



Supply Chain Management Professional Education Review

*A monthly e-Newsletter by the Department of Supply Chain
Management and Marketing Sciences*
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In this month's issue

INNOVATION

"The enterprise that does not innovate inevitably ages and declines. And in a period of rapid change such as the present...the decline will be fast."

— Peter F. Drucker

How prepared is your supply management organization to meet the innovation required to beat your competition? Rutgers University's Professor Nancy DiTomaso and Emilio De Lia are exploring new innovative dynamics within cross-functional/company teams. Working with Corinne Post of Lehigh University, they are describing how diversity of thought and new leadership models increase teams' innovation capability. Some of their preliminary findings are presented here.

If you would like to participate in this ground breaking study and have advance access to the findings, please see the requirements on page 6.

"Innovation distinguishes between a leader and a follower."

— Apple co-founder Steve Jobs

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CAPITALIZING ON THOUGHT DIVERSITY FOR INNOVATION¹

Corinne Post, Lehigh University; Emilio De Lia & Nancy DiTomaso, Rutgers University; Thomas M. Tirpak, Motorola; Rajendra Borwankar, Kraft

Managers have become increasingly aware of the need to leverage diversity as a means to increase innovation. At the same time, the multiple and often contradictory team dynamics that arise in diverse teams present scientific organizations with major challenges. In light of these challenges, the goal of this study was to develop an understanding of how an innovation team's thought diversity affects its team dynamics and innovation outcomes. (You can see our invitation to join the study at the end of this article). While research to-date has mapped out the effects of demographic diversity (e.g., gender, race/ethnicity, age, tenure) and the mechanisms by which it works within groups, our study has contributed new insights about the inter-related nature of diversity of

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thought in teams (e.g., diversity in perspectives and in approaches to problem solving), team dynamics and innovation.

A pilot study on this topic has shed some light on how thought diversity (defined by the variety of perspectives and the dominant problem solving approach among team members) affects team dynamics and innovation outcomes. The results of the pilot study also provide some guidance on composing (or re-composing) teams to encourage innovative behaviors or enhancing the skill development of team members to encourage broader thinking styles. Not only must organizations ensure that the members of innovation teams represent a wide variety of functions; they must also create the conditions for innovation in their diverse teams such that: (i) members help each other learn from one another (i.e., encourage collaborative learning), (ii) members with unique perspectives feel comfortable voicing their own opinions (i.e., cultivate psychological safety), and (iii) team members maintain divergence in their ways of thinking (i.e., they are able to avoid developing a shared mindset that impedes new ways of thinking.) Organizations that create environments where members on functionally diverse teams are willing to learn collaboratively, feel safe to voice divergent opinions, and are able to avoid a shared mindset may gain considerable competitive advantage in developing breakthrough innovation.

The more teams engage in collaborative learning -- that is, take the time to learn together and adjust to each other -- the more likely they are to realize their innovation potential. Because members of functionally diverse teams tend not to learn collaboratively, they are missing out on an opportunity to provide more innovative work. Hence, the lack of collaborative learning on functionally diverse teams may explain why

team members perceive their work to be less innovative than stakeholders do. (We define a stakeholder as someone who is not on the team but who has enough interest in the team and is sufficiently involved to knowledgeably comment about its performance.) To capitalize on the value contributed by functional diversity, attention must be given to ways to enhance collaboration so that team members can learn from each other and mutually educate and encourage each other to accomplish tasks and to promote each other's success.

The relationships among dominant problem solving approaches in innovation teams, collaborative learning, and innovation outcomes (innovativeness and radicalness) form a consistent pattern in our data. Teams composed primarily of connective thinkers – that is, individuals who like to consider many factors at once, and seek to link previously unconnected ideas – report more collaborative learning and perceive their work to be more radical. In contrast, teams composed primarily of sequential thinkers – that is, individuals who prefer to follow an existing set of logical, sequential routines to solve a problem – report less collaborative learning and fewer innovative behaviors. Our findings are consistent with anecdotal evidence that highly structured programs like Six Sigma risk being detrimental to radical, breakthrough innovation. An implication of our findings is that for a team tasked with radical, breakthrough innovation to succeed, members must approach the innovation challenge with connective thinking, because such thinking tends to promote collaborative learning, which, in turn, fosters innovation. Our findings also suggest that introducing or increasing the number of team members with a connective approach to problem solving may be beneficial to the innovation of otherwise sequentially-thinking teams, especially if radical innovation is sought.

