completing tasks (Jehn, Northcraft, & Neale, 1999). Also, as aforementioned, virtual tools have the ability to depersonalize interactions with others and cause a focus on the message, leading to misinterpretations (Sproull & Keisler, 1992). This is of particular importance to those who differ based on low-/high-context culture seeing as those who are from low-context cultures and focus on the message, instead of the person, will have an advantage over those from high-context cultures. Taken together, this implies that global virtual teams are less likely to leverage unique perspectives when there is not some sort of shared identity. Indeed, Gibson and Gibbs (2006) found that teams will not reap the benefits of having a diverse team unless everyone feels as if they are operating within a psychologically safe and inclusive environment. Therefore, I offer the following:

Hypothesis 5: There will be a significant, positive relationship between team identification and task conflict.

For the relationship between task conflict and faultline emergence, I argue that the direction of the relationship is heavily reliant upon the characteristics of the global virtual team context. Indeed, the literature on faultlines and social categorization theory explains

that three conditions must be met for activation: (1) comparative fit, (2) normative fit, and (3) cognitive accessibility (Oakes, Haslam, & Turner, 1994). Comparative fit is the degree to which the faultline characteristic in question actually divides a team. In this sense, if there are two males and two females on a team, there is a clear demographic difference and comparative fit. Normative fit is the degree to which the differences actually matter within the team. Therefore, is there some specific reason that gender should matter to the task or team? If so, there is normative fit for a gender faultline to be activated. Finally, cognitive accessibility is the speed and ease at which an individual can perceive the demographic difference in question. Therefore, if the team is capable of seeing one another, gender will always have high cognitive accessibility. Without all three of these conditions, it is not entirely out of the question that sub-groups will emerge, but it is significantly less likely (Turner, et. al., 1987).

Due to the physical and mental divide that exists between team members on global virtual teams, I argue that, unlike relationship conflict which has a higher chance to meet all three of these conditions, conflict surrounding the task will be more likely to be taken at face value and not attributed to the individual. In this sense, while there might be comparative fit for individuals on a team to divide into sub-groups based on country of origin or gender, it is less likely that there will be cognitive accessibility and normative fit. This is particularly important considering the proposed context of teams that use highly virtual tools that are devoid of social cues. Such an idea is supported by a number of studies which find that conflict surrounding the task in global virtual teams tends to be more constructive than in face to face teams (e.g., Kirchmeyer & Cohen, 1992; Paul,

Samarah, Seetharaman, & Mykytyn, 2004). Also, as aforementioned, the idea that task conflict can be effective has also been found to be stronger for teams who are engaging in nonroutine tasks such as the proposed decision making task (O'Neil, et. al., 2013; Jehn, 1995). Similar findings have been found for top management, decision-making teams in that task based divisions lead to increased organizational performance (Hutzschenreuter & Horstkotte, 2013). Therefore, not only do I argue that task conflict will *not* result in the activation of faultlines, I feel that it has the ability to be negatively related to faultline activation by permitting open discussion and making a group of dispersed individuals feel included in the decision making process.

Hypothesis 6: There will be a significant, negative relationship between task conflict and faultline activation.

Ultimately, I propose that due to the significant differences between global virtual teams and face to face teams, there will be significant differences in how faultlines are activated. Specifically, I feel that the lack of visual, social cues will result in dysfunctional team processes being the trigger for sub-groups. By taking conflict, which is traditionally used as an outcome of faultlines in face to face teams, and examining it as an antecedent, we will better understand how global virtual teams operate. Additionally, I acknowledge that the idea of task conflict as beneficial is not often supported in traditional teams. However, I feel there is a very good case for re-examining this construct in virtual teams. For instance, while some might make the point that task conflict has the ability to activate different sorts of faultlines, such as geographic location, I would respond by pointing them to the seminal piece of Lau and Murnighan

(1998) and explain that this could most definitely be a concern if multiple individuals on the team were collocated but not if the team is fully dispersed. Therefore, as researchers, it is imperative that we know our proposed context and adapt our hypotheses to it.

MANAGING FAULTLINES VIA TEAM PROCESSES

When referring to the manner in which teams collaborate and engage in interpersonal behaviors, we use the phrase team processes. In other words, these are actions taken by individuals on a team to ensure task completion (Salas, Sims, & Burke, 2015). Over the years, there have been multiple attempts at developing taxonomies of the different team processes that exist and, in turn, generating unique process theory that impact teams (e.g., Rousseau, Aube, & Savoie, 2006; Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). However, for my purposes, I will be adopting the Marks, Mathieu, and Zaccaro (2001) three-factor model of team processes. The main reason behind this decision is due to the findings of the LePine, Piccolo, Jackson, Mathieu, and Saul (2008) confirmatory factor analysis that the three factor model best fit historical data than multiple other considered models of team process. Indeed, in a subsequent meta-analysis, the authors found that all three of the factors (for definitions of each factor's dimensions, see Table 1) proposed by Marks and colleagues (2001) were significantly, positively related to team performance.

According to this model, teamwork can be defined using three overarching structures: transition, action, and interpersonal processes (Zaccaro et al., 2001). The transition phase focuses on activities that prepare the team for engaging in action at a later time and includes processes such as mission analysis, goal specification, and

formulating strategies. The action phase involves processes where team members are actively working on accomplishing tasks, monitoring, and adjusting behaviors to their changing task environment. Finally, interpersonal processes include the social functioning of team members across both transition and action phases of team process and include conflict management, motivation and confidence building, and affect management (Marks et al., 2001). At first glance it is easy to separate the different phases into those that are more task related (i.e., transition and action) and those that are more focused on maintenance of a healthy social climate (i.e., interpersonal). However, when predicting outcomes, it is typical for those who study these constructs to assume all three will be related similarly. While I do agree that all three are important for a team's performance, I argue that we should be more focused on matching the process to the type of team outcome we are using.

Indeed, research has found that these processes can each differentially influence the success of teams. Specifically, while task-driven, transition processes tend to be more predictive of outcomes, such as goal attainment, having effective interpersonal processes can impact more social outcomes such as viability (Mathieu, Maynard, Rapp, & Gilson, 2008). Level of detail begins to narrow even further when you consider specific dimensions of the three team phases. For instance, teams that engage in mission analysis during the transition phase ultimately end up having more accurate shared mental models amongst team members seeing as everyone was involved in interpreting the team's goals (Smith-Jentsch, Cannon-Bowers, Tannenbaum, & Salas, 2008). Furthermore, research has demonstrated the positive impact of feedback on team motivation and interpersonal

trust in virtual teams (Geister, Konradt, & Hertel, 2006). In the sections that follow I will discuss the outcomes of interest (one task-related and one social), how activated faultlines impact them, and how the effective enactment of team processes might help mitigate problems caused by faultlines.

Ensuring Team Viability

Despite the fact that numerous studies have examined team viability in the past there has a decrease in recent years that can be attributed to construct confusion (Mathieu, et. al., 2008). For the purposes of this proposal, team viability will *not* be an indication of member stability as the proposed teams are both ad-hoc and one-time decision making teams. Instead, I adopt the affective definition used by multiple authors that viability is the willingness for team members to remain as a part of their team and work together in the future (e.g., Hackman, 1987; Balkundi & Harrison, 2006). There are a number of antecedents that have been shown to lead to a team having higher viability; however, one of the most prominent and important is having a cohesive work unit (Karn, Syed-Abdullah, Cowling, & Halcombe, 2007). Without the general, positive belief that one enjoys working with the others on his or her team, there is little likelihood that they will want to work together in the future. This is of specific importance when considering that activated faultlines typically cause a general dislike of those belonging to one's out-group in teams (Edmondson & Roloff, 2009). For these reasons, I propose that:

Hypothesis 7: Levels of activated faultlines will be significantly, negatively related to a team's viability.

Thankfully, there is a more optimistic side to faultline emergence in that there is a push to understand what a team can do to *deactivate* faultlines such that performance is not detrimentally impacted (van der Kamp, Tjemkes, & Jhen, 2015). For instance, in a study by Ren, Gray, and Harrison (2015), it was found that increased communication between team members would build friendship ties which, in turn, had the ability to deactivate demographic faultlines. This is to say that, despite the activation of faultlines, all is not lost. If a team is able to manage the situation effectively, the faultline can either be mitigated or become dormant. I argue that, due to the affective nature of viability, the processes required to mitigate faultlines' negative impact on this construct should be the interpersonal processes of Zaccarro and colleagues (2001). Each of the dimensions housed within interpersonal processes is directly related to managing individuals and ensuring that dysfunctional teamwork behaviors are avoided (Smolek, Hoffman, & Moran, 1999). Additionally, these processes have been found to be of particular importance for self-managed teams who bear the entire responsibility of reinforcing positive behaviors upon themselves (Pearce & Manz, 2005). I, therefore hypothesize the following:

Hypothesis 8: The average level of interpersonal processes performed will moderate the relationship between faultline activation and viability such that, as more of these behaviors occur, the relationship will be attenuated.

