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DO TEAM CHARTERS HELP TEAM-BASED PROJECTS? THE EFFECTS OF TEAM CHARTERS ON PERFORMANCE AND SATISFACTION IN GLOBAL VIRTUAL TEAMS

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In a sample of 1,891 teams (8,556 students) who completed an eight-week international business consulting project, half of the teams developed a team charter and half did not. Teams with charters saw improved process performance metrics only at the forming stage of team development. They also reported higher conflict levels. However, more conflict did not negatively affect peer evaluations or team output quality, suggesting that such conflict was not entirely negative. Team charter use was not directly associated with output quality, measured as the final report's grade. However, team national diversity moderated the solution creativity presented in the team's final report. These findings suggest team charters may initially aid process improvement but not necessarily the quality of output. We propose that the difference between the two groups studied is essentially one of formal written contracting versus informal psychological contracting, defined as a set of unwritten expectations of team members with regard to team behaviors and goals. These two forms of contracting provide for equifinality (the same result) in performance over the lifecycle of a project. The study contributes to research on team charter use, particularly with respect to formal versus informal psychological contracting within the context of global virtual teams.

Plans are worthless, but planning is everything.

—Dwight Eisenhower

A team charter (sometimes called team contract; referred to hereafter as "charter") has been defined as a "formal document written by team members at the outset of a team's life cycle that specifies acceptable behaviors in the team" (Courtright, McCormick, Mistry, & Wang, 2017: 1462). It usually specifies tasks and expectations, including information on team member availability, scheduling constraints, roles and responsibilities, deadlines, and other organizational structures agreed upon in an explicit written form created with the input of all project members (Bird & Luthy, 2010; Cupello, 1995; Derven, 2016; Goh, Di Gangi, & Gunnells, 2020; Hill & Bartol, 2018). As such, charters can also be viewed as formal learning mechanisms for determining how a team will behave under future scenarios (e.g., Blanchard, Parisi-Carew, & Carew, 2009; Mathieu & Rapp, 2009). They have been recommended in management practice literature

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(e.g., Cupello, 1995; Derven, 2016; Hill & Bartol, 2018; Moussa, Boyer, & Newberry, 2017), but their efficacy is still uncertain as most studies have been anecdotal in nature. Thus, we aim to answer the question: Are charters really useful for team-based projects using student global virtual teams (GVTs)?

Following Eisenhower's famous quote, we suggest that charters are useful due to the organizational thinking and planning that goes into them. However, as organizational team dynamics are inherently complex, particularly in international contexts, more insight and evidence are needed to understand whether, when, and to what extent charters are indeed useful for project success (Halverson & Tirmizi, 2008; Johnson, Korsgaard, & Sapienza, 2002; Lane & Maznevski, 2018; Maznevski, Davison, & Jonsen, 2006; Mitchell, Parker, Giles, & Boyle, 2014).

Although widely used in practice, charters have only recently received scholarly attention (Courtright et al., 2017), and research is particularly sparse for culturally diverse virtual teams. Some research has suggested that charter development can help to create and communicate project goals and objectives, specify communication modalities, offer contingency plans, and list tasks and projected progress tracking (Goodbody, 2005; Mathieu & Rapp, 2009; Moussa et al., 2017; Norton & Sussman, 2009). For example, charters can formally express team values (e.g., democratic decision-making), organizational structures, and commitment expectations (Goodbody, 2005; Mathieu & Rapp, 2009; Moussa et al., 2017; Norton & Sussman, 2009). In such cases, charters are meant to help teams realize expected project outcomes and deal with changes in internal and external environments as the project progresses through the archetypal stages of forming, storming, norming, and performing, per Tuckman's team development model (Tuckman & Jensen, 1977).

When effectively utilized, charters should increase team cohesiveness and performance by articulating previously unidentified subjective and individually perceived psychological contracts (Knapp, Diehl, & Dougan, 2020). Intuitively, taking the time to develop a charter should aid team productivity through improving scheduling and workload distribution, reducing harmful task and personal conflicts, and improving satisfaction and interpersonal relationships via better communication among team members. However, evidence of the overall usefulness of charters is mainly anecdotal.

The present study addresses this gap by testing whether a charter improves team dynamics and performance and, if so, by how much. Specifically, we assigned half of a sample of 1,891 student project teams comprised of 8,556 students to an experimental condition where the teams were required to develop a charter, and the other half to a no-charter condition, and compared their experiences and outcomes.

Importantly, our sample comprised GVTs, which are international teams where members are dispersed around the globe and rely on online communication and coordination tools. GVTs are increasingly prevalent in both the workplace and academia. A recent survey showed that about 78% of white-collar employees in Organisation for Economic Co-operation and Development countries report at least occasionally working in GVTs (Culture Wizard, 2018). Similarly, GVT-based student projects are gaining popularity as an experiential learning tool in university courses (Jimenez, Boehne, Taras, & Caprar, 2017; Taras et al., 2013). The COVID-19 pandemic significantly increased the reliance on telework and virtual collaboration and highlighted the importance of understanding dynamics and performance in international virtual workgroups and student project teams. Thus, our research can inform educators and managers as they shift toward digital communication and global classrooms and workplaces, where an increasing proportion of work and study is conducted today (Bankins, Griep, & Hansen, 2020). This study provides theoretical and practical insights into charter implementation and effectiveness, specifically in culturally diverse GVTs.

The remainder of the paper is organized as follows. First, we review and integrate the literature on psychological contracting, control theory, and charters within the context of GVTs. Based on this literature, we develop a set of hypotheses on the effects of the charter. We then detail the design of our quasi-experimental study that we used to test the hypotheses. Lastly, we present and discuss our findings and their theoretical and practical implications, as well as their limitations, and provide directions for future research.

LITERATURE REVIEW

We argue that the theoretical underpinnings of charter effectiveness or ineffectiveness can be provided by organizational control theory and the literature on psychological contracts. Charters can be viewed under control theory as team-level behavior control mechanisms (as per Courtright et al., 2017). As such, they may be useful for self-monitoring of team members' behaviors toward achieving team goals. When members are involved in setting team goals, they will adhere to those goals more closely and internalize them (Klein, Wesson, Hollenbeck, &

Alge, 1999; Locke & Latham, 2013; Locke, Latham, & Erez, 1988; Tubbs, 1986). Indeed, goal effects are enhanced by having people write at length about them (Locke & Latham, 2019). Furthermore, we argue that there may be other means of aiding team cohesion and goal commitment that are more informal than a written charter. Specifically, we use psychological contracting theory to explain when this may be the case.

Much prior research on charters has not applied theory to understand charter efficacy. In fact, the majority of extant charter articles have been prescriptive and pedagogical in nature. A notable exception is work by Courtright and colleagues (2017), who studied the effects of charter quality on team performance using a control theory perspective. Courtright and colleagues (2017: 1462) stated that "team charter quality serves as a team-level 'behavior' control mechanism that builds task cohesion through a structured exercise," and compared charter quality's effects on team performance with the more "organic" concept of team conscientiousness.

Our study advances Courtright et al.'s (2017) study in two critical ways. First, rather than studying the effects of charter quality, we use a more direct test and compare team effectiveness under the presence versus absence of a charter. Second, we go beyond the context of traditional colocated teams in a large management course at a single university and test charter effects in globally dispersed teams (i.e., GVTs), where students from multiple universities participate in an experiential business consulting project.

We conceptualize a project team as a group of individuals organized in a team on a temporary basis to complete a specific shared objective (Turner & Müller, 2003). A project team is a form of organization, albeit distinct from a company, where team members are interdependent and monitor each other's behaviors and outputs toward a common goal. Thus, we argue that organization control theory can be utilized to explain team project behavior (e.g., Eisenhardt, 1985; Ouchi, 1977, 1979; Snell, 1992). Indeed, organization control theory concepts have often been applied to team settings (e.g., Sihag & Rijsdijk, 2019; Walter, Kreutzer, & Kreutzer, 2021). However, control theory does not explain why teams without charters can also be successful, and indeed we argue later that in cases such as the projects we studied, behavioral mechanisms are not necessary for performance.

We apply the organizational theory of psychological contracting to charters and team processes to test the difference between charter and noncharter teams. Essentially, we argue that charters can be characterized as formal contracts among team members, similar to Courtright et al.'s (2017) notion of a "structured exercise." This is important in comparing teams that do not utilize charters, where implied team member contracts still exist but can be characterized as informal psychological contracts that are "organic" in nature. In essence, our study comparing teams with charters and teams without charters is about comparing formal versus informal team contracting.

By combining these two theoretical perspectives, we demonstrate that charters can be viewed as formal, explicit contracts that help to monitor and control team members' behaviors and outputs (à la control theory). However, implicit contracts may also exist among team members (à la psychological contracting). Thus, control theory helps explain why charters might be useful (as per the logic of Courtright et al., 2017) but psychological contracting explains why charters may not necessarily outperform more informal approaches using implicit contracting.

As such, we first explore an important distinction between informal psychological contracts and formal written contracts. A psychological contract, broadly defined, is an individual's beliefs about the implicit terms and conditions of a reciprocal exchange between that individual and one or more other individuals (Robinson, 1996; Rousseau, 1989). Psychological contracts were initially defined as "the individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organization" (Rousseau, 1995: 9). The most basic psychological contract is built on an informal individual perception of an exchange. However, individual perception of a psychological contract can exist with or without a written agreement. Indeed, in the context of psychological contracts, the actual understanding and mutual agreement may matter more than whether they have been put on paper (Carroll & Tribe, 2020). However, anything that is explicitly written formalizes the perceptual differences of a psychological contract between two or more individuals (Hattori, 2018). Our research, thus, positions a charter as a psychological bridge between team members to further articulate perceptions so that there is less misunderstanding or confusion as the team progresses through its work. Teams that create charters utilize formalized psychological contracts, while teams that do not develop charters utilize informal psychological contracts.

