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The Personality Composition of Teams and Creativity: The Moderating Role of Team Creative Confidence

ABSTRACT

We examined the possibility that teams composed primarily of individuals with personality characteristics conducive to team creativity (e.g., high extraversion, high openness to experience, low conscientiousness, high neuroticism, low agreeableness) would show synergistic increases in creativity when they experienced high levels of “team creative confidence”, a shared understanding that the team is more creative than each team member individually. We tested these hypotheses using a sample of 145 three-student teams that worked on a set of idea generation tasks at Time 1 (T1) and a second set two weeks later at Time 2 (T2). As expected, results of cross-lagged regression analysis indicated that when team creative confidence at T1 was high, team creativity at T2 increased quadratically as the number of team members who scored high on extraversion, high on openness, or low on conscientiousness increased. However, the number of individuals composing a team who scored high on neuroticism or low on agreeableness had no relation to team creativity under conditions of high or low team creative confidence. Implications of these results for the design of creative teams are discussed.

INTRODUCTION

Organizations are increasingly relying on the use of teams (Lawler, Mohrman, & Ledford, 1995; Sundstrom, 1999). For example, a recent study by Devine, Clayton, Philips, Dunford, and Melner (1999) showed that nearly half of a random sample of U. S. organizations used some type of team. Among the tasks most frequently performed by these teams were problem solving and new product development, both of which require substantial amounts of creativity. The increasing popularity of teams designed to generate creative ideas is partially attributable to the general assumption that teams promote creative synergies resulting in the production of ideas that members could not have generated individually.

Unfortunately, researchers know very little about how organizations should compose teams in order to reap the creative, synergistic benefits expected from their use (Pirola-Merlo & Mann, 2004; Taggar, 2001; West & Anderson, 1996).

We define team creativity as the extent to which teams develop ideas about products, processes, or procedures that are both novel and potentially useful (Amabile, 1996; West, 2002). Numerous investigators have emphasized the role of personality as an important composition variable in teams — particularly with respect to team creativity (Buchanan, 1998; Driskell, Hogan, & Salas, 1987; Moynihan & Peterson, 2004; Reilly, Lynn, & Aronson, 2002). Among the personality taxonomies proposed in the literature, the Big Five framework (Fiske, 1949; Goldberg, 1981; Norman, 1963), a hierarchical model of five broad personality dimensions (extraversion, openness to experience, conscientiousness, neuroticism, and agreeableness), has recently gained widespread acceptance and has become the most widely used model of personality (see John & Srivastava, 1999). Hence, we adopt this framework in our attempt to examine the relation between the personality composition of teams and creativity.

Previous research and theory suggest that teams composed of members with different levels of each of the five personality dimensions have the potential to exhibit high team creativity (Buchanan, 1998; Driskell et al., 1987; Gelade, 1997; Robert, Cheung, & Trembath, 2004). Specifically, and as discussed in greater detail in the paragraphs to follow, while some theorists suggest that composing teams of individuals high on extraversion or openness to experience may spur elevated levels of creativity (Driskell et al., 1987), others have highlighted the importance of assembling teams composed primarily of individuals low on conscientiousness (Moynihan & Peterson, 2004; Robert et al., 2004). Still other research suggests that agreeableness and neuroticism may be relevant when composing teams that have the potential to produce creative ideas (Gelade, 1997; Goncalo & Staw, 2006). Unfortunately, to date, few studies have systematically examined the link between these five personality characteristics and creativity in teams (Barry & Stewart, 1996; Buchanan, 1998). The present research was designed to address this gap in the literature.

Although teams with certain personality compositions may have the potential to exhibit high levels of creativity (Driskell et al., 1987; Kurtzberg, 2005), previous theory suggests that such compositional benefits may only result in creative synergies when team members engage in collective idea generation efforts (Brown, Tumeo, Larey, & Paulus, 1998; Paulus, 2000). When members engage in such efforts, they are more likely to attend to and value the ideas presented by others, which, in turn, may stimulate members to generate new associations in areas they did not previously consider, allow them to build on others' contributions, or to combine others' ideas with ideas of their own (Brown et al., 1998; Hargadon & Bechky, 2006; Mednick, 1962). To the extent that such idea cross-fertilization allows teams to produce ideas that go beyond those that could have been generated by members individually, creative synergies are likely to emerge (Kurtzberg & Amabile, 2001).

We expect individuals to be more inclined to engage in collective idea generation efforts and, as a consequence, to attend to and value the ideas generated by others, when they share a mutual understanding that developing ideas as a team is more productive than doing so individually. Thus, “team creative confidence” – the shared understanding that the team is more creative than each team member individually – may be an important condition for teams to experience creative synergies.

Previous research suggests that creative synergies result in quadratic, curvilinear increases rather than additive, linear increases in team creativity (see Taggar, 2001). A linear rate of increase in creativity would be expected when members of a team generate ideas independently of each other and then pool their ideas to derive a team creativity score. Since there are no opportunities for idea cross-fertilization and, hence, creative synergies to emerge, team creativity should merely be the sum of the individual contributions resulting in an additive, linear relation between the number of individuals composing the team and team creativity.

By contrast, when individuals are stimulated to generate new associations and build on one another’s contributions, perhaps as a function of the presence of team members with certain personality traits as well as high levels of creative confidence, creativity may exceed the sum of the individual contributions as the team is now able to produce ideas that go beyond those that could have been developed by members individually. Hence, the presence of members with certain personality characteristics under conditions of high team creative confidence may result in *added benefits* that go beyond what is captured by a linear model. Such creative synergies should be reflected in multiplicative, curvilinear increases in creativity. And, according to Taggar (2001), the shape of such a multiplicative curve will be best approximated by a quadratic function. Thus, to capture these synergistic effects and to account for the potential moderating role of team creative confidence, we examined quadratic, curvilinear relations between the number of members possessing personality characteristics expected to be conducive to team creativity and a team’s actual creativity, as well as the extent to which these relations were shaped by team creative confidence.

THE PERSONALITY COMPOSITION OF TEAMS AND THE POTENTIAL FOR CREATIVE SYNERGIES

Member Extraversion

Extraverts have been described as sociable, talkative, and self-assured (Costa & McCrae, 1992). As a result, extraverts should not only be comfortable interacting with others but also be relatively uninhibited by fears of being evaluated or criticized by others (Feist, 1998; Thoms, Moore, & Scott, 1996).

For teams to experience creative synergies, members should be comfortable sharing their ideas. Without being exposed to the contributions presented by others, it is unlikely that members will produce ideas different from those they may have generated individually. Unfortunately, individuals in teams frequently

withhold their ideas out of fear of being negatively evaluated (Camacho & Paulus, 1995; Collaros & Anderson, 1969). New ideas, especially those that depart from the status quo, are often met by others with skepticism or ridicule presenting potential threats to one's self-esteem and causing individuals to withhold such ideas. However, this tendency is more likely to occur among individuals who feel uncomfortable interacting in social settings, who lack self-assurance, and who tend to experience high levels of communication apprehension (Bradshaw, Stasson, & Alexander, 1999; Camacho & Paulus, 1995; Jablin, Seibold, & Sorenson, 1977) — characteristics describing low levels of extraversion. Individuals who are confident, sociable, and talkative (i.e., extraverted) may, therefore, be more likely to share their ideas with others in the team, thereby creating the conditions necessary for idea cross-fertilization to occur. Thus, teams that are composed primarily of individuals *high* on extraversion may be more likely to possess the potential to experience creative synergies.