Ensuring Team Effectiveness

As a construct, team effectiveness is extremely broad and can encompass a number of different ideas that are directly related to how well a team engages in the

factors that will facilitate their performance (Cannon-Bowers & Bowers, 2011). Sadly, for exactly this reason, team effectiveness is similar to viability in that there tends to be construct confusion (Mathieu, et. al., 2008). For my purposes, I am maintaining a broad, encompassing scope for team effectiveness and will be conceptualizing it as the degree to which a team engaged in a number of beneficial, task-related behaviors. However, for teams with activated faultlines, it might be impossible for such behaviors to take place. At the core of sub-group generation is the idea that certain perspectives/ideas will be ignored and there will be decreased coordination across these groupings (van Knippenberg & Schippers, 2007). Indeed, there is mounting evidence which supports the idea that, in traditional and multicultural teams, poorly managed task conflict can lead to relationship conflict and, in turn, decreased performance (e.g., Gobeli, Koenig, & Bechinger, 1998; Feitosa, et. al. 2017; Randeree & Faramawy, 2011). This leads to the idea that:

Hypothesis 9: There will be a significant, negative relationship between faultline activation and a team's effectiveness.

However, much like with its more social counterpart, there is evidence to show that there are methods to mitigate these negative effects. For instance, and of particular importance to virtual teams, effective coordination and planning can cause a significant impact on a team's performance (Janicik & Bartel, 2003; Mathieu & Schulze, 2006). Moreover, as is especially important in multicultural decision making teams where individuals have unique points of view, task-based communication has been shown to consistently have a positive impact on performance (e.g., Jarvenpaa & Leidner, 1999;

Rico & Cohen, 2005; Shachaf, 2008; Aubert & Kelsey, 2003). Therefore, perhaps all hope is not lost for teams which have activated faultlines. Simply because an individual does not like working with others on their team, does not necessitate the fact that the team will perform poorly. If they engage in effective action and transition processes, they might overcome the faultlines they are experiencing. As such, the final hypothesis of my model (See Figure 1 for the full model) is as follows:

Hypothesis 10: The average level of action and transition processes performed will moderate the relationship between faultline activation and effectiveness such that, as more of these behaviors occur, the relationship will be attenuated.

EXPLORING THE POSSIBILITY OF PREDICTING FAULTLINE ACTIVATION

With the advent of a focus on big data research, there has been a general push for industrial and organizational psychologists to understand how to best explore and analyze these data (Tonidandel, King, & Cortina, 2015). For instance, multiple authors are engaging in discourse surrounding the idea that the automatic coding and processing of potential employee applications and interviews will become standard practice in the near future (e.g., Jetton & Yerex, 2007; Taylor, 2015; Scarborough & Somers, 2006). These authors cite that organizations will lean towards using the massive amount of data they collect while leveraging the economic benefits of having employees free of making an initial pass at hiring decisions. Therefore, I too argue that before this is commonplace across major organizations, it is important for us as organizational researchers to understand the tools and methods that are being used to make such important decisions.

With this said, in the sections that follow, I will provide a brief introduction to neural networks and machine learning and provide an idea as to how they can be used to predict faultlines in global virtual teams. Due to the exploratory nature of these analyses, a full, detailed explanation of the intricacies of these methods is beyond the scope of this paper. Instead, I will focus on the impetus for using these approaches and how I will use them in my research.

Leveraging the Black Box

Throughout the history of applied psychology, there has been a general discomfort with the idea of using exploratory methods, or anything that someone might label as dustbowl empiricism. It is important to note, that I agree with being cautious of these approaches and, even moreso, I feel that the best use for these approaches is to help us better understand complex environments and build new theories grounded in logic – *not* to assume that we can teach a computer what applicants are the best fit for an organization, what teams will perform poorly, etc. While it might entirely be possible for machine learning to do these things in the future, at this stage in our research, we must first understand its use before assuming it can make decisions that could potentially lead to the hiring or firing of individuals. Therefore, taking a very relatable approach to the topic, Scarborough and Somers (2006) explain that the "learning" that occurs within these artificial networks can be thought of much the same as we think of a regression analysis fitting/"learning" a function: it recognizes patterns in large amounts of data via repeated exposures and uses these patterns to generalize relationships with other variables of interest. These relationships can either be trained or untrained, which simply means

that researchers can either let the network create its own connections or it can be trained by the researcher as to whether or not it is making accurate connections. For instance, online CAPTCHA tests designed to distinguish between humans and computers are constantly being trained by the new input from individuals who answer the questions and identify images (Stark, Hazirbas, Triebel, & Cremers, 2015). The decision behind which of these approaches a researcher should choose is largely based in the context and questions they are examining.

This begs the question of: What are the instances in which neural network and machine learning approaches should be considered in organizational psychology? While there are no specific, clear indicators as to when these methods are best used, research points to the fact that it would best be used in extremely complex situations where there are three or more variables interacting with one another at any given time and for situations which are unique enough that no solid framework is yet developed (Scarborough & Somers, 2006). In this sense, a neural network analysis *cannot* confirm nor deny that a hypothesis is accurate – It is simply a tool to better understand situations that are too complex for traditional statistics. It can also be used for the modeling of data that are not normally distributed or linear seeing as the network lacks the requirement of constructs being interdependent (Walker & Milne, 2005). As such, authors compare these types of analyses to different text and data mining procedures which are completely exploratory in nature (Tonidandel, et. al., 2015).

It is my opinion that the context of global virtual teams is rife with opportunity for using such approaches, specifically when the focus is on demographic faultlines. As

previously mentioned, within all teams, there can be hundreds of demographic differences that create dormant faultlines at any given time. Each of these varies with regard to their salience in the team, however, to consider multiple forms of demographic faultlines at the same time is extremely difficult for traditional analyses (Meyer, Glenz, Antino, & Rico, 2014). For instance, if a researcher was attempting to determine how the interaction of age, gender, and country of origin interacted to create demographic faultlines within global virtual teams, it would require advanced, complex statistical methods. Adding one more construct onto this list would seemingly render the analyses impossible with the exception of exploratory analyses such as neural network approaches or latent profile analysis. With this said, I argue that, to better understand the global virtual team context, and how salient vs. non-salient individual characteristics can impact the emergence of faultlines, a neural network approach should be used whereby three different models are run with differing inputs: (1) only demographic differences such as age and gender, (2) only deep-level differences such as low-/high-context culture, and (3) an all-inclusive model. This will aim to answer the following research questions:

Research Question 1: Can neural network analyses be used to predict faultline emergence within global virtual teams?

Research Question 2: If so, by comparing models, can they be used to distinguish between individual difference variables which matter more or less?

CHAPTER II

METHODS

The following study was designed to match existing data that were collected across multiple universities engaged in global virtual teamwork on a decision making task. Over the period of two years, data were collected from 177 teams engaged in the task. As will be explained in more detail in the sections that follow, this task was incorporated into coursework for classes that teach the basics of teamwork and the final sample was comprised of 135 global virtual teams dispersed across five different time zones.

Participants

Participants consisted of 838 individuals from multiple different countries (e.g., United States, Finland, Netherlands). Each of these individuals was either an undergraduate or graduate student that was actively engaged in a class that taught teamwork behaviors in their curriculum. Using a random sampling approach, these individuals were placed into teams that varied in size from four to six. Whenever possible, each of the individuals on team was placed with others from different universities to ensure full dispersion. Of all the data collected, ten teams that were not completely dispersed were excluded from analyses due to the fact that colocation can potentially make in-group creation more salient. Another 32 teams were excluded due to the fact that there was not sufficient data to create a measure of variance for high and low context culture and faultline activation. The remaining 135 teams consisted of 646 individuals across four different countries and the average team size was 4.79. Of these

646 individuals, 462 responded to the time one survey. The average age of the participants was 22.1 years old and 47.8% were female. Each of these individuals was performing the task for a grade in their respective classes. The grading and weighting of the project was standardized across all universities, such that an individual's participation accounted for 15% of their final grade, thereby eliminating potential biases of certain groups trying harder than others. Additionally, each of the two surveys taken to collect demographic and teamwork information was optional and IRB approved by both Clemson and Colorado State Universities.

