



Sustainable Development in a Diverse World (SUS.DIV)

POSITION PAPER OF RESEARCH TASK 3.2

“Diversity and the creative capacity of organisations and teams”

**Team personality diversity, group creativity, and
innovativeness in organizational teams**

Participants

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Globalization has brought about major changes in organizations: First, as increased market rivalry has led to decreased product life cycles the ability to be innovative is nowadays considered key to organizations' prosperousness. To face this challenge, organizations have more and more replaced individual job assignments with team structures (Devine, Clayton, Philips, Dunford & Melner, 1999; Lawler, Mohrman, & Ledford, 1995). Second, the workforce has become more diverse in terms of people's nationalities and ethnicities (Schneider & Northcraft, 1999), as well as in terms of knowledge, skills, abilities and personality. Therefore, team-based organizations have to find not only the best individual for a certain job but also the best combination of individuals in terms of their specific characteristics.

Psychology has attended to this issue from a variety of perspectives: Diversity was analyzed in terms of demographic variables, i.e. *surface-level diversity* (e.g. Jackson & Joshi, 2004; Milliken & Martins, 1996; O'Reilly, Williams, & Barsade, 1998; Williams & O'Reilly, 1998), and with regard to cognitive aspects including differences in knowledge, skills, and abilities (*deep-level diversity*; e.g. Ancona & Caldwell, 1992; Cohen & Levinthal, 1990). The majority of previous research had a more unidirectional view of either demographic or cognitive diversity, with the exception of some taking a more inclusive perspective and considering both surface- and deep-level diversity (e.g. Harrison, Price, Gavin, & Florey, 2002; Jehn, Northcraft, & Neale, 1999; Schneider & Northcraft, 1999; Van Knippenberg, De Dreu, & Homan, 2004; West, Hirst, Richter, & Shipton, 2004).

Research on diversity has paid little attention to personality differences among work group members, let alone how team composition in terms of personality relates to team innovativeness. While several projects concerned the effects of personality in team settings on group performance (e.g. Barrick, Stewart, Neubert, & Mount, 1998; Barry & Stewart, 1997; Le Pine, Hollenbeck, Ilgen, & Hedlund, 1997; Mohammed & Angell, 2003; Mount, Barrick & Stewart, 1998, Neuman & Wright, 1999; Peeters, van Tuijl, & Rutte, in press; Van Vianen & De Dreu, 2001), we know of only one study relating work group members' personality to group creativity (Taggar, 2002). While important, creativity refers to the development of new ideas, and as such is only part of the innovation process – innovation goes beyond the generation of ideas by including their application in organizational

everyday life (West, 1997).

In spite of the burgeoning interest of researchers in the antecedents of organizational innovation over the last decades (e.g. Anderson, De Dreu, & Nijstad, 2004; Fay & Luehrmann, 2004; Hosking & Anderson, 1992; Jannssen, van de Vliert, & West, 2004; Kanter, 1983; Pettigrew, 1985; West & Anderson, 1996; West & Farr, 1990), to date there is no elaborate theory relating team personality diversity to organizational innovation. More specifically, we can answer the question what traits are typical for creative individuals (e.g. Amabile, 1988; Feist, 2002; Woodman & Schoenfeldt, 1990) and we have some insights into what team personality profile is most beneficial for high group creativity (Taggar, 2002) but we are lacking these insights with regard to the implementation of creative ideas into practice. Therefore, instead of restricting the research focus on individuals' characteristics, organizational reality requires that personality diversity among work group members is investigated.

The purpose of this paper is to resume what we currently know about the effects of diversity among work group members on organizational innovation and elaborate from thereof to the more unexplored area of team personality diversity. Although an individual's personality may be broken down into numerous characteristics, we will focus on five basic traits that proved to be a parsimonious and cross-culturally valid approach to measure people's personality (Costa & McCrae, 1992): openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. We will elaborate on the significance of these traits' configuration in work groups (e.g. mean level versus variance; see e.g. Moynihan & Peterson, 2001) and hypothesize that different team profiles are conducive to the generation of ideas and their implementation into practice respectively.