Member Openness to Experience

Open individuals are generally described as broad minded, curious, imaginative, original, and untraditional (Costa & McCrae, 1992; McCrae, 1987). Moreover, they are not only characterized by a need to seek out unfamiliar situations allowing for greater access to new experiences and perspectives, but also by a permeable structure of consciousness allowing for better absorption and combination of new and unrelated information (McCrae & Costa, 1997).

For teams to be creative beyond what their individual team members may be able to achieve, individuals not only have to generate creative ideas but they also have to effectively build on each other's contributions, thereby allowing creative synergies to emerge. Because open individuals have a greater access to varied perspectives and an enhanced ability to absorb and combine new and unrelated information, they should be particularly effective at both the generation and cross-fertilization of ideas. Specifically, while access to different perspectives and experiences likely allows individuals to generate creative responses to problems, being able to absorb and combine different ideas should enhance individuals' abilities to use others' contributions, ultimately resulting in the development of highly creative ideas (Buchanan, 1998; Chirumbolo, Mannetti, Pierro, Areni, & Kruglanski, 2005; Conway, 1967). Thus, teams composed primarily of individuals *high* on openness to experience should be more likely to possess the potential to experience creative synergies.

Member Conscientiousness

Earlier research suggests that conscientiousness includes at least two components: *achievement* and *dependability* (Costa & McCrae, 1992, Costa, McCrae, & Dye, 1991). The achievement component reflects an individual's feelings of competence and desire for success — characteristics suggested to result in elevated levels of task motivation and performance (Barrick & Mount, 1991; Judge & Ilies, 2002). The dependability component captures characteristics such as

orderliness, dutifulness, and deliberation, which tend to be associated with reduced spontaneity and a greater tendency to adhere to established thought patterns or ways of doing things (Costa et al, 1991; LePine, 2003). A recent meta-analysis, however, demonstrated that dependability may be the primary driver of conscientiousness with the achievement component having a relatively negligible influence (Dudley, Orvis, Lebiecki, & Cortina, 2006). Thus, highly conscientious individuals are more accurately described by a tendency to engage in systematic and rigid task strategies and by a tendency to adhere to established ways of thinking and doing things (dependability) rather than by a propensity to exert high levels of task-directed efforts (achievement).

This suggests that highly conscientious team members should be unlikely to capitalize on opportunities to engage in idea cross-fertilization, thereby reducing a team's potential to experience creative synergies. Cross-fertilization not only requires individuals to continuously modify their ideas by combining them with those suggested by other members, but also to occasionally abandon their ideas in favor of alternative contributions. Such activities, however, should be especially challenging to individuals scoring high on conscientiousness who rigidly adhere to already agreed upon ways of thinking and doing things (LePine, 2003; Waung & Brice, 1998). Therefore, we expect teams primarily composed of individuals *low* on conscientiousness to take advantage of opportunities to engage in the cross-fertilization of ideas and, as a consequence, to possess the potential to experience creative synergies (Robert et al., 2004).

Member Neuroticism

Neurotic individuals are primarily characterized by a tendency to experience negative affective states. In addition, neurotic people tend to be more hostile and less able to control their impulses than more emotionally stable individuals (Costa & McCrae, 1992; Gelade, 1997). Although individuals who are hostile and impulsive have been shown to undermine the social fabric of teams (Barrick, Stewart, Neubert, & Mount, 1998; Haythorn, 1953), they may also be more likely to provide others with candid feedback and opinions regarding their ideas.

For teams to experience creative synergies resulting from the cross-fertilization of ideas, team members should not be afraid to confront others and to provide honest feedback regarding their ideas. Without constructive controversy among members and the questioning of the generated ideas, much of the creative potential of a team may remain untapped as teams settle for ideas that are relatively mundane and that everyone can agree upon (McGrath, 1984). Because impulsive and antagonistic members are more likely to challenge others' ideas and provide candid feedback, they may be able to stimulate additional idea generation processes or cause members to further elaborate on their ideas, thereby increasing a team's creativity.

Previous theory and research provide some support for these arguments. Earlier work in the area of conflict, for example, suggests that a moderate amount of task conflict (i.e., conflict of ideas or about the nature of the task) may serve to

enhance creative problem solving in groups by stimulating the production of divergent opinions and viewpoints, especially if this conflict occurs during the middle and latter stages of a team's life cycle (De Dreu, 2006; Jehn, 1995; Jehn & Bendersky, 2003). In addition, research on the expression of minority views provides evidence regarding the value of "authentic dissent" in stimulating creativity (Nemeth, 1995; Nemeth, Brown, & Rogers, 2001). This work suggests that creativity in teams is likely to flourish when individuals honestly express, confront, and explore their differing viewpoints. For example, Nemeth, Personnaz, Personnaz, and Goncalo (2004) compared traditional brainstorming instructions, including the advice not to criticize, with instructions encouraging members to debate and criticize each others' contributions. Their results demonstrated the superiority of the debate instructions in terms of the number of ideas generated by groups. The focus of this work is on the expression of dissent and criticism that arise from true differences in perspectives and viewpoints rather than on hostile attacks that result from interpersonal incompatibilities. Although we acknowledge that even authentic dissent may carry the potential to result in interpersonal animosities, we expect the benefits of individuals honestly expressing, confronting, and exploring their differing viewpoints to outweigh the potential negative consequences associated with such spill-over effects, at least with regard to the generation of creative ideas.

The above arguments suggest that teams composed of members who are likely to criticize others' ideas and to provide candid feedback, that is, individuals *high* on neuroticism, should possess the potential to experience creative synergies.

Member Agreeableness

Agreeable individuals are generally described as helpful, trusting, friendly, and willing to cooperate in conflict situations. Disagreeable people, by contrast, because they tend to be less sympathetic and altruistic, are often characterized as being less compliant and less willing to resolve or avoid conflict (Costa & McCrae, 1992; Costa et al., 1991). Similar to neurotic team members, individuals who are uncooperative and resistant have been shown to jeopardize smooth team functioning (Barrick et al., 1998). However, disagreeable people may also be more likely to voice their criticism and discontent with ideas suggested by other team members and less likely to avoid any potential conflict resulting from such confrontations.

We argued earlier that for teams to experience creative synergies team members should not be afraid to question or critique others' ideas in an effort to improve the idea generation process. Similar to neurotic team members, we expect disagreeable members to be more likely to voice their criticisms and, as a result, to stimulate additional idea generation processes and cause members to fully elaborate on their ideas, thereby, increasing a team's creativity. Thus, we expect teams primarily composed of individuals *low* on agreeableness to possess the potential to experience creative synergies.

THE MODERATING ROLE OF TEAM CREATIVE CONFIDENCE

The concept of team creative confidence is related to the concepts of team potency and collective efficacy (Bandura, 1986; Guzzo, Yost, Campbell, & Shea, 1993; Prussia & Kinicki, 1996; Sosik, Avolio, & Kahai, 1997) and refers to team members' shared understanding that, given a history of performance, the team as a collective is more effective at creative idea generation than its individual members. Team creative confidence is similar to collective efficacy in that it is analytically narrow — its focus is on the shared understanding that the team is more creative than each member individually (Shamir, 1990). Team potency, by contrast, is a more generalized belief concerned with the performance of a team across a range of tasks (Guzzo et al., 1993). However, similar to team potency, team creative confidence refers to a *shared understanding* that the team is effective. Collective efficacy, by contrast, concerns an individual's beliefs not necessarily held or shared by other members of the team (Guzzo et al., 1993; Shamir, 1990).