Virtual Tool

Each of the teams who participated in the study was provided with a virtual tool that was highly virtual and similar to a forum for communication. Named Basecamp, this virtual tool is often used by organizations and project teams alike to manage collaboration of individuals across dispersed locations. The tool includes capabilities for uploading documents and images for the entire team to see, create to-do lists for the team to follow and engage in planning behaviors, and time tracking towards project goals. As such, if used to its fullest capabilities, the Basecamp tool has the ability to aid a team in their behavioral processes throughout the course of the project.

Furthermore, the main method of communication for teams using this platform is via textual communication between team members on a public forum. While Basecamp has the option for each user to create their own unique profile that contains information about themselves and potentially even a photo, the default setting is for no information to be provided about individuals on the team (other than their name which was used to

create the teams and Basecamp profiles) unless they input it themselves. As such, to best tie high-/low-context culture to the contextual environment, this tool was chosen because of its highly virtual nature and main focus on textual communication. Please refer to Figure 4 for an example Basecamp homepage.

Decision Making Task

The decision-making task that the student teams engaged in is an adaptation of "Tinsel Town" (Devine, Habig, Martin, Bott, & Grayson, 2004) changed to accommodate teams of four or more and technology mediated communication. To do this, unique team Basecamp sites were set up for each of the 177 teams. Specifically, for this activity every student was assigned a role on a movie producing team; vice president (VP) of Script evaluation, VP of Industry Talent, VP of Talent Appraisal, and VP of Marketing. Individual emails were sent to each student telling them what their specific role is on the team. This email also contained an attachment providing them with unique information to their role and the link to the basecamp site to begin collaborating with others on their team. Once students log into the basecamp site, they find a copy of the general memo outlining the activity itself and the deliverables along with the final evaluation form that the team must turn in after three weeks. The ultimate goal of these teams was to integrate their unique knowledge and decide on what movies they will fund with their allocated pool of resources. As such, the shared and unique information is needed in order for the team to perform effectively and, in turn, creates high levels of interdependence between team members. This task has been used in multiple studies in the past and provides an

opportunity for students to experience and decide as a team how to deal with both common and unique information effects (e.g., Gigone, & Hastie, 1997).

Measures

As aforementioned, two separates surveys were provided to all participants. Prior to commencing the activity, students were asked to complete a Time 1 survey that included demographic and individual difference measures. Then, at the end of the activity, students were asked to complete a Time 2 survey measuring different affective and task-based behaviors, teamwork constructs, and outcomes of interest. For each of these measures, please see Appendix A for a full list of items. Seeing as none of the participants in the activity were required to take the survey, there was some decline in participation from Time 1 to Time 2. Specifically, for the teams deemed usable, Time 1 participation was 462 individuals while Time 2 participation was 439 individuals.

Low-/High-Context Culture

To assess low-/high-context culture across participants, a measure created by Richardson and Smith (2007) was used. This 17-item measure was adapted from a measure created by Ohashi (2000). The reason behind not using the original measure is the same as that proposed by Richardson and Smith (2007), it targets answering questions about one's cultural norms in the country they live in, *not* as an individual difference or preference variable. Therefore, to better understand how the cultural construct varies within country and across participants, the scale targeting preference was chosen. Each item was measured on a 7-point Likert scale whose anchors ranged from "Strongly Disagree" to "Strongly Agree." Example items include: "Fewer words can often lead to

better understanding" and "The meaning of a statement often relies more on the context than the actual words." This measure has been used multiple times and has been found to have acceptable Cronbach's alphas ranging from .73 to .79 across different cultures including those from Germanic and European countries (e.g., Wang, Rau, Evers, Robinson, & Hinds, 2010; Holtbrugge, Weldon, & Rogers, 2013).

Upon running reliability analyses with this sample, it was found that the Cronbach's alpha for the entire sample was inadequate. After examining the data, it was determined that six of the included items needed to be removed from the measure. Five due to their reverse coding and one due to confusing wording: "It is better to risk saying too much than be misunderstood." The final measure consisted of 11 items, none of which were reverse coded. The final Cronbach's alpha for the full sample was found to be at an acceptable level of .782 (Schmitt, 1996). To ensure that the measure was consistent across cultures, reliabilities were run for both the North American sample and the European sample and the alphas were .791 and .733 respectively (See Table 2 for a list of all reliabilities).

Adaptability

An individual's adaptability was measured using the three-item subscale used in Day and Allen's (2004) measure of career motivation. Each of the items were altered to reflect one's general feeling towards changing circumstances and environments, instead of having a focus on changing careers. Each item was measured on a 7-point Likert scale whose anchors ranged from "Strongly Disagree" to "Strongly Agree." Example items include: "I am able to adapt to changing circumstances." and "I feel that I am generally

accepting of changes." While multiple variants of this measure have been used in previous cross-cultural studies and have exhibited adequate reliabilities (e.g., Ong, Chang, Liew, Tee, & Lo, 2011; Rosenauer, 2015), the exact adaptation of the measure used in this study has not been validated. With that said, the final Cronbach's alpha for the full sample was found to be at an acceptable level of .877 (Schmitt, 1996). To ensure that the measure was consistent across cultures, reliabilities were run for both the North American sample and the European sample and the alphas were .877 and .887 respectively.

Furthermore, seeing as this variable has hypothesized to interact with relationships at the team level, the measure was tested for support for aggregation to the mean. To do so, four different indicators were calculated: ICC1, ICC2, rwg, and r*wg(j). Upon examining the distribution of individual values on the measure, it was determined that a slight skew error value (LeBreton & Senter, 2008) would be used to determine both rwg and r*wg(j). Ultimately, the mean rwg value for the measure was .70 and 76% of the teams showed acceptable levels of agreement using the r*wg(j) index. However, both ICC1 and ICC2 values were found to be at an inadequate level for aggregation: .02 and .07 respectively (Bliese, 2000). Despite this, the data will be aggregated to the team level based on the fact that, in certain cases, when testing an individual difference variable for rating consistency, an ICC value of .01 could be considered a "small" effect (Murphy & Myors, 1998; LeBreton & Senter, 2008) when combined with acceptable levels of inter-rater reliability via rwg.

Conflict

Both task and relationship conflicts were measured using the 8-item scale created by Jehn and Mannix (2001). Each type of conflict is measured using 4-items on a 5-point Likert scale whose anchors ranged from "Not at all" to "A great deal." Example items include: "How different were your viewpoints on decisions?" and "How much interpersonal friction was there within your team?" This measure has been used multiple times and has been found to have acceptable Cronbach's alphas ranging from .76 to .88 across different cultures including Finland and other Germanic countries (e.g., Chua, 2013; Bisseling & Sobral, 2011). It is also important to note that, despite other measures of conflict which discern the degree to which conflict is managed, this measure is more focused on how it is experienced by those on the team.

Reliability analyses found that, for task conflict, the Cronbach's alpha for the entire sample was inadequate. After examining the data, it was determined that one of the included items needed to be removed due to its ambiguous wording: "To what extent did you disagree about the way to do things within your team?" Therefore, the final measure for task conflict consisted of three items. The final Cronbach's alpha for the full sample was found to be at an acceptable level of .748 for task conflict and .874 for relationship conflict (Schmitt, 1996). To ensure that the measure was consistent across cultures, reliabilities were run for both the North American sample and the European sample and, for task conflict, the alphas were .764 and .661 respectively while relationship conflict was .889 and .777.

Finally, to support aggregating these variables to the team level, IRR and IRA values were determined. Upon examining the distribution of individual values on the

measure, it was determined that a slight skew error value (LeBreton & Senter, 2008) would be used to determine both rwg and r*wg(j) for task conflict and a moderate skew would be used for relationship conflict. The mean rwg value for the task conflict measure was .81 and 90% of the teams showed acceptable levels of agreement using the r*wg(j) index. Additionally, both ICC1 and ICC2 values were found to be at an adequate level for aggregation: .33 and .62 respectively (Bliese, 2000). All values for relationship conflict also supported aggregation with a mean rwg of .75, r*wg(j) index showing 71% agreement, an ICC1 of .21 and an ICC2 of .46.

Perceived Faultlines

The existence of faultlines within the global virtual teams was measured using the 4-item scale created by Cronin, Bezrukova, Weingart, and Tinsley (2011). These authors generated this measure by combining two existing measures: Early and Mosakowski (2000) and Jehn and Bezrukova (2010). Each item was adapted to fit the task and measured on a 5-point Likert scale whose anchors ranged from "Strongly Disagree" to "Strongly Agree." Example items include: "My team split into subgroups during this activity" and "My team divided into subsets of people during the activity" In addition to these items, I included a free response item that allowed respondents to clarify the characteristic that their team split on. This measure has been used multiple times and has been found to have acceptable Cronbach's alphas ranging from .75 to .88 across different cultures including Finland and Germanic countries (e.g., Wergeland, 2016; Hajro, Gibson, & Pudelko, 2017). The Cronbach's alpha for the measure was an acceptable .883 (Schmitt, 1996). To ensure that the measure was consistent across cultures, reliabilities

were run for both the North American sample and the European sample and the alphas were .883 and .882 respectively.