Diversity and Organizational Innovation

More than an objective characteristic of a group, diversity is a subjective phenomenon, created by group members themselves who on the basis of their different social identities categorize others as similar or dissimilar: "A group is diverse if it is composed of individuals who differ on a characteristic on which they base their own social identity" (O'Reilly, Williams, & Barsade, 1998, p. 186).

The idea that diversity among work group members might be positively related to innovation (“value-in-diversity hypothesis”; Cox, Lobel, & McLeod, 1991) grounds on two propositions (Justesen, 2001): First, diverse people are supposed to have more diverse and thereby more novel ideas. Second, diverse group members approach the same task from different points of view; thus, they are more likely to have task-related conflicts. The demand of tackling these conflicts, i.e. of combining diverse perspectives on task-related issues, is supposed to evoke a more thorough and complete consideration of all aspects, which in return should ensure more high-quality and innovative solutions. However, the question is whether empirical findings support these putatively positive effects of diversity. First we review the literature on surface-level (demographic) diversity, and then move on to consider the literature on deep-level (personality) diversity.

Surface-level diversity may be equated with visible differences among group members in terms of demographic characteristics like age, sex, and ethnicity (Milliken & Martens, 1996; Harrison et al., 2002; Riordan, 2000). In general, people feel more comfortable with others perceived to be similar to the self because similarity in itself is rewarding (Berscheid, 1985, Byrne, 1971; Lazarsfeld & Merton, 1964): Similarity is reassuring in that it reaffirms our beliefs and is interpreted as a signal that future interactions will be free of conflict. Surface-level heterogeneity, however, engenders an immediate impression of dissimilarity among group members, thereby preventing them from engaging in closer interpersonal contact. Additionally, to define themselves, people form self-conceptions, i.e. social identities, that are partly based on their affiliation to different social groups (Brewer, 1979; Tajfel & Turner, 1986). To ensure that belonging to a certain social group provides a positive social identity, individuals seek to maximize intergroup distinctions (“us”, i.e. in-group members, versus “them”, i.e. out-group members) in favor of their own group. For differentiating people into in-group and out-group members, even arbitrary criteria can suffice (Oakes & Turner, 1980), including most trivial ones like eye-colors (Nadler, 2003). Thus, within a surface-level diverse work group, people’s inclination to in-group favoritism gives rise to the emergence of surface-level homogeneous subgroups. Out-subgroup members are perceived in a more stereotyped way and are more likely to be seen as less trustworthy, honest and cooperative than members of

the in-subgroup. Thereby in-group favoritism can lead to less communication with surface-level diverse group members and induce goal-incongruence between subgroups, which is detrimental for group members' collaboration and performance (De Dreu & Weingart, 2003; Jehn, 1995; Mullen & Copper, 1994). Indeed, "a careful review of the theory and empirical research on diversity and group process and performance suggests the impact of the changing demography of the workforce may not be as positive as many would like to believe" (O'Reilly et al., 1998, p. 184). Demographic, surface-level diversity undermines group creativity and innovation because it undermines, in general, group cohesion and thereby the processes and performance requiring high levels of cohesiveness (Nahapiet & Ghoshal, 1998).

Interestingly, the influence of surface-level diversity on a group's functioning is temporary and peaks at the forming stage of a work group (Phillips & Loyd, 2006). The better group members get to know each other over time, the more the influence of surface-level diversity decreases, while in return perceived deep-level diversity becomes key to explain groups' functioning (Harrison et al., 2002). Deep-level diversity refers to differences among team members' psychological characteristics, including cognitive abilities, knowledge, skills as well as values, attitudes, and non-performance oriented traits (e.g. Harrison et al., 2002). These characteristics need time to evolve and become salient in work group settings, as group members need clues from their interactions with each other to become aware of them (see Harrison et al., 2002).

