The Safety of Failure in Different Cultures: Cognitive, Motivational, and Social Effects of Psychological Safety on Team Creativity*

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〈Content〉

Team climate is known to be a critical factor affecting team creative performance. In this paper, I examine the effect of team psychological safety on team creative performance in various team climate situations. Team psychological safety is defined as the "shared belief that [a] team is safe for interpersonal risk taking" (Edmondson, 1999). I examine the underlying mechanisms by which team psychological safety affects cognitive, motivational, and social processes at both the individual and team levels, and how these mechanisms affect overall team creative performance. In addition, I examine culture as a moderator of these relationships. This will contribute to our understanding of how different cultures affect creative performance, as well as the importance of considering the cultural background of teams in a global economy when constructing team climates.

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Ⅰ. Introduction

In recent literature reviews on team creativity, research findings have consistently shown that team context or team climate has a key influence on team creativity (Oldham & Cummings, 1996; Woodman, Sawyer, Griffin, 1993; West & Sacramento, 2012; Anderson et al., 2014; Hulshegar et al., 2009). Given that team creative performance is achieved when more riskier yet novel ideas are exchanged based on significant cognitive efforts (Sutton & Hargadon, 1996), having a supportive team climate in which to exchange and develop risky ideas is a critical factor affecting team performance. Hence, among the team climate measures identified, team psychological safety, shared belief that [a] team is safe for interpersonal risk taking (Edmondson, 1999), should be relevant to team creativity.

In addition, as teams increasingly interact within and across geographic boundaries, there is a growing need to examine the relationship between culture and creativity (Lopez Cabrales, Pérez Luño, & Cabrera, 2009; Shin, Kim, Lee, & Bian, 2012; Williams & O′Reilly, 1998; Zhou & Su, 2010). In order to harness creativity from teams spread around the globe, organizations must understand how team contexts, such as team psychological safety, affect team creative performance differently across cultures. Hence, examining the effect of team psychological safety on team creativity and how this relationship varies across cultures is important in understanding the ways to promote team creativity in global environment.

Although the direct relationship between psychological safety, creativity, and culture has not been investigated, Edmondson (2004) proposed a positive relationship between team psychological safety and innovation based on a case study of cardiac surgery teams, but this hypothesis has not been empirically tested. Not knowing the underlying mechanism of the relationship between psychological safety and team creativity makes misunderstandings possible.

For instance, Hulshegar et al. (2009) found a weak relationship between participative safety, a construct that is closely linked with psychological safety, and team innovation. Tsai et al. (2009) argue that based on the group-centralism perspective (George & King, 2007; Kruglanski et al., 2006), positive group climate factors, such as positive group affective tone and a high level of team trust, can have a negative effect on team creativity. Neither study was able to explain the rationale of these non-intuitive findings, because the underlying mechanism of how psychological safety leads to creativity is not fully understood.

Differences in creativity in between cultures may have significant implications for management practice, international business, and economic development (Zhou & Su, 2010). However, theorizing and research in this regard have lagged behind practical needs. This significant research-practice gap has led to repeated calls for greater research attention on cultural differences and creativity (Zhou & Shalley, 2003; Anderson et al., 2014). In particular, little is known with regard to team creativity and culture. Zhou and Su (2010) have posited that social and work contexts, such as group leaders' styles, supervisor's feedback, coworker's attitudes, and centrality in one's social networks, might affect team-level creativity differently across cultures, but no empirical investigations have been conducted to date. Given that teams are an integral part of both organizations and societies, team processes are likely to be influenced by the perceptions, values, and codes of conduct that are predominant in these larger cultural contexts (Erez & Nouri, 2010). Compared to Westerners, stereotypes about Easterners hold that they feel pressure not to be creative (Kim & Hinds, 2015), feel more shame about sharing half-baked ideas (Keltner & Lerner, 2010), and feel less resilience after receiving negative feedback (e.g., Van De Vliert et al., 2004). Given these differences, I argue that cultural variations in emotions and attitude toward the creative process might alter the relationship between psychological safety and team creativity. Specifically, I argue that psychological safety is more important for Easterners than Westerners in

achieving optimal team creative performance.