Teamwork Processes

All three of the different teamwork processes (i.e., action, transition, and interpersonal) were measured using the 18-item scale created by Mathieu and Marks. Each of the processes is measured using 6-items on a 5-point Likert scale whose anchors ranged from "Not at all" to "A very great extent." Example items include: "To what extent did your virtual team actively work to prioritize your goals?" and "To what extent did your virtual team actively work to encourage each other to perform to the best of your abilities?" This scale was also used in a study by Pitts (2010) and was found to have acceptable reliability. At this time, there have been no studies that have published using this measure in a cross-cultural sample. Therefore, this study will provide initial support for extrapolating the use of the measure across cultures.

Cronbach's alphas for each of the three measures (i.e., action, transition, and interpersonal) separately were high: .919, .915, and .912 respectively. Reliabilities were also found to be consistent across the North American sample and the European sample for each of the different measures of processes: .928 & .867; .923 & .859; .918 & .865. Furthermore, supporting aggregation, acceptable levels of rwgs, ICC1s, ICC2s, and r*wg(j)s were found across all measures. Specifically, for transition processes, aggregation indices were: .77, .21, .46, and 54% agreement respectively. For action processes: .76, .26, .53, and 50% agreement. Finally, for interpersonal processes: .77, .27, .55, and 51% agreement.

Additionally, providing support for examining both transition and action processes together, the correlations between the two variables were extremely high at .882 (see Table 3 for the full correlation table). However, it can also be seen that all of the correlations between teamwork behavior processes are extremely high with values of .882, .843, and .905. While there are many reasons while this might be the case, in the specific context of this study, it is highly likely that this is dependent upon the fact that the process measures were the final measures in the Time 2 survey and, coupled with the fact that this was the longest measure, the similar responses across individuals within scales could be a sign of survey fatigue (Ackerman & Kanfer, 2009).

Viability

Individual perceptions of viability were collected using four items from the Barrick, Stewart, Neubert, and Mount (1998) measure. The instructions for the measure were adapted to the virtual team context and measured using a 7-point Likert scale whose anchors ranged from "Strongly Disagree" to "Strongly Agree." Example items include: "This team accomplished what it set out to do" and "I would like to work with this team again." This measure has been used multiple times and has been found to have acceptable Cronbach's alphas ranging from .72 to .81. The Cronbach's alpha for the measure was an acceptable .804 (Schmitt, 1996). To ensure that the measure was consistent across cultures, reliabilities were run for both the North American sample and the European sample and the alphas were .813 and .774 respectively. Finally, supporting aggregation, the mean rwg value for the measure was .62 and 53% of the teams showed acceptable levels of agreement using the r*wg(j) index. Additionally, both ICC1 and ICC2 values

were found to be at an adequate level for aggregation: .28 and .55 respectively (Bliese, 2000).

Effectiveness

Team effectiveness was measured using a 4-item scale created by Maynard, Mathieu, Rapp, and Gilson (2012). The instructions for the measure were adapted to the global virtual team context and measured using a 7-point Likert scale whose anchors ranged from "Very Ineffective" to "Very Effective." Example items include: "How effective was your team in generating ideas for the project?" and "How effective was your team in developing its final decision?" In their study, Maynard and colleagues found the measure to have an acceptable Cronbach's alpha of .72. The Cronbach's alpha for this sample was acceptable at .897 (Schmitt, 1996). Additionally, minimal difference was found between the North American sample and the European sample with alphas of .907 and .853 respectively. Finally, supporting aggregation, the mean rwg value for the measure was .70 and 62% of the teams showed acceptable levels of agreement using the r*wg(j) index. Additionally, both ICC1 and ICC2 values were found to be at an adequate level for aggregation: .28 and .56 respectively (Bliese, 2000).

Data Analyses

Due to the fact that aggregation indices for team identification did not support aggregation to the team level, for the purposes of the model, the team's rwg values will be used to test the full, team-level model. Therefore, instead of testing the mean levels of identification in the teams, the focus will be on the degree to which team members agreed that their team identified with one another. Additionally, it is important to note that no

control variables were included in the analyses seeing as, by the nature of control variables, they might control for individuals difference characteristics which could emerge as a reason for faultline activation. The only variable which could have been considered as a control variable, experience using the Basecamp virtual tool had a low average and variance (1.30 and .65 respectively) and did not significantly correlate with any of the constructs examined in the study.

Ultimately, main analyses were carried out via two models in Hayes (2018) PROCESS (see Figures 2 & 3 for the two models). The reasoning behind running two models is threefold: (1) to have one that focused specifically on the social behaviors and outcomes and another on the task-based, (2) to provide greater statistical power, and (3) there are some technical constrains to the PROCESS software (e.g., allowing only one IV and DV at a time). While my proposed model does not exist in the current Hayes (2018) architecture, there is the opportunity with this software to build your own custom models by specifying matrices of relationships and paths. Therefore, a custom model will be programmed and run using SPSS. Conversely, for the neural network analyses, all three of the models will be run using the nnet package for R and also run in the SPSS neural net software as a point of comparison.

CHAPTER III

RESULTS

The two full models in this study that were examined were broken into a task-based model that included task conflict as a mediator, effectiveness as an outcome, and transition and action processes as a moderator and a relationship-based model with relationship conflict, viability, and interpersonal processes. Despite having different variables in certain locations, the final structure of both of these models was the same (see Figures 2 & 3). Upon creating the custom model in the PROCESS architecture and running each model as a whole, both were found to be statistically significant (Task-oriented: F=46.6, p=.000; Relationship-oriented: F=61.7, p=.000). However, for each of these models, the data show that this is *not* indicative of the entire model being significant. Instead, the extreme significance of the relationship between teamwork processes and the outcome variables, in both instances, makes the entire model significant (see Tables 4-7 for model significance). Therefore, in the sections that follow, to provide a more detailed understanding of the relationships in each model, three different discussions will be presented: (1) interpretation of results for the first moderation hypothesis (i.e., Hypotheses 1 and 2), (2) interpretation of the task-based model results (i.e., H5, 6, 9 and 10), and (3) interpretation of the relationship-based model results (i.e., H3, 4, 7, and 8). Following this, results from neural net analyses will be discussed. For a full list of hypotheses and results, please refer to Table 8.

Interpreting Adaptability as a Moderator

Seeing as both Hypotheses 1 and 2 were examined across both models, the results interpreted here hold in analysis of both models and, as such, will be interpreted separate of the unique hypotheses that follow. Upon examining the relationship between the variance of high- and low-context culture and the rwg values of team identification, there was found to be no significant relationship (B=.003, p=.983). Therefore, no support was found for Hypothesis 1. Similarly, upon examining whether or not adaptability could act as a moderator of this relationship, the relationship was found to be non-significant (F=.851, p=.468). For this reason, Hypothesis 2 was also rejected. Moreover, no significant relationship was found between adaptability and the agreement indices of team identification. These, however, are not surprising results considering the problems that emerged with the team identification measure showing no support for aggregation to the team level and having an extremely large within-team variance of reported values.

Interpreting Task-Based Model Results

The first hypothesized set of relationships focused on the interactions between different variables that were less interpersonally-driven and more task-driven. The hypothesized relationship (H5) between team identification and task conflict did not emerge (B=.067, p=.551). Again, this could largely be due to the fact that the team identification measure was changed to reflect the agreement of the individuals on the team for the measure. Similarly, no significant relationship was found between task conflict and the variance of perceived faultline activation (B=-.080, p=.635). Interestingly, while this does mean that there is no support for Hypothesis 6, the lack of

any sort of relationship is a novel finding for conflict in virtual teams that will be discussed later in this paper.

For the hypothesized relationship between the variance of faultline activation and team effectiveness, there was a significant, negative relationship found (B=-.354, p=.000) with confidence intervals that do not overlap zero, thereby supporting Hypothesis 9. Finally, to test the moderation proposed by Hypothesis 10, a PROCESS model was used and, while the moderation model was found to be significant (F=95.3, p=.000), a more detailed examination of the output suggests otherwise. Specifically, there is no support for any relationship between the variance of faultlines and team effectiveness. Moreover, the confidence intervals both the IV and the interaction of the IV and the moderator both include zero. With this said, the reason the relationship emerges as significant is due to a very strong, positive relationship between team transition and action processes and effectiveness (B=1.35, p=.000). Indeed, the R squared value shows that these two team processes account for 68% of the variance in the team's perceived effectiveness. Ultimately, for these reasons, Hypothesis 10 is not supported.