Before making the theoretical arguments for these propositions, we examine the pros and cons offered in the literature on the use of charters in team practice.

The Potential Positives of Charters

As a tool recommended for team development, charters have been utilized in various forms for decades. However, attempts to empirically test their efficacy have been sparse and, to a large extent, have not provided conclusive answers. For example, Cupello (1995: 83) recommended "charting" (i.e., the creation of a charter) to boost team performance, or, as he put it, invest in "the vital 20% that will lead to successful teams 80% of the time." No evidence of this efficacy was provided, however. Instead, the paper offered a six-step process for developing a charter: (a) obtaining a problem statement, (b) identifying the principal stakeholders, (c) creating a macro flowchart of the process, (d) selecting the team members, (e) training the team, and (f) selecting the team leader. Norton and Sussman (2009) suggested nine essential attributes of what they called a prototypical charter: (a) mission, (b) affirmed values, (c) structural values, (d) group decision-making, (e) conflict resolution, (f) problem resolution, (g) outside intervention, (h) finding a (new) team member and (i) residual interests (for rewarding differential contributions to a project).

Continuing the practitioner-based perspective, Pilette (2017) recommended four elements of an effective charter for teams of nurses to ensure that team members share expectations. She charted out these elements as: (a) vision (the team's goal), (b) values (what drives the team's behaviors), (c) team commitments and norms (how members treat one another), and (d) collaborative accountability.

Within the context of a strong functional team, exploratory research has suggested that charters may facilitate teams dealing with conflicts (Norton & Sussman, 2009) and improve group dynamics (Bird & Luthy, 2010). Recent practitioner-based recommendations include the creation of a charter for more effective virtual team projects (Derven, 2016; Hill & Bartol, 2018; Moussa et al., 2017). However, as Cruz, Zagenczyk, and Hood (2020: 77) noted, there is a "very limited knowledge base about a relatively new type of psychological contract: team psychological contracts," and the majority of these papers have been anecdotal in nature.

Notably, the few studies that have empirically tested the effects of charters on team behaviors have generally found positive relationships with team processes. For example, one study (McDowell, Herdman, & Aaron, 2011) split 88 teams into one of three experimental conditions: (a) no charter, (b) a charter used without instructions, and (c) a charter used with instructions. The teams that developed a charter showed improved communication, effort, mutual support, cohesion, and member satisfaction. The results were better for teams that also received instructions on how to develop a charter beforehand (Aaron, McDowell, & Herdman, 2014).

Another study used a sample of 44 student teams and found that teams that developed charters reported greater motivation and responsibility (Pertegal-Felices, Fuster-Guillo, Rico-Soliveres, Azorin-Lopez, & Jimeno-Morenilla, 2019). Pak and Kim (2018) observed 51 teams, all with charters, and found that when team members perceive that the contract was carried out fairly by the team manager, they were more likely to have favorable attitudes toward coworkers and be more committed to completing their tasks.

Setting up the parameters of conflict management and processes to deal with group conflict is expected to create an environment for effective team management and lead to better performance outcomes. Indeed, some have argued that a properly developed and organized charter might help a team deal with conflict in a *proactive* manner (Norton & Sussman, 2009).

While a few empirical studies on the topic have provided an initial indication as to charter effectiveness, their findings may not generalize to GVTs. Further, the relatively small number of teams in these studies raises questions about the reliability and generalizability of the estimates.

The Potential Negatives of Charters

Some may contend that it is not worth investing time in creating charters. After all, it can be argued that developing a charter takes away team resources that could be spent on specific project goals. More importantly, a charter can impose certain restrictions on how the team operates. If too much time is spent on the exercise or if the imposed rules are poorly designed, a charter could hinder the team's ability to complete the project goals effectively. In fact, prior research has shown that some flexibility is necessary for team project success (Dönmez, Grote, & Brusoni, 2016), and a study by Wu, Zhao, Zuo, and Zillante (2018) suggested that having contractual flexibility might help teams grapple with their endeavors and attain their goals more effectively.

Thus, the contractual obligation among team members created by a rigid charter may reduce the degree of flexibility in team projects (Dönmez et al., 2016; Grote, 2019; Grote, Kolbe, & Waller, 2018).

However, building healthy communication and cooperation among project stakeholders can establish trust, reduce the negatives of project conflict, and foster support for flexibility (Wu et al., 2018). Accordingly, adaptive coordination (i.e., trying to balance flexibility and stability) has been recommended as a useful technique to benefit both flexible changes and more stable process management (Grote et al., 2018).

With the modern use of teams as a basis for organization, the charter concept has been utilized in the team context and led to the notion of psychological contract fulfillment, which is driven by processes of "social influence" (Ho, 2005; Laulié & Tekleab, 2016). That is, team members fulfill their part of a charter because of a psychological connection to the "charter as contract," which may be breached or broken should the social climate deteriorate (Gibbard, Griep, De Cooman, Hoffart, Onen, & Zareipour, 2017). Therefore, a charter explicitly illuminates what would define a breach and how one can be remedied to maintain team cohesiveness and performance. This means, to some extent, that charters may amplify the perception and recognition of team conflict. However, it remains unclear whether the illumination of conflict will lead to positive or negative effects. Indeed, conflict or disagreement among team members might be seen either positively or negatively depending on the coping mechanisms and general attitude toward handling conflict by team members. Thus, a contingency perspective has often been recommended in studying conflict effects (Guerra, Martínez, Munduate, & Medina, 2005). Research into conflict types has suggested that there are often negative consequences of relationship conflict, but the evidence for task conflict is not as conclusive (Guerra et al., 2005). We move next to discuss hypothesis development and our study's methodology.

THEORETICAL DEVELOPMENT AND HYPOTHESES

Our study, to the best of our knowledge, is the first to examine charter effects over the life of a team project. As such, we refer to Tuckman's team development model (Tuckman & Jensen, 1977). To illustrate, in the forming stage team members are just starting to work with each other. Generally, the project starts off with team members being positive and polite toward one another. Quickly, the team may move to the next stage, storming, in which team members may push against one another, arguing for their perspectives and pushing their own agendas on the team. As the name implies, the storming stage is characterized by tension and potential process, task, and interpersonal conflicts. These three types of conflict are conceptualized as disagreements related to the process (e.g., scheduling), interpersonal interactions (e.g., personality clashes), and, finally, tasks (e.g., disagreements about the best solutions to the business challenge the team is working on) (Behfar, Peterson, Mannix, & Trochim, 2008). Storming suggests that this is the stage where the team is most likely to encounter such conflicts. However, as pointed out below, the model is descriptive, so such conflicts may indeed never arise. The presence of any conflict will be unique and idiosyncratic to any particular team's individual experience.

The third stage of team development resolves any differences among team members, which allows the team to begin making progress toward the next stage and toward achieving its ultimate, shared goals. As the name implies, the norming stage normalizes team goals and behaviors. Once goals and behaviors are normalized, the team can move to the performing stage. However, as Bonebright's (2010) review of the model showed, while Tuckman's model has been influential, it remains a simple model of group dynamics and more descriptive than prescriptive. Bonebright (2010: 119) stated that more "recent theories recognize the complexity of group dynamics in today's world and are not easily represented in a simple model" (like Tuckman's). Thus, while we use the model to show the stages of a typical project, it cannot be utilized to explain the phenomenon of charters that we studied. That is, we cannot use the stages of the team development model to explain why a charter should be used and why it might lead to better performance. Rather, it appears that a charter might help to change the order of stages or the duration of time spent within a stage. For example, a charter, as we define it, is used to better manage a project's team processes by setting agreed-upon expectations and rules for conducting team tasks. That being the case, a charter is essentially an attempt to move the norming stage upfront during what would be the forming stage of a project. That is, charters are usually created as the first thing that the team does right after it is formed. As the charter is meant to create the team norms (i.e., rules) upfront, it constitutes a mechanism for use in the forming stage, before any real storming materializes for the team. If a charter is to have any benefit, it is because it eliminates the costly time and energy spent in the storming stage of the typical project (though this does not explain why a charter works or does

not work). Alternatively, teams without a charter may function just as well just by facing the storming aspect of team dynamics. We compare these two possibilities here.

Individual-Level Analysis of Team Process Effects

As discussed above, it has traditionally been presumed that developing a charter proactively aids team process planning, thereby improving team performance and effectiveness. The logic is that a charter gives team members a chance to discuss what the team will do and how it will do it, as well as who will do what, and so on. It also focuses the team on defining its major goals and commitment to achieving them (Locke & Latham, 2013). This study positions a charter as a process bridge between an informal (perception-based) psychological contract among team members and a more detailed formal contract that covers myriad specifics related to individual responsibilities and performance. This bridge should be especially important within virtual contexts, where more explicit forms of communication are utilized due to the potential lower information or media richness in that context (Daft & Lengel, 1986).