As suggested by Bandura (1997), a shared belief regarding a team's collective ability to successfully engage in a certain task determines not only the level of effort team members exhibit when performing that task but also the extent to which they persist in their endeavors and, as such, represents one of the most important influences on individuals' work motivation (Bandura, 1986; Stajkovic & Luthans, 1998). Analogically, it can be argued that a shared understanding regarding a team's collective ability to produce creative ideas (i.e., high team creative confidence) may enhance team members' motivation to engage in collective idea generation efforts thereby stimulating the generation of new associations or combinations of different perspectives. In support of this logic, Shin and Zhou (2007) argued that team members who believe in the team's creative capacity are more likely to actively exchange their ideas and to combine them into something new and potentially useful.

Thus far we have argued that teams composed primarily of high extraversion, high openness, low conscientiousness, high neuroticism, or low agreeableness members possess the potential to engage in idea cross-fertilization and to experience creative synergies. However, previous theory (e.g., Brown et al., 1998; Paulus, 2000) suggests that for teams to realize their synergistic potential, they have to engage in collective idea generation efforts. Without individuals carefully attending to and valuing the contributions of other team members, the benefits associated with teams composed of individuals with personality characteristics conducive to team creativity are not likely to materialize. As noted earlier, members of a team should be more inclined to put effort into producing ideas collectively rather than as separate individuals and, as a consequence, attend to the ideas presented by others, when they share a mutual understanding that generating ideas as a team is more productive than doing so individually. Thus, we expect increasing numbers of high extraversion, high openness, low conscientiousness, high neuroticism, or low agreeableness members composing a team to be associated with

quadratic, synergistic increases in team creativity only when teams are high on creative confidence.

In particular, high levels of idea sharing associated with teams composed of highly extraverted individuals are unlikely to stimulate the development of new associations unless members attend to and value the ideas that other members contribute to the team discussion — both of which are associated with team creative confidence. Although high openness team members may be particularly effective at building on others' contributions, engaging in such activities requires that individuals collectively believe in the creative effectiveness of their team. Only under such circumstances is it expected that team members will carefully attend to the ideas brought forward by their teammates and consider such contributions as viable inputs to their own generative processes. Team members low on conscientiousness may be more inclined to revise their ideas by combining them with those of other members or to abandon them altogether in favor of alternative contributions. However, such an inclination will only result in the emergence of creative synergies when members are willing to attend to and seriously consider others' contributions, that is, when they are confident in the creative effectiveness of their team. Finally, neurotic and disagreeable team members have been argued to provide others with candid feedback or voice their criticism thereby stimulating debate and additional idea generation processes. However, we expect such synergistic effects to emerge only when team members share a mutual understanding that developing ideas as a team is more productive than doing so individually and, as a consequence, take an interest in the ideas developed by others in the team.

Previous research provides some indirect support for the notion that team creative confidence moderates the relation between team personality composition and team creativity. For example, results of two studies conducted by Dugosh, Paulus, Roland, and Yang (2000) showed that cognitive stimulation, a necessary condition for creative synergies to emerge, occurred only when the motivation to attend to others' ideas was high — achieved by instructing members to memorize the ideas for a later recall test.

As noted earlier, creative synergies are most accurately described by quadratic, curvilinear increases in creativity rather than additive, linear increases (Taggar, 2001). Thus, we hypothesize that team creative confidence will moderate the curvilinear relations between the number of high extraversion, high openness, low conscientiousness, high neuroticism, or low agreeableness members composing a team and team creativity.

Hypothesis 1: Team creative confidence will moderate the curvilinear relation between extraversion and team creativity such that when confidence is high, creativity will increase quadratically as the number of high extraversion members increases.

Hypothesis 2: Team creative confidence will moderate the curvilinear relation between openness to experience and team creativity such that when

confidence is high, creativity will increase quadratically as the number of high openness members increases.

Hypothesis 3: Team creative confidence will moderate the curvilinear relation between conscientiousness and team creativity such that when confidence is high, creativity will increase quadratically as the number of low conscientiousness members increases.

Hypothesis 4: Team creative confidence will moderate the curvilinear relation between neuroticism and team creativity such that when confidence is high, creativity will increase quadratically as the number of high neuroticism members increases.

Hypothesis 5: Team creative confidence will moderate the curvilinear relation between agreeableness and team creativity such that when confidence is high, creativity will increase quadratically as the number of low agreeableness members increases.

METHOD

Research Setting and Participants

Participants were 507 undergraduate students from an introductory management course at a large university. Although all students attended the same course, because of the class size, they were generally not acquainted with one another. Participants were randomly assigned to 169 three-person teams to work on eight idea generation tasks across two sessions. Teams were composed of the same members in both sessions. Since we required that all three members of the teams be present at both task sessions, a total of 147 of the initial 169 teams were retained in our analyses. The average age of participants was 20 years and 44 percent were women. In addition, 98 percent of the participants indicated that they had held a job prior to entering college, and 16 percent described their job as managerial in nature (e.g., movie theater supervisor, restaurant manager). All participants received extra credit toward their final grade in the course. The five teams that generated the most creative solutions across all tasks were awarded cash prizes of \$75.

Procedure and Tasks

Before working on the tasks, participants completed a web-based survey assessing personality, demographic and background information. Participants then worked on two sets of tasks separated by a two-week interval. The first set of tasks (T1) consisted of five human resources-related problems (e.g., addressing employee theft); the second set (T2) consisted of three new product development problems (e.g., strategies for reviving a failed kitchen product). To stimulate the production of highly creative ideas, teams were asked to generate as many creative solutions (i.e., solutions that are original and could be used in a real world situation) as possible for each problem (Osborn, 1957). They were

given one hour to complete each set of tasks and were allowed to allocate as much time as needed to each problem, as long as all problems were completed in the designated order. The research assistants responsible for administering the tasks were in a position to observe a subset of the teams during their idea generation efforts. In accordance with our instructions, the research assistants reported that members of the observed teams worked together on all of the problems and did not split up the tasks. Shortly after completing each set of tasks, participants individually completed a web-based survey rating their confidence in the team's creativity.

Measures

Team personality. The five personality dimensions were measured with a total of 20 items derived from the extraversion, openness to experience, conscientiousness, neuroticism, and agreeableness scales from the International Personality Item Pool (IPIP; Goldberg, 1999). Relatively few items were used to measure each personality dimension due to the limited time participants were given to complete the study. Although the use of abbreviated measures of personality may carry certain psychometric risks, previous research has demonstrated that shorter personality inventories comprising as few as a total of 10 items are able to produce adequate levels of convergent and discriminant validity and may be appropriate to use in circumstances of severe time constraints (Gosling, Rentfrow, & Swann, 2003).

We selected a subset of items with the highest factor loadings from each of the five 10-item IPIP scales measuring the broad dimensions of the NEO-PI-R (Costa & McCrae, 1992). Goldberg (1999) has shown that these scales are highly related to the respective measures from the NEO-PI-R. Items were rated on a scale that ranged from "very inaccurate" (1) to "very accurate" (5). Sample items include: I feel comfortable around people (extraversion); I avoid philosophical discussions (reverse-scored) (openness); I find it difficult to get down to work (reverse-scored) (conscientiousness); I am often down in the dumps (neuroticism); I respect others (agreeableness).