Interpreting Relationship-Based Model Results

The second model, while being the same structure as the task-based model, includes constructs that are more grounded in interpersonal relationships. Reflective of the same issue that emerged in previous analyses, the hypothesized relationship between the rwgs of team identification and relationship conflict were not found to be significant (B=-.032, p=.547), thereby not supporting Hypothesis 3. However, support for Hypothesis 4 was found in that a significant, positive relationship emerged between

relationship conflict and perceived faultline activation (B=.631, p=.000). Additionally, in support of Hypothesis 7, a significant, negative relationship was found between the variance of faultline activation and team viability (B=-.391, p=.000). Finally, when testing the proposed moderation of team interpersonal processes in Hypothesis 8, the same issue emerged as did with the 10th hypothesis. Despite a significant moderation model (F=120.9, p=.000), there is stronger support for a significant main effect between interpersonal team processes and viability in that there is a very strong, positive relationship between the variables (B=1.23, p=.000) that accounts for 73% of the variance.

Interpreting Neural Net Results

For the purposes of this research question, three distinct neural nets were tested: (1) a network incorporating all the measured individual difference variables, (2) one examining only surface-level characteristics (i.e. age, gender, ethnicity) and, (3) one examining only deep-level characteristics (i.e., high-/low-context culture, virtual team experience, adaptability). All neural net analyses were run in either the nnet package of R for or with the multilayer perceptitron function of SPSS and results were compared. Additionally, due to the fact that prediction via neural networks typically requires a large amount of data (Tonidandel, et. al., 2015), all analyses were run at the individual level to increase the power of prediction and allow the incorporation of two levels of testing data. As such, every time the neural network was run, the data was randomly partitioned into three distinct subsets: 50% of the data is placed in a training sample used to build the initial structure of the neural network, 25% is in a testing sample used as a point of

comparison for the testing sample and is used to pinpoint errors in training, and finally 25% is placed into a holdout sample used to test the final neural network structure. Finally, for the training of the neural network, a batch design was used to reflect the size of the sample and as a more conservative estimate seeing as it aims to minimize total error (Ioffe & Szegedy, 2015).

To test the first research question examining if neural networks can be used to predict faultline emergence within teams, three full neural networks, as aforementioned, were modeled reflecting the individual variables included. For each of these, upon completion of analysis, the neural network predicted a value for faultlines for every individual. These values were saved and tested for differences with the actual value obtained from participants using a paired-samples t-test. Results from this analysis show that, for each of the three neural networks developed, there was no significant difference in the mean between the actual values of faultlines and the predicted values obtained by the neural networks (See Table 9) for the fully inclusive model with one hidden layer and three units (t_{313}=-1.17, p=.244), the surface-level model with one hidden layer and six units (t_{360}=.021, p=.983), or the deep-level model with one hidden layer and one unit (t_{335}=.243, p=.808). Therefore, each of the models could make a reliable prediction of the observed values for faultline activation.

From here, knowing that the neural networks can predict faultline emergence, the subsequent research question turned towards determining which factors matter most in this prediction. To answer this question, the importance weights for each of the variables were examined first in their unique surface- or deep-level architecture. Then, weights

were compared for change once all characteristics were placed into the neural network and allowed to predict faultline emergence. In the surface-level neural network, it was found that age was the most important predictor of faultline emergence with a weight of .632 (normalized importance of 100%) while both gender and ethnicity were weak predictors with weights of .139 (22%) and .229 (36.2%) respectively. Conversely, in the deep-level neural network, all three of the variables were found to heavily impact the emergence of faultlines. Specifically, the most important variable was virtual team experience with a weight of .345 (normalized importance of 100%) and both high-/low-context culture and adaptability had similar weights of .316 (91.6%) and .338 (97.9%) respectively.

Therefore, taken separately, there is support that all three of the deep-level variables and only age from the surface-level variables are most important when predicting faultlines in these global virtual teams. However, to further test this idea, the all-inclusive model was examined to see how weights and importance shift once all characteristics are considered. In this final model, it was found that the most important individual difference to consider for faultline activation was high-/low-context cultures with a weight of .294 (normalized importance of 100%). For each of the other variables, the same trends emerged in that adaptability, age, and virtual team experience had significant impact (.238, 81.1%; .185, 63%; and .124, 42.1% respectively).

CHAPTER IV

DISCUSSION

There are a number of inferences which can be drawn from these data. Many of which provide research a better understanding of how and why faultlines emerge in global, virtual teams. Arguably, the most important of which is the idea that relationship conflict can act as an antecedent to faultline activation whereas task conflict cannot. As explained previously, literature on faultlines across multiple different contexts reflects the idea that both task and relationship conflict can harm teams (Thatcher & Patel, 2011). However, the non-significant relationship between task conflict and faultline activation found in this study (Hypothesis 6) provides initial support that, in global virtual teams engaged in decision making, task conflict, while not necessarily beneficial, is not harmful to the team. This is further supported by the fact that no significant correlation exists between task conflict and any variable that would traditionally be thought of as a team-level outcome (i.e., effectiveness, viability, and team behavioral processes). In this sense, individuals on global virtual teams appear to be more likely to focus on the content of disparate ideas surrounding the task than attributing them to an individual and, in turn, activating faultlines.

Turning towards the first set of hypotheses (H1 & 2), the null findings can be leveraged to draw implications for the complexities of identification in global virtual teams. Specifically, these data show that there is extremely high within-team variance regarding how much individuals feel a sense of belonging. For this reason, it very well could be the case that multiple individual difference variables are interacting to determine

whether or not a person is likely to identify with their team. If this were the case, this initial relationship would best be considered at the individual level and might even benefit from examining whether profiles of multiple variables are able to predict the type of person that most identifies with their global virtual team. Perhaps looking at levels of previous virtual team experience, openness and high- and low-context culture in conjunction could provide more novel insight than just one alone. For instance, despite the fact that an individual might be high-context, if they have high levels of openness or previous experience in the specific context, their cultural desire for more contextual communication might not emerge as much.

Another interesting inference can be drawn from the null findings detailing team behaviors as a moderator of the faultline to outcome relationship (H8 and 10). Specifically, seeing as there is such a strong, positive relationship between the teamwork behaviors and the outcomes, it provides support for the idea that the actual behaviors carried out in global virtual teams have more of an impact on performance than more affective antecedents. This is of particular importance for teams using a tool with high virtuality (as is used here with the Basecamp forums) seeing as the most salient indicator of performance they have to draw from are behaviors carried out by their team members via communications in the virtual platform. As such, I argue that teamwork behaviors should not be considered as a method for deactivating faultlines in global virtual teams, as originally hypothesized, but instead as a separate indicator of performance, as is typically the case in face to face teams (Marks, et. al., 2001).

Finally, when considering the research questions examined via neural network analyses, there seems to be support that a neural network can be trained to predict if faultlines will be perceived by an individual on a global virtual team based on both surface- and deep-level demographic differences. Moreover, the consistent result seems to emerge that, when the neural network is left to build itself, the best fitting models apply more weight to deep-level characteristics such as high- and low-context culture and adaptability. This directly aligns with the idea that, in global virtual teams, surface-level differences are less salient, and have the potential to matter less than deep-level attributes. Furthermore, the consistent appearance of high- and low-context culture as a variable which impacts faultline emergence means that, despite lacking support for its impact in the current study, more complex relationships exist with other individual difference variables that should be considered in global virtual teams. This idea is made even more apparent since high-/low-context culture is the only variable that strengthened in importance when applied to the fully inclusive neural network model.

In conjunction, when considering all of these findings together, we are provided initial support for a few different ideas: (1) in a global, virtual team context, relationship conflict can act as a trigger for faultline emergence, (2) in these teams, disparate opinions or ideas regarding the task are less likely to be attributed to the individual, (3) surface-level demographic differences may matter less for faultline emergence than deep-level, and (4) a team's behaviors might more indicative of their performance than more affective-based measures when using a tool with high virtuality.

Limitations and Future Research

Despite all the efforts taken to ensure that these data were best representative of the given sample, there are a few limitations which should be considered in interpreting the results. The first is that there was no way to ensure that all of the individuals who responded to the Time 1 survey would also respond to the Time 2 survey. Seeing as participation in the surveys were not *required* or taken into consideration when assigning a grade on the project, there were different motivators which may have caused individuals to participate. For instance, while all of the professors indicated that those who participate in the survey will receive extra credit, the amount given was not standardized across university. Additionally, separate extra credit was given for each survey. This means that, in multiple cases, individuals who filled out the Time 1 measures did not fill out the Time 2 measures (or vice versa) and results had to be drawn from partial data. While efforts were taken to minimize the impact this might have (i.e., not including teams where less than half of the individuals did not fill out either survey), certain things were beyond the control of the study. For instance, seeing as the incentive for the Time 2 survey was extra credit given close to the end of the semester, it could be the case that high performers in classes did not fill out the survey seeing as they did not need the grade boost.

