Creative Sparks:

Task Conflict, Cultural Intelligence, And Creativity

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The nature of the relationship between task conflict and creativity is as yet unclear while theoretically and empirically, researchers have considered how task conflict could both increase as well as decrease creativity. As the world of work becomes more global, culturally diverse teams will bring increasingly numerous perspectives to work tasks leading to higher levels of task conflict. The pressures of globalization in conjunction with greater demands for creativity in the workplace highlight the need for more clarity with respect to this relationship. Using two internationally diverse samples, we examine how individual perceived task conflict in-group influences individual creativity using a field survey (787 cultural diverse employees) and an experiment (121 cultural diverse participants). We propose and find that the relationship between task conflict and creativity at individual level is curvilinear, where moderate levels of task conflict lead to higher creativity than low or high levels of conflict. Additionally, based on social-categorization theory we find that cultural intelligence further moderates this relationship, attenuating the curvature of the focal relationship. We discuss theoretical implications for cultural diversity, task conflict, and creativity.

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Individual employee creativity contributes to the broader organization's ability to adapt to change and innovate in the global marketplace (Amabile, 1996; Shalley, Zhou, & Oldham, 2004; West, 2002). As the modern workplace becomes more diverse, individuals are often confronted with a variety of divergent opinions and views about the creative tasks they undertake. When individuals generate creative ideas in organizations, they often do so surrounded by and often in combined efforts with teammates and culturally diverse coworkers. Historically, these different perspectives would have been seen as a strong positive for creativity (Williams & O'Reilly, 1998), yet this diversity of perspectives often yields conflict as an intervening step towards performance (Jehn, Northcraft, & Neale, 1999). Organizations are facing two concurrent pressures derived from the increasing speed and the growing global nature of today's business environment. Both of these factors increase the need for organizational employees to be creative in adapting to or generating new products/services under conditions ripe with diverse perspectives and workplace task conflict.

The theoretical and empirical linkage between task conflict and creativity is as yet unclear. Highlighting a positive perspective, when diverse ideas are brought together, more radical combinations result in greater creative performance (Campbell, 1960; Staw, 1990). The introduction of various points of view and the arising task conflict may help individuals consider alternatives and expand their own perspectives to find and explore creative solutions (e.g. De Dreu & West, 2001; Nemeth & Staw, 1989). In contrast, these divergent ideas may also have a negative effect, when presented with conflicting ideas and viewpoints, an individual's creative production in a group may be impaired by factors such as evaluation apprehension, free riding, and production blocking (Diehl & Stroebe, 1987; Litchfield, 2008; Osborne, 1953). Considering

these countervailing forces, more recent work has found that this focal relationship may be more complex than a simple linear description. How task conflict is connected to creativity may be moderated by other factors such as psychological safety (Fairchild & Hunter, 2014) or even presenting a nonmonotonic inverted-U relationship where moderate levels of task conflict yield higher creativity at the team level (De Dreu, 2006; Farh, Lee, & Farh, 2010). This inconsistency and complexity has led to calls for more detailed investigation of the specific circumstances where task conflict can be beneficial for individual and team creativity (De Dreu, 2008; Hülsheger, Andersen, & Salgado, 2009).

Our objective in this article is to consider the contingent nature of task conflict and creativity at the individual level. We will seek to unpack the team level findings down to the individual level in explaining the boundary conditions that at high and low levels where task conflict limits individual creativity. Additionally, we explore an individual level factor that reduces this curvilinear effect and eases the limits of creativity at high and low levels of task conflict in a cultural diverse enviroment. Using social categorization theory (Tajfel & Turner, 1979) and the complementary cultural identity theory (Sussman, 2000) we will explain how cultural intelligence (CQ) can help break down some of the limitations present under high levels of task conflict to encourage individual creativity. These theories hold that individuals classify information as either coming from an in-group or out-group and react poorly to perceived conflicts of interest from out-group ideas. Cultural intelligence broadens ones view of what may be included as in-group ideas to lessen the social cost of adopting or incorporating others ideas into ones own work (Imai & Gelfand, 2010). On the other hand, extending the developmental theory of social perspective taking (Selman, 1971) we explain that individuals with higher CQ are better able to take others' culturally different perspectives and to incorporate unvoiced divergent opinions in complex problem solving even in situations of low task conflict. We

hypothesize that higher levels of CQ will allow individuals to gain the benefits of cultural diversity in the workplace at a more consistent basis across levels of task conflict.

We test these relationships, exploring the curvilinear link between task conflict and creativity as well as the further moderating effects of CQ on that curve, using a large field survey and an experiment drawing on internationally diverse workgroups. As such we aim to contribute to the literatures concerning cultural diversity, task conflict and individual creativity. We are answering calls for greater clarity on how diverse groups influence creativity (Anderson, Potočnik, & Zhou, 2014; George, 2007; Mannix & Neale, 2005) by examining the influence of task conflict within culturally diverse groups. Building on previous findings of a curvilinear effect of task conflict on creativity at the team level (De Dreu, 2006; Farh, Lee, & Farh, 2010), we extend this prior work with three direct theoretical contributions. First, we shift the focus of the relationship between task conflict and creativity from the team to the individual level. Task conflict is predominantly considered a team level construct (e.g., Jehn, 1995; Jehn, Northcraft, & Neale, 1999) as task conflict arrises in the interaction beween individual's divergent opinions and perspectives on a specific problem or piece of work. With this shift, we consider individually perceived work based task conflict in relation to individual level creativity. This allows for more theoretical clarity as to what is causing differences, individual or process based effects.

Second, we unpack findings on the curvilinear effect of task conflict on individual creativity by incorporating explanitory theoretical mechanisms through which individual creativity may be limited by external contexts. Interactive team creativity has long been considered to have performance drags in relation to individual potential (Diehl & Stroebe, 1997; Kurtzberg & Amabile, 2000). These performance drags, including historical negative explanatory factors of production blocking (Lamm & Trommsdorff, 1973), free riding (Latane, Williams & Harkins, 1979) and evaluation apprehension (Collaros & Anderson, 1969), allow us to explain

the complex relationship of task conflict and creativity. These factors are often put in opposition to the positive addition of increased variation to explain decrimental group performance in comparison to individual capabilities (Diehl & Stroebe, 1987; Kurtzberg & Amabile, 2000). As such, we shift the lens of the predominant conceptualization of task conflict from the team level (e.g., Jehn, 1995; Jehn, Northcraft, & Neale, 1999) to the effects of interpersonal interaction on individual perceptions and resulting outcomes, allowing us to examine the mechanisms and implications of team interaction on individual creative production.