There is no existing theory that explains why a charter would be superior to an informal process of reaching an agreement. Conventional wisdom (at least by proponents of charters) is that a more formal written agreement has a stronger positive effect on team processes than does an implicit unwritten understanding. Indeed, previous empirical research on charters has found a positive effect on process performance (measuring aspects such as satisfaction, motivation, and cohesion) from charter use (e.g., Aaron et al., 2014; McDowell et al., 2011; Pertegal-Felices et al., 2019). However, as noted above, what little research has been done in this area has been conducted using rather small, culturally homogenous samples and often ignored the process involved as the project progressed toward a tangible outcome (Somech & Desivilya, 2009). Thus, we follow the general hypothesis from previous research that charters will positively affect team processes primarily via the explicit agreement to the team's shared psychological contract. That is, team members that explicitly share and agree to their team's goals and processes (embedded in a charter) are more likely to be satisfied compared to members that do not explicitly share and agree to the team goals and processes, because such goals and processes are *their* goals and processes. On the negative side, teams without such explicit agreement may come to see some goals as imposed upon them. Thus, charters act to ensure that there is agreement among team members explicating the psychological contract of the group and leading to lower potential cognitive dissonance among team members. Cognitive dissonance happens in situations where conflicts in attitudes, beliefs, or behaviors arise between the team and a team member. This may lead to mental discomfort for the team members. Festinger (1957, as cited in Matz & Wood, 2005: 22) argued, "the social group is a source of cognitive dissonance as well as a vehicle for reducing it. That is, disagreement from others in a group generates dissonance, and subsequent movement toward group consensus reduces this negative tension." A charter represents the documentation of group consensus and thus should help reduce negative tension, thereby increasing team-member satisfaction and enjoyment (Aaron et al., 2014; McDowell et al., 2011; Pertegal-Felices et al., 2019). Hence,

> *Hypothesis 1a. A team charter has a positive effect on the GVT team process, manifested in improved team-member motivation, clarity of team goals, and enjoyment.*

As noted earlier, our comparison of written versus implicit psychological contracts suggests that both have similar effects on team dynamics. Moreover, even when there is no written charter, teams tend to ultimately create informal agreements on team practices. That is, eventually, team members will develop individually perceived beliefs regarding the terms of an exchange agreement between individuals within their team, as exemplified in the literature on psychological contracting (Robinson, 1996; Rousseau, 1989). If so, we would expect the effects of a written charter to be most pronounced in the early stages of team life. However, the differences between charter and noncharter teams will diminish over time as noncharter teams develop a psychological contract. Accordingly, we hypothesize that:

> *Hypothesis 1b. The process improvements due to a team charter are most pronounced in the early stages of team development, but the differences between charter and noncharter GVTs disappear over time.*

Team Charter and Team Conflict

Ostensibly, a charter is designed *a priori* as a constitutional device to be used in times of team disagreement. This disagreement may be seen as either positive or negative, depending on how the situation is handled. If the charter thoroughly describes how

to handle the disagreement, it should result in a positive experience. If it does not, the disagreement may constitute a negative conflict. That is, a charter should have a mitigating effect on any negative team conflict. We define three types of conflict in our study, as disagreement in either: (a) process issues (e.g., scheduling), (b) interpersonal issues (e.g., personality clashes), and (c) task issues (e.g., work items). Conflict is thus reflected as a type of contract breach in one of these three areas, which may be explicitly seen by any breach in the agreements within the charter itself (Behfar et al. 2008). This means that charters may actually increase the perception of conflict (as defined as contract breaches) but at the same time help mitigate those breaches because the mechanism for handling such conflict is what is included in the charter itself. In order words, charters may at once lead to an increasing perception of conflict (as contract breaches are explicit) while also decreasing the potential negative effects on team performance.

Indeed, some research on social climate deterioration has suggested that a charter may better define whether and when a contract breach has occurred (Gibbard et al., 2017). This may, somewhat paradoxically, create the perception of conflict in team members' minds, more so for charter teams than for noncharter teams. That is, a charter makes it easier to spot a deviation from the agreed-upon process, thereby aiding dissatisfaction and increasing conflict among team members. Furthermore, as any specific conflict is explicitly defined in charters, these conflicts become easier to identify.

The notion that a charter may contribute to an increase in conflict identification is also supported by prior literature. For example, Hattori (2018) studied new employees at Japanese firms and found that new-graduate hires had psychological contracts that were more implicit and less formal compared to in other employee categories. The study's "results revealed that employees have stronger perceptions of their employer upholding their end of their psychological contract when the employer's obligations are *explicit* … (and that) *explicitness* helps to align the perceptions of superiors with those of the employees themselves" (Hattori, 2018: 1; emphasis added). Translating this notion to the team environment suggests that explicit contracts like charters will "align perceptions of team members" and also explicitly point out when breaches to the charter occur. Cruz, Zagenczyk, and Hood (2020: 77) also recently argued that "aggregate perceptions of an intrateam task and relationship conflict are positively associated with individual team member perceptions of team psychological contract breach." Based on this argument, we can postulate that a charter helps make explicit those aggregate perceptions of intrateam conflict, and increases the perception of team psychological contract breach. Hence, we hypothesize that:

Hypothesis 2. GVTs with team charters report more conflicts compared to noncharter GVTs.

Team-Level Analysis of Output Performance

While charters may aid team process management, they may also hinder team flexibility, thereby diminishing team effectiveness (Dönmez et al., 2016; Grote, 2019; Grote et al., 2018). The explicit nature of the charter might also create more conflict when breaches to the agreed terms occur (Hattori, 2018). Furthermore, as stated in our supporting arguments for Hypothesis 1b, over time both formal charters and informal psychological contracts may result in equifinality. That is, even teams without a formal charter will eventually come to an agreement about task allocation and conflict resolution, albeit in a less structured and more haphazard way. Due to these competing positive effects of team contracts, and because of the temporary advantages of a formal charter, we do not expect the quality of team output to be significantly affected by the presence of a charter.

Control theory provides further explanation on the phenomenon. Within the team context, controls may be defined as mechanisms utilized to direct the attention and motivation of team members to act in desired ways to meet the team's objectives. These mechanisms may be based on either inputs, behavior, or outputs (that is, cultural control, bureaucratic control, or performance-based control). Control theory predicts that when performance can be measured primarily by some sort of output, like the final report in our study, then output control mechanisms can be used to control team members' behaviors by requiring such members to simply produce the output (Cardinal, 2001; Eisenhardt, 1985; Johnson, 2011; Kerr, 1985; Langfield-Smith, 1997; Ouchi, 1977, 1979; Snell, 1992).

The notion of task programmability is used to determine which type of control mechanism makes sense for utilization by the team. Task programmability within teams refers to the team's capability to develop procedures to plan, perform, and control team processes, which are based on (simple or smaller) tasks. For example, a complex procedure

defined as writing a final report could be broken into "*n*" simpler tasks of (a) researching the topic, (b) writing an introduction, (c) writing the analysis … (*n*) editing all sections together into the final product, and so on. A charter can be viewed as a behavioral control mechanism that requires at least a moderate degree of task programmability. (i.e., being able to describe each and every simple task of the larger procedure). However, when output can be measured with a high degree of certainty (high output measurability, which is the case in our study, where a final written report is provided), such tedious behavioral control mechanisms are unnecessary (Johnson, 2011; Ouchi, 1980). That is, team members, regardless of their specific task behaviors, can be judged on the quality of their output, which for the projects studied here consists of written sections of a final report. Thus, behavioral controls (e.g., written rules, policies, regulations, tasks, etc.), of which a charter may be seen as an example, may be useful but *not* necessary for effective performance.

Furthermore, it is expected that unique characteristics of team members (e.g., social skills, members' knowledge and intelligence, etc.) will have stronger effects on output performance (Morgeson, Reider, & Campion, 2005). For example, a strong team (e.g., consisting of high-achieving students) with no charter is still likely to outperform a mediocre team (e.g., low-achieving students), whether they have a charter or not. Teams of equal capability might benefit from charters, but, as per Hypothesis 1b, over time those benefits should dissipate for a project of sufficient duration. Indeed, an early empirical study by Mathieu and Rapp (2009) did not find a significant influence on team performance from using charters when controlling for goal-setting.

Thus, we hypothesize that ultimately there will be no discernible difference in output performance for projects with charters versus those without:

Hypothesis 3. A team charter has no discernible effect on the quality of team output, measured as the scores given final team reports.

METHODOLOGY

Sample and Study Context

To test our hypotheses, we analyzed data from a large program of international business student consulting projects called X-Culture, an international experiential learning project designed for business students in international business and related courses. About 5,000 students from 150 universities in 40 countries on six continents participate in the project every semester. The students are placed in GVTs, usually of about four to six students, each coming from a different country. About a dozen multinational corporations team up with X-Culture and present their real-life challenges for students to solve. With pre-project preparation and post-project presentations, the project takes up the entire semester, although the active phase, when team members communicate regularly and work on the project, typically lasts seven to nine weeks, depending on the semester schedule. In doing so, students experience first-hand the challenges and best practices of international cross-cultural collaboration, while also serving as informal business consultants for their client companies.

Our data were collected during 2018–2019. The data set includes a total of 1,891 teams, comprised of 8,556 students. The students represented 148 universities located in 44 countries on six continents. Because many students studied overseas, the country count was 76 based on the list of countries students called "home," and 115 based on the countries of origin. To control for variations across treatment groups that were not due to charter use, we report here analyses on data from teams that were considered true GVTs, and control for team size. Teams in the data set varied in size from three to eight members, with teams of five being the most utilized.

Typically, students in the X-Culture program are taking international business, international management, and international marketing courses. Instructors register their students in the program and include it as a required part of their course. The students are then assigned on a random basis to teams with students from other universities across the globe. When possible, master's students are placed on teams with other master's students and undergraduate students with undergraduate students. Thus, a typical five-member team consists of five students from five different courses at five different universities with five different instructors. All team members are typically from different countries.

The project is designed to be a major deliverable for a semester-long course. Depending on the academic schedule, students typically have one to six weeks to prepare for the project, followed by eight weeks of working on the project in GVTs, and usually conclude with one to several weeks of post-project presentations, debriefing, and reflections, again depending on the academic schedule. Prior to being placed on a team, students complete pre-project training comprised of three components: (a) familiarizing themselves with

the rules and process of the consulting project; (b) completing a series of training modules on work in GVTs such as team leadership, coordination, communication, and conflict resolution; and (c) completing a series of training modules on the use of online communication tools such as Dropbox, Google Docs, Skype, Zoom, Slack, Trello, and Doodle. While the teams receive training on a variety of online communication and collaboration tools, they are free to choose whichever tools they want to use.