We averaged scores of the items corresponding to each of the personality dimensions to form five personality indices (median Cronbach's alpha = .72). Although this alpha is somewhat lower than the median value of .82 obtained by Goldberg (1999) using the original 10-item IPIP scales, it is substantially higher than the median alpha of .50 reported by Gosling et al. (2003) for their 10-item personality inventory. Discriminant correlations between the five scales revealed a pattern similar to those observed in longer, multi-item instruments (John & Srivastava, 1999). For example, comparing three standard personality inventories, John and Srivastava (1999) reported average correlations of .28 between agreeableness and conscientiousness and $-.27$ between extraversion and neuroticism. In our sample the corresponding correlations were .25 and $-.38$. Supporting the discriminant validity of our measure, results of a confirmatory factor analysis suggested that the hypothesized five-factor model fit the data sufficiently

well ($\chi^2_{158} = 397.56, p < .01, GFI = .92, CFI = .88, RMSEA = .06$) and significantly better ($\Delta\chi = 626.64, p < .01$) than a single-factor model ($\chi^2_{168} = 1024.20, p < .01, GFI = .78, CFI = .56, RMSEA = .11$). In total, then, our measure of the broad dimensions of the NEO-PI-R appears to satisfy basic psychometric criteria and to preserve the content structure of the five domains.

Consistent with previous research, we developed team-level indicators of personality by determining the number of team members scoring in the top third (beyond the 66th percentile) or bottom third (below the 33rd percentile) of the personality distributions (e.g., Barry & Stewart, 1997; Chirumbolo et al., 2005; Taggar, 2001; Waung & Brice, 1998). Although this method of aggregation allows for a direct test of our hypotheses, other aggregation methods exist (Steiner, 1972). The most common alternative is the additive model of aggregation. Here, team-level indicators are formed by taking the average of the members' scores. This approach assumes that the amount of a characteristic possessed by each member increases the collective pool of that characteristic and that team members can compensate for one another — a high amount of a particular personality trait in one member can compensate for the relative absence of that characteristic in another — regardless of how the trait is distributed in the team (Barrick et al., 1998; LePine, 2003). However, we argued that the emergence of synergistic effects was affected by the distribution of certain personality traits in the team — one individual scoring high on a particular dimension is not able to compensate for the lack of this trait in other members. For example, although one extraverted member may enhance a team's creativity to some degree, creative synergies are unlikely to occur unless an increasing number of members make their ideas available to others in the team. Given that the use of mean scores carries the risk of masking such potentially relevant information, we used the method described above rather than the additive model.

The team-level extraversion, openness, and neuroticism scores reflected the number of individuals scoring in the top third of the respective personality distributions while the team-level indicators for conscientiousness and agreeableness comprised the number of team members scoring in the bottom third of the distributions. These count variables ranged from 0-3 with 50/50/42/45/40 teams having 0, 68/60/66/66/63 having 1, 23/33/31/31/32 having 2, and 4/2/6/3/10 teams having 3 high extraversion, high openness, low conscientiousness, high neuroticism, and low agreeableness members, respectively.

Team creative confidence. This was measured with three items developed for this study: My team generated better ideas than I could have on my own; My team generated more ideas than I could have on my own; I could have done better on this project if I had worked alone (reverse scored). Items were rated on a scale that ranged from "strongly disagree" (1) to "strongly agree" (7). Exploratory factor analyses produced one clear factor for both T1 and T2 explaining 73 percent and 72 percent of the variance, respectively (factor loadings were all above .70). To create an overall measure of team creative confidence, we averaged team members' responses across the three items (T1 alpha = .82; T2 alpha = .81).

We defined team creative confidence as the shared understanding among team members that the team is more creative than each team member individually. If the assumption that collective creative confidence reflects a shared reality were valid, we would expect team members' ratings of this construct to converge. To determine the level of agreement among the members of each team, we calculated estimates of within-group interrater reliability using the formula suggested by James, Demaree, and Wolf (1984). Preliminary examination of the estimates revealed that two of the 147 teams did not show sufficient convergence on the team creative confidence scale. Thus, consistent with earlier research (e.g., Dineen, Lewicki, & Tomlinson, 2006; Susskind, Kacmar, & Borchgrevink, 2003), these two teams were excluded from the sample. The median value for $r_{WG(3)}$ across the remaining 145 teams was .83 at T1 and .87 at T2, indicating adequate levels of agreement and justifying aggregation of data across team members (Klein et al., 2000).

Team creativity. To construct a measure of team creativity, we used a two-step procedure. First, six undergraduate research assistants (unfamiliar with the purpose of the study) rated a subset of solutions allowing us to establish a benchmark to estimate interrater reliability. Specifically, after having received training, the six raters were paired up and asked to rate among them a subset of approximately 10 percent of the solutions generated by all teams on all eight problems. Although the ratings were made individually, the two raters who were part of the same pair met periodically throughout this process to compare and discuss any discrepancies in their ratings and to produce a jointly agreed-upon creativity score for each solution. Solutions were rated on a scale that ranged from "not at all creative" (1) to "very creative" (9) using the following definition of creativity: solutions that are both original *and* potentially useful (i.e., appropriate and feasible).

In the second step, an expert judge (a graduate student knowledgeable about the creativity and team effectiveness literatures) rated the same subset of ideas that had been previously rated by the group of six research assistants using the same 9-point scale. When rating the ideas, the expert judge did not have access to information about team creative confidence or the personality characteristics of team members. Using the intraclass correlation coefficient suggested by Shrout and Fleiss (1979) as an indicator of interrater reliability, we found good convergence between the creativity ratings provided by the expert judge and those provided by the research assistants (estimates ranged from .82 to .96). The expert judge then rated all of the solutions of all of the teams. Based on the ratings provided by the judge, we developed indicators of team creativity by averaging the creativity scores of *all* the solutions produced by a team at T1 and at T2.

Control variables. Since previous research suggests that both demographic and functional diversity may contribute to team creativity (see Milliken, Bartel, & Kurtzberg, 2003), we controlled for team demographic and functional diversity in all analyses. We aggregated diversity in team age and gender into a demographic diversity indicator and diversity in previous job experience (managerial vs. non-

managerial) and study major (business vs. nonbusiness) into a functional diversity composite (e.g., Chatman & Flynn, 2001; Polzer, Milton, & Swann, 2002). We used the coefficient of variation (standard deviation divided by the mean) to calculate age diversity and Blau's (1977) heterogeneity index to compute team diversity scores for the three remaining categorical variables (e.g., Polzer et al., 2002; Van der Veegt & Bunderson, 2005).

RESULTS

Descriptive statistics and correlations among study variables are presented in Table 1. The T1 and T2 creativity scores were significantly correlated ($r = .17$, $p < .05$), indicating some stability in team creativity across time. Demographic diversity correlated negatively with creativity at T1 ($r = -.19$, $p < .05$) but not at T2 ($r = -.06$, $p > .05$), suggesting that demographic heterogeneous teams initially exhibited lower creativity than more homogenous teams. Team creative confidence was positively, significantly related to creativity at both T1 and T2 ($r_s = .16$ & $.18$, $p < .05$ for T1 & T2, respectively). Finally, consistent with previous research on concepts related to team creative confidence (e.g., group potency), we found that creative confidence was relatively stable over time ($r = .50$, $p < .05$) (Jung & Sosik, 1999; Sosik et al., 1997).