Theoretical assumptions in what ways deep-level diversity should be related to innovation need to be divided into those focusing on differences among group members in abilities, knowledge and skills (cognitive diversity) and those attending to differences in personality.

Cognitive Diversity and Group Creativity

The positive image of diversity in work group derives from the effects of deep-level diversity among group members in terms of abilities, knowledge, and skills (cognitive diversity). In contrast to homogeneous teams, cognitively diverse work groups are superior to cognitively homogeneous teams with regard to the prerequisites of innovation like

gathering, processing, and applying information (Justesen, 2001). More specifically, they have more absorptive capacities at their disposal, they are characterized by higher requisite and network variety, and they are less prone to groupthink). Each of these four aspects will be addressed below.

Absorptive capacities comprise the “ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990, p. 128). The higher and more encompassing an individual’s prior knowledge, the more easily he or she will assimilate new knowledge and utilize it. According to Cohen and Levinthal, high absorptive capacities give rise to creative ideas, as they increase an individual’s ability to detect new linkages between previously unrelated units of knowledge. Transferring this reasoning to the group level suggests that cognitively diverse work groups have a greater pool of resources at their disposal when it comes to generating novel ideas.

Requisite variety (e.g. Nonaka & Takeuchi, 1995) results from high absorptive capacities, as it relates to the availability of knowledge and skills within an organization to deal with unforeseen incidents that might require innovative problem solving strategies. Work groups high in requisite variety can revert to their internal pool of knowledge and variety of skills to solve problems.

Network variety. Higher levels of communication and information gathering are associated with higher levels of innovation in research and development (R&D) project groups (e.g. Kanter, 1988; Tjosvold & McNeely, 1988). Additionally, the patterns of communication and information flowing in organizations are related to successful innovation (Monge, Cozzens, & Contractor, 1992; Katz & Tushman, 1979): For example, facing complex problems, more effective innovation was associated with widespread face to face communication within research groups but also with external professionals outside the group (Katz & Tushman, 1979). Access to an external diverse knowledge pool, i.e. network variety, enhances a group’s innovative potential, and diverse work groups will outperform homogeneous groups in this regard, as they are likely to have a higher network variety.

Groupthink. Without a continuous questioning of present practices, there is no search for novel ideas and no striving for innovation. Group members, however, can

become so consumed with conforming to what appears the group's consensus that they do not dare to express their doubts and criticize agreed upon decisions. For this phenomenon Irving Janis (1972) coined the term "groupthink" and defined it as a mode of thinking that people engage in when they are deeply involved in a cohesive in-group and when their members' strivings for unanimity override their motivation to realistically appraise alternative courses of action. For being innovative, work groups must overcome their inclination to groupthink. Cognitively diverse groups consisting of people with genuinely diverse points of view should be less prone to this dysfunctional group phenomenon.

An open question that needs to be addressed refers to cohesion in cognitively diverse groups, the lack of which appeared to be crucial for explaining the mixed effects of perceived surface-level diversity on innovation. Even more than surface-level diverse group members, those differing in knowledge, skills, and abilities should have the impression to be dissimilar. But their perception of dissimilarity does not impair but even enhance their innovative input. How can this apparent contradiction be resolved?

Building on extant literature, we suggest two mechanisms: First, cohesion is a multidimensional concept including both interpersonal and task cohesion (Feldman & Arnold, 1983). Task cohesion denotes group members' shared commitment or attraction to the group task or goal. Cross-functional teams, i.e. cognitively diverse work groups, are built for a specific purpose, which can provide high task cohesion. In return, agreeing on a common goal can create a "sense of unit", i.e. interpersonal cohesion, among cognitively diverse members.

Second, even if non-existent at the beginning, a positive attitude towards cognitive diversity should prevail in work groups over time when group members come to realize the task-related advantages resulting from the integration of different skills and abilities in one group. In other words, whereas surface-level diversity has negative effects on interpersonal cohesion because interacting with similar others is inherently more rewarding, cognitive diversity should have positive effects because it is instrumental in achieving task-related goals. This line of reasoning, however, does not necessarily hold for deep-level diversity in terms of personality.

