

Ethnic Heterogeneous Teams Outperform Homogeneous Teams on Well-defined but not Ill-defined Creative Task

Chaoying Tang

School of Economics and Management,
University of Chinese Academy of Sciences, China.

Christian Byrge

Department of Business and Management,
Aalborg University, Denmark.

Abstract

Purpose – Due to its socio-cultural complexity, the impact of ethnic heterogeneous team on creative task is a two-edge sword. On one hand it will bring high cognitive stimulation and thus enhance creative production. On the other hand, it will lead to attention loading and thus determine concentration and creativity. In handling ill-defined task or well-defined task, the needed attention loading might not be the same. Thus a question arises: will ethnic heterogeneous teams outperform ethnic homogeneous in creative production on ill-defined and/or well-defined tasks? The paper aims to address this issue.

Design – This paper presents an experimental study that compares ethnic heterogeneous teams (composed of both Danish and Chinese) with ethnic homogeneous teams (composed of only Danish or only Chinese) on creative production. The characteristic of tasks is manipulated: well-defined or ill-defined creative task.

Findings – The paper finds that heterogeneous teams get more creative production than homogeneous teams in solving the well-defined task. No significant difference was found in the creative production for the ill-defined task.

Value – The paper demonstrates that the creative production in ethnic heterogeneous teams will depend on the characteristic of the creative task.

Paper type: Research paper.

Keywords: ethnic heterogeneous, team creativity, ill-defined task, well-defined task.

Introduction - Ethnic diversity and team creativity

Creativity is an important element of competition for organizations (Amabile, 1983). Corresponding to the increased globalization, there is the increasing prevalence of ethnic diversified team in work place (Kooij-de *et al.*, 2008). Managing ethnic diversified team becomes a new management task (McLeod *et al.*, 1996; Zhou and Shi, 2011). An important question is whether we can gain value from ethnic diversified team in creative problem solving.

Investigations demonstrated that ethnic diversified team positively affects team creativity (Stahl *et al.*, 2010). Its different ethnic backgrounds would stimulate team members' cognition and which increases team creativity

(McLeod *et al.*, 1996; Paletz *et al.*, 2004; Dahlin *et al.*, 2005; Mathieu *et al.*, 2008; Curşeu, 2010). However, the effect of ethnic diversity on team performance is still in controversial (Greer *et al.*, 2012). Because ethnic differences may lead to poor social cooperation among team members (Cox *et al.*, 1991; Williams and O'Reilly, 1998) and may thereby negatively impact team processes and performance. A meta-analysis of 108 empirical studies on processes and performance in 10,632 teams suggested that the performance of cultural diversity team depends on their team process (Stahl *et al.*, 2010). Van Knippenberg and Schippers (2007) call for a contingency approach that incorporates relevant moderators and mediators in studying the effect of ethnic diversity on team performance. The categorization elaboration model was generated to explain this mechanics (van Knippenberg *et al.*, 2004). It points out that the social categorization as a result of team's ethnic diversity would decrease team's joint elaboration of task information from others whom are 'out-of-category' to themselves. As such the potential benefit comes from team diversity on knowledge sharing and integration would fail to achieve. Together, scholars believe that in order to get the most of ethnic diversity team the main challenge the team manager facing is that how to help the team do good social cooperation (Chatman *et al.*, 2001).

To extend our understanding about ethnic diversity and team creativity, this paper introduces a new perspective into the research model: the characteristic of the task. In other words, we argue that the creative production of ethnic heterogeneous team depends on whether the creative task is well-defined or ill-defined. If the creative task is ill-defined it may affect the ethnic heterogeneous team's creative performance negatively. The reason is that the socio-cultural complexity in ethnic heterogeneous teams working on an ill-defined task will result in high attention loading and thus diminish the potential benefits of cognitive stimulation accompanied by team members' different backgrounds. When the creative task is ill-defined their attention would be split according to the cognitive loading theory (Chandler and Sweller, 1992). The team members will make a stronger effort to control their attention which leads to the focused attention. The focused attention will prevent the team from taking advantage of the value of information diversity. In the case of working for well-defined task the ethnic heterogeneous team will not have the same problem. The results of the experiment study in this paper on graduate students from Denmark and China supported this hypothesis.