Given the nature of our data, we were able to evaluate the contributions of our independent variables to team creativity over time. Specifically, using cross-lagged regression analysis we regressed team creativity at T2 on the quadratic interactions between team personality and team creative confidence at T1, after controlling for the time-lagged effect of team creativity at T1 as well as all relevant first-order (i.e., linear and quadratic) and linear second-order terms (Cohen, Cohen, West, & Aiken, 2003; Van der Veegt & Van de Vliert, 2005). As suggested by Aiken and West (1991), we first centered our continuous independent variable, team creative confidence. Next, we entered our independent variables in five steps. In the first step we introduced the control variables (team creativity T1, demographic diversity, functional diversity), followed by the linear personality terms (number of team members high on extraversion, high on openness, low on conscientiousness, high on neuroticism, and low on agreeableness) and team creative confidence T1 in step two. In the third step, we entered the linear two-way interactions between the personality variables and team creative confidence T1 (extraversion x team confidence T1, openness x team confidence T1, conscientiousness x team confidence T1, neuroticism x team confidence T1, and agreeableness x team confidence T1). We then entered the quadratic personality terms (extraversion², openness², conscientiousness², neuroticism², agreeableness²) in step four, followed by the five quadratic-by-linear interactions (extraversion² x team confidence T1, openness² x team confidence T1, conscientiousness² x team confidence T1, neuroticism² x team confidence T1, and agreeableness² x team confidence T1).

Results of the regression analysis are presented in Table 2. Hypothesis 1 predicted that team creative confidence would moderate the curvilinear relation

TABLE 1. Descriptive Statistics and Correlations Among All Variables.

Variable	M	SD	1	2	5	6	7	8	9	10	11	12
1. Team creativity T1	4.52	0.37	—									
2. Team creativity T2	4.97	0.50	.17*	—								
3. Demographic diversity	0.34	0.21	-.19*	-.06	—							
4. Functional diversity	0.69	0.28	-.11	-.06	-.14	—						
5. Extraversion ^a	0.87	0.78	-.05	.06	-.03	.14	—					
6. Openness to experience ^a	0.91	0.79	.15	.09	-.17*	-.06	.14	—				
7. Conscientiousness ^b	1.01	0.82	.07	.02	-.12	-.05	-.07	.13	—			
8. Neuroticism ^a	0.94	0.78	.01	.03	.06	-.07	-.23**	.05	.08	—		
9. Agreeableness ^b	1.08	0.88	-.03	.01	-.12	-.08	.10	.08	.15	.12	—	
10. Team creative confidence T1	5.23	0.74	.16*	.07	.12	-.08	.00	-.15	-.06	.00	-.16	—
11. Team creative confidence T2	5.39	0.72	.11	.18*	-.06	-.04	-.05	-.08	.00	.16*	.03	.50**

Note. N = 145.

^{a/b} Number of team members with personality scores in the top/bottom third of the distribution.

* $p < .05$, ** $p < .01$ (two-tailed).

TABLE 2. Results of Hierarchical Regression Analysis of Team Creativity T2 on the Big Five Personality Dimensions, Team Creative Confidence T1, and Their Interactions.

Independent Variables	β	ΔR^2	ΔF
Step 1		0.03	1.51
Team creativity T1	0.16		
Demographic diversity	-0.04		
Functional diversity	-0.04		
Step 2		0.01	0.29
Extraversion ^a	0.07		
Openness to experience ^a	0.05		
Conscientiousness ^b	0.00		
Neuroticism ^a	0.05		
Agreeableness ^b	0.00		
Team creative confidence T1	0.06		
Step 3		0.07	2.04
Extraversion x Team creative confidence T1	0.16		
Openness to experience x Team creative confidence T1	0.22		
Conscientiousness x Team creative confidence T1	-0.18		
Neuroticism x Team creative confidence T1	0.23		
Agreeableness x Team creative confidence T1	0.10		
Step 4		0.01	0.40
Extraversion ²	-0.13		
Openness to experience ²	0.25		
Conscientiousness ²	0.05		
Neuroticism ²	-0.10		
Agreeableness ²	0.13		
Step 5		0.13	4.01 ^{**}
Extraversion ² x Team creative confidence T1	0.71 ^{**}		
Openness to experience ² x Team creative confidence T1	0.91 ^{**}		
Conscientiousness ² x Team creative confidence T1	0.64 [*]		
Neuroticism ² x Team creative confidence T1	-0.18		
Agreeableness ² x Team creative confidence T1	0.22		

Note. N = 145. β refers to standardized regression coefficients at each step. R^2 and F for the full model are 0.25 and 1.68^{*}, respectively.

^{a/b} Number of team members with personality scores in the top/bottom third of the distribution.

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

between the number of highly extraverted team members and team creativity. Consistent with this hypothesis, results showed a statistically significant extraversion² x team confidence T1 interaction term ($\beta = .71, p < .01$).

To determine whether the functional form of this interaction was consistent with our prediction, we plotted it following procedures outlined by Aiken and West (1991). As expected, Figure 1 shows that team creativity T2 increased quadratically as a function of an increase in the number of highly extraverted team members when high team creative confidence T1 was high. When team confidence T1 was relatively low, team creativity T2 decreased quadratically as a function of an increase in the number of highly extraverted members composing a team.

We further examined this interaction by conducting simple slope analyses (Aiken & West, 1991). In line with expectations, results of our analyses revealed that when team creative confidence T1 was high, the simple slope of the regression line between extraversion and team creativity T2 had significant positive values for teams consisting of two or three highly extraverted individuals ($bs =$

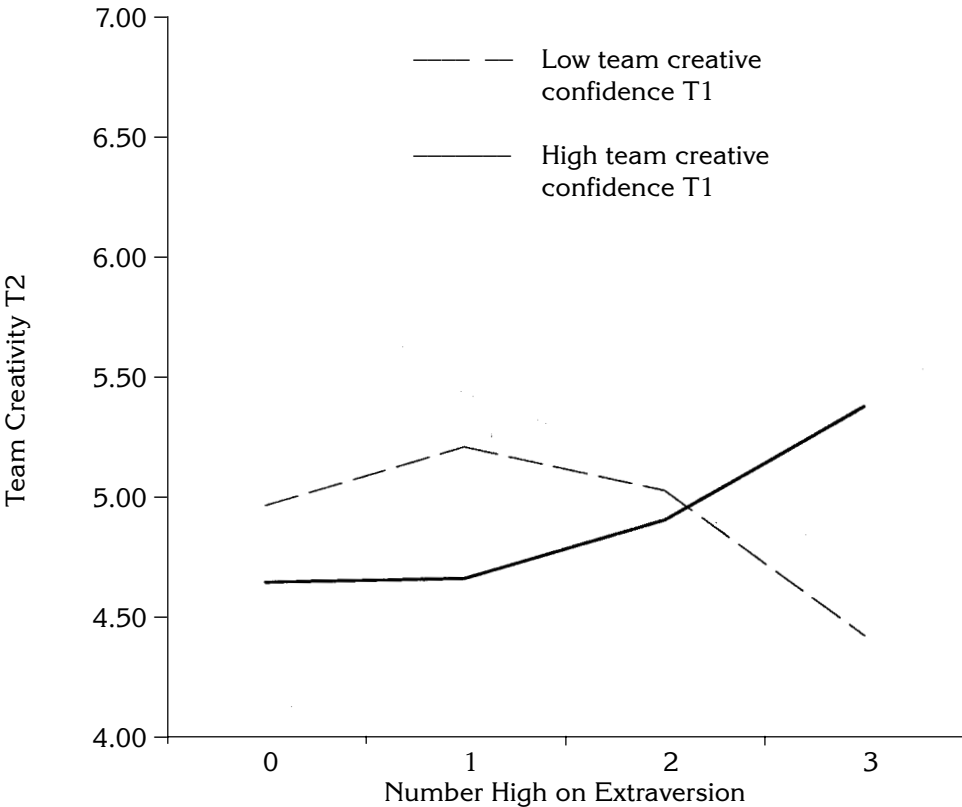


FIGURE 1. Curvilinear Interaction of Extraversion and Team Creative Confidence T1 on Team Creativity T2.