A total of 10 to 15 corporate clients present their real-life international business challenges, typically asking for help with the development of a new market entry strategy, including market analysis, analysis of competition, developing marketing, logistics, and human resources strategies, and addressing other issues related to doing business in a new market. During the eight weeks of teamwork, each team prepares a report with a detailed description of their proposed solution to the challenge presented by their corporate client. The resulting final report is then independently evaluated by a group of five to seven experts (consisting of the team's instructors and their client company representatives) using a standard set of assessment rubrics and evaluation guidelines. Most client companies are medium-sized, representing apparel, food, IT, and other consumer product and service industries. The student teams are free to choose which of the client companies they want to study. Students are then given detailed information on the client organization. Regular live webinars are organized so that students can learn more about their client company, meet the top management team, ask questions, share ideas, and receive feedback.

Thus, the pedagogical purpose of the project is twofold. First, as students complete the GVT project, they experience first-hand the challenges, and learn the best practices, of international virtual collaboration. Second, by developing a solution to a real-life international business challenge presented by a real corporate client, students effectively serve as contracted consultants and learn international business through practice.

Experimental Conditions

The X-Culture teams were assigned to two experimental conditions: (a) no charter and (b) charter. Of the 8,556 students in the original data set, those who happened to participate in the project in 2018 (3,771, or 41.1% of the total sample) were the control group and were not instructed to prepare a charter; thus, they were free to start working on the project right away. The experimental group took part in the next iteration of the consulting project in 2019. These teams were instructed to spend the first week developing a charter and submit a written copy approved by the entire team. Online Appendix A provides the instructions received by students about creating the charter, and an example of a charter prepared by one of the teams.

While not a truly random design, the threat to the validity of the findings due to selection bias is minimal. First, students could not choose which condition they were assigned to, eliminating self-selection bias, and there was no difference in project design in 2018 versus 2019. Second, both the control and the treatment group completed exactly the same project. The only factor that determined which experimental condition students were in was the year in which they happened to take their course. Importantly, students in the experimental condition that required a charter did not receive more time for the project. The first week that they had to spend on developing the charter was part of the eight-week teamwork period. Thus, we were not testing whether it is worth adding additional time for the charter, but rather whether it is worthwhile allocating part of the project time to developing a charter.

Measures

The measures we used are part of the regular collection of data via the X-Culture program. In the weekly progress surveys, students were asked to report complete peer evaluations, report their motivation and enjoyment levels, report of conflicts and challenges experienced, and so on. Because data were collected weekly, we were able to track the effects of the charters longitudinally across the typical student team lifecycle. While not every aspect of team dynamics and performance was captured in the X-Culture data, we were able to compare the experimental groups on a wide range of team processes and effectiveness indicators and track most variables over time.

The data used in the study represent two levels of measurement. The variables representing personal characteristics of the study participants, perceptions, and performance were evaluated at the individual level. These included demographics, personal perceptions about team processes (e.g., self-reported motivation, perceived conflict), and peer-evaluated performance of team members. The variables representing team characteristics or outcomes were either inherently team-level measures, such as the quality of

the team report or team size, or were constructed by aggregating individual data to the team level (e.g., team diversity). Below, we provide more details on each variable's measurement.

Team charter denotes the experimental treatment. It is a binomial variable set to 1 if teams were required to develop a charter (2019 cohort) and 0 = if not (2018 cohort).

Process variables. The process variables were all measured by surveying individual students on a weekly basis about perceptions of various process items. Each variable consisted of only one item and included:

Motivation (individual level): Survey item—How motivated are you to continue working on the project with your team? This was measured over seven weeks during weeks 1 through 7 on a 100-point scale (1 = lowest, 100 = highest).

Clarity (individual level): Survey item—Is everything clear? Do you know what to do and how to proceed? This was measured over seven weeks on a 100-point scale (1 = lowest, 100 = highest).

Enjoyment (individual level): Survey item—Do you enjoy working with the people on your team? This was measured over seven weeks on a 100-point scale (1 = lowest, 100 = highest).

Peer evaluations (individual level): These were conducted weekly and included five dimensions, each of which was evaluated on a 5-point scale (1 = lowest, 5 = highest)—communication, effort, intellectual contribution, help with coordinating team efforts, and friendliness toward team members. We used the overall average across all five dimensions in the analysis. For the team-level analysis, the individual team members' scores were aggregated to the team level by averaging the scores across all team members.

Team efficacy (individual level): Survey item—Do you believe that your team can be very productive and develop a high-quality business proposal? This measured students' perceived ability of their team to successfully complete the project. It was measured over seven weeks on a 100-point scale (1 = lowest, 100 = highest).

Process conflict (individual level): Survey item—How many conflicts, arguments, or unpleasant situations did you experience last week with regard to process conflict (e.g., scheduling, workload distribution, team member roles)? This was measured over four weeks, specifically during weeks 4 through 7, using a 7-point Likert scale (1 = No conflicts at all, 7 = 6 or more).

Task conflict (individual level): Survey item—How many conflicts, arguments, or unpleasant situations did you experience last week with regard to task arguments (e.g., business decisions, answers to challenge questions)? This was measured over four weeks, specifically during weeks 4 through 7, using a 7-point Likert scale (1 = No conflicts at all, 7 = 6 or more).

Interpersonal conflict (individual level): Survey item—How many interpersonal conflicts, arguments, or unpleasant situations did you experience last week (e.g., personal conflicts, emotional conflicts, name-calling)? This was measured over four weeks, specifically during weeks 4 through 7, using a 7-point Likert scale (1 = No conflicts at all, 7 = 6 or more).

Team performance variables. The team performance variables were measured as the average of the scores given by expert evaluators (described above) for each of the respective elements of the final report produced by the team.

Overall report grade (team level): The average rating across all experts who evaluated the report on their overall impression about the solution to the international business challenge provided by the team, measured on a 7-point scale (1 = poor, 7 = excellent).

Report creativity (team level): The average across all experts who evaluated the report on the creativity of ideas and solutions developed by the team, measured on a 7-point scale (1 = not creative at all, 7 = very creative, novel, original).

Team diversity: This was calculated diversity using the Van Der Zee index of team diversity based on the team members' countries of study (Van Der Zee, Atsma, & Brodbeck, 2004). This measure represents the square root of the summed square differences between individual cultural backgrounds. It equals 0 if everyone on the team is from the same country and 1 if everyone is from a different country, and values between 0 and 1 for other diversity combinations.

Control variables. Several control variables were used to isolate the effects of the charter and account for personal and team differences that could have affected team processes and performance. They included:

Male percentage (team level): The percentage of male team members in a team, ranging from 0% (all team members are female) to 100% (all team members are male).

Team size (team and individual level): The number of individuals assigned to the team. Average team size was 5.6, ranging from three to eight, with the vast majority of teams having five or six team members.

TABLE 1A
Descriptive Statistics and Correlations—Team-Level Data

		Mean	*SD*	1	2	3	4	5
1	Male percentage	0.34	0.24					
2	Team size	4.95	0.74	−.15**				
3	Team charter	0.56	0.50	.48**	−.45**			
4	Diversity	0.87	0.08	−.07**	−.03	−.20**		
5	Report creativity	5.12	0.91	−.08**	−.08**	−.05	−.06*	
6	Team performance	5.25	0.90	−.08**	−.05*	−.03	−.07**	.89**

Note: n = 1,891 teams.
* $p < .05$
** $p < .01$

Age (individual level): The age of the study participants. The average age across all project participants was 22.15, ranging from 16–59. For the team-level analysis, the average of team members' age was calculated.

Gender (individual level): The gender of the study participants, recorded as 1 = female and 2 = male.

Analytical techniques. Testing our hypotheses called for two different analytical techniques. We first tested Hypotheses 1a, 1b, and 2 utilizing the repeated-measures analysis of variance (ANOVA) approach. Then, to test the effect of charters on team performance (Hypothesis 3), we used an independent-samples *t*-test. All analyses were carried out using SPSS 25.0.

RESULTS

Demographic Issues

As mentioned above, the control and treatment groups completed the same project, and the assignment to the two groups was, essentially, random. After controlling for team size, we found no significant difference between groups except for age. The average age was 22.9 years for the charter cohort and 21.3 for the noncharter cohort (t = 15.03 at $p <$ .001). This difference of about one year, while statistically significant, would not seem to be theoretically or practically consequential. Tables 1a and 1b display the descriptive statistics for both team- and individual-level variables in the study.

Table 2 provides the descriptive statistics for motivation, enjoyment, process clarity, peer evaluations, team efficacy, and conflict.

Hypotheses 1a and 1b: Team Charter and Team Processes

Hypotheses 1a and 1b predict positive effects of charters on the GVT processes, including motivation, enjoyment, clarity, peer evaluation, and team efficacy, and indicate that such positive effects will

TABLE 1B
Descriptive Statistics and Correlations—Individual Team Member-Level Data

		Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11
1	Age	22.15	4.28											
2	Gender	1.47	0.50	.03**										
3	Team size	5.07	0.76	−.16**	.03*									
4	Team charter	0.52	0.50	.18**	−.01	−.44**								
5	Motivation level (average)	85.91	14.66	.07**	.04**	−.04**	−.06**							
6	Enjoyment (average)	84.95	15.06	.06**	.05**	−.06**	−.04**	.91**						
7	Clarity (average)	78.83	16.45	.11**	.03*	−.13**	.20**	.71**	.70**					
8	Team efficacy (average)	4.17	0.51	.03**	−.20**	−.18**	.02	.11**	.09**	.15**				
9	Peer evaluation (average)	85.71	13.99	.05**	.05**	−.04**	−.07**	.89**	.88**	.68**	.07**			
10	Interpersonal conflict (average)	1.23	0.59	.00	.00	.03*	.06**	−.19**	−.18**	−.14**	−.10**	−.17**		
11	Process conflict (average)	1.72	0.95	−.01	−.07**	.05**	.07**	−.30**	−.33**	−.26**	−.05**	−.30**	.59**	
12	Task conflict (average)	1.54	0.84	−.03*	−.03**	.06**	.05**	−.25**	−.27**	−.22**	−.06**	−.26**	.66**	.78**