Third, we add to the theoretical discussion of the moderating influence of cultural intelligence as an individual factor that minimizes the boundary conditions of low and high task conflict on creativity, answering calls for exploring the boundary conditions of nonmonotonic relationships in psychology (Grant, & Schwartz, 2011). Our research shows that task conflict has a curvilinear effect on individual creativity and that curve may be attenuated by an individual's high level of CQ. Cultural intelligence adds cognitive resources (social perspective taking, Selman, 1971), allowing employees to recognize potential divergent unvoiced opinions in low task conflict situations. Conversely, at high levels of task conflict, we use social categorization theory to explain the effective reduction of individual perceptions of risk and rigidity. We strengthen support for the generalizability of these effects in utilizing internationally diverse work group samples and provide support for causal ording of these theoretical relationships through an experimental design.

TASK CONFLICT AND CREATIVITY

Our focus in this paper is on examining how individual creativity is influenced by the general level of task conflict experienced in the workplace. Creativity is often defined as the generation of ideas that are both novel and useful within a given context (e.g., Amabile 1996; Shalley, Zhou, & Oldham, 2004). From the very begining of modern creativity research, the

number and variance of ideas generated has been linked to creative production (Guilford, 1950). Although organizations and teams may engage in creative tasks and many individuals may provide input into the creative process, ideas themselves come from individual minds (e.g., Csikszentmihalyi, 2003; Flynn, Dooley, O'Sullivan, & Cormican, 2003; George, 2007; Mumford, 2000). While the broader process of creativity may be iterative - as ideas are used to build on one another or are combined to yield something new and useful within a specific context - the fundamental origination of singular ideas is at the individual level and this is the level at which we focus our consideration of how workgroup task conflict might influence the individual's creative production.

Individuals may draw upon their own memories and experiences to generate ideas in response to a creative problem or request. They may also draw on the broader environment around them for inspiration, including input and perspectives from others with whom they interact (e.g., Harvey 2014). To add value to the ideation process, the information or view points offered by others must be divergent or different from the focal individual. It is the increased available variance that provides additional resources helpful for individual creativity (Campbell, 1960; Simonton, 1999). Interactions where coworkers find that others hold divergent opinions or viewpoints with respect to approaching or executing work efforts is an example of task conflict (Jehn & Mannix, 2001). Task conflict has been seperated from relationship conflict – the disagreements of a personal nature, and process conflict – debates about who is responsible for what, in that it focuses on the exchange of different opinions or viewpoints about the nature of the task - how it is defined including the range and value of potential solutions for its completion (Jehn, 1995). When individuals experience task conflict they are being exposed to a variety of opinions and viewpoints around their work efforts that from many theories of creativity and brainstorming should increase the range of ideas an individual may generate (e.g., Amabile,

1996; Campbell, 1960; Osborne, 1953; Staw, 1990). This also aligns with the value-in-diversity perspective (e.g., Swann, Polzer, Seyle, & Ko, 2004; Watson, Kumar, & Michaelsen, 1993) that intimates a strong positive relationship of task conflict to individual creativity. Under frictionless conditions, without any negative influences, one might expect higher levels of task conflict to increase the pool of ideas available to a creative effort and thus yield a positive relationship as shown in Figure 1, the model A – the liner relationship between task conflict and creativity.

Insert Figure 1 about here.

However, there has been little evidence that task conflict has an overall positive relationship to individual performance or creativity (see recent meta-analyses: De Dreu & Weingart, 2003; Hülsheger, Andersen, & Salgado, 2009). Being surrounded by a range of diverse ideas may allow for a greater resource pool of information, it also may produce negative pressures on individual creativity. As team creativity is a function of individual characteristics as well as the group characteristics (Paulus, 2000), findings related to team level creativity may have causes found at two different levels of analysis. This suggests that negative pressures on the relationship between task conflict and creativity at the team level may occur from both or either individual responses and group process responses to increasing conflict. The negative influences on group performance are often attributed to process losses and evidence has been shown that the group level effect is particularly strong in newly formed groups and declines over time but does not fully recede (Watson, Kumar, & Michaelsen, 1993). This process loss is sometimes identified as temporal or resource restrictions of group interactions (Farh, Lee, & Farh, 2010; Jehn, Northcraft, & Neale, 1999). Group creativity researchers have long recognized this coordination loss as production blocking related to group brainstroming dynamics (Diehl & Stroebe, 1987;

1991; Steiner, 1972). These group level negative effects were shown to be the most powerful of the the main limiting factors of group creativity with production blocking accounting for 96% of the variance in creative production between nominal and intact group braininstorming (Diehl & Strobe, 1987), but it also may have a broader effect on individual creative production.

Furthermore, while being surrounded by a diversity of ideas may allow for a greater resource pool of information and learning on one hand, it can also encourage individuals to become entrentched in their own mindsets. The diversity of ideas offered under high levels of task conflict may lower group cohesion and leave team members less motivated to work together (Mannix & Neale, 2005; Marks, Mathieu, Zaccaro, 2001). When an individual is presented with a high number of options, one may become demotivated by the tyranny of freedom (Schwartz, 2000) or the overload of choice (Iyengar & Lepper, 2000). While there is debate about overall main effects of the empirical findings of this literature, established preferences appear to be a significant moderator of any choice effects (Scheibehenne, Greifeneder, & Todd, 2010). The influence of initial preferences of one's own ideas may become important as conflict (of any kind) has been linked to personal feelings of tension and stress, as such it may lead individuals to fail to incorporate new information and default to routine or their own existing responses rather than incorporating additional options into their consideration (Staw, Sandlands, & Dutton, 1981; Walton 1969).

Under low levels of task conflict, the default or majority opinion may be acceptable when other options are not exchanged, while at high levels of conflict the acompanying pressure may create a rigid response defaulting to the current dominant views. In both cases individual creativity would be expected to be low. Additionally, there may be incremental process losses associated with increased task conflict in that the time necessary to process and understand divergent opinions increases with the number and variance of opinions presented particularly.

This two sided consideration of the positive effects of increased ideational resources along with the negative pressure on motivation to incorporate those resources at higher or lower levels of conflict, leads to the theoretical positing of a complex relationship between task conflict and creativity.

Recently two papers that focused on team level creativity have found a curvilinear relationship between task conflict and team creativity. Examinations at the team level, have found an inverted U-shaped relationship between the level of team task conflict and team innovation. Across two studies De Dreu (2006) found that teams were rated by supervisors as producing higher levels of innovation under moderate levels of task conflict when compared to both low and high levels of task conflict. A later study replicated and extended these team level results; the stage at which task conflict occurs moderates the curvilinear relationship between task conflict and team creativity (Farh, Lee, & Farh, 2010). Specifically, at earlier stages of a project task conflict has a stronger curvilinear effect on creativity. Each of these papers focused on team level relationships and were conducted in culturally homogenious populations. It is clear that task conflict has a complex relationship with creativity and more clarity on this "double-edged sword" has been called for in both papers (De Dreu, 2006; Farh, Lee, & Farh, 2010). As diverse perspectives are necessary for building on and combining ideas to generate creativity (Hargadon & Sutton, 1997; Osborne, 1953), understanding how to avoid being cut by the sharp edges of task conflict is theoretically and empirically important in an increasingly global world.