.55 & .90, p s < .05, respectively). When team creative confidence T1 was low, the slope of the regression line had a significant positive value for teams with no highly extraverted individuals ($b = .71, p < .01$) but significant negative values for teams consisting of two or three highly extraverted members (b s = $-.61$ & $-1.27, p$ s < .01, respectively). In total, these results provide support for Hypothesis 1.

We predicted that team creative confidence would moderate the curvilinear relation between the number of highly open team members and team creativity (Hypothesis 2). Consistent with expectations, the openness² x team confidence T1 term was statistically significant ($\beta = .91, p < .01$). The plot of this interaction (Figure 2) shows that when team confidence T1 was high, team creativity T2 increased quadratically as a function of an increase in the number of highly open members. Moreover, simple slope analyses indicated that when team confidence T1 was high, the simple slope of the regression line between openness and creativity had a significant negative value for teams with no highly open individuals ($b = -.67, p < .05$) but significant positive values for teams consisting of one or

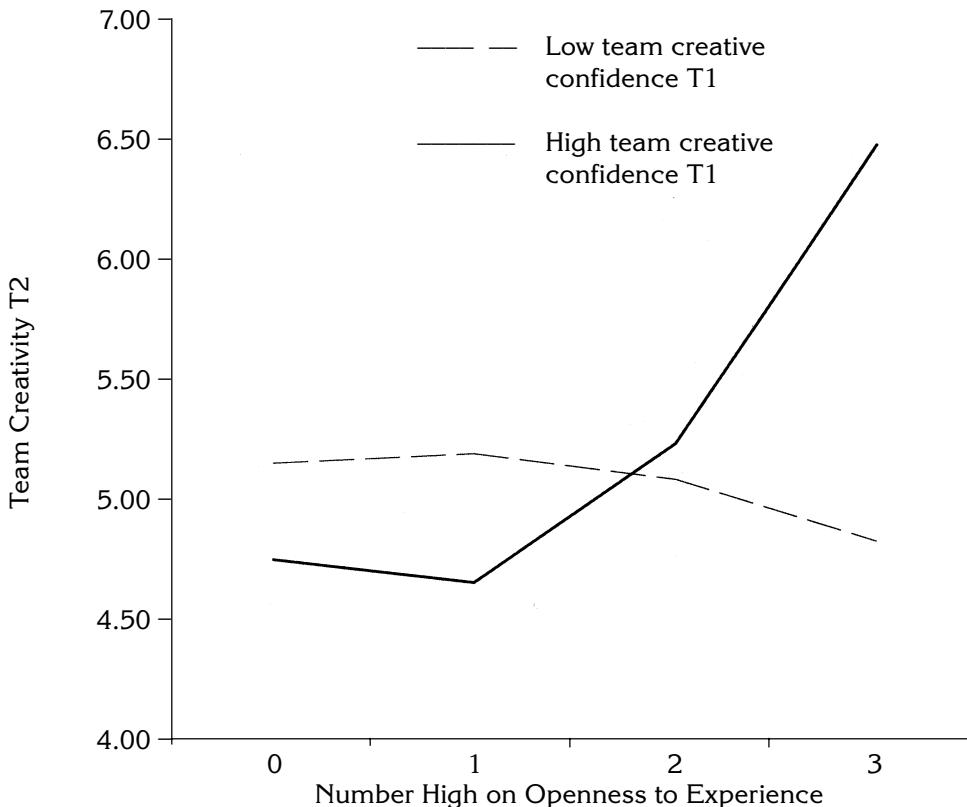


FIGURE 2. Curvilinear Interaction of Openness to Experience and Team Creative Confidence T1 on Team Creativity T2.

more highly open members ($bs = .38, 1.44, \& 2.50, ps < .01$, respectively). By contrast, when team confidence T1 was low, the simple slope of the regression line did not differ significantly from zero ($ps > .05$) for any number of highly open individuals. In total, these results support Hypothesis 2.

Hypothesis 3 stated that team creative confidence would moderate the curvilinear relation between the number of low conscientiousness team members and creativity. Consistent with expectations, the coefficient associated with the conscientiousness² x team confidence T1 term was statistically significant ($\beta = .64, p < .05$). The plot of this interaction (Figure 3) shows that T2 creativity increased quadratically as a function of an increase in the number of low conscientiousness team members when team confidence T1 was high. When team confidence T1 was low, the number of members low on conscientiousness had little relation to creativity T2.

Simple slope analyses revealed that when team confidence T1 was high, the slope of the regression line between conscientiousness and team creativity T2 had a significant negative value for teams with no low conscientiousness

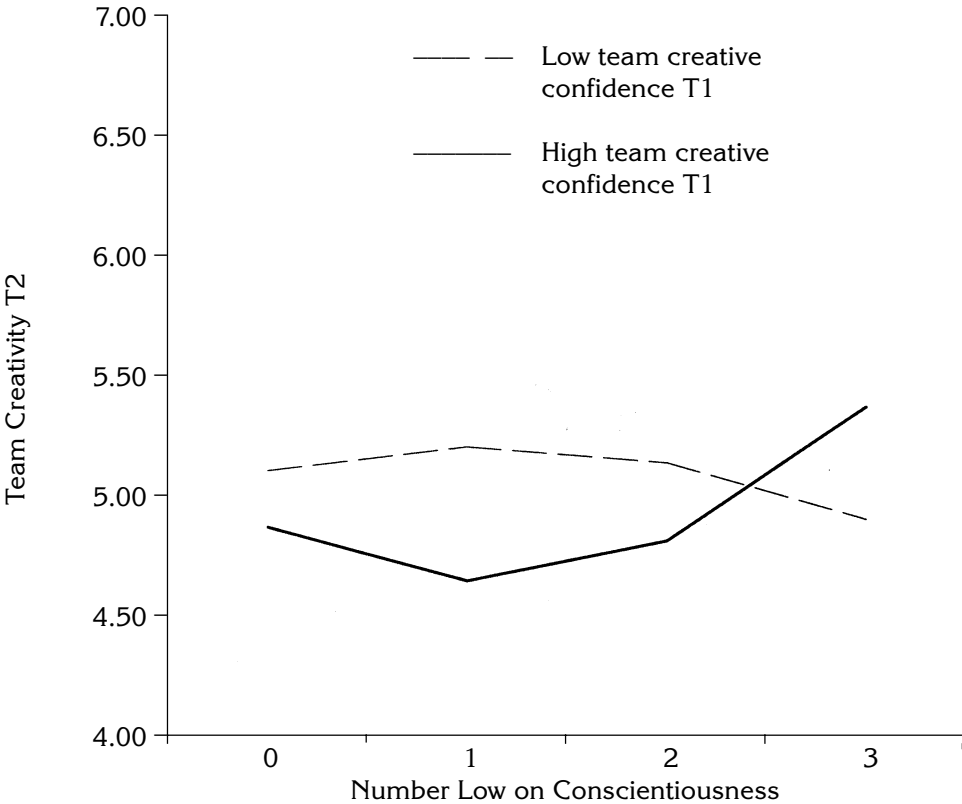


FIGURE 3. Curvilinear Interaction of Conscientiousness and Team Creative Confidence T1 on Team Creativity T2.

individuals ($b = -.68, p < .05$) but significant positive values for teams composed of two or three low conscientiousness members ($bs = .59$ & $1.23, ps < .05$, respectively). When team creative confidence T1 was low, the simple slopes were non-significant ($ps > .05$) for all numbers of low conscientiousness team members. These results provide support for Hypothesis 3.