Personality diversity and group creativity

Personality refers to an individual's unique and stable pattern of thinking, feeling, acting and reacting to his or her social environment (Pervin, 1980). For example, whereas some people prioritize harmony in their social relationships, others are more status-seeking, interested in power and dominance; whereas some are imaginative and have unconventional ideas, others strength is to be especially accurate even in long spells of detailed work. As these traits affect both individuals' interpersonal and work-related behavior, their influence on team-related processes is considered to be substantial: "Personality has more direct and powerful effects on group processes than other composition variables typically studied (e.g. age, race, gender, and information distribution)" (Moynihan & Peterson, 2001, p. 328).

Theoretical approaches to illuminate the effects of personality – which we take here as a generic term including a person's values and attitudes – in work groups equal those serving to explain the effects of surface-level diversity: People take pleasure in interacting with similar others, as being confirmed in ones values and attitudes is reinforcing (e.g. Harrison et al., 2002). Indeed empirical findings hint at negative effects of value diversity in work groups: New employees whose values differed from the mean values of others in their work groups or small organizations were less satisfied, showed lower organizational commitment, and were more likely to quit (O'Reilly, Chatman, & Caldwell, 1991). Greater a priori consensus on work values evoked a more effective dealing with task-conflicts and evoked less relationship conflicts over time (Jehn & Mannix, 2001). With regard to attitudes, low diversity was associated with higher cohesion (Harrison, Price, & Bell, 1998).

Given these findings, one might hypothesize that organizations' staffs become more and more homogeneous in values and attitudes over time, as people who do not feel comfortable with their co-workers values and attitudes will leave. This is the key assumption of the Attraction-Selection-Attrition (ASA) model (Schneider, 1995). The ASA model assumes that people are differently attracted to organizations by some sort of fit between their personal and the organizations' characteristics. Similarly, organizations seek to select people that "fit", thereby creating a "homosocial reproductive system" (Schneider

et al., 1995, p. 757), which bases staffing decisions on attitudes and values that correspond to the attitudes and values of the decision makers. Indeed, among accountants, life history experiences which formed people's personality and influenced their attitudes and values distinguished among those who worked in four different accounting firms; among lawyers, life history experiences distinguished among those who worked in public versus private sector law organizations (Schneider & Schneider, 1994).

Research questions

Due to this "similarity attracts" paradigm in personnel selection and due to the tendency of dissimilar employees to leave the organization on their own initiative in the long run, personality diversity in organizations should decline over time. But is personality homogeneity beneficial for organizational innovation? Do work groups consisting of people with similar personality produce more innovative output because their smooth interpersonal functioning paves the way to effective collaboration? Or is it true that, as with the effects of cognitive diversity, innovation in work groups benefits from the combination of different people bringing a multitude of different points of view to the table that may originate from their diverse personalities? What is the best composition of individuals for work groups to ensure high-quality innovative outcomes?

Previous research findings regarding the impact of team personality diversity were described as far from conclusive with regard to team performance (Mohammed & Angell, 2003, p. 652) and they hardly exist with regard to innovation. Furthermore, group composition research has been criticized for being "a-theoretical" (Levine & Moreland, 1990, p. 594) and "conceptually scattered" (McGrath, 1998, p. 256), which might partly be attributed to the difficulty of simultaneously considering various types of diversity in work groups, various types of team tasks (e.g. high/low interdependence), and various statistical operationalizations of team composition (e.g. mean and variance) (Mohammed & Angell, 2003).

Universal, contingent and configurational approach to the effects of personality diversity on innovation

In the past, personality composition research usually focused on the mean level of personality traits in groups and their effects on performance. This approach has been criticized, as it falls short of the variety of possibilities in which individual personality potentially transpires into the group and affects its output (e.g. Kozlowski & Klein, 2000). In sum, personality composition research “has relied on average level of an attribute, which really begs the composition question except in the limited meaning of composition as ‘more versus less’ of a factor” (McGrath, 1998, p. 268).

