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Emotional Carrying Capacity in Virtual Teams: Developing a Capability to Constructively Share a Range of Emotions

Short Paper

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Abstract

In the present study, we aim to understand the development of emotional carrying capacity in virtual teams and its effects on team performance. Although the team capability enabling team members to share a range of emotions with their teammates in a more constructive manner has been found to promote positive team processes and performance, there is little knowledge about what strengthens this capability. To expand the understanding, we propose a research model to examine the effects of surface acting and deep acting—which are two forms of emotional labor—and team emotional intelligence on emotional carrying capacity. We will investigate those relationships using different task types and communication environments (face-to-face vs. computer-mediated environment). We will conduct a lab experiment with a within-subject design to test the research model and hypotheses. This study will contribute to the literature on virtual teams and high-quality relationships.

Keywords: Virtual team, emotional interaction, emotional carrying capacity, emotional labor, emotional intelligence

Introduction

Virtual teams are groups that interact with each other through communication technologies to accomplish interdependent tasks (Martins et al. 2004). The prevalence of virtual teams has increased in organizational settings due to their advantages (Curşeu et al. 2008). For example, organizations can hire qualified individuals regardless of their location by allowing them to work remotely with the use of communication technologies (Kirkman et al. 2004; Martins et al. 2004). However, the quality of the interactions and relationships in virtual teams has been a source of debate. While some argue that the lack of non-verbal communication cues in virtual environments limits interaction between team members (e.g., Jarvenpaa and Leidner 1999; Sproull and Kiesler 1986), several studies have found that computer-mediated communications foster better interpersonal relationships than the face-to-face communication when people are provided with enough time to interact with one another (e.g., Walther 1995) and a chance to have a face-to-face meeting at the early stage of teamwork (e.g., Maznevski and Chudoba 2001).

Emotional carrying capacity refers to the degree to which a team or an individual can express a range of emotions to others in a constructive way (Dutton and Heaphy 2003). High emotional carrying capacity allows for awareness that people in the relationship have a resistance to others' expressions of absolute and different emotions and that displaying various emotions will be accepted by others and processed to

develop a better relationship (Brueller and Carmeli 2011; Carmeli et al. 2009; Dutton and Heaphy 2003). Hence, people in a relationship with higher emotional carrying capacity can display more diverse emotions, including both positive and negative emotions, than those in a relationship with low emotional carrying capacity (Carmeli et al. 2009; Dutton and Heaphy 2003). Research suggests that the ability to freely exchange emotions with others contributes to team learning and performance (Brueller and Carmeli 2011). Prior research in virtual teams has addressed related topics such as trust (e.g., Robert et al. 2009) and conflict resolution (e.g., Kankanhalli et al. 2006), but emotional carrying capacity remains a much unexplored area in the virtual team literature.

We argue that the positive impact of emotional carrying capacity on team interaction and performance, which has been found in face-to-face communication, can be applied to the context of virtual teams. Also, little research has been focused on antecedents of emotional carrying capacity. Thus, the present study aims to achieve three objectives. This study will examine (1) what factors contribute to the development of emotional carrying capacity in virtual teams, (2) the impacts of task types and communication environments on the relationships between the preceding factors and emotional carrying capacity and (3) the relationship between emotional carrying capacity and team performance. To pursue these objectives, we are employing the literature on emotional labor and team emotional intelligence. The regulation of emotional expression and the team members' ability to understand and manage emotions of their own and others have been discussed as major factors influencing communication and performance in the workplace (e.g., Grandey 2000).

This study will contribute to the literature on virtual teams and on high-quality relationships for several reasons. First, the present study will be the first attempt to introduce the concept of emotional carrying capacity to the virtual team literature. We believe that the study findings will shed light on how virtual team members can create a better team environment and capacity to exchange a variety of emotions with their teammates so that they can achieve better performance. Also, given that there is little discussion on how emotional carrying capacity can be developed, this study will provide empirical evidence on what constitutes emotional carrying capacity. Moreover, as emotional carrying capacity is examined in the virtual team context, we expect that the study will expand the understanding of emotional carrying capacity within more diverse work environments.