In this paper, I propose the underlying mechanism of the relationship between team psychological safety and team creativity by linking how psychological safety affects individual-level cognitive, motivational and social processes, and how these individual-level changes result in team-level cognitive, motivational, and social processes, subsequently affecting team creative performance. In addition, I show how differences in cultural orientation may affect these processes differently.

I expect that this study will contribute to the existing body of research in team creativity, culture, and psychological safety in several ways. First, this study will extend our understanding of the importance of psychological safety for team creativity. Past studies on team creativity have dealt with contextual variables and their effect on only one or two cognitive, motivational, affective, and learning processes, which has resulted in a limited understanding of how certain contextual variables affect creativity (Paulus & Dzindolet, 2008). This paper will highlight the importance of examining cognitive, motivational, and social processes comprehensively in order to fully examine the relationship between certain contextual variables and team creativity. Second, this study will help to build our understanding of the relationship between culture and team creativity. This study will highlight that cultural differences do exist in creative endeavors, and that establishing certain climates will help global teams achieve maximum effectiveness in their creative efforts. Lastly, this study will contribute to research in psychological safety and learning. Psychological safety has been regarded as a critical influencing factor for team learning (Edmondson, 1999b; 2004). By showing how psychological safety directly relates to team creative performance, this will empirically extend research on the effect of psychological safety.

Ⅱ. Definition of team psychological safety

Team psychological safety describes team members' perceptions about the consequences of interpersonal risks within their team (Edmondson, 2004). It consists of taken-for-granted beliefs about how others in their team will respond when one puts oneself on the line, such as by asking a question, seeking feedback, reporting a mistake, or proposing a new idea (Edmondson, 2004). If team members feel safe to speak up without being rejected or punished (Baer & Frese, 2003), then it could be said that the team's psychological safety level is high. Edmondson (2004) argues that team psychological safety is a group-level construct that is an emergent property of the collective.

Psychological safety is closely linked with trust and participative safety as types of intragroup safety constructs, but it has its own distinct nature (Tsai, Chi, Grandey, & Fung, 2012). First, psychological safety and trust have much in common; they both describe psychological states involving perceptions of risk or vulnerability, as well as making choices to minimize negative consequences, and both have potentially positive consequences for work groups (Edmondson, 2004). However, while trust is often equated with giving *others* the benefit of the doubt, psychological safety equates with others giving *you* the benefit of the doubt when you have made a mistake (Edmondson, 2004). For instance, if a team member says she is "never afraid" to tell her team's manager about mistakes, then she is trusting her manager and monitoring the manager's actions in relation to herself. However, if a team member says she is "made to feel like a two-year-old" by the manager, then that member will be likely to monitor her own actions to protect herself, rather than trying to protect herself by monitoring the actions of others.

Second, psychological safety is different from participative safety. They both involve attempting to share information with the team, but, unlike psychological safety, participative safety does not involve tolerance for mistakes. Similar to

psychological safety, participative safety involves high levels of perceived instrumentality – there are "real attempts to share information throughout the team" and all members influence each other (M. A. West & Anderson, 1996). Members "feel more invested in the outcome and more committed to the implementation of ideas" (C. West, 1990), which leads to high levels of influence and an increase in perceived instrumentality. Because mistakes are known to play a critical role in enhancing cognitive capacity, I argue that, participative safety cannot meaningfully enhance team members' cognitive capacities and, in turn, creativity is unlikely to reach its full potential.

Both trust and participative safety have been shown to have mixed effects on creativity. Tsai et al. (2012) show how both high team trust with high positive group affective tone negatively affects creativity, while high team trust with low positive group affective tone positively affects creativity. They base these findings on the group centrism theory, arguing that if group centrism forms with high team trust, then members are likely to reject deviant ideas and be resistance to change (Tsai et al., 2012). In addition, Hulshegar et al. (2009), contrary to their hypothesis, found a weak relationship between participative safety and innovation, potentially due to the safety component of the construct. Intragroup safety constructs always have a potential to become a double-edge sword for enhancing creativity, because once team members highly commit to maintain a nonthreatening atmosphere, they might be afraid of conflict and shy away from criticizing each other's ideas (Hulshegar et al., 2009). Intragroup safety might therefore enhance social pressure, hinder autonomous thinking, and lead to conformity and groupthink (Janis, 1972). However, I argue that the psychological safety construct can overcome this negative potential to creativity in intragroup safety constructs because it emphasizes "risk tolerance", which is known to be crucial for enhancing creativity. The literature has overlooked the cognitive distinctions among psychological safety, participative safety, and trust, assuming a more analogous relationship (e.g., Austin &

Harkins, 2008) than I argue is warranted.