Multilevel theorists have developed various frameworks to explain how lower level (i.e. individual) properties combine to evoke collective (e.g. group) phenomena (Chan, 1998; Kozlowski & Klein, 2000): They range from isomorphic composition assuming that higher level property is essentially the same as its constituent lower level elements, to discontinuous compilation regarding higher level property as a complex combination of lower level contributions. Similarly, Moynihan and Peterson (2001) elaborated on three different theoretical approaches to study the effects of team personality diversity which they labeled as (1) universal, (2) contingent, and (3) configurational.

(1) According to the universal framework, group members’ traits affect team outcomes directly irrespective of task characteristics and situational context. The way to operationalize this view is to compute the group’s mean in the personality variable under scrutiny. The major shortcoming of this approach, however, is not to consider the nature of the group’s task. Aggregating group members’ personality based on the mean implies that the task at hand is additive, i.e. that the group outcome is a result of the summative combination of the contributions of all group members (Steiner, 1972). But if the task is conjunctive, the group outcome depends on the weakest group member and would require to base the analyses on the lowest group member’s scores; for example, the group member scoring lowest in conscientiousness and therefore being least hard-working, diligent and reliable can be decisive for the performance of the whole team (e.g. Neuman & Wright, 1999); whereas in case of a disjunctive task, group’s success would solely depend on

performance of the highest scoring member. For example with regard to creativity, it might be that the group's output would equal its most creative individual member.

(2) The contingent approach is more complex, as it sees group members' personality just as one input variable into the system besides context variables like task characteristics and organizational culture. Here, the group's outcome results from the interaction of members' personality and situational variables.

(3) The most complex view is taken by the configuration approach stating that the group's outcome is predicted by the mix and distribution of personality traits within the group. Thus, the variance of personality traits would be the appropriate measure to include into analyses. This approach appears to be the most appropriate for studying diversity effects because it is the only one considering the composition of the group.

Empirical findings support all three approaches (Moynihan & Peterson, 2001). Therefore, a comprehensive view of personality diversity on innovation should include both means (universal approach) and variance of traits (configuration approach) and consider moderating effects by task characteristics (contingent approach). With regard to the last point, we assume that cognitively diverse work groups are mainly confronted with conjunctive tasks: In a project group consisting of an engineer, accountant and marketing specialist responsible for a creativity demanding task like the development and launching of a new product, each member's professional skills may be unique and the group's outcome depend on the contributions of the weakest link in the group. The same might also result in professionally homogeneous groups that divide the task at hand and assign responsibility for different parts to different group members. An additive framework to model their task accomplishments would be more appropriate if professionally homogeneous groups could compensate for potentially lacking inputs of other members, e.g. if a group of editorial journalists brainstormed about topics to cover in the forthcoming issues of their magazine.

An interesting question refers to the convertibility of a task's character subject to the group members' attributions about their colleagues' behavior (Le Pine et al., 1997): A conjunctive task might still remain conjunctive in terms of conscientiousness even if one of the group members is very low in conscientiousness because other team members are not likely to take action to reduce the negative impact of the low-conscientious member. But

the same task might take on additive or disjunctive characteristics in terms of cognitive abilities because the other members may engage in helping behaviors that, in turn, may reduce the negative effects of the low-ability member. That is to say the internal group dynamics of a team whose worst member seems to be lazy may differ a great deal from the internal dynamics of a group whose worst group member seems to be unintelligent.

As both cognitive abilities and conscientiousness are associated with individual creativity (Feist, 1998; Woodman & Schoenfeldt, 1990), it is unclear in what way groups might react to low-creativity group members, thereby changing or keeping the character of the task.