* $p < .05$
** $p < .01$

TABLE 2
Descriptive Statistics for Motivation, Enjoyment, Process Clarity, Peer Evaluations, Team Efficacy, and Conflict

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Without TC (n = 1332)							
Motivation	88.51 (14.18)	90.28 (13.3)	89.47 (13.49)	89.43 (13.5)	89.14 (14.09)	88.69 (14.63)	88.08 (16.86)
Enjoyment	81.19 (19.29)	89.18 (13.64)	89.16 (13.48)	88.33 (15.03)	88.37 (15.35)	87.86 (16.18)	86.5 (18.63)
Process clarity	4.59 (0.81)	82.18 (18.78)	86.22 (16.07)	88.01 (15.01)	89.53 (13.97)	90.11 (14.22)	91.13 (13.63)
Peer evaluations	4.15 (0.65)	4.28 (0.5)	4.27 (0.5)	4.24 (0.58)	4.19 (0.61)	4.14 (0.65)	4.09 (0.71)
Team efficacy	90.77 (13.08)	88.11 (12.83)	88.6 (13.16)	88.78 (13.5)	88.62 (14.58)	88.37 (14.64)	88.19 (15.8)
Interpersonal conflict				1.13 (0.57)	1.18 (.66)	1.16 (0.6)	1.22 (0.78)
Process conflict				1.63 (1.1)	1.65 (1.14)	1.72 (1.14)	1.55 (1.1)
Task conflict				1.47 (1.03)	1.48 (1.03)	1.52 (1.02)	1.43 (1.02)
With TC (n = 1880)							
Motivation	88.59 (14.35)	87.32 (14.96)	89.12 (13.52)	86.52 (16.8)	86.53 (16.85)	85.79 (18.38)	84.89 (20.14)
Enjoyment	87.04 (14.76)	86.72 (15.81)	88.98 (13.37)	86.17 (17.37)	86.13 (17.6)	85.69 (18.31)	84.69 (20.48)
Process clarity	77.83 (20.43)	78.1 (20.41)	85.31 (16.37)	86.62 (16.03)	87.87 (15.43)	88.16 (15.5)	89.48 (15.08)
Peer evaluations	4.13 (0.66)	4.3 (0.53)	4.27 (0.55)	4.26 (0.59)	4.2 (0.6)	4.2 (0.63)	4.17 (0.71)
Team efficacy	85.32 (14.47)	85.4 (15.11)	88.24 (12.68)	86.48 (15.79)	86.65 (15.7)	86.01 (17.08)	85.64 (18.55)
Interpersonal conflict				1.23 (0.77)	1.27 (0.84)	1.24 (0.8)	1.3 (0.89)
Process conflict				1.91 (1.27)	1.77 (1.2)	1.63 (1.13)	1.77 (1.26)
Task conflict				1.64 (1.16)	1.56 (1.1)	1.47 (1.02)	1.58 (1.14)

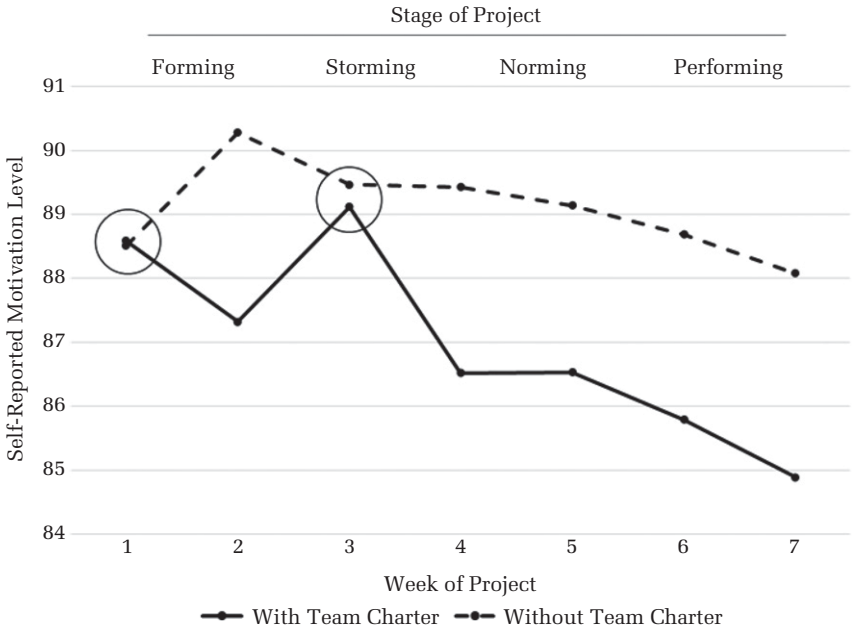
be most pronounced in the early stages of team development. We tested these hypotheses utilizing the repeated-measures ANOVA approach. When the ANOVA analysis yielded significant results, simple effects tests were performed at each time point to test the significance of the precise location of difference.

Repeated-measures ANOVA with two experimental conditions (charter) × seven time points (weeks) on motivation and enjoyment levels revealed similar results. For motivation, significant effects for both weeks (F[6, 3122] = 2.78, $p < .05$) and charter × weeks (F[6, 3122] = 14.52, $p < .01$) and enjoyment, both effects of weeks (F[6, 3089] = 2.78, $p < .01$) and charter × weeks (F[6, 3122] = 14.52, $p < .01$) were found, with higher scores for charter teams only in the initial stages. In addition, because the results of between-subjects tests showed a significant main effect of charter on average motivation levels (F[1, 3128] = 31.45, $p < .05$) and enjoyment (F[1, 3094] = 4.92, $p < .05$) across time, we also conducted follow-up Tukey *post hoc* tests. The results revealed that the effects of a charter on motivation reported and enjoyment of working with teammates were evident only in the first part of the project, as shown in Figures 1 and 2. Motivational differences started out similarly but, over the later project stages, became statistically higher for noncharter team members than for members of charter teams. The early pattern in the forming stage was even more apparent in the values for team member enjoyment (shown in Figure 2), where charter team members rated their enjoyment higher than did noncharter members in the first week, but indicated significantly lower enjoyment later on.

As for clarity, repeated-measures ANOVA revealed significant effects for weeks (F[6, 3067] = 192.30, $p < .01$) and charter × weeks (F[6, 3067] = 3643.34, $p < .01$), and the between-subject effects of the charter were also found to be significant (F[1, 3072] = 329.25, $p < .001$), with measures higher for charter teams at first but lower later on in the project. Figure 3 depicts project clarity measured in terms of understanding the goals and purpose of the project. Notably, the difference between groups with regard to project clarity in week 1 is dramatic, with charter teams clearly understanding the project better than noncharter team members in the forming stage of the project lifecycle. This may have been due to the initial goal-setting environment provided by charter development. However, the effect converged around week 3 and was then slightly higher for noncharter team members throughout the project lifecycle.

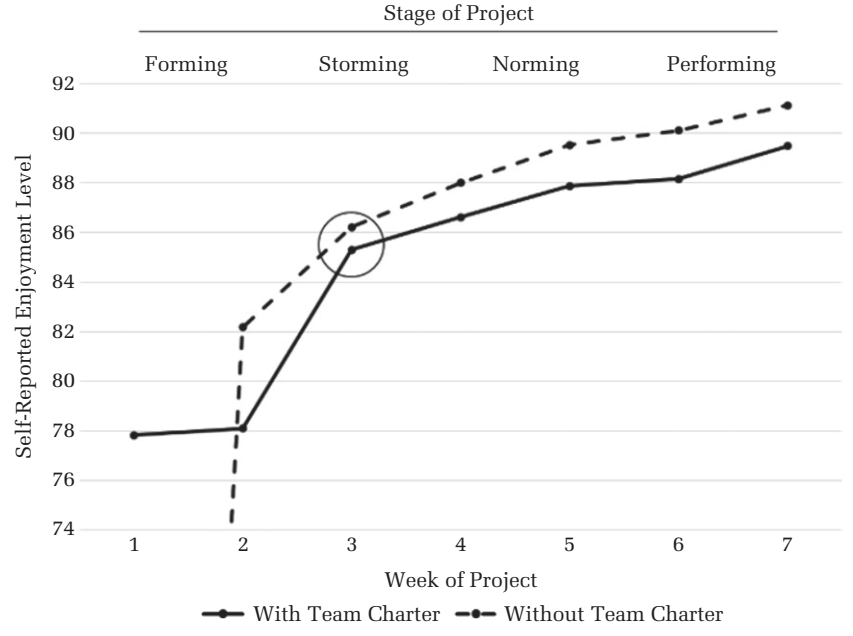
Repeated-measures ANOVA on peer evaluations revealed significant effects for weeks (F[6, 5690] = 5.43, $p < .001$) and charter × weeks (F[6, 5690] = 7.89, $p < .001$). Although the between-subject effects of charters on peer evaluations were not significant (F[1, 5695] = .63), Tukey *post hoc* analysis results show that peer evaluations of fellow teammates followed a similar pattern for both groups, with differences not significant until week 5, when evaluations were significantly higher for charter team members. Figure 4

FIGURE 1
Self-Reported Motivation—7 Weeks



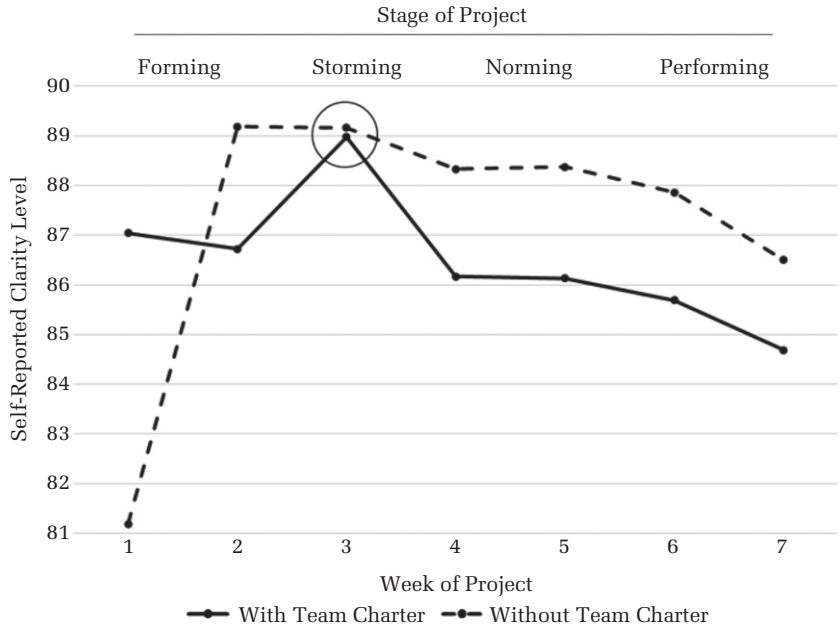
Note: Circle indicates nonsignificant difference.