Ⅲ. The effect of team psychological safety at the individual level

Substantial and demanding cognitive efforts are required to generate, promote, and realize creative ideas (Janssen, 2004). Cognitive capacity is defined as "the limited pool of energy, resources, or fuel by which some cognitive processes are mobilized and maintained" (Johnston and Heinz, 1978). When cognitive capacity is limited, for example by fear, anxiety, or uncertainty, individuals cannot properly process the full spectrum of complex information presented to them, and in effect, creative potential is impaired.

Psychological safety enhances an individual's cognitive capacity due to the belief that mistakes and errors are tolerated and accepted. Tolerance and acceptance of mistakes reduces cognitive load and enhances relative cognitive capacity (e.g., Caldwell & O'Reily, 2003). When psychological safety is elevated, uncertainty and anxiety toward performance are assuaged and team members' cognition shifts to enable the search for creative ideas. In contrast, when team members lack confidence that mistakes will be well received, much of their cognition will be devoted to anxiety, and they will deem it inappropriate or not worthwhile to share half-baked ideas, effectively impeding creative potential.

Proposition 1: Team psychological safety is positively associated with individual team member's cognitive capacity.

In order for individuals to participate in a team setting and contribute to creative outcomes, they must believe that their contributions will have some impact on team creative performance. Perceived instrumentality is a motivational

construct (e.g., Malka & Covington, 2005) and can be defined as an individual's recognition that his or her current behavior is instrumental to achieving a valued future goal. Individuals are more likely to engage in a particular behavior or execute a specific action when they have high levels of perceived instrumentality. Blatt and colleagues (2006), for example, determined that medical residents were more inclined to speak up about emerging medical errors when they expected their superior to act upon their input.

When psychological safety levels are elevated, team members have high levels of perceived instrumentality because they operate within a mutually supportive environment and believe that their "unique skills and talents are valued and utilized" (Edmondson, 1999). In contrast, when perceived instrumentality levels are low, individuals are less likely to deem it worthwhile to provide input and participate. Additionally, because team members sense that their contributions are not impactful or are not deemed important, they are more likely to display lower perceptions of procedural fairness, which in turn stifles innovative work behavior (Janssen 2004). Hence, team psychological safety is positively related to individual team member's perceived instrumentality.

Proposition 2: Team psychological safety is positively associated with individual team member's perceived instrumentality.

When team members are elevated in cognitive capacity and perceived instrumentality, they will more apt to engage in risk-laden actions, manifested by "voice" (e.g., Nembhard and Edmondson, 2006; Nishii and Goncalo, 2008). Voice is defined as "constructive change-oriented communication intended to improve a situation" (Le Pine and Van Dyne, 2001). Voice should not be confused with vocalization. While vocalization simply refers to the production of sound, voice is constructive, change-oriented behavior that is intended to improve a situation (Le Pine and Van Dyne 2001). Voice entails the possibility

of disrupting the status quo and, as a result, is potentially risky (Liu et al., 2010). Voice is critical for creativity because it provides team members with timely insight into potential obstacles and, in doing so, allows teams to successfully adapt to dynamic environments (Liang et al. 2012).

Both perceived instrumentality and cognitive capacity are important antecedents to increase in voice. Team members are more likely to exercise voice when they believe their input will make a difference. In addition, because the decision to voice is a risky endeavor and can be an automatic fear-based response, cognitive capacity is also an important precursor to voice. When working memory is overloaded by anxiety or fear, team members may speak but simultaneously self-censor information and withhold relevant ideas for self-protective reasons (Detert and Edmondson, 2011).

Proposition 3: Team psychological safety is positively associated with individual team member's increase in voice.