Background

Emotional Interaction in Virtual Teams

Although the importance of sharing emotions in teamwork has been acknowledged (e.g., Druskat and Wolff 2001; Kelly and Barsade 2001), there is only a handful of studies on emotional interaction in the virtual team literature. One of the pioneering studies found that groups in the computer-mediated communication environment showed a greater level of some dimensions of interpersonal communication (e.g., affection) than face-to-face groups over time (Walther 1995). Another study showed that emotional contagion occurred in virtual teams without having non-verbal cues, as team members were able to use texts to assess others' behaviors and attribute their emotions (Cheshin et al. 2011). While these studies suggest that despite of the paucity of non-verbal cues, team members in the virtual context can communicate their emotions with others, information on how emotional competency of virtual teams can be obtained and how emotional interaction in the virtual team context impacts team performance is scarce. Because emotional interaction among team members is important for better team processes and performance (Rafaeli, Ravid, and Cheshin, 2009), we argue that examining the development of team emotional capacity is crucial.

Team Emotional Carrying Capacity

Emotional carrying capacity is defined as the expression of a range of emotions with others in a constructive manner (Dutton and Heaphy 2003), which indicates three characteristics: "the expression of more emotion, the expression of both positive and negative emotion, and the constructive nature of this expression (Stephens et al 2013, p.16)". Exchanging more and diverse emotions is important because emotional expressions serve as informational resources to make sense of social relationships (Van Kleef 2009) and events in the workplace (Weiss & Cropanzano 1996). The constructive way of emotional sharing is also required. Focusing on the substance of emotional expressions and being acceptable to

divergent emotions provides better access to adequate resources to complete tasks but also helps individuals learn about their unexplored feelings (Stephens et al 2013). Research suggests that the higher level of emotional carrying capacity allows individuals to feel safe displaying different and diverse emotions including positive and negative emotions (Brueller and Carmeli 2011; Dutton and Heaphy 2003). The high emotional carrying capacity has also been found to prevent unproductive conflicts and enable teams to facilitate resilience so that team members are open to different ideas and strong enough to rebound from difficulties (Carmeli et al. 2009). In sum, emotional carrying capacity leads to positive interaction among people within a team.

Research Model and Hypotheses

Emotional Labor: Surface Acting and Deep Acting

Emotional labor refers to “the process of regulating both feelings and expressions for the organizational goals” (Grandey 2000 p. 97). The discussion on emotional labor began in the context of service encounters from the perspective of service providers (e.g., Hochschild 1983). Because behaviors of frontline employees in customer service encounters have been considered to be a part of the quality of an organizations’ service, employees are trained based on display rules and work through emotional labor to show desired expressions toward customers. Research on emotional labor has recently discussed emotional work in the intra-organizational context including co-worker interactions (e.g., Ozcelik 2013).

Emotional labor occurs in two ways: surface acting and deep acting (Grandey 2000). Surface acting refers to suppressing or faking emotional expressions that are different from inner emotions (Grandey 2000; Hochschild 1983). When performing surface acting, people hide true feelings and exhibit only emotions they believe are acceptable regardless of their actual emotional state (Ashforth and Humphrey 1993). The experience of this cognitive dissonance between felt emotions and true emotions leads to emotional exhaustion and dissatisfaction with their job (Pugh, Groth, and Hennig-Thurau 2010), which decreases the willingness to engage in communications with others in a team context. Also, expressions of fake emotions tend to be recognized by receivers and interpreted as signs that they may be disingenuous (Coté 2005), inhibiting further emotional communications. In all, the experience of displaying and receiving inauthentic emotional expressions can limit the development of a capability of sharing more and various emotions among team members. Thus, we hypothesize that surface acting will have a negative impact on developing emotional carrying capacity, causing team members to become less open to diverse emotional expressions.

Hypothesis 1: Surface acting is negatively related to team emotional carrying capacity.

The other form of emotional labor is deep acting, which refers to a regulation process of the experience of inner emotions, involving attentional deployment and cognitive change (Gross 1998; Totterdell and Holman 2003). Specifically, reappraisal is a core process of deep acting that involves modification of a situation or emotions and thoughts of the situation (Ochsner and Gross 2005). Deep acting thus leads to achieving a congruence between inner felt emotions and displayed emotions (Mesmer-Magnus et al. 2012), enabling authentic display of emotions (van Gelderen et al. 2011). The congruence requires less mental effort and helps workers use their cognitive and emotional resources in engaging with other teammates and performing tasks (Grandey 2003; Uy et al. 2017). Also, when people in a relationship show authentic emotions, receivers of the emotional information are more likely to perceive it as sincere and credible, which improves the quality of the interaction (van Gelderen et al. 2011). Thus, we hypothesize that having congruent emotions toward work situations and teammates and sharing them within a team will help increase the team’s capacity to better exchange a range of emotions. Thus, we hypothesize:

Hypothesis 2: Deep acting is positively related to team emotional carrying capacity.