Additionally, the use of only self-report surveys to measure each of the variables of interest is a limitation that could skew the data. In addition to obtaining selective responses from certain people on teams, surveys can very easily be skewed based on what is perceived as a better or more socially acceptable response to an item. As such,

this research would benefit from the use of expert-rated measures where possible. For instance, instead of a survey measure of effectiveness, which could very easily be skewed by a student if they thought that their response would have any impact on their grade, coding and examining the different correspondences the team had on Basecamp and providing a score for the team based on a pre-determined rubric might provide a more detailed and accurate understanding of the relationship between teamwork behaviors and outcomes.

Finally, one of the more important limitations of these findings is directly tied to how generalizable they are across contexts. Even though the global virtual team context is expanding and being used across organizations, it is important to remember that in this study, the teams mainly used a virtual tool with minimal social cues and were engaged in a decision-making task. Therefore, these findings can only be extrapolated out to teams in similar contexts. As shown by previous meta-analyses, even a change in task can result in a completely different impact of conflict on proximal and distal outcomes (O'Neil, et. al., 2013). Furthermore, paying specific attention to the neural network results, it is very important to acknowledge that the results found here are completely sample-specific. To ensure that these results could be generalized, they would have to be tested using a different sample operating in the same context and task. As such, this seems to be the biggest concern with the predictive ability of neural networks; simply because they work in one organization or context does not mean they should be generalized across. Every context brings with it very unique characteristics that are heavily intertwined with both the person and the task. Any attempt to assume that a context is the same without

controls, can result in a neural network that incorrectly predicts outcomes. Subsequently, these incorrect predictions have the potential to lead to negative consequences for both the organization and the individuals that they employ.

Taken together, these limitations can be used in future studies to provide a more detailed understanding of how faultlines emerge in a global virtual team context. Specifically, by taking more efforts to standardize procedures and equalizing incentive for filling out both Time 1 and Time 2 surveys, more complete and representative data would be obtained to draw findings from. Furthermore, by moving away from examining survey items, and turning towards coding team behaviors such as the amount of communication per individual on the Basecamp tool, the content of that communication, and more objective measures of performance, it will remove bias that was infused from the individuals on the teams. Finally, the results from the neural network analyses can be leveraged such that the variables that emerged as most important can be used to create profiles of individuals who are likely to perceive faultlines in teams. These profiles can then be compared across the team, via latent profile analysis, to draw implications for what a team with high activated faultlines looks like and, in turn, how outcomes are affected.

Theoretical and Practical Implications

There are many aspects of this study's findings which will add to the pool of theoretical knowledge surrounding not only global virtual teams, but also faultlines. Specifically, this study provides initial support for the idea that research on faultlines should begin to better understand how teams in different contexts operate. Currently, in

the large amount of research on face-to-face teams, it is assumed that conflict is negatively related to all outcomes. That was not the case in the global, virtual team context. Indeed, there were found to be differential effects for task and relationship conflict emerging as triggers for faultline activation. The fact that task conflict had no impact on faultline emergence or outcomes is complementary to research showing that conflict will affect teams differently across contexts (O'Neil, et. al., 2013). However, these results run counter to tradition faultline research in face-to-face teams which shows that both task and relationship conflict will negatively impact a team (Thatcher & Patel, 2011). Therefore, these results add to the existing nomological network surrounding global virtual teams by showing that, when engaged in a decision-making task, these teams are less likely to be negatively affected by task conflict.

Additionally, the results from the neural network analyses can be leveraged by future researchers to generate novel ideas regarding faultline activation or even outcomes in global virtual teams. Specifically, with the basic understanding that surface-level diversity characteristics are less salient in virtual contexts and impact faultline emergence less, researchers can begin to hypothesize more complex relationships between deep-level characteristics and even try to find the most important ties between surface- and deep-level variables. For instance, while age was found to be an important variable for the surface-level prediction of faultline emergence, perhaps it would best be examined in conjunction with the deep-level characteristic of virtual team experience seeing as the two might have a direct impact on one another. Ultimately, by showing that neural network analysis can accurately predict an individual's score on perceived faultlines

opens the door for future researchers to use this tool in their existing data to either find new hypotheses to test or better understand why certain analyses resulted in counter-intuitive results.

From a more applied perspective, this study raises some interesting implications for organizations employing global virtual teams. First, and foremost, when engaging in a decision-making task, these teams should not be deterred from engaging in task-conflict. Although task conflict didn't reduce faultline emergence (as hypothesized), it also didn't have any impact on faultline emergence; therefore, if task conflict is avoided, there is the potential to remove helpful discussion of differing ideas. However, as evidenced by the results surrounding relationship conflict, it is extremely important that these teams are monitored to ensure that task conflict does not become relationship conflict. If so, the team can spiral towards negative proximal and distal outcomes. Additionally, due to the extremely strong relationships found between teamwork behavioral processes and outcomes, it would be in the best benefit of an organization to ensure that global virtual teams know the importance of engaging in these behaviors beforehand. Indeed, it is very likely that if relationship conflict emerges, the best bet would be to ignore the affective problems of conflict and train the team on engaging in more of these behaviors to try and trump the interpersonal problems they are having.

Conclusion

As teams' researchers, we are always trying to better understand what goes on in a complex environment that requires the consideration of numerous individual characteristics. Coupled in complexity by a novel context, the picture becomes even more

unclear as to what processes might happen or what differences might matter within teams. This research has taken the field one step closer to understanding the complexities of global, virtual teams by highlighting the numerous individual differences that might come into play and how team members react to these differences via in-group and out-group formation. Moreover, we are met with the realization that, if we treat global, virtual teams the same as we treat face to face teams, we are actually ignoring some unique differences. Specifically, instead of focusing on avoiding all conflict, these teams would benefit more from reducing relationship conflict and being given the proper tools needed to ensure that task conflict does not translate into relationship conflict. Ultimately, it is important for researchers and practitioners alike to acknowledge the complexities of their context and tailor fit their interventions, methodologies, or general research to align with them.

APPENDICES

Appendix A: Measures

High-/Low-Context Culture (Richardson & Smith, 2007)

Answer the following questions using the scale below:

1 = Strongly Disagree
2 = Disagree
3 = Somewhat Disagree
4 = Neither Agree Nor Disagree
5 = Somewhat Agree
6 = Agree
7 = Strongly Agree

1. One should be able to understand what someone is trying to express, even when he or she does not say everything they intend to communicate.
2. One should understand someone's intent from the way he or she talks.
3. It is better to risk saying too much than be misunderstood.
4. Even if not stated exactly, one's intent will rarely be misunderstood.
5. One should be able to understand the meaning of a statement by reading between the lines.
6. Intentions not explicitly stated can often be inferred from the context.
7. One can assume that others will know what they really mean.
8. People understand many things that are left unsaid.
9. The context in which a statement is made conveys as much or more information than the message itself.
10. Misunderstandings are more often caused by one's failure to draw reasonable inferences, rather than the speaker's failure to speak clearly.
11. Some ideas are better understood when left unsaid.
12. The meaning of a statement often relies more on the context than the actual words.

Adaptability (Day & Allen, 2004)

Please indicate the extent to which you agree with the following statements:

1 = Strongly Disagree
2 = Disagree
3 = Somewhat Disagree
4 = Neither Agree Nor Disagree
5 = Somewhat Agree
6 = Agree
7 = Strongly Agree

1. I feel that I am generally accepting of changes.
2. I would consider myself open to changes.
3. I am able to adapt to changing circumstances.

Team Identification

Please indicate the degree to which you agree with each of the following statements:

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree Nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

1. I felt a strong sense of belonging to this team.
2. I felt emotionally attached to this team.
3. I felt as if the team's problems were my own.
4. I felt like part of a family in this team

Conflict (Jehn & Mannix, 2001)

Please answer the following questions in terms of your experience in this Virtual Team activity:

1 = Not At All
2 = A Little
3 = A Moderate Amount
4 = A Lot
5 = A Great Deal

1. How much conflict of ideas was there within the team?
2. How different were your viewpoints on decisions?
3. How much did you have to work through disagreements about your varying opinions?
4. How much emotional tension was there within your team?
5. How often did people get angry while working within your team?
6. How much were personality clashes evident within the team?
7. How much interpersonal friction was there within your team?