Ⅳ. The effect of team psychological safety at the team level

Increases in team members' perceived instrumentality, cognitive capacity, and voice by psychological safety would result in team-level changes. Team-level constructs, particularly emergent constructs, come into existence based on the interaction among lower-level elements (Kozlowski & Klein, 2000). Based on the interactions among team members who have elevated perceived instrumentality, cognitive capacity, and voice, the team will collectively form creative team-efficacy, a team's shared belief in its ability to perform creative tasks (Bandura, 1997; Shin & Zhou, 2007), which will further lead to increases in team learning behavior and risk-taking actions.

Although antecedents of creative team-efficacy have not been examined thoroughly, we can infer them based on how group efficacy is formed in a general context. Group efficacy in a general context is formed as group members collectively acquire, store, manipulate, and exchange information about each other and about their task, context, process, and prior performance (Gibson, 1999). Through interaction, this information is combined, weighted, and integrated to form group efficacy in a general context (Gibson, 1999). Given that team members actively share their knowledge and ideas publicly when team psychological safety levels are high, the sheer number of thought combinations as well as uniqueness of thoughts will increase (Simonton, 1988). Once team members sense this increased potential for forming creative ideas, creative team-efficacy will be formed.

Proposition 4: Team psychological safety is positively associated with creative team-efficacy.

Once teams believe in their capability to perform creative tasks, they will be motivated to actively engage in team learning behaviors to develop creative ideas. Team learning behavior is defined as "an ongoing process of reflection and action, characterized by asking questions, seeking feedbacks, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions" (Edmondson, 1999a). Many innovative products have been developed after numerous trials. For example, Sir James Dyson generated 5,126 prototypes before producing the now-ubiquitous Dyson vacuum cleaner (Schwager, 2012). It is often said that success involves making mistakes faster (Sheridan, 2009) and failing frequently (Hargadon, 2002). Indeed, many creative practices intended to stimulate creativity and innovation, including dynamic prototyping and early product beta releases, involve the generation of a constant succession of failures (Dow et al., 2010).

Yet, amassing failures does not guarantee upsurges in creative success. Firms cannot be creative if they continually repeat mistakes; successive failures are unavailing unless complemented with learning. Failures are rich sources of learning (Carmeli & Gittell, 2009) and, as a result, learning from failures is a hallmark of creative and innovative companies (Cannon & Edmondson, 2005).

A compelling line of research supports a strong positive relationship between psychological safety and learning from mistakes and failures (e.g., Edmondson, 1999; Edmondson, 2004). When psychological safety levels are high, team members do not fixate on evaluating the prospect of mistakes and failures. They are less susceptible to cognitive overload. By curbing team members' cognitive loads and creating an environment in which it is safe to discuss failure, psychological safety enhances capacity to learn from mistakes. Literature related to learning has shown that learning can be threatening and stressful (Van den Bossche et al., 2006) and that anxiety about learning often thwarts productive learning behaviors. High levels of psychological safety, however, foster an understanding that "mistakes will be worked on together as a source of learning instead of being treated as a crime to be punished or covered up." (Van den Bossche et al., 2006) Hence, team psychological safety is positively associated with team learning behaviors, and will also be impacted by individual team members' increased cognitive capacity.

Proposition 5: Team psychological safety is positively associated with team learning behaviors.

The unique thing about performing creative tasks is that in order to generate novel ideas that have not been tested before, risk-taking is necessary (Lashinsky, 2006). Hence, when a team's environment is encourages members to partake in potentially sharing risky ideas, the potential for achieving higher creative team performance will increase. In order to accept risky ideas, a team must

embrace a tolerance for errors and mistakes. I argue that creative team-efficacy will enhance this tolerance for errors, mistakes, and a team's risk-laden activities, because having a strong belief in the team's collective ability will result in trust and cohesion in others. This, in turn, makes it easier for the team to accept others' ideas more openly. In addition, positive team affect increases when a team holds highly efficacious beliefs; positive affect is known to be crucial in risk-taking (Salanova, Llorens, & Schaufeli, 2011). Tasa et al. (2011) show how team-efficacy in a general context influences teamwork behavior, namely the quality of member interactions, interdependencies, cooperation, and coordination among team members (Tasa, Sears, & Schat, 2011). In a creative task context, I argue that creative team-efficacy will be associated with teamwork behavior in a way that fosters riskier activities.