Personality variables and creativity

Besides the appropriate aggregation method of traits (mean, variance) and task characteristics (e.g. additive, conjunctive, disjunctive) that have to be considered, the third question refers to the choice of personality variables. Potentially, an individual's personality can be broken down into numerous facets. To avoid an inflation of terms while at the same time providing a comprehensive view of personality, the trait variables we are going to analyze comprise five basic dimensions of personality (Costa & McCrae, 1992). They have been shown to be a parsimonious and cross-culturally valid approach to personality, as they are based on factor-analytic studies of personality structure that consistently extract five major facets: (1) openness to experience, (2) conscientiousness, (3) extraversion, (4) agreeableness, and (5) neuroticism.

(1) People high in openness to experience are described as aesthically oriented, curious, flexible, imaginative, intelligent, sensitive, sophisticated and widely interested.

(2) People high in conscientiousness are described as careful, cautious, controlled, enduring, fastidious, orderly, persevering, reliable, responsible, and self-controlled.

(3) People high in extraversion are described as active, energetic, exhibitionistic, expressive, sociable, and socially present – terms referring to the sociability component of extraversion. The confidence-dominance component of extraversion is described by being a leader, having a need for recognition, being power-oriented, self-accepting, self-assured, and self-confident.

(4) People high in agreeableness are described as affiliative, cooperative, easy-going, empathic, friendly, generous, nurturing, peaceful, supportive, and warm.

(5) People high in neuroticism are described as anxious, defensive, depressed, emotional, excitable, guilt-prone, insecure, labile, shrewd, and worrying (Feist, 1998).

In his meta-analysis Feist (1998) analyzed the relations of these five dimensions with regard to creativity on the individual level. He differentiated between scientists versus non-scientists, and artists versus non-artists; within the group of the scientists he also compared creative versus less creative individuals. The two dimensions consistently associated with creativity across all groups were openness to experience and conscientiousness: Artists were much more open to experience than non-artists ($d = .47$), and so were creative scientists ($d = .31$) but not scientists compared with non-scientists. Scientists were much more conscientious ($d = .50$) than non-scientists, whereas artists were much less conscientious than non-artists ($d = -.49$), as were creative versus less creative scientists ($d = -.30$). Additionally, creative scientists scored higher on the confidence-dominance component of extraversion ($d = .39$), whereas this facet hardly distinguished between individuals in the other two groups. Additionally, artists were emotionally somewhat more unstable than non-artists ($d = .24$).

The picture emerging from this study is that highly creative scientists and artists are very open to new experiences, i.e. they are unconventional, imaginative and flexible. Yet, creative people in science and arts do not share the same unique personality profiles: Creative scientists appear to be more self-controlled, ambitious, and perseverant, whereas the opposite is true for artists; additionally, creative versus less creative scientists, more than artists versus non-artists, were distinguished by a high need for recognition, self-confidence, and dominance (= confidence-dominance component of extraversion), and artists were more strongly characterized by emotional instability than scientists. This finding fits into the demands of being an artist, as the expression of deep emotions may be considered the essence of a lot of artistic work. Therefore, the propensity to be sensitive towards emotions almost seems like a prerequisite for artistic creativity. However, these are not the demands work groups in profit organizations are confronted with. Instead of focusing on emotions, work groups are expected to improve on task-related processes and

outputs to the benefit of their organizations. Therefore we suggest that their members' profile be more akin to the one of scientists than of artists: High openness to experience should associate with the originality of their ideas, conscientiousness with the motivation and self-discipline to elaborate on them, and the self-confidence and need for recognition conveyed by high extraversion should encourage them to communicate their ideas.

A robust finding of creativity research shows that individuals working separately generate more and more creative ideas than groups engaging in face-to-face interaction (e.g. McGrath, 1984). Interacting groups show strong tendencies of social influence and conformity, and participation is unevenly distributed over members, leaving some members uninvolved with the group. Thus, to ensure that groups rise to their full creative potential and minimize their production losses (Steiner, 1972), the group's atmosphere should be open for each member's input and encourage them to present their ideas. By recognizing individuals' contributions, the group should be more likely to develop an expanded pool of knowledge and information for group members useful for creative problem solving. Taggar (2002) speaks of necessary "team-creativity relevant processes" (p. 317) including (1) inspirational motivation, i.e. inspiring group members to elevate their goals, (2) organization and coordination, i.e. effective communication including providing feedback, and (3) individualized consideration, i.e. asking for and recognize different ideas. Groups should be most creative when they contain creative individuals and take care of these team-creativity relevant processes. Indeed, both components appeared key to creative group performance: A low incidence of team-creativity relevant processes stifled the effects of individual's creative inputs and vice versa.