Team Emotional Intelligence

Emotional intelligence refers to an ability to perceive, understand, express and manage emotions. The concept has been understood as an individual trait, but recent studies have considered it a vital team construct (e.g., Druskat and Wolff 2001). Because a highly emotionally intelligent team is able to monitor emotions of themselves and others and control the emotions to achieve team goals, the team may create

an environment in which individuals empathize with emotions of others and provide social support to their team members (Barczak et al. 2010; Rego et al. 2007). In addition, a team with high emotional intelligence shows more tolerant and receptive attitudes toward divergent ideas of other team members (Barczak et al. 2010; Suliman and Al-Shaikh 2007). This team environment should in turn allow for more opportunities to share emotions and viewpoints among team members. Furthermore, because people who are emotionally competent are able to manage emotional communication to achieve a high-quality relationship and goals in the relationship (Druskat and Wolff 2001; Saarni 1999), teams with high emotional intelligence should create more constructive interaction when sharing diverse emotions. Thus, we hypothesize:

Hypothesis 3: High team emotional intelligence is positively related to team emotional carrying capacity.

Task Type

Task type is an important factor in team interactions and team performance (e.g., McGrath 1984; Wood 1986). Tasks that involve the process of idea generation (generate), decision-making (choose), negotiation (negotiate), or execution (execute) require different degrees of collaboration, coordination and conflict resolution (Argote and McGrath 1993). For example, a planning task needs more collaboration and less conflict resolution, whereas a judgment task requires more coordination. One other major stream of research on task types is based on task complexity. Thus, we assume that tasks that require more coordination and communication among team members will lead to greater emotional carrying capacity.

Hypothesis 4: The impact of emotional labor and team emotional intelligence on emotional carrying capacity varies by the task type.

Communication Environments: Face-to-Face vs. Computer-mediated Interaction

The impacts of surface and deep acting and of emotional intelligence on emotional carrying capacity should be different among communication environments. First, the impact of surface acting and deep acting on emotional carrying capacity should decrease in the computer-mediated environment compared to the face-to-face environment. As widely discussed, because computer-mediated environments (e.g., text-based communication) tend to lack non-verbal cues and provide asynchronous communications, which in turn limits the accurate interpretation of emotional expressions, it would be hard to detect the regulation of expressions in this context (Byron 2008). Research shows that emotionally intelligent teams in the virtual context are able to pick up on emotionally charged expressions and verbal cues even in the computer-mediated interaction (Pitts et al. 2012). In addition, emotionally intelligent individuals know how to display their emotions to promote effective communications so that they provide clearer and stronger signals of their emotions in the mediated environments. The more accurate understanding and expression of emotions rendered by emotional intelligence should provide a better opportunity to improve emotional carrying capacity. Thus, we hypothesize that the effects of emotional intelligence on the development of emotional carrying capacity will be greater in the virtual team context.

Hypothesis 5: The impact of surface acting, deep acting and team emotional intelligence on emotional carrying capacity varies by the communication environment.

Team Performance

We assume that emotional carrying capacity should be positively related with team performance. Having the ability to share various emotions and do so in a constructive way within a team can help team members be more mindful of their emotions and ideas and receptive to divergent ideas, which has a positive impact on performing teamwork. For example, emotional carrying capacity allows team members to reflect on and communicate their own emotions with others and to listen to others' expressions of emotions (Stephens et al. 2013). Experiencing diverse emotions of their own and others provides a chance to learn and generate ideas from various perspectives for solving problems (Reus and Liu 2004). Also, the experience of the constructive sharing of emotions can make the workplace safe and inclusive for people to share their situations, information and task-related ideas (Carmeli et al. 2009). For example, dyads and teams that have emotional carrying capacity show a high level of resilience in relationships (Stephens et al.

2013), which facilitates an ability to learn from others and adapt and respond to situations and problems (Sutcliffe and Vogus 2003). Building upon these relations, we assume that when individual team members share their diverse emotions constructively with other team members, the team will create more opportunities to discuss task-related topics more freely and from diverse perspectives, which in turn leads to high team performance. Thus, we hypothesize:

Hypothesis 6: Emotional carrying capacity is positively related to team performance.