When considering creativity at the team level, we are incorporating both team process effects (Harvey, 2014; Diehl & Stroebe,1987) and individual contributing factors (e.g., componential model, Amabile, 1983, 1996). Focusing merely on team-level outcomes makes it difficult to understand from where any positive or negative effects originate. The methodological split and a multi-level perspective (cf., Hitt et al., AMJ, 2007; Klein & Kozlowski, 2000) on the

theoretical relationship between task conflict and creativity can improve our understanding of the phenomenon and its consequences. Historically, team processes have been considered to have both positive and negative effects on creativity (Hoever et al, 2012; Kurtzberg & Amabile, 2000). The brainstroming literature has identified three primary mechanisms through which team interaction has a negative effect on creativity via: production blocking, evaluation apprehension and free-riding (Deihl & Stroebe, 1987).

Conceptually, production blocking is a team-level phenomenon, whereas free riding and evaluation apprehension operate at the individual level within team contexts. At the team level, production blocking is a primarily physical limitation related to the interactional dynamics of multiple individuals working in a group not all being able to voice their ideas at the same time. Free riding and evaluation apprehension are individual motivational choices through which team members choose to participate in the team creative activity, either restraining their contributions because of a lack of individual identifiability or a fear of social risk. These factors influence team creativity by reducing the individual contributions of team members in aggregate. Still, the interaction between the task conflict and creativity has been primarily focused at the team level. We believe that task conflict also operates at the individual level through employees' perceptions of the range of divergent opinions present in their work environment.

At high levels of task conflict, we contend there would be high levels of production blocking influencing indiviudal creativity as well as team processes. Individual team members attempting to contribute with creativity at the workplace may be crowded out by other team members expressing their own ideas. Additionally, individuals' own generative processes may be overloaded by a large number of divergent ideas contributed by others, causing a cognitive blocking effect at the individual level beyond the physical team-level constraint of time and team members' attention (Kurtzberg & Amabile, 2001). Continuing on the individual level, evaluation

apprehention argument would suggest that in the context of divergent ideas being expressed in a team, individuals holding different perspectives may be reticent to voice those contributions for fear of negative social consequences (Dutton & Ashford, 1993). Furthermore, when there are an abundance of ideas, individuals may have a lower motivation to contribute their own, leading to a free riding effect. All of these influences drive the downward pressure on individual creativity under high levels of task conflict as shown in Figure 1, the model B – the quadratice relationship between task conflict and creativity. Hence, we hypothesize:

Hypothesis 1: The realtionship between task conflic and creativity at the individual level is a curvilinear inverse U-shaped.

CULTURAL INTELLIGENCE AND CREATIVITY

Creativity requires motivation, expertise and the skills to integrate diverse information in developing new ideas (Amabile, 1983, 1996). Cultural intelligence is defined as an individual's capability to function effectively in a culturally diverse environment (Ang & Van Dyne, 2008). This capacity allows individuals to learn from, take perspective of, and effectively interact with culturally diverse individuals. As organizations are growing more global in both workforce and customer base they serve, cultural intelligence will be a critical individual capability (Leung, Ang, & Tan, 2014; Li, Mobley, & Kelly, 2013; Shin, Kim, Lee, & Bian, 2012) to maximize the value of this diverse environment. While Earley and Ang (2003) conceptualized cultural intelligence as a multidimensional construct, consisting of four complementary individual capabilities: metacognitive, cognitive, motivational, and behavioral; it is often considered holistically as an individual difference. The four dimensions of CQ are different aspect that together form the overall CQ individual capability (Law, Wong, & Mobley, 1998; Ang et al, 2007).

Learning from diverse cultural experiences has been linked to increased creativity. In a series of studies, it has been shown that individuals exposed to broader cultural contexts display greater cognitive flexibility and creativity (Leung, Maddux, Galinsky, & Chiu, 2008; Maddux & Galinsky, 2009). However, there is evidence that disharmony caused by intercultural differences may undermine individual creative performance (Chua, 2013). Even as organizations are increasingly operating in a global context, there is little work directly linking cultural intelligence to creativity as yet.

Employees in organizations operating globally are in a position to interact and collaborate within culturally diverse environments. In such organizational environments (task) conflicts arising from colleagues' cultural differences (e.g., cultural norms, religious values, and behaviors) are increasingly salient (Gibson, 1996). As such, we elaborate how cultural intelligence can influence the individual social categorization process of classifying in-group and out-group members based on culturally diverse colleagues, thus decreasing the negative pressure from high task conflict on creativity. According to social categorization theory (Tajfel & Turner, 1979), individuals group others as into two board categories as either like/aligned with themselves or different/opposed to them based on culturally differences (e.g., ethnicity, nationality, and cultural background). These categories are often described as an in-group and an out-group. Individuals are more likely to accept and incorporate ideas presented by their in-group.

We take a step forward and propose that cultural intelligence shifts an individual's frame of reference as to how broadly the in-group is perceived, altering their mindset from "us against them" to a broadening of "us", allowing them to more readily accept a broader range of divergent opinions and perspectives. In effect, this increases the range of individuals accepted as one's in-group. Thus in situations that are high in task conflict, individuals with greater levels of CQ are

more able to incorporate disparate information provided by others into a useful resource (Bücker, Furrer, Poutsma, & Buyens, 2014; Imai & Gelfand, 2010). Under situations where strong opinions have been voiced, we are more likely to contribute our own thoughts and opinions during the generative process, as we are less likely to be concerned with negative evaluation from members of our own perceived in-group. Additionally, as your affiliation increases with your in-group, there is a motivational and cooperative drive to be individually active in contributing to work-related creativity tasks, therefore reducing the free-riding effect.

While production blocking is traditionally viewed as a team process effect, there may be an individual-level component to it as well, which we refer to as cognitive production blocking. In essence, it describes an overload effect where individuals must take time and effort to process each idea or variant presented by diverse team members. Ideas presented by out-group members might be perceived as threatening, increasing cognitive resistance, and contributing to perceptions of cognitive overload. Additionally, even as a high CQ individual's in-group might be expanded, these same people "are attracted to intercultural situations because they value the benefits of these interactions and are confident that they can cope with the inherent challenges of cultural differences" (Van Dyne, et al., 2012, p. 304). For example, employees with high motivational cultural intelligence have a strong desire to communicate and interact with people from different cultural backgrounds (Earley & Ang, 2003). Thus, highly cultural intelligence individual perceive ideas even presented by out-group members not as cognitive stressing yet as increase pool of ideas available for their own creativity effort (see Figure 1, the model C – the moderating effect of CQ on the quadratic relationship between task conflict and creativity). Therefore:

Hypothesis 2a. Cultural intelligence moderates the curvilinear relationship between task conflict and creativity; high levels of cultural intelligence will reduce the negative pressures at high levels of task conflict on creativity.