Attention loading of ethnic diversity team in solving ill-defined creative problem

The purpose of this study is to investigate the effect of ethnic diversity on team creativity. Creativity in this study means the fluency, originality, and flexibility of the team's ideas or solutions. It is measured by the divergent thinking test generated by Torrance (Runco *et al.*, 2010). Fluency refers to the number of idea generated. Originality refers to novel, unusual or the statistical

infrequency of an idea. Flexibility is defined by the frequency of change in perception / perspective. It is measured by the number of unique categories of relevant responses / ideas (Nijstad *et al.*, 2003).

Creative ideas cannot be generated *ex nihilo*. The generation of creative ideas involves both the retrieval of existing knowledge from memory, combining or reorganizing concepts or ideas, exploring for new attributes (Mumford *et al.*, 1991; Finke *et al.*, 1992; Baughman and Mumford, 1995; Ward *et al.*, 1997; Nijstad and Stroebe, 2006). Creative idea generation is inherent to human cognitive functioning (Nijstad *et al.*, 2010; Finke *et al.*, 1992), which is the nature of prior accumulated knowledge and the character of the intra-psychic processes that enable the acquisition, storage, transformation, and use of knowledge (Cacioppo and Petty, 1982). In the process of team problem solving, team members have chance to access other members' opinion, knowledge and information. Thus individual accumulated knowledge will be stimulated in the team process. However, our working memory is limited in both capacity and duration (Simon, 1974). Only a limited number of elements of information can be held in the working memory and even less if these elements need to be combined or processed concurrently (Chandler and Sweller, 1992). Studies have shown that tasks without a working memory load elicit more mind-wandering than tasks with a working memory load (e.g., Smallwood *et al.*, 2009). It has been found that in the process of creative problem solving, the presence of others can serve as a distraction, lead to attentional conflict, and causing attentional overload (Baron, 1986). Team's ethnic diversity composition might be a source of distraction for team members. In initial interactions, team members' categorization of one another is based on surface-level features (Schneider *et al.*, 1995). From a social categorization perspective, teams having high sub-group categorizations will have more difficult to work as one team (Gaertner and Dovidio 2000), and increase team members' mental distraction (Greer and Chwalisz, 2007). Research suggests that individuals in settings with social category homogeneity versus social category heterogeneous may be relatively more motivated by, and concerned about, social rather than task goals (e.g., Brewer and Miller, 1996). Attention to relational concerns diminishes attention on work (Sanchez, 2002). That in turn leads to a restriction in cognitive focusing, causing an individual to attend to cues that are central to a task and to ignore peripheral cues. To avoid taxing their attentional capacity the team members will rely on cognitive shortcuts such as heuristics and pre-existing schemata. An experiment study found that the best condition for generating creativity was working alone and with no expectation of evaluation (Shalley, 1995). Attentional overload may, therefore, be elicited by the ethnic diversity and be dysfunctional for creativity.

On the other hand, team members' attentional loading during the problem solving process might be caused by the characteristics of task. In creative problem solving theory, problems can be categorized into two groups: ill-defined problem or well-defined problem. Ill-defined problems are problems have

unclear goals or vague information. Well-defined problems are those with clear goals, or clear guidelines and rules (Pretz *et al.*, 2003).

Similar with what is discussed in goal theory, that is, performance goal has a behavior regulation function (Locke and Latham, 1990). The comparison of performance with task goal can regulate individuals' behaviors (Kanfer, 1990). When the task's goal is clear, team members' attention will be narrowed and thus diminish the search for different categories of concept or knowledge. Well-defined tasks result in processing fewer cues or data (Payne, 1982). On the contrast, when processing ill-defined tasks, the vague task goal and task process will ask for more cognitive resources. A related result came from a study on decision makers, which turned out that when handling ill-defined task, in order to minimize their expenditure of scarce cognitive resources, decision makers would uncritically examine both relevant and irrelevant cues (Baron, 1986). Thus the problem solving process of ill-defined task will ask for more attention loading and the distraction caused by attentional conflict is particularly problematic (Sanders and Baron, 1975).