Team Processes (Mathieu & Marks, unpublished)

To what extent did your virtual team actively work to...

1 = Not at All
2 = Very Little
3 = To Some Extent
4 = To A Good Extent
5 = To A Very Great Extent

1. Develop an understanding of your purpose or mission?
2. Identify your main tasks?
3. Set goals?
4. Prioritize your goals?
5. Develop an overall strategy to guide your activities?
6. Know when to stick with the given strategy, and when to adopt a different one?
7. Determine what needed to be done to achieve your goals?
8. Know whether your team was on pace for meeting your goals?
9. Assist each other when needed?
10. Be willing to ask for help when needed?
11. Coordinate your activities with one another?
12. Communicate well with each other?
13. Encourage healthy debate and exchange of ideas?
14. Show respect for one another?
15. Stay motivated through challenging situations?
16. Encourage each other to perform to the best of your abilities?
17. Share a sense of togetherness and cohesion?
18. Maintain a positive attitude about your team's work?

Team Effectiveness (Maynard, et. al., 2012)

For each item below, please indicate your opinion of how effective your virtual team was:

1 = Very Ineffective
2 = Ineffective
3 = Somewhat Ineffective
4 = Neither Effective Nor Ineffective
5 = Somewhat Effective
6 = Effective
7 = Very Effective

1. How effective was your team in making use of the skills/information of the different team members?
2. How effective was your team in generating ideas for the project?
3. How effective was your team at coordinating?
4. How effective was your team in developing its final decision?

Team Viability (Barrick, et. al., 1998)

Please rate your agreement with each statement regarding your virtual team:

1 = Strongly Disagree
2 = Disagree
3 = Somewhat Disagree
4 = Neither Agree Nor Disagree
5 = Somewhat Agree
6 = Agree
7 = Strongly Agree

1. I believe my team approached its task in an organized manner
2. This team accomplished what it set out to do
3. I would like to work with this team again
4. I learned quite a bit from this team

Appendix B: Tables

Table 1. Summary of Team Behavioral Processes

Transition Processes • *Mission Analysis:* Interpretation and evaluation of the team's overarching mission to better understand the main tasks necessary, the team's environmental context, and available resources. • *Goal Specification:* Identification and prioritization of the goals necessary to complete the team's mission. • *Strategy Formulation and Planning:* Development of alternative methods to achieve the team's goals and overarching mission.

Action Processes
• *Monitoring Progress Toward Goals:* Tracking of progress toward achieving the team's goals and mission. Including the interpretation of contextual information and relaying progress to one's teammates.
• *Systems Monitoring:* Tracking of the team's resources and environmental changes.
  o Internal Systems Monitoring: Tracking resources within the team (e.g., personnel and information).
  o Environmental Monitoring: Tracking factors attributed to the team's external environment.
• *Team Monitoring and Backup:* Assisting one's teammates in performing their tasks via feedback, walking them through how to complete the tasks, or taking on their tasking altogether.
• *Coordination:* Orchestration of the interdependent actions of teammates.

Interpersonal Processes
• *Conflict Management:* Managing any disagreements that emerge within the team surrounding the task or interpersonal relationships.
  o Preemptive Conflict Management: Establishing norms and conditions that prevent or alleviate team conflict before it occurs.
  o Reactive Conflict Management: Actively working through disagreements amongst teammates.
• *Motivating and Confidence Building:* Creating a collective sense of confidence, motivation, and cohesion throughout the process of goal achievement.
• *Affect Management:* Regulating both positive and negative emotions during the team's tenure.

Table 2. Cronbach's Alphas of all Tested Scales.

Scale	US Sample	European Sample	Overall
High-/Low-Context Culture	.791	.733	.782
Adaptability	.877	.887	.877
Team Identification	.859	.827	.851
Task Conflict	.764	.661	.748
Relationship Conflict	.889	.777	.874
Faultline Activation	.883	.882	.883
Transition Processes	.928	.867	.919
Action Processes	.923	.859	.915
Interpersonal Processes	.918	.865	.912
Effectiveness	.907	.853	.897
Viability	.813	.774	.804

Table 3. Correlations of all Hypothesized Variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Context Culture	.490	.510										
2. Adaptability	5.28	.640	.069									
3. Team Identification	-.014	.729	.002	.126								
4. Task Conflict	1.92	.484	-.022	.108	.002							
5. Relationship Conflict	1.36	.436	-.023	.050	-.053	.410**						
6. Faultlines	.802	.943	-.014	.147	.052	-.041	.179*					
7. Transition Processes	3.23	.650	.094	-.020	-.109	.116	-.306**	-.304**				
8. Action Processes	3.33	.679	.152	-.104	-.177*	.092	-.387**	-.336**	.883**			
9. Interpersonal Processes	3.37	.698	.076	-.044	-.114	.088	-.483**	-.328**	.849**	.905**		
10. Effectiveness	4.75	1.06	.030	-.016	-.121	.119	-.375**	-.316**	.762**	.838**	.849**	
11. Viability	4.64	1.01	.092	-.067	-.107	.091	-.389**	-.367**	.782**	.844**	.852**	.876**

Table 4. Task-Based Model Summary

R	R^2	MSE	F	df1	df2	P
.829	.688	.365	46.6	6	127	.000

Table 5. Task-Based Variable/Outcome Relationships

	coeff	se	t	p	LLCI	ULCI
Context Culture	-.152	.105	-1.44	.152	-.360	.057
Team Identification	.002	.073	.033	.974	-.142	.147
Task Conflict	.062	.111	.564	.574	-.156	.281
Faultlines	-.030	.265	-.114	.909	-.555	.494
Team Processes	1.34	.113	11.9	.000	1.12	1.57

Table 6. Relationship-Based Model Summary

R	R^2	MSE	F	df1	df2	P
.863	.745	.272	61.7	6	127	.000

Table 7. Relationship-Based Variable/Outcome Relationships

	coeff	se	t	p	LLCI	ULCI
Context Culture	.044	.090	.484	.630	-.134	.222
Team Identification	-.009	.063	-.141	.888	-.134	.116
Relationship Conflict	.088	.112	.733	.465	-.149	.325
Faultlines	.045	.200	.227	.821	-.350	.441
Team Processes	1.26	.095	13.30	.000	1.08	1.45

Table 8. Summary of Hypotheses and Results

Hypothesized Relationships	Method	Findings
H1: There will be a significant, negative relationship between the variance of low-/high-context culture and team identification.	Linear Regression	Not Supported
H2: The average level of adaptability will moderate the relationship between the variance of low-/high-context culture and team identification such that as adaptability increases, the relationship will be attenuated.	Moderation Analyses via PROCESS	Not Supported
H3: There will be a significant, negative relationship between team identification and relationship conflict.	Linear Regression	Not Supported
H4: There will be a significant, positive relationship between relationship conflict and perceived faultline activation.	Linear Regression	Supported
H5: There will be a significant, positive relationship between team identification and task conflict.	Linear Regression	Not Supported
H6: There will be a significant, negative relationship between task conflict and faultline activation.	Linear Regression	Not Supported
H7: Levels of activated faultlines will be significantly, negatively related to a team's viability.	Linear Regression	Supported
H8: The average level of interpersonal processes performed will moderate the relationship between faultline activation and viability such that, as more of these behaviors occur, the relationship will be attenuated.	Moderation Analyses via PROCESS	Not Supported
H9: There will be a significant, negative relationship between faultline activation and a team's effectiveness.	Linear Regression	Supported
H10: The average level of action and transition processes performed will moderate the relationship between faultline activation and effectiveness such that, as more of these behaviors occur, the relationship will be attenuated.	Moderation Analyses via PROCESS	Not Supported

Table 9. Neural Network t-test Results

Pairs: Observed & Predicted Faultlines	mean	SE	LLCI	ULCI	t	df	p
Surface and Deep	-.061	.053	-.165	.042	-1.17	313	.244
Surface Only	.001	.052	-.101	.103	.021	350	.983
Deep Only	.013	.053	-.091	.117	.243	334	.808