In addition to lifting the right hand side of the curve, cultural intelligence represents a unique individual factor that also increases creativity at low levels of task conflict. According to the developmental theory of social perspective taking (Selman, 1971), perspective taking is a social cognitive skill that allows one person to deep dive into the alternative points of view on situations as through the eyes of another. In situations with low levels of task conflict, the raw material necessary for creativity, that being variants in ideational inputs, is missing from the work context. CQ allows us to cognitively consider others' problems, situations and viewpoints (Ng, Van Dyne, & Ang, 2009). This allows such individuals to recognize and incorporate potential inputs of others even if they are unspoken. Operating in diverse teams, individuals high in CQ have a ready-made resource to extend their own generative capabilities beyond their singular perspective. Essentially, such individuals are able to better read their diverse work environment, recognizing the social cues and upgrade their generative processes to amend both usefulness and novelty of their ideas (Grant & Berry, 2011).

In addition, when task conflict is low, few ideas are being voiced, creating a context where each idea is more exposed to external evaluation. Culturally intelligent individuals are better able to frame their ideas in connections to their diverse team-members, lowering the risk and thus the apprehension of potential negative evaluation. Furthermore, CQ includes a drive to share and connect with different others (Earley & Ang 2003; Chen, Kirkman, Kim, Farh, & Tangirala, 2010). This may compensate for any suppression of motivation from a free-riding effect. Based on these increases in motivation and informational resources, we believe that CQ

will increase creativity at low levels of task conflict (see Figure 1, the model C – the moderating effect of CQ on the quadratic relationship between task conflict and creativity). Thus:

> *Hypothesis 2b. Cultural intelligence moderates the curvilinear relationship between task conflict and creativity; high levels of cultural intelligence will increase creativity at low levels of task conflict.*

STUDY 1: METHODS

Sample and procedures

Empirical data was collected in October and November 2014 as part of the Pacinno project (Pacinno, 2015) from the Adriatic countries (i.e. Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia, and Slovenia) in order to get a culturally diverse sample. The Pacinno sample consisted of 787 employees nested within 73 groups from 20 diverse, innovative SMEs. A translation and back-translation procedure was used to translate the questionnaire from English to the languages of the analyzed countries and then back to English. In the Pacinno project, we used a company-provided list of all employees in 20 different companies and invited employees to complete a survey either online or in hard copy during or outside their working hours. During the date collection, we provided confidentiality to employees that participated in the survey by identifying them with code names instead of their real names. Data was collected from the employees on the individual level and on the basis of the group/team work unit the employees are a part of.

The participants represented at least eight different nationalities from different countries. (Bosnia and Hercegovina = 13.9%, Croatia = 16.5%, Albania = 12.6%, Italy = 14.4%, Serbia = 8.5%, Greece = 9.4%, Slovenia = 12.7%, Montenegro = 12.1%). In our sample, 61.4% of the participants were male and their average age was 35.86 (SD = 9 years). Of the 787 participants, 34.6% (SD = 0.8) had some college or a bachelor's degree, and 92.8% of the respondents were

fully employed in their organizations (SD = 0.26). The employees have been working at their current place of employment for an average of 6.5 years (SD = 6.64) and have been working with their current supervisor for an average of 4.2 years (SD = 4.05). In the sample, 52.1% (SD = 0.52) of the employees performed managerial duties.

Measures

Unless otherwise noted, seven-point Likert-type scales ranging from 1 ("strongly disagree") to 7 ("strongly agree") were used in the study and were all self-reported by employees.

Cultural intelligence was assessed with a 16-item shortened scale of Ang and Van Dyne (2008b), and the overall cultural intelligence was found to be reliable (α = .95). The questionnaire included items such as "I check the accuracy of my cultural knowledge as I interact with people from different cultures" and "I am sure I can deal with the stresses of adjusting to a culture that is new to me."

Creativity was measured according to a 13-item questionnaire (α = .95) developed by Zhou and George (2001). The employees were asked to assess their behavior and actions within the firm with regard to their ability to come up with new ideas. Questionnaire included items such as "I am a good source of creative ideas" and "I come up with creative solutions to problems."

Task conflict was self-reported and assessed with a 4-item scale developed by Jehn (1995), adapted to reflect the context of diverse teams (α = 0.89). The four-item scale included items such as "To what extent are there differences of opinion with colleagues from different cultural backgrounds regarding the work tasks," and "How frequently are there disagreements about work tasks you are working with colleagues from different cultural background".

Control variables. We controlled for gender, work experience, individualism, uncertain avoidance and knowledge hiding. Individualism was measured by 3-item scale – α = 0.43, and

uncertain avoidance by 3-tem scale – α = 0.89 adopted by Dorfman & Howell (1988) and Triandis & Gelfland (1998). Knowledge hiding was self-assessed with an eight-item shortened scale of Connelly et al. (2012), –α = .95.

Insert Table 1 about here.

STUDY 1: RESULTS AND DISCUSSION

We conducted hierarchical ordinary least-squares (OLS) regression to test our hypotheses if task conflict has a curvilinear impact on creativity and the moderation impact of cultural intelligence on the proposed relationship at the individual level. In Step 1, we first enter the control variable (i.e., gender, work experience, knowledge hiding, uncertain avoidance, and individualism); in Step 2, we added task conflict variable. The results indicate that task conflict is negatively related to creativity (ß = -.09, $p < 0.01$) (see Table 2, Step 2). However when we added task conflict squared (ß = -.11, $p < 0.01$) in Step 3 the task conflict became non-significantly related to creativity (ß = -.04, *nsg*.). Thus, our Hypothesis 1 is supported.

Insert Table 2 about here.

Furthermore, we wanted to test the moderating impact of cultural intelligence on the curvilinear relationship between task conflict and creativity. Thus, we added the interaction effect of task conflict and cultural intelligence in Step 5 and in Step 6 (see Table 2) the interaction effect of task conflict squared and cultural intelligence. The results revealed that cultural intelligence moderates (ß = .11, $p < 0.05$) the curvilinear relationship between task conflict and creativity. Thus, results are supporting Hypothesis 2. To interpret the results of the interaction more precisely, we followed the recommendation of Aiken and West (1991) and plotted the

simple slopes moderating effect of cultural intelligence on task conflict- creativity relationship. The results of the simple slopes are presented in Figure 2. The simple slopes are in line with our Hypothesis 2—that high cultural intelligence reduced the negative association between task conflict and creativity at the individual level.

Insert Figure 2 about here.

These findings provide initial support for our theoretical predictions; we conducted a quasi-experimental study to constructively replicate these findings with a different method, sample, and measure. In addition, we had to test our Hypothesis 2a and 2b.