We predicted that team creative confidence would moderate the curvilinear relations between team creativity and (a) the number of highly neurotic team members (Hypothesis 4) and (b) the number of low agreeableness team members (Hypothesis 5). Table 2 shows that neither the neuroticism² x team confidence T1 interaction term nor the agreeableness² x team confidence T1 term reached statistical significance ($\beta_s = -.18$ & $.22, ps > .05$, respectively). Thus, Hypotheses 4 and 5 were not supported.^{1, 2, 3}

As shown in Table 1, the average values for creativity were close to the theoretical mean of the distributions ($Ms = 4.52$ & $4.97, SDs = .37$ & $.50$ for T1 & T2, respectively), raising concerns that the results we obtained may be due to differences in moderate rather than high levels of creativity. Because we were interested in determining if similar effects would also emerge for high levels of creativity, we developed an alternative indicator of a team's creativity by identifying for each problem the solution that was *most creative* and then averaging these scores across the problems completed at T1 and those completed at T2 ($Ms = 5.50$ & $5.94, SDs = .54$ & $.70$ for T1 & T2, respectively). This measure of team creativity is consistent with recommendations by Diehl and Stroebe (1987), who argued that focusing on a team's most creative solutions is important since the main goal of idea generation teams is to produce highly creative ideas. Repeating our earlier analyses using this measure of creativity again produced three significant quadratic-by-linear interaction terms involving extraversion ($\beta = .61, p < .05$), openness ($\beta = .87, p < .05$), and conscientiousness ($\beta = .78, p < .01$), thereby confirming our previous results and diffusing concerns that the effects observed in this study are limited to lower levels of team creativity.

¹ The agreeableness and neuroticism measures included in our analyses reflect the number of team members who scored high on neuroticism and low on agreeableness. To explore the possibility that teams were more creative when they were composed of many members *low* on neuroticism or *high* on agreeableness, we also counted the number of individuals per team who scored in the bottom third of the neuroticism distribution or in the top third of the agreeableness distribution and repeated the analyses presented in Table 2. Again, no significant interactions emerged involving either neuroticism or agreeableness.

² We argued that the use of mean scores carries the risk of potentially masking important information about how a personality characteristic is distributed in a particular team. Given our arguments we would expect this masking effect to weaken the results obtained in this study. To test this logic, we repeated the analyses reported in Table 2 applying the additive model of aggregation. In line with our expectations, only one of the three previously significant interaction terms — openness to experience² x team confidence T1 — reached significance ($\beta = .30, p < .05$).

³ Previous research suggests that fluency (i.e., the number of unique, nonoverlapping ideas produced by a team) may represent a confounding factor when examining the creativity of ideas (Ames & Runco, 2005; Hocevar, 1979). In line with this perspective, we counted the total number of unique ideas generated by teams across the tasks at T1 and T2. We then repeated the analyses presented in Table 2 controlling for fluency at T2 in step 1 of the model. Results were virtually identical to those reported in the Table and are available on request from the authors.

DISCUSSION

How can organizations compose teams that produce highly creative work? Our research suggests that a team's personality composition and the level of creative confidence shared among its members are both critical to answering this question. Specifically, results of our analyses showed that teams exhibited higher creativity when they were composed of multiple high extraversion, high openness to experience, or low conscientiousness individuals and when team members shared a sense of creative confidence. In these circumstances, it is likely that the creative synergies arising from individuals with these personality characteristics engaging in collective idea generation efforts allowed teams to produce ideas that go beyond those that could have been generated by members individually. Although researchers have long acknowledged the potential for teams to experience creative synergies resulting from members with certain personality characteristics interacting with one another (Brown et al., 1998; Kurtzberg & Amabile, 2001), the present study is the first to provide empirical evidence supporting this argument and to demonstrate that team creative confidence is an important condition affecting the emergence of such synergies.

Our results showed that when teams lacked a shared sense of creative confidence, increasing the number of members with the personality characteristics described above was not associated with significant increases in team creativity. Indeed, when team creative confidence was low, increases in the number of extraverted members actually produced significant decreases in team creativity (after an initial increase) resulting in an inverted U-shaped function (see Figure 1). These results are consistent with those obtained in earlier studies (e.g., Barry & Stewart, 1997; Buchanan, 1998) and suggest that when team members focus on individual rather than collective idea generation efforts, having multiple extraverted individuals in a team may result in dominating and controlling behaviors that interfere with the idea production process and reduce the team's creativity (Moynihan & Peterson, 2004).

In addition to demonstrating that teams composed primarily of individuals high on extraversion, high on openness, or low on conscientiousness were highly creative when team creative confidence was high, our results also indicated that composing teams mainly of high neuroticism or of low agreeableness members had little effect on team creativity. One explanation for these results is that team members with these personality dimensions simply did not provide the candid, critical feedback about the ideas of other members that was expected and necessary if teams were to develop novel, potentially useful ideas. Alternatively, it may be that neurotic and disagreeable members did criticize each others' contributions and provided the necessary feedback but that this feedback was not of the appropriate magnitude (i.e. too many task-related disputes or too harsh of criticism) or offered at the appropriate time (i.e., too early in the process). For example, the conflict literature discussed earlier (e.g., De Dreu, 2006; Jehn, 1995) suggests that disagreements among members about task-related topics have

positive effects on team outcomes only when such disagreements are moderate in magnitude and occur during the middle or late stages of a group's life cycle. Future research is now needed to directly investigate these possibilities.

Next, our results suggest that the compositional effects of extraversion, openness to experience, and conscientiousness are additive. For example, independent of the number of high openness or low conscientiousness individuals composing a team, an increase in the number of highly extraverted members is associated with quadratic increases in team creativity (as long as teams simultaneously exhibit high levels of team creative confidence). Although our approach to examining the effects of each personality dimension in isolation is consistent with previous work (e.g., Barrick et al., 1998; Barry & Stewart, 1997), it is conceivable that these compositional effects are, in fact, not independent of one other but rather combine in a multiplicative fashion to shape the creativity of teams. For example, it may be that increasing numbers of highly extraverted individuals (resulting in elevated levels of idea sharing) only result in quadratic increases in team creativity under conditions of high creative confidence when team members are simultaneously open to experience and, as such, more likely to generate creative ideas.

To examine this possibility, we tested whether each of our proposed quadratic-by-linear interactions (e.g., extraversion² x team confidence T1) would be further modified by any of the other four personality dimensions (e.g., extraversion² x openness to experience x team confidence T1), holding constant all the appropriate lower-order interactions. No statistically significant three-way interactions emerged in these analyses, indicating that the observed effects were not modified by any of the other personality dimensions.⁴ However, these results do not rule out the possibility that more than two personality dimensions may act in concert to affect creativity under conditions of high confidence. Unfortunately, we were unable to test these higher-order interactions due to our sample size of 145 teams. Future studies that include larger numbers of teams are now needed to address this issue.

In addition, our results do not allow us to draw any conclusions about how the three personality dimensions of extraversion, openness to experience, and conscientious need to be distributed within a team to optimally stimulate creativity. Specifically, is it necessary to have all members score simultaneously high on extraversion, high on openness to experience, and low on conscientiousness or is it sufficient to have different members score high (or low) on only one (or more) of these dimensions? Future research that deliberately manipulates group personality composition is needed to answer these questions.