Based upon the hypotheses we develop above, we present our research model in Figure 1 below.

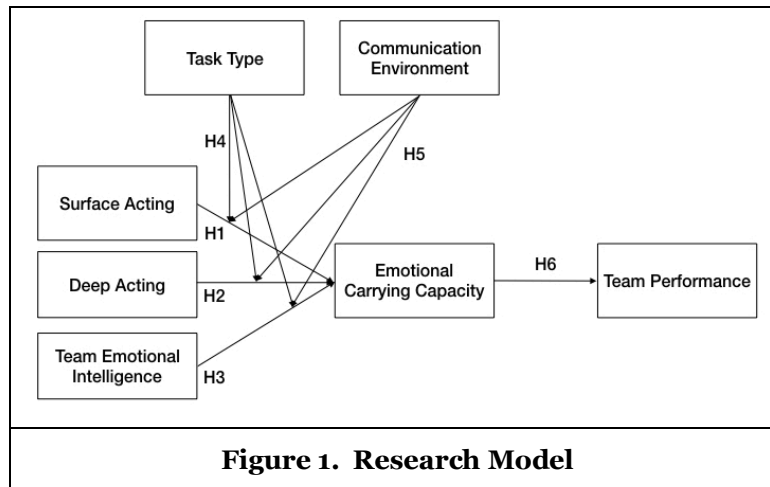


Figure 1. Research Model

Method

To test our research model and hypotheses, we will conduct a within-subject experiment. Given that task types and communication environments are moderating factors in our research model, we will ask all experimental participants to complete all the three types of tasks. One half of the participants will be assigned to a face-to-face communication condition and the other half to a computer-mediated environment.

Participants

We will recruit 180 experiment participants and form 60 three-person teams. The size of the experimental participant group was calculated based on the small- to medium-effect size (0.1 to 0.5), statistical power (0.8) and probability level (0.05) that we expect from our study. According to the computation for multiple regression models (Cohen 1988; Cohen et al., 2003), the required sample size is 37 with the medium-effect and 150 with the small-effect size, which indicates 13 to 50 teams. Considering the potential drop-out of participants and unexpected errors of their participation in experimental team tasks, we plan to recruit 30 additional people (10 more teams of three persons), which is a total of 180 participants and 60 teams of three. We will recruit participants through a subject pool at a public university in a Midwestern city in the United States. The pool comprises undergraduate and graduate students who have registered for an opportunity to participate in experiments. An invitation will be sent via e-mail and people can sign up on an online recruitment system if they want to participate.

Experimental Tasks

Participants will be asked to complete three team tasks. The tasks will be adapted from Barlow and Dennis (2016), consisting of a brainstorming task, a decision-making task and a negotiation task. For the brainstorming task, participants will be instructed to imagine that the Chamber of Commerce has asked for as many ideas as possible to promote tourism in the university town and the surrounding areas. The decision-making task is a type of a hidden profile game that asks participants to select potential college applicants based on discussion with their teammates, imagining they are part of an admissions team for the university. They will be provided with information on four applicants including SAT scores, class

ranks, recommendations, state residency status, extracurricular activities, and college legacy. Some of the information will be shared with all members of a team so all the team members will have the same information. At the same time, other pieces of information will be distributed to specific members. For the negotiation task, participants will be asked to develop a plan for a grocery shopping trip with their teammates. They will be provided with detailed information they need for shopping such as what shopping items they need to buy, markets where the items can be found, and locations and opening hours of the markets.

Experimental Procedure

Upon arrival at an experimental lab, participants will receive a short briefing on the purpose of the experiment and the experimental procedure. Then they will be asked to read and sign an informed consent form if they agree to participate in our experiment. After the consent, they will be randomly assigned to either of the experimental conditions: computer-mediated interaction or face-to-face interaction. In each condition, they will be randomly assigned to teams of three and guided to different rooms. For the face-to-face condition, a table and four chairs will be provided to each team in a separate meeting room so that they can have an independent workspace face-to-face. For the computer-mediated condition, participants will be located in an experimental lab by being offered designated seats equipped with down-view computer desks and partitions so that they will not have a chance to recognize and see their teammates. Teams in this virtual condition will be provided three web browsers that show Google Docs and Spreadsheet and three online survey questionnaires. Because the documents have a chat box feature, they will become online workstations where team members can meet and talk to one another and write down their ideas and submit final outputs. Based on the randomly arranged order of the tasks, teams will first work on one task with their teams and complete a survey based on their experience of the task completion. The same structure will be applied to the other two tasks.