FIGURE 2
Self-Reported Enjoyment—7 Weeks



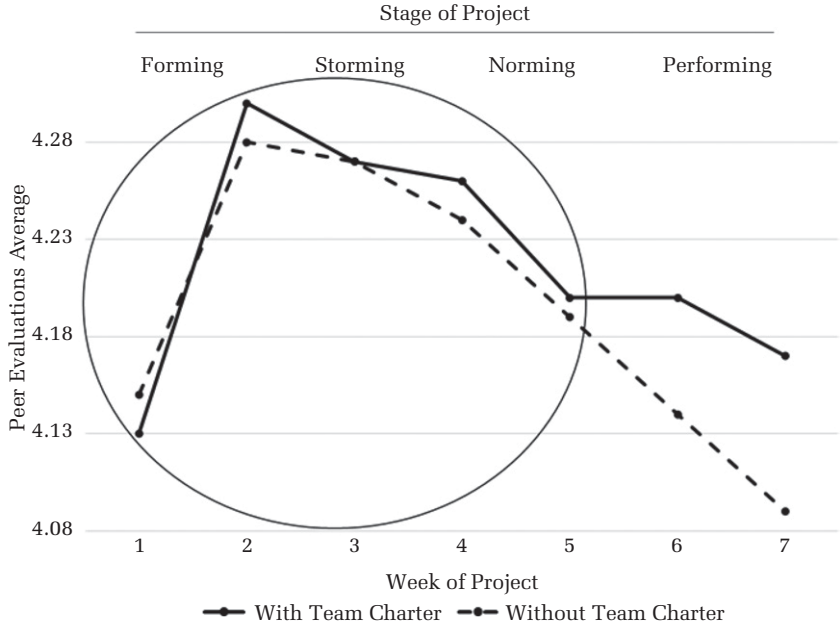
Note: Circle indicates nonsignificant difference.

FIGURE 3
Self-Reported Process Clarity—7 Weeks



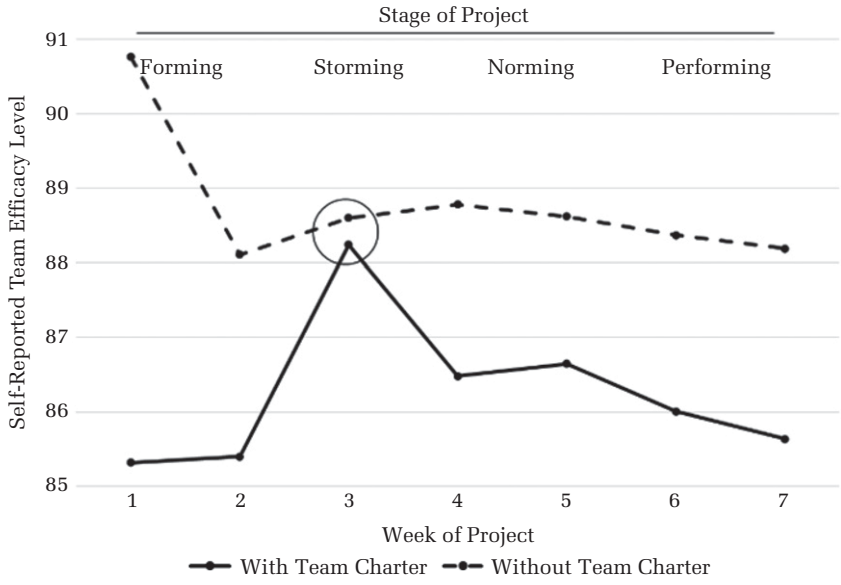
Note: Circle indicates nonsignificant difference.

FIGURE 4
Peer Evaluations—6 Weeks



Note: Circle indicates nonsignificant difference.

FIGURE 5
Self-Reported Team Efficacy—7 Weeks



Note: Circle indicates nonsignificant difference.

illustrates this trend over the course of the project lifecycle.

Lastly, repeated-measures ANOVA for team efficacy found significant effects for charter × weeks (F[6,3154] = 23.98, $p < .001$) and the between-subject effects of charter (F[1,3159] = 39.067, $p < .05$), with noncharter members showing higher values throughout the project (except in week 3). Interestingly, this metric remained somewhat constant over the project lifecycle for both cohort groups, with only a slight decrease in week 3 for noncharter project members, and a slight increase in week 5, followed by a decrease in week 6, for the charter project members.

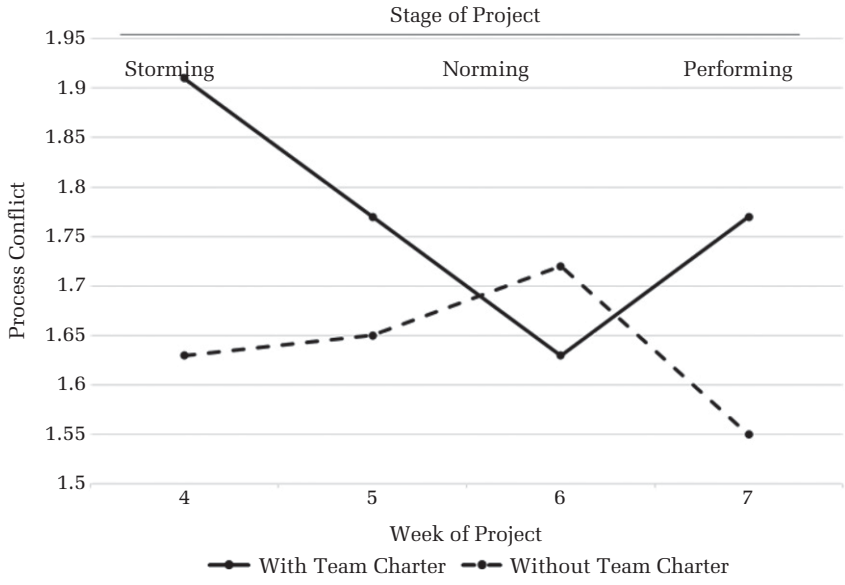
Combining the results of all the items involving processes suggests that there is some merit to Hypothesis 1a, but only in the initial forming stage of the project. After the forming stage there was some convergence over time, but in many cases, such as those regarding motivation and enjoyment, there was no real convergence. Thus, Hypothesis 1b is only tentatively supported. That is, charters might help with positive team processes at the very beginning of the project lifecycle for process management by providing a formal structure to team management. However, teams that use informal contracting appear to catch up quickly. We discuss these findings later, particularly as examined in light of conflict management.

Hypothesis 2: Team Charter and Conflict in Teams

Hypothesis 2 states that members in GVTs with charters will identify more conflicts (i.e., relationship, task, and process conflicts) compared to those without. We used the same analytical approach to test this hypothesis as we did with Hypotheses 1a and 1b. We found that team members in the treatment cohort (i.e., charter) reported significantly higher levels of process [(F[3,7455] = 19.45, $p < .001$)] and task [(F[3,7410] = 8.14, $p < .001$)] conflicts. Figures 6 and 7 depict the differences in reported process and task conflicts for weeks 4 through 7, respectively. There were no statistically significant differences between treatment groups for interpersonal conflicts during any of the weeks (thus, no graphs are included).

As seen in Figures 6 and 7, charter team members reported higher levels of conflict than did noncharter team members for all weeks except week 6, where reported conflicts were about the same level. As argued in the hypothesis development section, the use of a team contract may "prime" team members to identify conflicts, making such team members more sensitive to conflict reporting. Notably, over what would be the typical norming stage of the project, conflict reporting decreases for charter teams but slightly increases

FIGURE 6
Reported Process Conflicts—Last 4 Project Weeks



for noncharter teams.[1] Furthermore, the slight increase in conflicts in week 6 for noncharter teams was only significant for process conflicts and not for task-related conflicts.

When comparing the peer evaluations, it is clear that such conflicts did not result in lower peer evaluations for charter team members. This suggests that the conflicts were well-managed by charter teams. That is, we would expect that, if these were not well-managed, the evaluations would be lower for teams reporting high levels of conflict. Combining these findings gives more support to Hypothesis 1a with regard to the positive process effects of charter use. The specific findings presented in Figures 6 and 7 support Hypothesis 2.