In our results, we found that stakeholders and team members evaluated the team members' behavior differently, with stakeholders more likely to evaluate functionally diverse teams as more innovative, whereas team members in functionally diverse teams did not perceive themselves to be especially innovative. At the same time, team members in functionally diverse teams were more likely to report adverse team dynamics, such as lower collaborative learning, less psychological safety, and surprisingly, more of a shared mindset. Team members may be more sensitive to the team dynamics than to the functional composition of the team per se, especially if functionally diverse teams tend to divide their work rather than learn collaboratively. We did not find that team members from educationally diverse teams reported the same effects, and we did not find any direct effects of educational diversity on team member perceptions of innovation, but we did find that educationally diverse teams tended to have a broader mix of problem solving styles, and these were associated with greater innovation. Overall our study suggests that both the problem solving styles within a team and the team dynamics can affect innovation in either a positive or a negative way.

We further find that there are steps that organizations can take to enhance the innovative outcomes of diversity teams by attending to the mix of problem solving styles and by working on generating team dynamics that enhance innovative outcomes. For a more detailed report on this pilot study of thought diversity and innovation, please look for the forthcoming article "Capitalizing on Thought Diversity for Innovation" in the November-December 2009 issue of *Research-Technology Management* ².

² Post, C., De Lia, E., DiTomaso, N., Tirpak, T. M., and Borwankar, R. 2009. Capitalizing on Thought Diversity for Innovation. *Research Technology Management*, Vol. 52, November-December.

RUTGERS - LEHIGH STUDY
LEVERAGING THOUGHT DIVERSITY FOR INNOVATION
IN SUPPLY CHAIN RELATIONSHIPS

Is gaining effective working relationships across the supply chain a challenge for your business? Do you want to understand how team dynamics and leadership skills can spur innovation across the supply chain? Then we would like to work with you.

The pursuit of innovation often requires people from different backgrounds, organizations, and functional specialties to work together. However, developing innovation within teams whose members see the world through the lens of their own areas of expertise or knowledge, and who bring to the team different problem-solving approaches presents multiple challenges. *The Leveraging Thought Diversity study* addresses these issues and **seeks to develop knowledge that will:**

- Help cross-functional innovation teams harness team members' thought diversity (differences in knowledge and mental frameworks) to spur innovation;
- Demonstrate how leadership skills and behaviors, and the distribution thereof within cross-functional innovation teams, help leverage thought diversity for innovation;
- Identify best practices in leveraging thought diversity for innovation in cross-functional teams tasked with innovation.

This study is supported by a grant from the National Science Foundation (NSF). Two waves of data collection on cross-functional teams in R&D have already been collected. We are also looking to include teams of people who work together through the supply chain to broaden the understanding of how these processes work in different kinds of business settings.

Participating organizations will be asked to **identify supply chain teams** (that is, members who work together in a supply chain) **tasked with innovation**. Members of these teams will then be asked to participate in a 30 minute online survey developed by the Lehigh-Rutgers research team.

To participate, **a team must meet the following criteria:** (a) be cross-functional; (b) have at least 7 members. (c) members have spent a minimum of 3 months together; (d) be still operating or have been disbanded no more than 60 days prior to the study.

Benefits for participating organizations include, but are not limited to, team summaries that show how participating teams compare to the overall results across all teams in certain important study constructs and in the relationships among these constructs. Companies that participate can also be among the first to get a copy of the final report from the study.

If you would like to participate in this study, please contact the Lehigh-Rutgers research team for more information.

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The *Supply Chain Management Professional Education Review* is a monthly e-newsletter published by the Rutgers Center for Supply Chain Management and Marketing Sciences (SCMMS - www.scm.rutgers.edu). SCMMS is a major provider of supply chain education for today's and tomorrow's supply chain professionals and executives. The *Professional Education Review* will provide information concerning current and emerging supply chain issues.

We value your input. Please contact us at cscm@business.rutgers.edu regarding this newsletter or other SCM issues.