STUDY 2: METHODS

We conducted an experimental study among international students at a Slovenian and a Norwegian university. The main goal of our experimental study was to establish causal ordering and to test whether cultural intelligence moderates the relationships such that high level of cultural intelligence will reduce the negative pressures at high levels of task conflict on creativity (Hypothesis 2a), and will increase creativity at low levels of task conflict (Hypothesis 2b). Therefore, we manipulated individuals' task conflict (i.e., low, medium, high) in order to capture the effect of underreporting this behavior, and used participants' perceptions of cultural intelligence as a moderator.

Sample, design, and procedures

The data was collected by conducting an experiment with 121 international students who attended an elective course. All students were part of educational programs delivered entirely in English. Participation was voluntary, and the students were assured anonymity. The sample was 57% female and averaged 24 year old. The majority of the participants were from Slovenia

(38%), Norwegian (18%), French (5%), German (5%), Macedonian (5%), Vietnamese (3%), Italian (2.5%), Austrian (2.5) and Serbian (2.5%). The rest of the participates from Europe countries were including from Albania, Belgium, Belorussian, Bosnian and Hercegovina, Croatia, Denmark, Finland, Kosovo, Netherlands, Russia, Spain, DR Congo, and Iran. For our group activities, we calculated the recommended Blau's index of heterogeneity (Blau, 1977; Harrison & Klein, 2007) – *the cultural diversity index* – based on the different nationally diversity of categorical variables, (P*i*)2, where P*i* is the proportion of a team's members in the *i*th category. The average cultural diversity index was 2.60, meaning that, on average, more than two countries were presented in each group of four, while this number ranged from two to four. This justifies our main goal to analyze the relationship between task conflict and creativity in a culturally diverse environment. The experiment employed a three-by-one (i.e., three conditions of task conflict, low, medium, and high), between-subjects factorial design.

We began experimental study by randomly assigning participants into groups of four in one of three task conflict conditions: low task conflict, medium task conflict and high task conflict. We introduced the study by explaining that we were interested observing their creativity process and told them that they would be involved in a series of creative tasks. All participants were first asked to individually create a list of 20 words related to grammar prompts (such as: Verb, Noun, Adjective, Proper Name). The instructions were following:

> *The object of the game is to produce something that sounds totally ridiculous, so don't give yourself a headache searching for hidden truths. As you can see, below you have a bunch of word descriptions followed by blank spaces. First, write your word in the blanks with the appropriate parts of speech (e.g., Verb ____fly____).*

After completing the individual task, they were asked to combine their results with the other members of their team to complete a 'Mad Lib' activity where their words are inserted into a story to generate creative variations. This task has been used to test creative writing skills.

Task conflict manipulations. We introduced our task conflict primes to manipulate the groups mental set as per De Dreu and Nijstad (2008). Each team received specific instructions:

> Low Task Conflict Condition: *Each team fills out only one story (e.g., 4 individuals fill out only one story), **yet using words from each individual**. You must **always fill in the blanks in the same order** (e.g., you start with a word from person A, followed by person B, person C and person D, and then you start again with a word from person A, followed by person B, person C and person D). Have fun and get the most creative story about Stephen Hawking!*

> Medium Task Conflict Condition: *Each team fills out only one story (e.g., 4 individuals fill out only one story), **yet using words from each individual.** Before you fill in the blanks, **you must vote for the most suitable word** in order to get the most creative story about Stephen Hawking. Keep in mind that your votes are equal and so it may be helpful to **explain how you think each of yours word fits best before voting**. Have fun and get the most creative story about Stephen Hawking!*

> High Task Conflict Condition: *Each team fills out only one story (e.g., 4 individuals fill out only one story), **yet using words from each individual**. Before you fill in the blanks, you must discuss which word you will choose in order to get the most creative story about Stephen Hawking. **Keep in mind that the same person cannot fill in the blanks two times in a row.** For example, if your team chooses to fill in the first black using a word from person A, the next word must be from the other three-team members (e.g., person B, person C or person D). **The person with the most words used will get a prize.** Have fun and get the most creative story about Stephen Hawking!*

After participants finished their group tasks, we assessed the perceived *task conflict*. The participants were asked to complete the 4-item questionnaire developed by Jehn (1995) scale (α = 0.79). Answers could be given on 7-point scales ("Please rate the level of conflict that you perceive in your team during the task as 1 = not at all, to 7 = always"). These responses about task conflict served as *manipulation checks.*

Then we wanted to capture individual creativity on an separate task. To capture individual creativity we asked participants to individually complete the Ward (1994) alien drawing task, introduced as such:

> *Imagine going to another galaxy in the universe to visit a planet completely different from earth. The task is to draw an alien in the box below that you would encounter on a planet completely different from earth.*

Individual creativity was assessed by independent raters (i.e., experts in the field of creativity) who assessed the individual alien pictures on a scale from 1 (not at all creative) to 7 (very creative). The rater assesses individual creativity based on the following questions, for example: "How creative is the alien?", "How similar is the alien to Earth creatures?", "The extent to which this participant seemed to take known Earth creatures into account when making her or his drawings?". The questions for raters were also adopted by Ward (1994) experimental task. The two raters achieved good reliability (ICC1 = 0.77, $p < 0.000$), and agreement (average deviation 0.87), which is within conventional guidelines (LeBreton & Senter, 2008). We averaged their ratings into a measure of the individual creativity of each participant.

Finally, we asked participants to self-report *cultural intelligence* items on a 7-point scale ("Please rate the level of your cultural intelligence *1 = strongly disagree*, 7 = *strongly agree*") by using Ang and Van Dyne's (2008) 20-item cultural intelligence questionnaire ($\alpha = 0.85$) which consists of twenty items for cultural intelligence. This served to rate participants' cultural intelligence, our moderating variable. In the experimental study we also control for the process conflict, relationship conflict, group identification, and uncertainty avoidance. As such we asked participants to self-report *relationship conflict* on four item scale ($\alpha = 0.73$) adopted by Jehn (1995) and *process conflict* on three item scale ($\alpha = 0.74$) adopted by Shah & Jehn (1993). *Group identification* was measured on five item scale ($\alpha = 0.72$) adopted by Hogg & Hains (1998) and *uncertainty avoidance* on three item scale ($\alpha = 0.69$) adopted by Dorfman & Howell (1988) and Triandis & Gelfland (1998).

STUDY 2: RESULTS

Means, standard deviations, and correlations for variables used in this study can be found in Table 3. First, in terms of the manipulation check, comparing the group means for the task conflict manipulation on self-reported task conflict ($F[2,118] = 18.73$, $p < 0.000$) is statistically significant. The results indicate support for the validity of the interventions.

Insert Table 3 about here.