Together, the ethnic heterogeneous team would have an impairment effect on team creative performance by disrupting individuals' cognitive processing in solving ill-defined creative problem. Hence, we pointed out the following hypothesis:

Hypothesis 1: Heterogeneous team will be more fluent, original and flexible than homogeneous team in solving well-defined creative task.

Hypothesis 2: Heterogeneous team will not less fluent, original and flexible than homogeneous team in solving ill-defined creative task.

Experiment study

Participants in this study included 31 graduate students from China and Denmark (15 Chinese and 16 Danish). They were attending a course in innovation and creativity as part of a 2-year master program in China. In the course only English was used. The second author was a teacher on the course. He introduced the study and collected the data. The participants were informed that this was a mix of a lecture and an experiment study, and that their performance would be scores by judges and feedback would be given back to them 2 weeks after the experiment. The feedback was a point of departure for a theme on teamwork and creativity. There were 19 males (7 Chinese and 12 Danish) and 12 females (8 Chinese and 4 Danish). The average age was 23.52 (ranged from 20-30 years old, SD = 2.01), with mean working experience 22.23 weeks (ranged from 0-108 weeks).

A 2 (task characteristics) x 2 (team ethnic diversity) experiment study was used to explore for task characteristic on the one dimension and ethnic diversity on the other dimension. Task characteristic was manipulated by using well-defined task and ill-defined task. Task 1 & 2 were finished by homogeneous

(national) teams, and task 3 & 4 were finished by heterogeneous (international) teams. All students were randomly assigned into national teams. There were five Chinese teams and each team had three students. For the four Danish teams, each team had four students. After they had finished task 1 & 2, all students were randomly assigned into international teams. There were 8 international teams and each team had two Danish students and two Chinese students, except one international team had two Danish students and one Chinese student.

In order to control the effect of teams' problem solving process, all teams were asked to use brainstorming method to finish the tasks. Brainstorming is a widely used team idea generation tool (Osborn, 1957; Diehl and Stroebe, 1987; Mullen *et al.*, 1991; Paulus and Brown, 2007). Before the experiment study brainstorming method was demonstrated by the second author. The four experiment tasks were explained in the following.

- Task 1 included a well-defined task: "Please list all the ideas you can come up with for a future cup. Do not worry about how much the change would cost. Think only about what would make it a better cup for any purpose you may think of. Be as creative as possible. Please write your ideas as keywords."
- Task 2 included an ill-defined task: "Imagine a situation where it would only be possible to walk around between midnight and six o'clock in the morning. It is the same for all people all over the world. Please list all the potentials and consequences such a situation would give. Do not worry about how absurd the situation would be. Think only about what we could use the situation for and how it would affect our lives. Be as creative as possible. Please write your potentials and consequences as keywords".
- Task 3 included a well-defined task: "Please list all the ideas you can come up with for a future shoe. Do not worry about how much the change would cost. Think only about what would make it a better cup for any purpose you may think of. Be as creative as possible. Please write your ideas as keywords".
- Task 4 included an ill-defined task: "Imagine a situation where it would only be possible to put clothes on by using a remote control. It is the same for all people all over the world. Please list all the potentials and consequences such a situation would give. Do not worry about how absurd the situation would be. Think only about what we could use the situation for and how it would affect our lives. Be as creative as possible. Please write your potentials and consequences as keywords".

The whole team worked together by brainstorming method. They were given a white paper and were asked to write the keywords of their idea in the paper. It lasted for 15 minutes. Then they wrote down their name on the paper and an instructor collected all the papers.