Proposition 6: Team psychological safety is positively associated with risk-laden team activities.

Increases in creative team-efficacy, team learning behaviors, and risk-laden activities, are all linked to an increase in team creative performance. *Creative team-efficacy* is expected to have a high correlation to team creativity, because higher creative team-efficacy allows team members to set higher goals, engage more actively in vicarious learning, and achieve higher motivation. *Team learning behavior* is highly positively correlated with team creativity, because team learning behavior increases information seeking and shared reflection (Yoon, Song, Lim, & Joo, 2010), which enables the creation of novel ideas. *Risk-laden activities* are critical for creativity because they provide team members with timely insight into potential obstacles and, in doing so, allow teams to successfully adapt to dynamic environments (Liang et al., 2012).

Proposition 7: Team psychological safety is positively associated with team

creativity, mediated by creative team-efficacy, team learning behaviors, and risk-laden activities.

V. Culture as a moderator

Cultural variations in emotions and attitude toward creativity might alter the relationship between psychological safety and team creative performance, particularly with regard to individual changes. First, collectivistic cultures tend to hold a stereotype against being creative (Kim & Hinds, 2015). This pressure to not be creative is largely due to a difference in the basic educational foundations in Eastern societies compared to Western (Li, 2012). Li (2012) argues that Chinese learners believe that deep understanding or mastery comes from engaging in long-term practice and making continuous improvement, rather than having a sudden "ah-ha" creative moment. If negative stereotypes are present in teams, members are likely to become anxious about their performance, which may hinder their ability to perform at their maximum level (Steel Claude, 1997). Hence, collectivistic cultures' stereotype against creativity can impede their active participation in generating creative ideas and judging others' ideas, as compared to individualistic cultures. Without a sense of psychological safety in teams containing members with collectivistic cultural orientations, this bias against creativity could become evident.
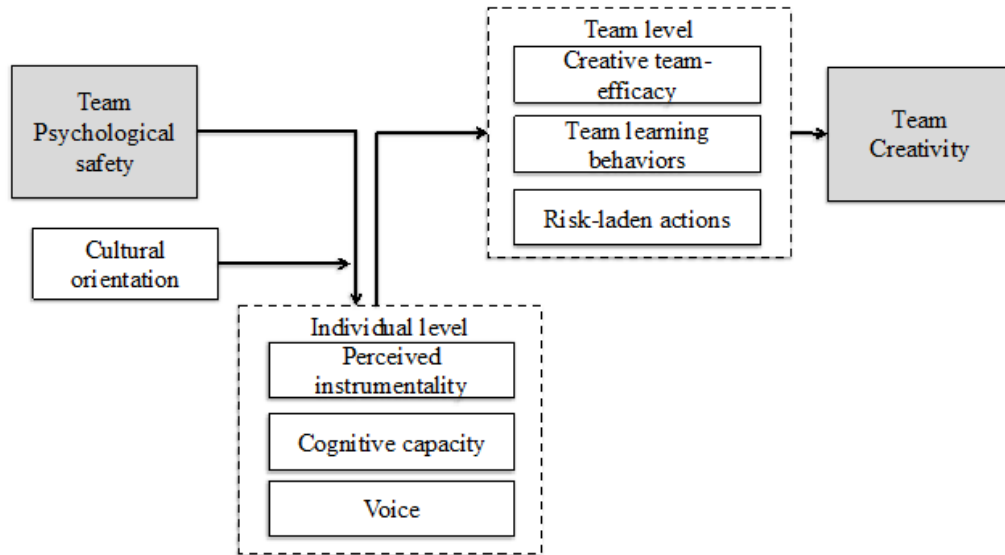
Second, *shame* may be felt more intensely in collectivistic cultures than in individualistic cultures (Ha, 1995; Keltner & Learner, 2010). Given that collectivistic cultures mostly construe a sense of self interdependently, self-conscious emotions such as shame and embarrassment are valued highly. This is because self-conscious emotions express modesty and a sense of place within a social collective, folding people into harmonious, cooperative relations. (Keltner & Buswell, 1997). A feeling of shame can be problematic in performing creative

tasks because shame can prevent the taking of riskier actions. Achieving high levels of psychological safety in teams will be particularly helpful for collectivistic cultures compared to individualistic cultures, because psychological safety make team members perceive that mistakes are inevitable and encourages supporting riskier behaviors (Edmondson, 1999).