We then conducted hierarchical ordinary least-squares (OLS) regression to test our hypotheses. In Step 1, we first enter the control variable (i.e., *uncertainty avoidance*, process conflict, relationship conflict, and group identification); in Step 2, we added task conflict. The results indicate that task conflict is not linearly related to creativity (ß = -.06, *nsg*.) at the individual level (see Table 4, Step 2). However, task conflict squared (ß = -.22, $p < 0.05$) is signficantly related to creativity (see Step 3 in Table 5) in an inverted-U. Thus, our Hypothesis 1 is supported.

Insert Table 4 about here.

Furthermore, we wanted to test the Hypothesis 2a in 2b therefore, we added the interaction effect of square task conflict and cultural intelligence. The results revealed that cultural intelligence moderates (ß = .37, $p < 0.05$) the curvilinear relationship between task conflict square and creativity (see Step 5 in Table 4). Thus, results are supporting Hypothesis 2a and 2b. We plotted the simple slopes at high CQ (+1sd) and low CQ (-1sd) in Figure 3 to show how cultural intelligence moderates the relationship of task conflict on creativity.

Insert Figure 3 about here.

A visual inspection of Figure 3 illustrates how task conflict is non-linearly related to creativity at the individual level in a curvilinear fashion (inverted-U-shaped). Moreover, the simple slopes reveled that high CQ individuals will be more creative when they perceive either low or high level of task conflict in a cultural diverse environment that those with low CQ. When individuals perceived the medium level of task conflict CQ does not have much of the effect on the individual production of the creative ideas.

DISCUSSION

The nature of the relationship between task conflict and creativity is as yet unclear as such our aim was to examine was to unpack the team level findings down to the individual level by exploring the boundary conditions where at high and low levels - task conflict appears to limit individual creativity. Additionally, we found that cultural intelligence, as individual level factor, reduces this curvilinear effect and fuels individual creativity when low and high levels of task conflict emerge in a culturally diverse working environment. Across two studies (a field study and experimental study) we found that task conflict is related to creativity at the individual level in a curvilinear (inverted-U-shaped) manner in a similar fashion as team creativity. In both cases, creativity is the highest when task conflict is moderate. In addition, these studies provide consistent results showing that the cultural intelligence has a moderating effect on the curvilinear relationship between task conflict and creativity at the individual level. Moreover, when task conflict is either low or high, cultural intelligence has a positive relationship to individual creativity. As such, these findings offer meaningful theoretical contributions to the literature on creativity, task conflict, and cultural intelligence.

Theoretical contributions

Our findings offer support for the contingent nature of the relationship between experienced task conflict as perceived by group members and individual creativity. This approach

offered theoretical contributions to how group environmental dynamics might influence individual creative performance. As previous research has examined this relationship at the team level (De Dreu 2006; Farh, Lee, & Farh, 2010), questions still remain as to where these effects come from: individual effects or emergent team process effects. While our work cannot discount team emergent effects, we have shown that an individual's perceived task conflict with work groups can have a strong and consistent effect on individual creativity.

In an effort to explain the complex relationship between individual creativity and task conflict, we utilized three mechanisms (production blocking, evaluation apprehension, and free-riding) from the brainstorming literature. Organizational scholars have long theorized that higher levels of diverse input (task conflict) can increase the pool of ideas available to a creative effort. When individuals experience higher level task conflict they are usually exposed to a variety of opinions and viewpoints that should increase the pool of ideas an individual may use a combinatory fuel to generate new and useful ideas (e.g., Amabile, 1996; Campbell, 1960; Osborne, 1953; Staw, 1990). However, when surrounded by a range of diverse point of views, individual creativity can be impeded by production blocking, evaluation apprehension and free-riding (Deihl & Stroebe, 1987), as these group process effects may trigger an overload of choice (Iyengar & Lepper, 2000) or cognitively constraint an individual's time and attention on a creative task (Kurtzberg & Amabile, 2001). Thus, we seek to answer the calls (De Dreu, 2008; Fairchild & Hunter, 2014; Hülsheger, et al., 2009) for more detail investigation under which specific circumstances task conflict can be beneficial for individual creativity. Theoretically, connecting individual perceptions of contextual group dynamics (task conflict) to subsequent individual creative productivity we stretch these mechanisms beyond the purely group context to individual creative efforts outside and after a group interaction.

Finally, by considering how cultural intelligence moderates the complex relationship between creativity and task conflict, we see to further connect this individual difference to important organizational issues. Task conflict is often seen as a product of diverge group interactions (Jehn, 1995), whereas cultural intelligence is the ability to operate under these very conditions (Ang & Van Dyne, 2008). Theory and research on creativity emphasize that environmental factors are decisive for stimulating individual creativity (e.g., Amabile, 1983; Amabile, Conti, Coon, Lazenby, & Herron, 1996), yet to date limited attention has been devoted to a cultural intelligence in the work environment. The assumption has been that cultural diversity can stimulate individual creativity by exposing individuals to disparate knowledge, information, ideas, and perspectives (Chua, 2013; Chua, et al., 2012; Pelled, Eisenhardt, & Xin, 1999), yet cultural diversity in the work environment can diminish creativity due to misunderstandings and the social categorization processes on in-group and out-group members (Tajfel & Turner, 1979; Turner, 1985). The results we found not only removed some of the negative pressures at high levels of task conflict but also added some capability to the lower end of task conflict through the consideration of social perspective taking (Selman, 1971). Our perspective is that by showing that cultural intelligence can not only reduce the negative pressures of high levels task conflict but can add creative capability to individuals even at low levels of task conflict, we are adding a critical individual difference variable to the consideration of creativity and adding support that creativity is an important outcome variable to discussion on cultural intelligence. We thus show how this individual capability (CQ) influences the effects of a group phenomenon (task conflict) on individual performance (creativity). Furthermore, by providing evidence that cultural intelligence simulates creativity in low or high task conflict culturally diverse environment, we answer the recent call to more deeply investigate antecedents and barriers to effective intercultural creative work (Anderson, et al., 2014; Chua, et al., 2012).

Practical implications

In today's uncertain and diverse work environments, organizations use employee creativity as a potential resource for organizational innovations (George, 2007; Shalley & Gilson, 2004). With this research we demonstrate how cultural intelligence can influence individual creative capabilities with culturally diverse environments. At all levels of task conflict, study participants performed at equal or higher levels when they had great levels of cultural intelligence. In a work environment growing increasingly diverse, cultural intelligence will be a critical individual difference to for human resources to consider, particularly in roles where creativity is desired capability. Managers and leaders may want to provide employees with supportive conditions (e.g. training, role-playing, cross-cultural contact, working abroad) that may stimulate and accelerate the development of individual cultural intelligence (Chen, Liu, & Portnoy, 2012; Erez et al., 2013).