Overall, our results demonstrate that, although composing teams of individuals with certain personality characteristics may be the springboard for creative synergies to emerge and for creativity to flourish, teams must be motivated to take advantage of their compositional qualities (Brown et al. 1998; Paulus, 2000). In line with this logic, our study shows that the creative confidence of teams

⁴ Details of these analyses are available on request from the authors.

moderates the quadratic relations between the number of high extraversion, high openness, or low conscientiousness members composing a team and subsequent team creativity. Thus, the present study contributes to the literature on the role of creativity-relevant team process characteristics shaping the effects of team composition on creativity.

A growing stream of research has underscored the importance of confidence at the team-level of analysis in determining team effectiveness (e.g., Campion, Medsker, & Higgs, 1993; Guzzo et al., 1993; Jung & Sosik, 1999; Little & Madigan, 1997). In addition, this work has also emphasized the reciprocal nature of the relation between team confidence and team performance — team confidence not only impacts subsequent team effectiveness but is also impacted by the team's prior performance (Pearce, Gallagher, & Ensley, 2002; Prussia & Kinicki, 1996). Consistent with this research, our results demonstrated that team creativity was positively associated with team creative confidence ($r_s = .16$ & $.18$, $p_s < .05$ for T1 & T2, respectively) — assessed after the team completed the first and second sets of tasks — providing support for the validity of our measure of creative confidence.

Contrary to previous work, however, which has frequently reported direct associations between indicators of team-level confidence and team performance *across* time (Pearce et al., 2002; Prussia & Kinicki, 1996), we did not find a direct link between team creative confidence T1 and team creativity T2 ($r = .07$, $p > .05$). One potential explanation for the absence of such a direct link and for the low correlations between team creative confidence and team creativity at both T1 and T2 (see above) may be found in the short-lived nature of our study. Although teams worked together at two different occasions to produce creative solutions to a number of different problems, the short time period that members spent with each other may have served to limit the extent to which confidence beliefs formed and manifested themselves, thereby reducing the strength of their effects on creativity. Alternatively, the restricted variance associated with our measures of team creativity (see Table 1) may have suppressed the strength of the aforementioned relations and also contributed to the low correlation between creativity at T1 and T2 ($r = .17$, $p < .05$).

Rather than highlighting the direct effects of team confidence on team creativity, our results suggest that team creative confidence T1 *in conjunction with* certain personality characteristics affected team creativity at T2. Specifically, the moderating effects observed in this study suggest that the shared sense of confidence that developed among team members after the first set of tasks played a critical role in shaping the effects of team personality composition on creativity by allowing creative synergies between the members of a team to emerge. Unfortunately, previous work has paid scant attention to the potential moderating role of team-level confidence in affecting team outcomes such as creativity. Future research may address this shortcoming by examining the extent to which team-level confidence moderates relations between other compositional (e.g., preference for group work) or team-context variables (e.g., intergroup cooperation) and team effectiveness.

Strengths and Limitations

Our research has several strengths and, like any single study, some limitations that should be considered. First, although it is a clear advantage of our study that we collected longitudinal data thereby reducing problems of reciprocal causality inherent in cross-sectional designs (Hackman, 1987), teams met only twice over the course of two weeks — a period shorter than many real-life work teams typically would be in existence. Hence, it is not clear whether the joint effects of team personality composition and collective creative confidence on team creativity hold over extended periods of time or only emerge during the relatively early stages of a team's life-cycle. Future research might address this issue by examining the emergence of synergistic effects in teams over longer time periods.

Second, although the fact that we held group size constant is a strength of this research, we examined only three-person teams. Therefore, it is conceivable that the quadratic increase in team creativity associated with increasing numbers of high extraversion, high openness, or low conscientiousness team members may differ for teams of different size. For example, creative synergies may not be maintained when team size is too large to overcome creativity-inhibiting forces. Although Taggar (2001) showed that creative synergies could be maintained in teams of five and six individuals, additional research is needed to determine the critical team size beyond which creative synergies are unlikely to emerge. This is especially relevant as functioning work teams in organizations generally consist of more than three members (Devine et al., 1999).

Third, although our participants were young adults with previous job experience working together on projects affecting their final course grades, the use of an academic setting raises questions of whether our results are generalizable to intact work teams in organizations. Future research may address this shortcoming by examining the joint effects of personality composition and team creative confidence on creativity in functioning work teams.

Fourth, we included measures of demographic (age and gender diversity) and functional diversity (job experience and study major diversity) as control variables in our analysis to eliminate potential alternative explanations for the results observed in this research. Although past research has suggested that diversity can have significant effects on creativity (Milliken et al., 2003), such research has not examined the moderating role of team creative confidence in shaping the effects of diversity. Hence, it is possible that, similar to team personality composition, demographic and functional diversity interact with team creative confidence to jointly affect team creativity, thereby accounting for the results obtained in this research. To test this possibility, we conducted supplementary regression analyses including linear and quadratic interactions between demographic and functional diversity and team creative confidence T1. No significant effects emerged. Although demographic and functional diversity do not seem to account for the results obtained in this study, because we measured rather than manipulated variables in this research, other omitted variables may account for our findings.

Future research taking an experimental approach may be able to shed light on this issue.

Finally, to measure team creative confidence, we developed items that tapped members' understanding that their team was more creative than they each could have been individually. Although the wording of our items and the use of the team as the referent point is consistent with research on related concepts, such as team creative efficacy (Shin & Zhou, 2007), future research may want to compare the effects of different measures of creative confidence using different wording. For example, rather than asking respondents to evaluate their team's creativity relative to their own creativity, future efforts might consider using wording that reflects more directly the collective nature of the team creative confidence concept (e.g., "This team generated more ideas than any member could have on their own" rather than "My team generated more ideas than I could have on my own").

In addition, to avoid any interruption to team processes, we measured team creative confidence only after the teams completed the first and second set of tasks. Although our results revealed significant relations between creative confidence and creativity at both T1 and T2, these correlations were only modest in magnitude. Collecting confidence judgments while members were engaged in the idea generation process may have yielded more accurate indicators of this concept allowing us to observe more substantial relations between team creative confidence and team creativity at both T1 and T2 as well as across time. Future research is now needed to investigate this issue by measuring creative confidence at various stages of a group's life cycle.

Practical Implications

Our results suggest that if organizations are to harvest the benefits attributed to team idea generation, teams not only have to be composed of individuals with the appropriate personalities but also have to develop a shared sense of creative confidence. Indeed, without team creative confidence, composing teams of high extraversion, high openness, or low conscientiousness members may result in few benefits or even lowered creativity as suggested by the negative, quadratic relation between extraversion and creativity under conditions of low confidence. While composing teams of members with certain personality characteristics requires little effort, instilling high levels of creative confidence may be more challenging. One way to tackle this issue would be for organizations to compose teams of individuals who have successfully (i.e., creatively) worked together in the past as such teams are likely to exhibit higher levels of team creative confidence (Lester, Meglino, & Korsgaard, 2002; Pearce et al., 2002; Prussia & Kinicki, 1996). In addition, transformational leadership that raises team spirit and stresses the potential for teams to surpass individual idea generation efforts may also help teams develop a shared sense of creative confidence and to take advantage of their creative potential (Guzzo et al., 1993; Lester et al., 2002; Sosik et al., 1997).

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