Finally, creative tasks involve providing continuous feedback to one another both explicitly and implicitly while exchanging ideas and sharpening teams' solutions. However, because not all feedback is positive, and given that collectivistic cultures are more emotionally sensitive to negative feedback (e.g., Van de Vliert et al. 2004, Kurman, 2003) compared to individualistic cultures, team members from collectivistic cultures might have less resilience after receiving negative feedback. Hence, having a high level of psychological safety might significantly help collectivistic cultures more easily recover from receiving negative feedback.

Given that collectivistic cultures express greater resistance to being creative, have a greater tendency to feel shame, and are more emotionally sensitive to negative feedback compared to individualistic cultures, collectivistic cultures might have a higher chance of having negative team experiences when engaging in creative tasks. However, having a psychologically safe environment will mitigate most of these concerns. Hence, I argue that the effect of team psychological safety on individual-level cognitive, motivational, and social processes will be stronger for collectivistic cultures than for individualistic cultures.

Proposition 8: Cultural orientation moderates the relationship between psychological safety and individual-level perceived instrumentality, cognitive capacity, and voice, such that collectivistic cultures have a stronger effect of psychological safety on individual-level changes than individualistic cultures

〈Figure 1〉 Conceptual framework of propositions

Ⅵ. Conclusion

This paper shows how the team climate construct of team psychological safety (which has received relatively little research attention) relates to team creative performance by affecting individual-level cognitive (cognitive capacity), motivational (perceived instrumentality), and social (voice) changes and team-level cognitive (team learning behavior), motivational (creative team-efficacy), and social (risk-laden actions) changes. In addition, my research will demonstrate that a climate of team psychological safety will be more beneficial for team members with a collectivistic cultural orientation than those with an individualistic cultural orientation, because collectivistic people might be more resistant to creativity, feel more shame, and be more sensitive to negative feedback. This study will significantly contribute to team creativity research by showing the importance of the team psychological safety climate to team creativity and by

highlighting cultural differences in team creative endeavors. In addition, this study will show the importance of considering cognitive, motivational, and social processes comprehensively when examining the effect of context on team creativity (Paulus & Dzindolet, 2008). By highlighting the importance of understanding the effect of cultures on the relationship between team psychological safety and team creative performance, this will contribute to existing research on culture and creativity and the importance of understanding that team climate needs to be customized based on the cultural background of teams in a global economy.

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다양한 문화권에서의 실패에 대한 존중: 집단의 심리적 안정감(Team psychological safety)의 집단 창의성에 대한 인지 측면, 동기부여 측면, 및 사회적 측면의 영향력

김 현 지*

요 약

집단 문화(team climate)는 집단의 창의성에 영향을 주는 핵심 요소로 알려져 있다. 이 논문은 집단 문화 중 하나인 집단의 심리적 안정감 (team psychological safety)이 집단의 창의성에 어떠한 영향을 주는지에 대한 제언을 한다. 집단의 심리적 안정감은 "대인관계에서 발생할 수 있는 리스크를 감수할 수 있는 심리적 안정감에 대한 집단 내 공유된 신뢰도"를 의미한다(Edmondson, 1999). 이 논문은 집단의 심리적 안정감이 개인 및 집단 수준에서 인지, 동기부여, 및 사회적 측면에서 어떠한 영향을 주는지에 대한 내재된 원리를 분석하고, 궁극적으로 이러한 변화들이 집단의 창의성에 어떤 영향을 주는지에 대해 제언한다. 또한, 이러한 관계성에서 서로 다른 민족문화가 어떠한 영향을 미치는지에 대해 제언한다. 이 논문은 집단의 심리적 안정감에 대한 심도있는 고찰을 통해 특히, 서로 다른 문화가 어떻게 창의성에 영향을 주는지, 또한 더 나아가 글로벌화 시대에 집단의 문화를 구성하는데 있어서, 서로 다른 문화 배경을 이해하는 것이 얼마나 중요한지에 대한 문제제기를 한다.

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