Personality variables on the individual level associated with these team-creativity relevant processes were conscientiousness, agreeableness, and extraversion. Applying the universal framework, Taggar (2002) reports that the higher the mean value of these personality variables in the groups, the higher the quality of these team-creativity relevant processes. Findings from other studies support the positive effects of high average levels of conscientiousness and agreeableness on group processes and outcomes (Moynihan & Peterson, 2001) but opt for high variance in extraversion (e.g. Mohammed & Angell, 2003; Barry and Stewart, 1997). Groups homogeneously high in extraversion might be at a

disadvantage because if all members would be “very outgoing, more social, and less task-focused”, conflict and power struggles would result; “on the other extreme, if all of the members are reserved, no one may be willing to assume leadership” (Mohammed & Angell, 2003, p. 660). We would suggest differentiating between the sociability and confidence-dominance component of extraversion, as both might induce different effects. Whereas a homogeneously high level of the sociability component could be conducive to interpersonal communication, thereby increasing cohesion, variance in the confidence-dominance component would be crucial to prevent power struggles in the group.

The idea of team-creativity relevant process is interesting because it sheds some light on the way in which input variables like personality diversity influence group outcomes. It suggests that both task-related processes like goal setting and structure and interpersonal processes like mutual recognition be important. Our question is if personality affects more the interpersonal or task-related processes or both. For example, in cross-functional teams, conscientiousness should be important because teams with high levels of conscientiousness should be persistent in focusing on the task and developing and maintaining effective working procedures. However, conscientiousness should also be relevant to the interpersonal processes because being unreliable can create a lack of trust that destroys cooperation. Therefore, the question is: Are work groups innovative because they work together well (interpersonal relations) or because they stay focused on the task? And which personality traits or configuration of traits work best to achieve smooth interpersonal relations and/or task focus?

Vice versa, in what way does a group providing a high task focus and/or pleasant interpersonal relations affect group members' individual creativity performance? It might be that individuals high in conscientiousness perform worse in groups with a low group level of conscientiousness because a lack of task-focus stifles their motivation; group members high in neuroticism, in contrast to that, might especially suffer from a low group level in agreeableness that might prevent them from expressing their ideas. The idea that an individual's behavior is influenced by group characteristics has also been called “frog-pond” effect, meaning that a big frog may act differentially in a small pond than in a big one; this assumption is an important concept of multilevel research (Rousseau, 1985).

Personality diversity and the implementation of creative ideas into practice

The second component of innovation refers to the transformation of creative ideas into organizational routine: It requires that among the ideas generated the most promising is chosen and that their technical realization is worked upon. We are not aware of any study that explicitly focused on personality diversity in work groups and the implementation component of innovation. On the individual level, we suggest that the sociability component of extraversion and conscientiousness be associated with it: As extraverted people are sociable and talkative, they should be at an advantage when it comes to promote ideas and convince others to adopt them. And the higher an individual's conscientiousness, the more reliable, self-disciplined and motivated he or she will engage even in potentially tedious spells of work that might be involved with the product's technical implementation.

On the group level, the evaluation of ideas should benefit from heterogeneity in extraversion because the few members high in extraversion would take leadership in organizing the evaluation of ideas and communicating them to the group. If all members scored high in extraversion, discussion of ideas might get out of hand. However, to assure that the high extraverted do not assert their ideas just because they are more communicative and sociable, we assume that the group would also benefit from heterogeneity in agreeableness: Whereas a few members high in agreeableness would be essential to create a positive group climate, those scoring lower in agreeableness should dare to take the roles of "advocati diaboli" and express concerns about unreasonable ideas. In fact they might be indispensable to prevent teams from groupthink in the phase of idea evaluation. The subsequent phase of implementation should benefit from a high homogeneous group level in conscientiousness: It should prevent social loafing (Latané, Williams, & Harkins, 1979) among group members and ensure that all group members put efforts into the technical realization of the idea chosen. The following figure recaps our hypotheses.