Measure. In this study, fluency for each team was calculated by the number of keywords each team generated (Nijstad *et al.*, 2010). Originality was scored by two professors from Denmark and by two graduate students of organizational

behaviors from China. They were instructed by the second author on how to score each idea according to a 5-point scale: 1 points for no originality and 5 point for high originality. The scoring was conducted independently. Their inter-rater reliability on originality for were all acceptable (with *Cronbach a* was 0.82).

Flexibility was scored according to number of unique categories of ideas by two Danish researchers and one Chinese researcher. If the category titles were the same or had similar semantic meaning they were regarded as the same category and thus only received scoring as one. The scoring was conducted independently. The student's name and the team's name were blinded. The inter-rater reliability was acceptable (*Cronbach a* was 0.94).

Results

First step was the comparison of teams' differences in four studies. They were compared in terms of fluency, originality, and flexibility. All significant differences in the *T-test* among two kinds of teams are presented in table 1. It turned out that international teams ($N = 16$) performed significantly better in all three dimensions of creativity than national team ($N = 18$). More details, in the case of fluency, $M_{\text{international team}} = 43.63$, $SD = 11.31$; $M_{\text{national team}} = 35.50$, $SD = 7.35$, $t = 2.52$, $p < 0.05$. In the case of originality, $M_{\text{international team}} = 9.89$, $SD = 2.69$; $M_{\text{national team}} = 7.45$, $SD = 2.41$, $t = 2.78$, $p < 0.01$). And in the case of flexibility ($M_{\text{international team}} = 17.79$, $SD = 1.20$; $M_{\text{national team}} = 15.67$, $SD = 2.70$, $t = 2.88$, $p < 0.01$).

Creative thinking	Team	Team number	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Fluency	National team	18	35.50	7.35	2.52	< 0.05
	International team	16	43.63	11.31		
Originality	National team	18	7.45	2.41	2.78	< 0.01
	International team	16	9.89	2.69		
Flexibility	National team	18	15.67	2.70	2.88	< 0.01
	International team	16	17.79	1.20		

Table 1. Performance difference between national team and international team in all tasks.

Then, we compared the international and national team in well-defined tasks and ill-defined task separately by running *T-test*. It turned out that in the case of well-defined task, international teams performed better than national teams. More details, in the case of fluency, $M_{\text{international team}} = 52.00$, $SD = 9.02$; $M_{\text{national team}} = 35.22$, $SD = 8.07$, $t = 4.05$, $p < 0.001$. In the case of originality, $M_{\text{international team}} = 12.03$, $SD = 1.97$; $M_{\text{national team}} = 7.02$, $SD = 2.31$, $t = 4.77$, $p < 0.001$). And in the case of flexibility ($M_{\text{international team}} = 18.58$, $SD = 1.02$; $M_{\text{national team}} = 15.54$, $SD = 2.27$, $t = 4.63$, $p < 0.001$). But in the case of ill-defined task, international teams performed not significant difference than national teams. More details see table 2.

Creative thinking	Team	Team number	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Well-defined creative task: Fluency	National team	8	35.22	8.07	4.05	< 0.001
	International team	9	52.00	9.02		
Well-defined creative task: Originality	National team	8	7.02	2.31	4.77	< 0.001
	International team	9	12.03	1.97		
Well-defined creative task: Flexibility	National team	8	14.54	2.27	4.63	< 0.001
	International team	9	18.58	1.02		
Ill-defined creative task: Fluency	National team	8	35.78	7.03	-.17	> 0.05
	International team	9	35.25	5.68		
Ill-defined creative task: Originality	National team	8	7.89	2.57	-.14	> 0.05
	International team	9	7.75	1.07		
Ill-defined creative task: Flexibility	National team	8	16.98	2.73	.17	> 0.05
	International team	9	16.81	.75		

Table 2. Performance difference between national team and international team in well-defined task and ill-defined task.