Hypothesis 3: Team Charter and the Quality of Team Reports

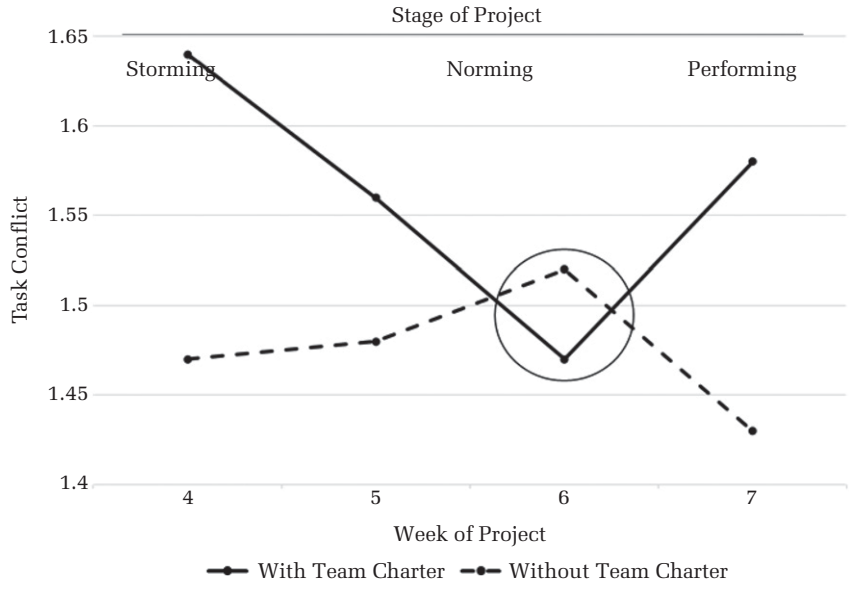
Hypothesis 3 suggests that charters have no impact on GVT performance. As described in the methodology section, the project deliverable was a report that detailed the team's solution to the challenge presented by the client. This is considered an outcome with high output measurability. The team reports were evaluated independently by four to seven experts (consisting of international business professors and the client's company representatives). Each component of the report—including the quality of each report section, the novelty (or creativity) of the ideas, the thoroughness of arguments and supporting materials, and the report formatting—were evaluated on a scale from 1 to 7 (with 7 being highest). Additionally, the evaluators were asked to rate their general impression of the quality of the report (the Overall Report Grade). Table 3 shows the statistics of the group means. Despite the statistically significant differences in processes from self-reporting by team members, there were no statistically significant differences between report metrics of charter and noncharter cohorts. The *t*-tests were both nonsignificant, and thus Hypothesis 3 is supported.

To explore any interaction effects that might be present, we tested various models. For example, we ran a moderated mediation model with the diversity variable as a moderator and process variables (such as motivation) as a mediator in the charter–performance relationship. No model was significant. We did find an interaction effect, however, of diversity as a moderator of the charter and report creativity measure relationship. Table 4 shows the regression results. Table 5 shows the summary of hypothesis tests and results.

Figure 8 depicts the interaction effect. Team charter had a stronger effect on team creativity in teams with

[1] In fact, conflict reporting variability (e.g., as measured by standard deviation) was higher for charter teams than noncharter teams over the project lifecycle.

FIGURE 7
Reported Task Conflicts—Last 4 Project Weeks



Note: Circle indicates nonsignificant difference.

high diversity. In contrast, charter use had no significant effect in low-diversity teams. Thus, while we do not find any direct performance effect of charter use, the interaction effect suggests that context might matter in charter use effectiveness. We discuss the implications of this in the following section.

DISCUSSION

Our study investigated the feasibility of investing time in developing a charter. Using the X-Culture database, we compared two cohorts of student GVTs working on an eight-week international business consulting project as part of their business courses: one with and one without a charter. The key findings suggest that a charter can have a positive effect on a team's process management at the beginning of a project but may not grant substantial long-term advantages over teams that do not create a formal charter. Furthermore, the study participants worked in GVTs, providing an opportunity to test the usefulness of a charter in cross-cultural virtual teams, something that has not been done in prior research.

Contributions to the Literature

Our study's contribution to the literature is manifold. First, in contrast to prior research, our study utilized a large dataset in which participants did not know that they were being studied with regard to charters. The only difference in treatment between teams was whether they were asked to create a charter or not at the beginning of the project. This allowed us to avoid potential issues associated with the Hawthorne effect, whereby the behavior of a study's subjects might be altered by their awareness of being observed. For example, students in charter teams did not get special attention, could not communicate across treatment

TABLE 3
Comparisons on Objective Evaluation of Project Performance (Team Level Data)

	Team Charter (1 = yes; 0 = no)	*n*	Mean	*SD*	*SE*	Significantly Different (at $p < .05$)?
Overall report grade	1	815	5.23	0.89	.03	No
	0	909	5.27	0.98	.03	
Report creativity	1	792	5.07	0.92	.03	No
	0	622	5.16	0.89	.03	

TABLE 4
Regression Results on Team Performance and Creativity

	Performance		Creativity	
	Model 1	Model 2	Model 1	Model 2
Team Size	−.09***	−.08**	−.13***	−.11***
Male Percentage	−.08***	−.08**	−.06*	−.06*
Team Charter	−.05	−.40	−.09**	−.96**
Diversity	−.09**	−.13**	−.09**	−.18*
TC × Diversity		.34		.86**
R^2	.02	.02	.02	.03

* $p < .05$
** $p < .01$

groups as they were from different cohort years, and were spread out across the world. Essentially, students never meet other students in the X-Culture universe outside their specific project teams, which precluded contamination across treatment groups.[2]

Second, we add to the literature on GVT dynamics as all participants were part of a GVT, which could make explicit contracting more pertinent given the virtual nature of communication in that context. Third, given the nature of the project environment, we were also able to study the effects over time. This allowed us to take a project lifecycle approach that previous studies on charters have not. Our data showed that a formal written contract provided early-stage advantages, but over time informal psychological contracting was as effective as formal contracting via a written charter.

As such, our research supports some of the positive findings on process effects emanating from the recent literature on charter use lifecycle (Aaron et al., 2014; McDowell et al., 2011; Pak & Kim, 2018; Pertegal-Felices et al., 2019), at least during the initial stage of the project. However, the dissipating effect over time and the lack of direct performance effects suggest that caution is needed in asserting that charters lead to more efficacious team projects with regard to long-term process and output performance.

Indeed, the contextual findings on diversity and creativity as moderator models indicate that context is important. Meta-analytical studies have shown that, while task diversity may be beneficial, bio-demographic diversity (somewhat captured by our diversity measure) is not significantly related to team performance (Horwitz & Horwitz, 2007). Another meta-analytical study found that, in general, diversity can have a "negative impact on cohesion, communication, and integration, and is likely to increase conflict and turnover" (Güver & Motschnig, 2017: 6). Our findings suggest that charters may be useful for overcoming these negative impacts in teams of high bio-demographic or country-oriented diversity with regard to creativity.[3]

Finally, our study extends the literature on psychological contracting to understanding dynamic team processes, particularly in the context of GVTs. While the original focus of psychological contracting theory was on the exchange agreement between individuals and their organization (Robinson, 1996; Rousseau, 1989), we utilize the concept in the organizational context of GVTs. In such cases, team members create implied agreements of understanding and reciprocity typical of contracts within a larger organizational context. The results demonstrate the difference between explicit contracting and implied psychological contracting and make clear that both types of contracting may help with a team's process and performance management such that one may substitute for the other. Furthermore, following Courtright et al.'s (2017) lead, we extend control theory, also originally consisting of organizational-level constructs, to the level of project organization. In this case, a team and their project can be viewed as a temporary organization of individuals who monitor and control each other's behaviors and outputs (Cardinal, 2001; Eisenhardt, 1985; Johnson, 2011; Kerr, 1985; Langfield-Smith, 1997; Ouchi, 1977, 1979; Snell, 1992). Thus, combining theoretical perspectives, charters can be viewed as explicit contracts that help monitor and control each team member's behaviors and outputs. However, though charters may be useful, they may not be necessary for team performance.

Practical Implications

Ostensibly, charters are expected to help team members manage the subprocesses of forming, storming, norming, and performing during the lifetime of a team project. In particular, we expected the

[2] Based on a reviewer's suggestion, we checked for instructor bias effects via random match pair testing and found no evidence of bias. Indeed, the projects have as many different instructors as they have student team members, so it is highly unlikely that any single factor presented bias in either the treatment or nontreatment group.

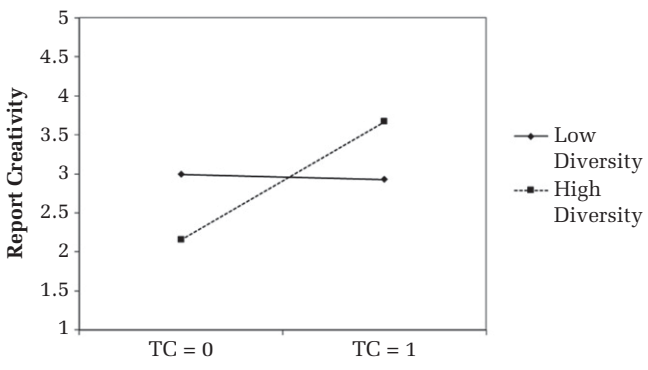
[3] See Setkhumbong, Na-Songkhla, and Tantrarungroj (2020) for a survey of the literature on factors influencing creativity in virtual learning teams.

TABLE 5
Summary of Results

Hypothesis		Variables	Analytical Approaches	Results
1a:	*A team charter has a positive effect on*	Team charter → Motivation	Two experimental	Partially
1b:	*the GVT team process, manifested in*	Team charter → Enjoyment	conditions (charter) ×	supported
	improved team-member motivation,	Team charter → Clarity	7 time points (weeks)	
	clarity of team goals, and enjoyment.	Team charter → Peer evaluation	repeated-measures	
	The process improvements due to a team charter is most pronounced in the early stages of team development, but the differences between the charter and noncharter GVTs disappear over time.	Team charter → Self efficacy	ANOVA	Supported
2:	*GVTs with team charters report more conflicts than noncharter GVTs.*	Team charter → Relationship conflict Team charter → Process conflict Team charter → Task conflict	Two experimental conditions (charter) × 4 time points (weeks) repeated-measures ANOVA	Partially supported
3:	*A team charter has no discernible effect on the quality of team output measured as the scores given the final team reports.*	Team charter → Quality of reports	Independent-samples *t*-test	Supported

use of charters to be most effective in the initial subprocesses of forming, storming, and norming. Indeed, we found that in the forming stage, charters may have helped. The use and development of a charter in the forming stage led to greater clarity on team project goals early on. However, the process effects of charter use did not extend beyond the initial stage of the project lifecycle. Quite simply, noncharter teams appear to catch up quickly on such measures as clarity and enjoyment. Thus, one practical implication is that charters might be best utilized to quickly form clarity on project goals, but it may be futile to expect sustained long-term advantages from their use.