Limitations and suggestions for future research

The studies we conducted provide evidence for the generalization of the effects hypothesized through the use of culturally diverse participant samples. However, these samples are heavily biased toward European populations. It would be helpful to conduct studies with an even broader population of workers/ participants. By testing our hypothesis in two samples and using two designs helps provide some robustness to our findings, there are still limitations to each of our studies. The survey design in study one is limited due to the single source nature of the survey. We did attempt to account for common method bias in the structure of the questionnaire design and in post-hoc analysis but this is still a consideration for future researcher to attempt to develop studies using multi-sourced designs. Furthermore, the sample used in the experimental study were primarily non-native English speakers and the survey instruments were exclusively in English. While these participants were randomly assigned and all had multiple years of

experience operating in an English only educational environment we cannot be sure that variations in language ability may not have influenced our results with respect to felt task conflict. Future researchers may attempt to include non-language based activities for their experimental designs.

There may be a host of factors that might influence the relationship between task conflict and creativity (De Dreu & Weingart, 2003; Farh, Lee, & Farh, 2010; Hülsheger, Andersen, & Salgado, 2009), focusing on cultural intelligence, we limited this study to just one potentially important factor. We have emphasized how cultural intelligence is related to the relationship between task conflict and creativity, but there are also other factors that may influence this relationship. For example, research findings associated cultural intelligence and creativity with constructs such as emotional intelligence, cognitive ability, participative safety and openness to experiences that have been also associated with creativity (Amabile, Hadley, & Kramer, 2002; Baer & Oldham, 2006; Fairchild & Hunter, 2014). Therefore, our suggestion is that in order to get a more holistic picture, future studies should explore a more complex model when examining the relationship between task conflict and creativity.

Conclusion

With these studies, we try to extend our understanding of how task conflict relates to individual creativity. We found that task conflict is related to creativity at the individual level in a curvilinear (inverted-U-shaped) manner, as such that creativity is the highest when task conflict is moderate. Moreover, we showed that when task conflict is either low or high, high levels of cultural intelligence result in higher levels of creativity. Thus, our research shows that, higher levels of cultural intelligence appears to mitigate the negative effects of both low and high task conflict on individual creativity in a culturally diverse environments.

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TABLE 1

Study 1: Descriptive Statistics and Correlations among variables used in research

Variable		Mean	s.d.	1	2	3	4	5	6	7	8
1	Gender [c]	1.6	.49	1							
2	Work experience	6.57	6.64	-.00	1						
3	Individualism	4.47	1.28	-.00	-.01	1					
4	Uncertain Avoidance	5.42	1.56	-.04	-.06	.42**	1				
5	Knowledge hiding	2.29	1.71	-.08*	.01	-.35**	-.49**	1			
6	Cultural intelligence	4.55	1.24	-.00	.02	.30**	.30**	-.43**	1		
7	Task conflict	3.24	1.14	.00	-.07*	.09*	.11**	.11**	-.19**	1	
8	Creativity	4.67	1.33	.08*	.02	.31**	.28**	-.40**	.52**	-.05	1

[a]n=787. [b] Coefficient alphas are on the diagonal in parentheses. [c] For gender, 1= "female," 2= "male". *p < .05, **p<. 01, ***p < .001.

TABLE 2: Study 1: Hierarchical ordinary least-squares regression

	Step 1				Step 2				Step 3				Step 4				Step 5				Step 6			
ble	b	s.e.	β	t	b	s.e.	β	t	b	s.e.	β	t	b	s.e.	β	t	b	s.e.	β	t	b	s.e.	β	t
Constant	3.45	.31		10.87***	3.28	.32		10.18***	3.37	.32		10.47** *	3.66	.29		12.56***	3.64	.29		12.51***	3.70	.29		12.69***
Gender[b]	.17	.08	.06	1.97*	.18	.08	.07	2.06*	.17	.08	.06	1.96*	.19	.07	.07	2.52*	.20	.07	.08	2.62**	.20	.07	.08	2.64**
Work experience	.00	.00	.04	1.24	.00	.00	.03	1.02	.00	.00	.03	.96	.00	.00	.02	.75	.00	.00	.02	.71	.00	.00	.02	.77
Individualism	.21	.03	.20	5.51***	.22	.03	.21	5.72***	.22	.03	.21	5.83***	.12	.03	.12	3.64***	.12	.03	.11	3.45**	.11	.03	.11	3.33**
Uncertain avoidance	.07	.03	.08	2.19*	.09	.03	.10	2.64**	.09	.03	.10	2.72**	.06	.03	.07	1.95	.06	.03	.07	2.11*	.06	.03	.07	1.91
Knowledge hiding	-.23	.03	-.30	-7.74***	-.21	.03	-.27	-6.87***	-.21	.03	-.27	-6.91***	-.11	.02	-.14	-3.94***	-.11	.02	-.15	-4.05***	-.12	.02	-.16	-4.27***
Task conflict					-.10	.03	-.09*	-2.80	-.05	.04	-.04	-1.27	.01	.03	.01	.30	.01	.03	.01	.39	.03	.04	.03	.85
Task conflict^2									-.07	.02	-.11	-3.02**	-.02	.02	-.03	-1.14	-.00	.02	-.01	-.31	.00	.02	.00	.19
Cultural intelligence													.45	.03	.44	12.41***	.45	.03	.43	12.31***	,39	.04	.38	8.71***
Interaction effects:																								
Task conflict x Cultural intel.																	.04	.02	.05	1.65	.00	.02	.00	.18
Task conflict^2 x Cultural intel.																					.031	.01	.11	2.16*
R^2				0.227***				0.236**				0.246**				0.386***				0.388				0.393*
Adjusted R^2				0.222***				0.229**				0.239**			0.379***					0.380				0.384*
F (*df*)			40.056 (5, 681)				7.888 (1, 680)				9.170 (1, 679)				154.232 (1, 678)				2.746 (1, 677)				4.702 (1, 676)	
ΔR^2				0.227***				0.009**				0.010**				0.140***				0.002				0.004*

[a]n = 787. Values in bold are relevant to tests of hypotheses. [b]For gender, 1= "female," 2= "male". *p < .05, **p<. 01, ***p < .001.

TABLE 3

Study 2: Descriptive Statistics and Correlations among variables used in research [a,b]

Variable		Mean	s.d.	1	2	3	4	5	6	7
1	Uncertainty avoidance	4.89	1.12	1						
2	Relationship conflict	1.51	.69	.03	1					
3	Process conflict	1.45	.63	-.02	.56**	1				
4	Group identification	5.05	.99	.16	-.21*	-.17	1			
5	Cultural intelligence	4.96	.66	.04	-.08	-.08	.11	1		
6	Task conflict	1.77	.79	.03	.65**	.59**	-.22*	.01	1	
7	Creativity	4.12	128	.14	.02	-.11	-.00	.19*	.00	1

[a]n=121. [b] Coefficient alphas are on the diagonal in parentheses. *p < .05, **p<. 01, ***p < .001.