Thus the hypothesis 1 which predicts that heterogeneous team will be more fluent, original and flexible than homogeneous team in solving well-defined creative task was supported. And due to the finding that two kinds of team had no significant difference in creative production in solving ill-defined creative problem, hypothesis 2 which predicts that heterogeneous team will less fluent, original and flexible than homogeneous team in solving ill-defined creative task was rejected.

Discussions

The main finding of this study is that ethnic heterogeneous teams (international teams) performed better in well-defined creative tasks than ethnic homogenous teams (national teams). Our explanation includes that the more complex socio-cultural background of international teams will bring forth more different perspectives, opinions and knowledge and thus provides the ethnic heterogeneous team the better conditions for the cognitive stimulation. As such the composing of the team will benefit team creativity. However, in temporary teams, ethnical surface-diversity would lead to social categorizing. Team members' attention will split into two parts: attention on the social categorizing and the attention allocated on handling the task. When the heterogeneous teams are solving the ill-defined task, the complex nature of the task resulted in additional attention loading. To copy with this situation, the team would struggle to control their attention on the task and would thus not have attention capacity

to do remote thinking. As a result the benefit of teams' creativity come from ethnic heterogeneous team would be decreased. Thus, in this study heterogeneous teams weren't able to perform better than the national teams in the ill-defined creative task. On the contrast, when the creative task is well-defined, the international teams would face with less attention loading. Thus their attention loading was less serious and had more cognitive resources to focus on the creative task. The potential advantage of informational diversity of the heterogeneous teams on team creativity was achieved.

The attention loading has previously been studied in relation to group brainstorming technique. In order to improve creativity on complex tasks, a splitting up of the task can be done so that each part of the task is dealt with one at a time rather than simultaneously (Dennis *et al.*, 1996; Coskun *et al.*, 2000). Because doing different tasks at the same time will ask for category switching and needs a new search of memory (Nijstad and Diehl, 2006). This will slow down the thinking speed and lead to fewer ideas being generated within the same time interval (Nijstad and Stroebe, 2006). On the other hand, when solving one task one time, without the distracted of thinking other categories, the cognitive concentration or the focused task-directed cognitive effort which improve creativity (Nijstad and Stroebe, 2006; Nijstad *et al.*, 2010). Thus attentional loading should be managed during the creative problem solving process.

Update, the impact of team ethnic diversity on team creativity mainly discussed from the perspective of team cooperation, conflict and trust (van Knippenberg *et al.*, 2004). This paper first pointed out team ethnic diversity is a source of team attentional loading. In this study the team problem solving process was controlled. That is, all the temporary teams solved creative problem with the same brain storming method. The brainstorming method helped the teams avoiding relational conflict and it gave all the teams a same interaction strategy to solve the creative problems. The results of this study suggest that the social distraction in ethnic diversified teams cause an attention loading effect and thus prevent the ethnic diversified teams from taking full advantage from the knowledge diversity of the team in the case of ill-defined tasks.

Based on the findings, we can point some practical suggestions towards ethnic diversified team managers: first, temporary ethnic diversified teams will be better at solving well-defined creative tasks than solving ill-defined creative tasks. Team building and culture training exercises may help these teams spend less attention on the socio-cultural differences. Another method may be to establish a team identity to prevent their attention splitting. A final suggestion may be to split up the task into several smaller less complex tasks, which will decrease attention requirement by asking the teams to finish them one by one.

The limitation of this study: the sample size of the experiment study was small and the ethicality only includes China and Denmark. Hence, generalization of the result from this paper should be done with cautiousness. However, we still believe that the finding of this study has its value for cross-culture team

management, and team creativity management.