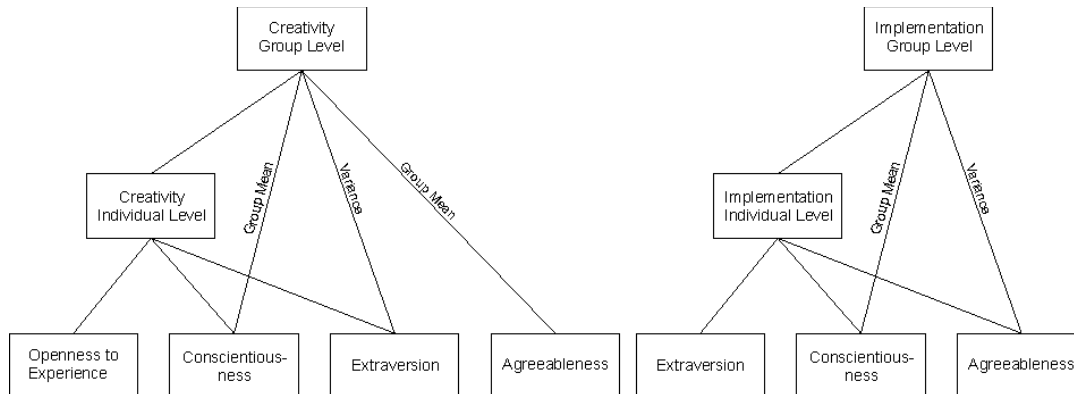


Figure 1: Effects of team personality diversity on both components of innovation (creativity and implementation of creative ideas into practice) – summary of hypotheses.

Specific Research Projects

To study the effects of personality diversity on innovation requires both field studies and longitudinal research designs, e.g. in collaboration with team projects at Haagse Hogeschool. Additionally, experimental designs would be appropriate to study

- if the assumptions of social identity theory – that group members feel more comfortable with similar group members (p.4, p.10) – extend to personality diversity (e.g. do group members high in neuroticism prefer the company of similarly or less neurotic colleagues?);
- interactive effects of personality diversity and task characteristics (additive, disjunctive, conjunctive) on creativity, including process variables about the convertibility of tasks characteristics (p. 14);
- if it is more important with regard to group creativity to look for a combination of team member personalities that results in smooth interpersonal relationships or in a high task-focus (p. 19);
- the “big frog little pond”-effect” (see p. 20);
- the effects of personality diversity on groups’ idea evaluation and decision processes (first phase of the implementation process; see p. 21);
- crossed effects of salient surface- and deep-level diversity (e.g. Could negative effects

of surface-level diversity in the forming stage of work groups be overcome by making personality variables more salient, i.e. by drawing group members' attention to an optimal match in traits?)

Expected output

Our studies would contribute to solve scientific controversies with regard to the equivocal effects of diversity among work group members, especially in the area of personality composition. Results of this research are supposed to be published in academic journals (e.g. *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Academy of Management Journal*, *European Journal of Work & Organizational Psychology*, *Journal of Management*). Beside the scientific value, explicit recommendations for the optimal design of work groups would be the benefits for practical human resource management. These might be conveyed both by training courses and more popular scientific literature like guidebooks.

Time-line for the first 18 months

Table 1 summarizes the timeline of our research activities from October 2005 (month 1) till March 2007 (month 18).

Table 1: Research timeline

Year	2005			2006												2007		
Month (Calendar)	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Activities	(1) Exploration of literature; (2) designing experimental studies; (3) negotiating access to organizations.																	

SUS.DIV position paper research task 3.2

		(1) Gathering and analyzing data; (2) preliminary reports.	
			2-3 articles under review.

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