Appendix C: Figures

Figure 1.
Proposed Theoretical Model

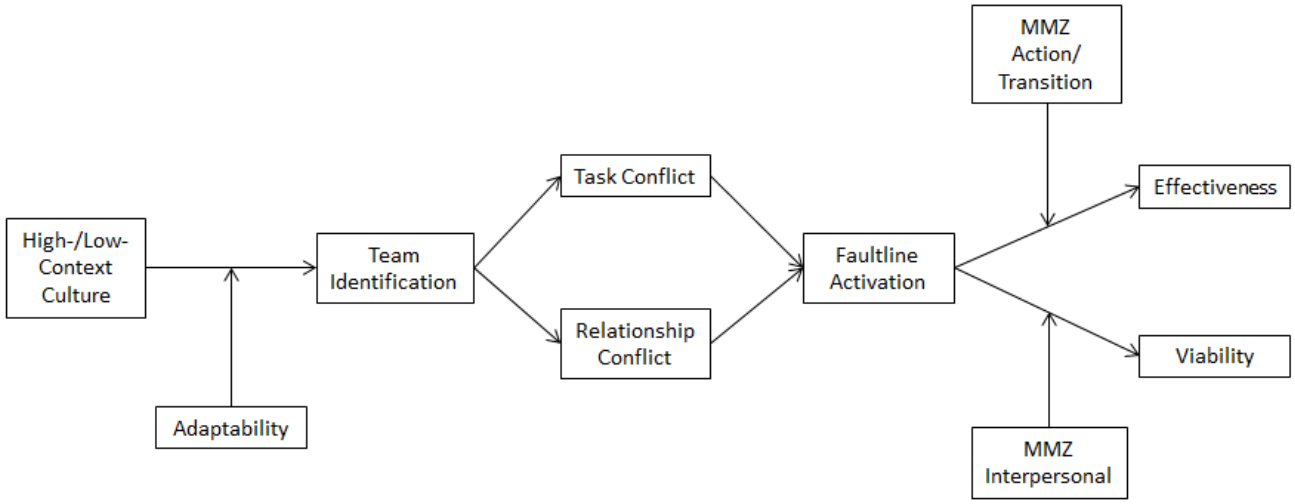


Figure 2. Proposed Task-Based Model

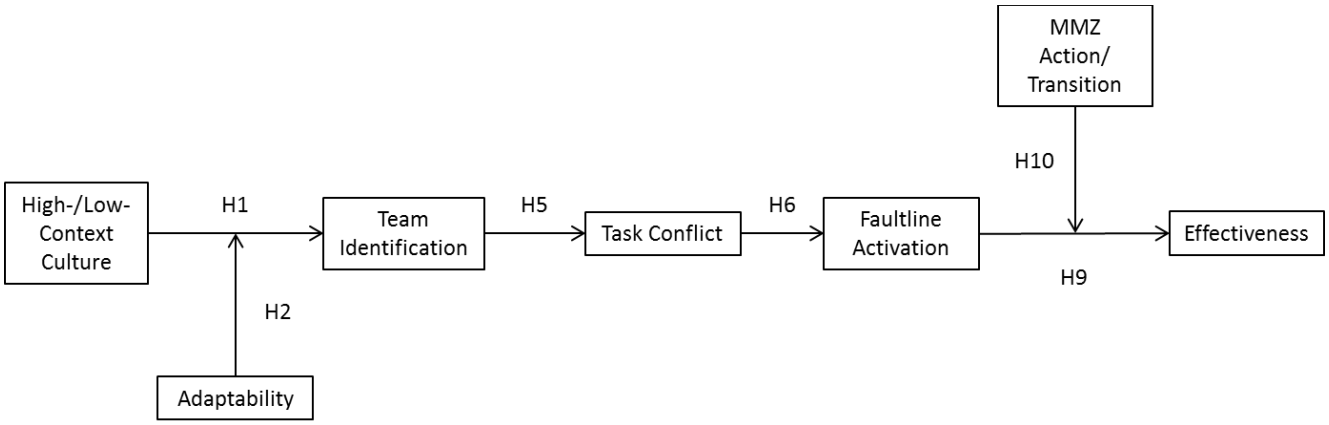


Figure 3. Proposed Relationship-Based Model

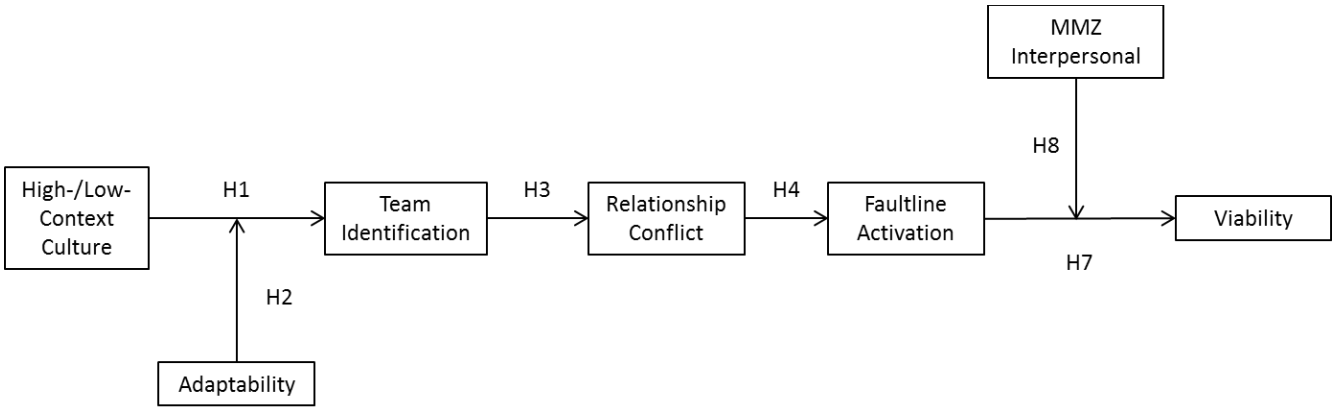
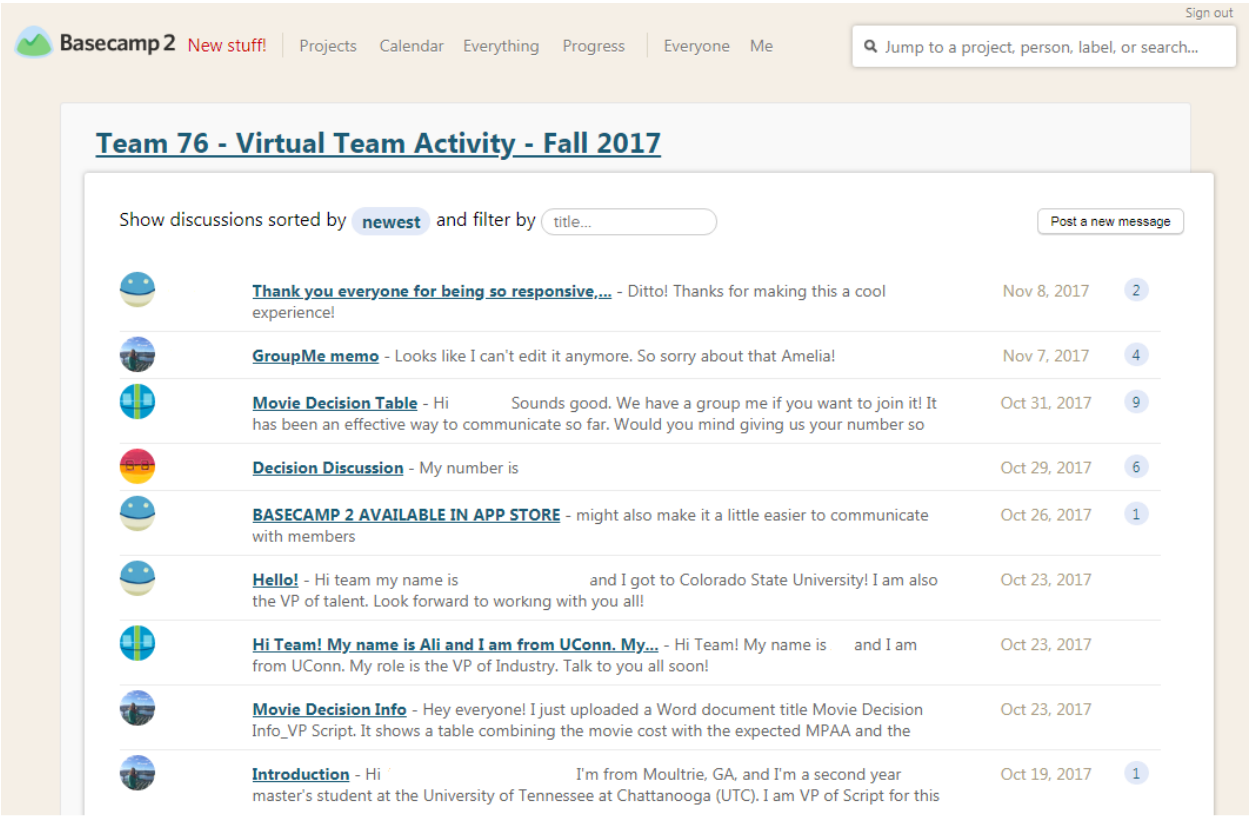


Figure 4. Basecamp Screenshot



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