References:

- Amabile, T.M. (1983). *The Social Psychology of Creativity*. New York, NY: Springer-Verlag.
- Baron, R. S. (1986). Distraction-conflict theory: Progress and problems. *Advances in Experimental Social Psychology*, 19, 1-39.
- Baughman, W.A., & Mumford, M. D. (1995). Process-analytic models of creative capacities: Operations influencing the combination-and-reorganization process. *Creativity Research Journal*, 8 (1). 37-62.
- Brewer, M.B., & Miller, N. (1996). *Intergroup Relations*. Buckingham, UK: Open University Press.
- Brown, V.R., & Paulus, P.B. (2002). Making group brainstorming more effective: Recommendations from an associative memory perspective. *Current Directions in Psychological Science*, 11 (6). 208-212.
- Cacioppo, J.T., & Petty, R.E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116–131.
- Chandler, P., & Sweller, J. (1992). The split-attention effect as a factor in the design of instruction. *British Journal of Educational Psychology*, 62 (2), 233-246.
- Chatman, Jennifer A., & Francis J. Flynn. (2001). The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams, *Academy of Management Journal*, 44 (5), 956–74.
- Coskun, H., Paulus, P.B., Brown, V., & Sherwood, J.J. (2000). Cognitive stimulation and problem presentation in idea-generation groups. *Group Dynamics: Theory, Research and Practice*, 4 (4), 307-329.
- Cox, T.H., Lobel, S.A., & McLeod, P.L. (1991). Effects of ethnic group cultural differences on cooperative and competitive behavior on a group task. *Academy of Management Journal*, 34 (4), 827-847.
- Curşeu, P.L. (2010). Team creativity in web site design: An empirical test of a systemic model. *Creativity Research Journal*, 22, 98-107.
- Dahlin, K. B., Weingart, L. R., & Hinds, P. J. (2005). Team diversity and information use. *Academy of Management Journal*, 48, 1107–1123.
- Dennis, A.R., Valacich, J.S., Connolly, T., & Wynne, B.E. (1996). Process structuring in electronic brainstorming. *Information Systems Research*, 7(2), 268-277.
- Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, 53, 497-509.
- Finke, R.A., Ward, T.B., & Smith, S.M. (1992). *Creative Cognition: Theory, Research and Applications*. Cambridge, MA: MIT Press.
- Gaertner, S.L., & Dovidio, J.F. (2000). *Reducing Intergroup Bias. The Common Ingroup Identity Model*. Philadelphia, PA: Psychology Press.
- Greer L.L., Homan, A.C., De Hoogh A.H.B., & Den Hartog, D.N. (2012). Tainted visions: The effect of visionary leader behaviors and leader categorization tendencies on the financial performance of ethnically diverse teams. *Journal of Applied Psychology*, 97(1), 203–213.
- Greer, T.M., & Chwalisz, K. (2007). Minority-related stressors and coping processes among African American college students. *Journal of College Student Development*, 48 (4), 388-404.
- Kanfer, R. (1990). *Motivation Theory and Industrial and Organizational Psychology. Handbook of Industrial and Organizational Psychology (2nd ed.)*. 1, 75-170. Palo Alto, CA: Consulting Psychologists Press.
- Kooij-de Bode, H.J.M., Van Knippenberg, D., & van Ginkel, W.P. (2008). Ethnic diversity and distributed information in group decision making: The importance of information elaboration. *Group Dynamics*, 12, 307–320.
- Locke, E.A., & Latham, G.P. (1990). *A Theory of Goal Setting & Task Performance*. Prentice-Hall, Inc.
- Mathieu, J., Maynard, M.T., Rapp, T., & Gilson, L. (2008), Team effectiveness 1997–2007: A review