FIGURE 8
Moderation Model of Diversity



Note: IV = team charter (TC) and DV = report creativity.

In fact, the informal creation of team norms in the storming and norming stages appeared to help noncharter members acclimatize quite well to their own team's environment of conflicts and any resulting conflict resolutions. As such, both formal and informal approaches to developing team norms seem to work with equal efficacy. In the long run, teams without charters manage to handle conflicts as effectively as teams with charters. For example, the increased number of reported conflicts in both process and task aspects of charter teams may be due to a priming effect, whereby charter teams recognize conflict more formally. However, as depicted in Figures 6 and 7, charter teams actually reported fewer conflicts during the norming stage, while noncharter teams had increased reported conflict. Thus, it is entirely possible that charters did help with conflict for those teams using them in the early stages of the project. In fact, charters may also help flip the notion of project lifecycle stages such that events typically taking place in the norming stage take place during the forming stage and may help teams better handle the conflicts often materializing in the storming stage.

However, informal contracting in noncharter teams can also help teams deal with conflict, just later on and perhaps less efficiently. Despite these apparent trends, both cohorts were then able to produce outputs of similar quality. That is, conflict reporting may increase with charter use, but this need not be associated with any negative consequences for a team's performance overall. It may also not

necessarily lead to positive outcomes. Thus, there appears to be equifinality in performance for both charter and noncharter teams.

Indeed, in terms of performance effects (measured by the expert evaluations of the final team reports), there was no statistically significant difference between the two cohorts studied. As such, we found no evidence of an overall direct performance effect. From an internal project perspective, the charter may have helped with the first subprocess of the traditional four-phase project management process (forming, storming, norming, and performing), but this did not translate into a better product from the external perspective (i.e., performing, at least in terms of an objective output or deliverable). Intuitively, this makes sense as process management improvement, which can theoretically be attributed to charter use, does not necessarily translate into more creative and efficacious outputs. In fact, some criticisms of the use of charters have focused on the potential for such stringent contractual agreements to stymie the flexibility needed for idea generation and creativity (Dönmez et al., 2016; Grote et al., 2018). A practical implication is that the use of charters can help jump-start team processes, but long-term performance effects should not be expected.

Essentially, while charters might help manage dynamic team processes, they do not guarantee a substantial improvement in deliverables quality, which may be more dependent on other factors not specific to process management, such as capability factors like the team's extant knowledge, previous experience, skillsets, and so on (Morgeson et al., 2005). This is an important practical implication because it indicates that team contracts alone are not a magic pill that will translate into higher-quality outcomes, unless utilized in combination with other team-oriented metrics that are more related to deliverable performance, such as the capability factors mentioned in the last sentence.

LIMITATIONS AND FUTURE RESEARCH

As with all research, this study does have some limitations. First, we were not able to randomly assign charters in the same semester due to ethical and logistical issues. Ethically, it can be argued that offering a technique that might be helpful for participants only in a treatment group within the same cohort can be interpreted as unfair. Furthermore, the logistical issues involved in managing complex team projects make such a treatment next to impossible as participants within the same cohort might be assigned different treatments. Of course, this helped avoid contamination and any potential Hawthorne effect. Finally, we did not survey participants *post hoc* for this study. Instead, we relied on a binary categorical variable regarding charter use (i.e., teams were either assigned to create a charter or not).

Second, we were unable to determine whether charter quality was associated with deliverable performance. Nor did we provide specific training, but rather provided only brief instructions about what a typical charter entailed. This was to ensure that a minimal amount of methodological difference would exist between the two treatment groups. In other words, we avoided the potential of a Hawthorne effect based on attention to charter groups that cannot be eliminated from extant research in the area of charters. Thus, we could not test whether providing training would make a difference, but we suspect that it may (see Courtright et al., 2017).

These limitations do not pose a direct threat to the validity of our findings, but they limit the breadth of the conclusions presented. Not being able to conduct post-project interviews limited our ability to assess the mechanisms by which the presence of the charter affects team dynamics and performance. In addition, not offering pre-project training on developing a charter means we cannot fully rule out that the lack of substantial differences between our control and treatment conditions was due to poorly prepared charters. All we can conclude with certainty is that simply requiring teams to develop a charter coupled with only minimal guidance will lead to the results and outcomes we described above. This is nevertheless informative, especially given that many organizations do not have the time and resources to implement a more elaborate work design.

We hope the present study serves as a springboard for future exploration of the phenomenon. Below, we provide our suggestions and explore the most promising avenues for future research.

Future Research Directions

There are a number of contingencies that could moderate the effects of a charter that have not been considered in the present study, and we encourage future researchers to explore these promising and fascinating research values. First, the quality of the charter could determine its effectiveness. If the document is limited to a few hastily jotted lines of text, it is unlikely it will have any meaningful effect on team performance. In contrast, if the document specifies

clearly, and in sufficient detail, every aspect of team governance, its effect is likely to be much more profound. A future study that measures the quality of charters would provide valuable insights beyond what we have found in the present study.

Second, how often the charter is actually used during the project could determine whether the charter makes a difference. Conceivably, if the team develops the charter but never refers to it in times of conflict or pivotal junctions, then the effectiveness of such a document will be minimal. Conversely, if the charter is very often referred to throughout the project, its effect on team dynamics and performance, for better or worse, will likely be more significant. Future research should consider conducting a post-project survey of how frequently the document was referred to during the project to understand better the moderating effect of charter use on team dynamics.

Third, the context and the project characteristics could moderate the usefulness of charters (Taras et al., 2020). For example, does the length of the project make a difference? The short-term effects of the charter that we found suggest that short projects might benefit from charters more than long-term projects that allow more time for informal psychological contracting and learning. This may be particularly relevant for GVTs. For example, Crossman and Lee-Kelley (2004) suggested that short-term virtual projects can provide extended exchanges that foster trust and commitment, which can be the basis for successful long-term virtual projects. Likewise, does the type of task or the degree of interdependence among team members play a role? These factors may moderate the effectiveness of charters. We recommend that future researchers consider manipulating these variables to test their effects.

Fourth, the effects of the charter could be moderated by the characteristics of the team. For example, it is conceivable that men versus women, older versus younger, more- versus less-experienced students or employees, and more- versus less–emotionally or culturally intelligent people could react differently to the use of a charter. At the team level, team size or diversity could also play a role. It is possible that in smaller and homogenous teams, relying on in-person discussions may be more efficient and effective than developing a complex charter and dealing with the "bureaucracy" it creates. In contrast, a formal charter could be more beneficial in larger, more diverse teams that face more social complexities, and a quick discussion among all team members could be logistically hard to organize.

Lastly, charters may work better in some cultures than in others. For example, the Hall (1976) model of culture differentiates between low- and high-context cultures. In low-context cultures, people rely on direct verbal communication to convey the message. Basically, the meaning is conveyed by the words. In high-context cultures, the context in which the message is delivered could be equally or more important, such as the tone of the message, who is present in the meeting, how long the meeting is, what communication medium is selected for the meeting, and so on. That is, one needs to "read between the lines" to capture the real message, rather than considering the actual words spoken or written. It is generally considered that "Western" cultures are low-context and "Eastern" cultures are high-context, and, accordingly, Western cultures rely on extensive written contracts, whereas Eastern cultures rely more on personal trust and relationships (Nam, 2015).

Team members from high-context cultures might not prefer explicit contracting and may emphasize relationships. For example, Hall (1976) investigated this theory empirically and confirmed that high-context communication cultures are more socially oriented, with members avoiding confrontation more than those in low-context cultures.

Similarly, the cultural dimensions described by Hofstede (1980) could all play a moderating role, particularly the four dimensions included in the original 1980 model: individualism–collectivism, power distance, masculinity–femininity, and uncertainty avoidance.[4] Subsequent research has shown that individualist, low-power-distance, masculine, and high-uncertainty-avoidance cultures tend to rely more on written contracts and rules, whereas collectivist, high-power-distance, feminine, and low-uncertainty-avoidance cultures rely on interpersonal connection, social capital, in-group harmony, or higher authority and arbitrators to mitigate disputes and resolve conflicts (cf. Kirkman, Lowe, & Gibson, 2006; Taras, Kirkman, & Steel, 2010; Taras, Rowney, & Steel, 2009).

It is likely that GVT members, being from different countries, differ in terms of their values and cultures, and thus may have different perceptions about the need and feasibility for having a written contract. Not only could the usefulness of a charter be lower in some cultures, but people from some

[4] See Taras, Rowney, and Steel (2009) for more details on the definitions, measurement, and overlaps among the various cultural dimensions in the cross-cultural research literature.

cultures may see it as a counterproductive tool. Indeed, a written charter in high-context, collectivist, feminine cultures, for example, could be a hindrance and a threat to the development of a harmonious team climate (Lauring & Villeseche, 2019; Yeung & Shen, 2020).

In conclusion, we hesitate to recommend that charters be used for all team projects, as our findings suggest that context may be an important aspect of charter effectiveness. Indeed, our findings indicate that charters contributed to better team processes mostly at the beginning of the project, and actual objective measures of team performance were not significantly related to charter use, except in the one case of increasing creativity for highly diverse teams. This warrants future research, particularly in the areas of cross-cultural leadership and team participation dynamics utilizing charters in GVTs and multicultural teams.

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