Measurement for Independent and Dependent Variables

Emotional Labor: Surface Acting and Deep Acting

Surface acting and deep acting will be measured by three items each on a 7-point Likert scale adapted from Brotheridge and Lee (2003). An example item for surface acting is, “I resisted expressing my true feelings to team members.” Items for deep acting include “I made an effort to actually feel the emotions that I need to display to team members.”

Team Emotional Intelligence

The team emotional intelligence scale will be adapted from Jordan and Lawrence (2009). The scale consists of 16 items of four sub-dimensions: awareness of own emotions, management of own emotions, awareness of others’ emotions, and management of others’ emotions. Each sub-dimension is reflected by four items. Examples of the items are: “I was able to explain the emotions I felt to team members” (awareness of own emotions); “I respected the opinion of team members, even if I thought they were wrong” (management of own emotions); “I was able to read fellow team members ‘true’ feelings, even if they tried to hide them” (awareness of others’ emotions); and “My enthusiasm was contagious for members of a team” (management of others’ emotions). The items will be measured on a 7-point scale.

Emotional Carrying Capacity

One of the dependent variables is team emotional carrying capacity. The measurement items for team emotional carrying capacity will be adapted from Stephens et al. (2013). An example of the items is, “Our team had no problem expressing our feelings toward each other.” The items will be measured on a 7-point scale.

Team Performance

While the other variables will be subjectively measured by having experimental participants answer survey questionnaire items, team performance will also be objectively assessed by criteria used by

Woolley et al. (2010) and Barlow and Dennis (2016). For the brainstorming task, the number and quality of ideas generated by each team will be counted by three coders independently, then the average score will be used as team performance. We will calculate inter-rater reliability to determine the degree of agreement among the coders. Team performance in the decision-making task will be tested by university admission officers or experts comparable to those. Teams can get scores ranging from 0 to 4 depending on the number of correct decisions, either admit or deny, on four college admission candidates. In the negotiation task, we will evaluate the shopping trip plan of each team based upon criteria that include the shopping time, the number of items purchased and the quality of the items.

Data Analysis

First, we will conduct a manipulation check to see whether the three tasks were completed at different levels of difficulty. We will also assess validity and reliability of the measurement model and common method bias. Last, to test the research model and hypotheses, we will use structural equation modeling and multi-level modeling.

Limitations and Future Work

The present study has several limitations. First, the study will be conducted using a lab experiment with students from a university. A lab experiment is advantageous to test causal relations between factors of interest, but the study results can be limited to a particular context and sample population. In addition, this study will rely on the reflection of experimental participants based on the measurement items for emotional labor and emotional intelligence so that there can be a gap between how people perceive their team interaction and the way people interact with one another.

To overcome the limitations and extend the knowledge provided by this study, future work could examine team interaction based on log data of team communication. Specifically, recording or transcribing conversations among team members (e.g., face-to-face interaction) or analyzing chat logs (e.g., virtual interaction) could provide a clearer picture of the process of emotional labor and emotional carrying capacity.

Conclusion

This study is designed to achieve the following objectives: (1) to explore preceding factors of emotional carrying capacity in virtual teams, (2) to understand the effects of task types and communication environments on the relationships between the independent variables and emotional carrying capacity and (3) to examine the impact of emotional carrying capacity on team performance.

The present study should make several contributions. First, this study will contribute to the virtual team literature by introducing a new concept of team capability, which is emotional carrying capacity. Despite the importance of exchanging emotions within teams for engaging in successful team processes and performance, little research has examined team capabilities in regard to emotional interaction. This study also will contribute to research on emotional carrying capacity. This will be the first study to apply the concept of emotional carrying capacity to the virtual team context, so the study findings can expand the knowledge of emotional carrying capacity. Although prior research has examined emotional carrying capacity as one of the factors that boost team communication and improve team performance, there has been little discussion of what constitutes emotional carrying capacity in terms of team characteristics and task environments. This study will test how emotional carrying capacity is influenced by emotional labor (surface acting and deep acting), team emotional intelligence, communication environments and task types, which have been discussed as major influences on interaction among team members.

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