- of recent advancements and a glimpse into the future. *Journal of Management*, 34, 410–476.
- McLeod, P.L., Lobel, S.A., & Cox Jr.T.H. (1996). Ethnic diversity and creativity in small groups. *Small Group Research*, 27 (2), 248-264.
- Mullen, B., Johnson, C., & Salas, E. (1991). Productivity loss in brainstorming groups: A meta-analytic integration. *Basic and Applied Social Psychology*, 12, 3-23.
- Mumford, M.D., Mobley, M.I., Reiter-Palmon, R., Uhlman, C.E., & Doares, L.M. (1991). Process analytic models of creative capacities. *Creativity Research Journal*, 4 (2), 91-122.
- Nijstad, B.A., & Stroebe, W. (2006). How the group affects the mind: A cognitive model of idea generation in groups. *Personality and Social Psychology Review*, 10 (3), 186-213.
- Nijstad, B.A., De Dreu, C.K., Rietzschel, E.F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, 21(1), 34-77.
- Nijstad, B.A., Stroebe, W., & Lodewijkx, H.F.M. (2003). Production blocking and idea generation: Does blocking interfere with cognitive processes? *Journal of Experimental Social Psychology*, 39(53), 1-548.
- Osborn, A.F. (1957). *Applied Imagination* (1st ed.). New York, NY: Scribner's.
- Paletz, S.B.F., Peng, K., Erez, M., & Maslach, C. (2004). Ethnic composition and its differential impact on group processes in diverse teams. *Small Group Research*, 35, 128-157.
- Paulus, P.B., & Brown, V.R. (2007). Toward more creative and innovative group idea generation: A cognitive-social-motivational perspective of brainstorming. *Social and Personality Psychology Compass*, 1 (1), 248-265.
- Payne, J.W. (1982). Contingent decision behavior, *Psychological Bulletin*, 92 (2), 382-402.
- Pretz, J.E., Naples, A.J., & Sternberg, R.J. (2003). Recognizing, Defining and Representing Problems. In J.E. Davidson & R.J. Sternberg (eds.). *The Psychology Of Problem Solving*, 3-30. Cambridge University Press.
- Runco, M.A., Millar, G., Acar, S., & Cramond, B. (2010). Torrance tests of creative thinking as predictors of personal and public achievement: A fifty-year follow-up. *Creativity Research Journal*, 22 (4), 361-368.
- Sanchez, B. J. (2002). Protestant Relational Ideology and (in) attention to relational cues in work settings, *Journal of Personality and Social Psychology*, 83, 919-929.
- Sanders, G.S., & Baron, R.S. (1975). The motivating effects of distraction on task performance. *Journal of Personality and Social Psychology*, 32 No.6, 956-963.
- Schneider, B., Goldstein, H.W., & Smith, D.B. (1995). The ASA framework: An update. *Personnel Psychology*, 48 (4), 747-773.
- Shalley, C.E. (1995). Effects of coaction, expected evaluation, and goal setting on creativity and productivity. *Academy of Management Journal*, 38 (2), 483-503.
- Smallwood, J., Nind, L., & O'Connor, R.C. (2009). When is your head at? An exploration of the factors associated with the temporal focus of the wandering mind. *Consciousness and Cognition*, 18 (1), 118-125.
- Stahl, G. K., Maznevski, M.L., Voigt, A., & Jonsen, K. (2010). Unraveling the effects of cultural diversity in teams: A meta-analysis of research on multicultural work groups. *Journal of International Business Studies*, 41, 690-709.
- van Knippenberg, D., & Schippers, M.C. (2007). Work group diversity. *Annual Review of Psychology*, 58, 515-541.
- van Knippenberg, D., De Dreu, C.K.W., & Homan, A.C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*, 89, 1008-1022.
- Ward, T.B., Smith, S.M., & Vaid, J. (1997). *Conceptual Structures and Processes Creative Thought: An Investigation of Conceptual Structures and Processes (1-27)*. Washington, DC: American Psychological Association.
- Williams, K. & O' Reilly, C. (1998). Demography and diversity in organizations: A review of 40 years of research. In B.M. Staw and L.L. Cummings (Eds.). *Research in Organizational Behavior*, 20,

77-140.

Zhou, W.C., & Shi, X.L. (2011). Culture in groups and teams: A review of three decades of research. *International Journal of Cross Cultural Management*, 1 (1), 5-34.

Corresponding author:

Christian Byrge can be contacted at: post@christianbyrge.com

Acknowledgement: This research was supported by following grants from the National Natural Science Foundation of China with the project number: 71173214, & 71473238 71273256.