TABLE 4

Study 2: Hierarchical ordinary least-squares regression

	Step 1				Step 2				Step 3				Step 4				Step 5			
Variable	**b**	**s.e.**	**β**	**t**	**b**	**s.e.**	**β**	**t**	**b**	**s.e.**	**β**	**t**	**b**	**s.e.**	**β**	**t**	**b**	**s.e.**	**β**	**t**
Constant	3.78	.83		4.55***	3.66	.85		4.28***	4.65	.95		4.86***	4.71	.94		4.99***	4.61	.92		4.97***
Uncertainty avoidance	.18	.10	.16	1.72	.18	.10	.16	1.78	.16	.10	.14	1.52	.15	.10	.13	1.46	.17	.10	.15	1.67
Relationship conflict	21	.20	.11	1.04	.25	.21	.14	1.18	.25	.20	.14	1.21	.28	.20	.15	1.37	.25	.20	.14	1.25
Process conflict	-.39	.21	-.19	-1.79	-.38	.22	-.19	-1.76	-.40	.21	-.20	-1.88	-.38	.21	-.19	-1.81	-.39	.20	-.19	-1.87
Group identification	-.05	.12	-.04	-.46	-.05	.12	-.04	-.44	-.13	.12	-.10	-1.09	-.15	.12	-.12	-1.28	-.14	.12	-.11	-1.17
Task conflict					-.09	.15	-.06	-.62	-.21	.15	-.14	-1.35	-.24	.15	-.15	-1.52	-.24	.15	-.16	-1.57
Task conflict^2									**-.58**	**.26**	**-.22**	**-2.16***	**-.56**	**.26**	**-.21**	**-2.13***	**-.57**	**.26**	**-.22**	**-2.19***
Cultural intelligence													.37	.17	.19	2.17*	-.19	.30	-.10	-.63
Interaction effects																				
Task conflict x Cultural intel.													-.11	.20	-.05	-.59	.09	.22	.04	.44
Task conflict^2 x Cultural intel.																	**.81**	**.36**	**.37**	**2.21***
R^2				0.054				0.058				0. 096*				0.139'				0.176*
Adjusted R^2				0.021				0.015				0.047*				0.075				0.107*
F (*df*)				1.622 (4, 113)				1.368 (1, 112)				1.958 (6, 111)				2.193 (8, 109)				2.565 (9, 108)
ΔR^2				0.054				0.003				0.038*				0.043'				0.037*

[a]n = 121. Values in bold are relevant to tests of hypotheses. ‘p < .07, *p < .05, **p<. 01, ***p < .001.

FIGURE 1:

Conceptual model of relationships between Task Conflict - Creativity and impact of Cultural Intelligence on proposed relationship

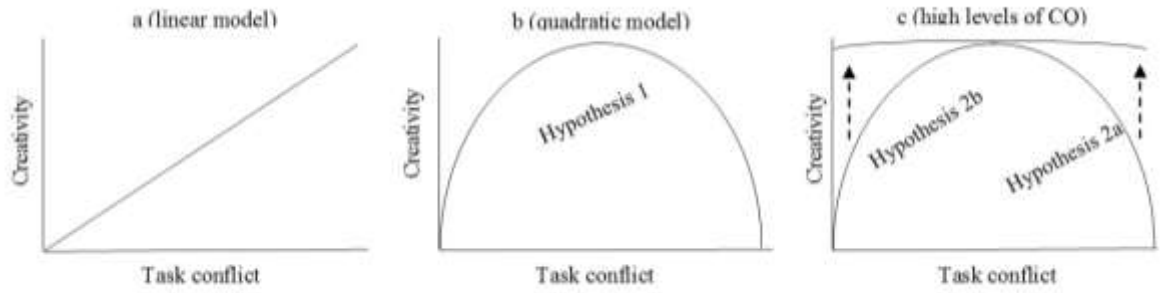

FIGURE 2

Study 1 - The moderating effect of individual cultural intelligence on task conflict - creativity relationship

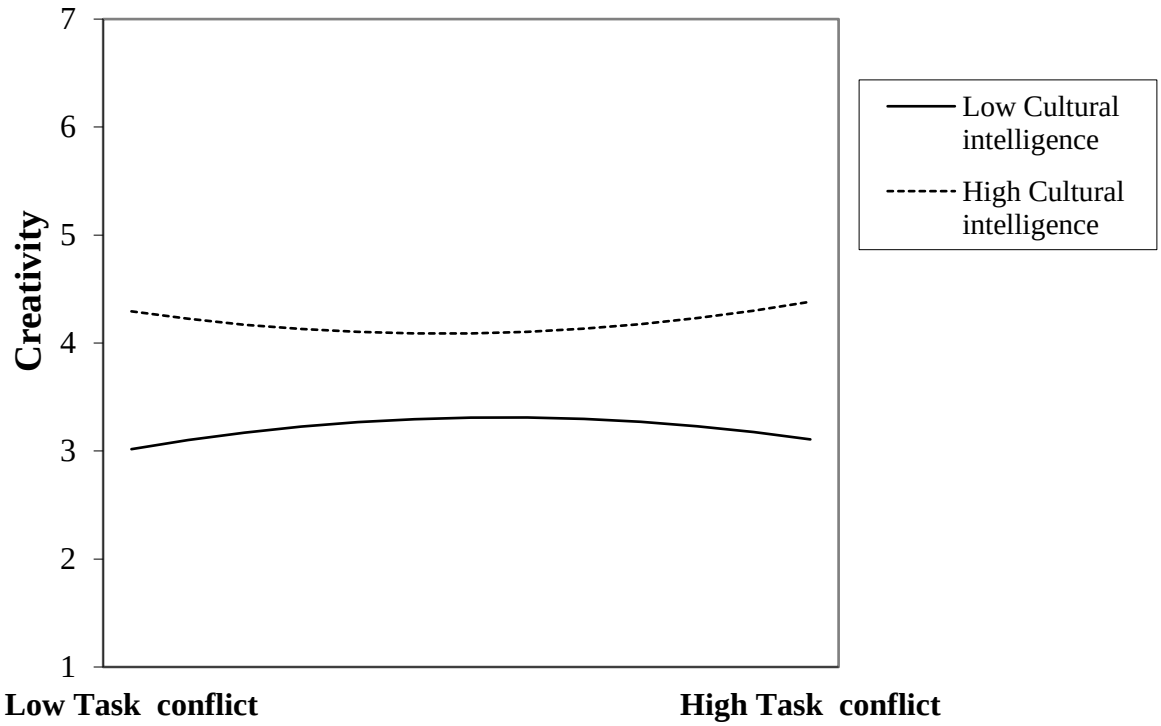

Figure 3

Study 2 - The moderating effect of individual cultural intelligence on task conflict - creativity relationship