



Collective Intelligence and Team Collaboration: The Role of Gender

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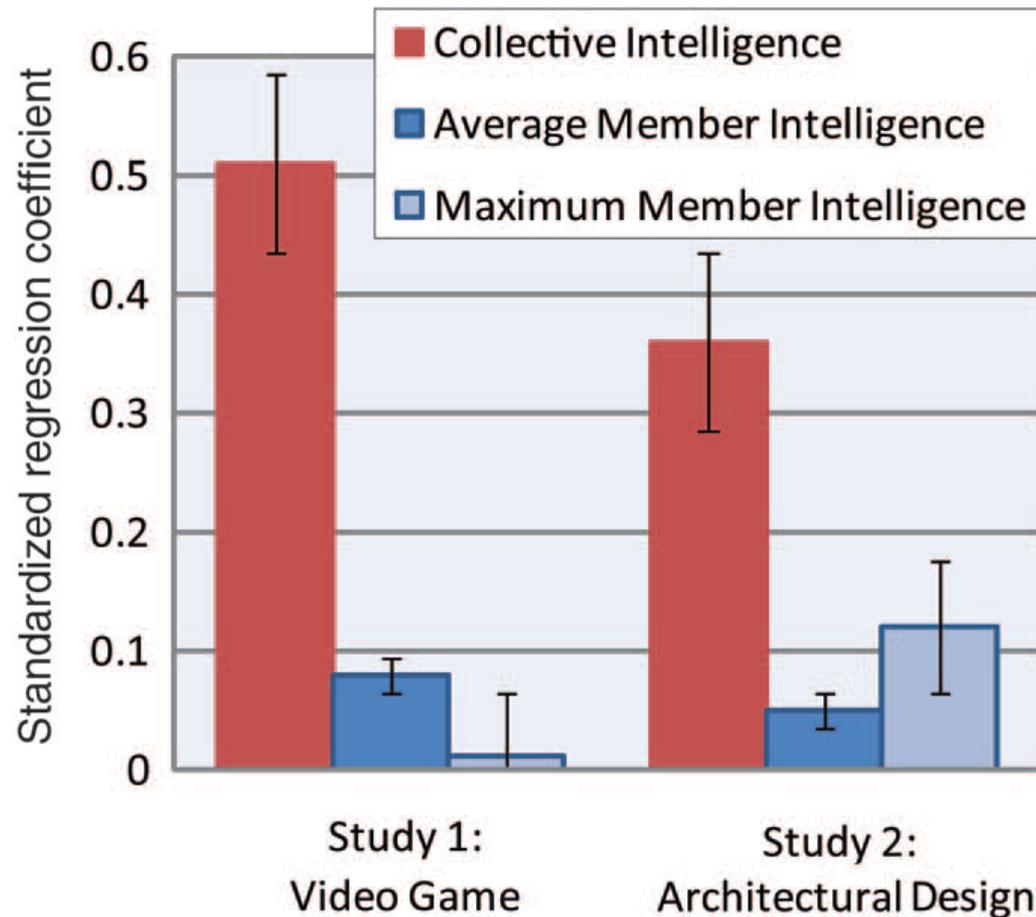
European Gender Summit 2011

Scientific collaboration

- Most important scientific innovations produced by collaborating teams (Wuchty, Jones & Uzzi, 2007).
- A group's collective intelligence = The general ability of the group to perform a wide variety of tasks. (Woolley et. al., 2010)
 - Property of the group itself, not just the individuals in it.

Collective Intelligence

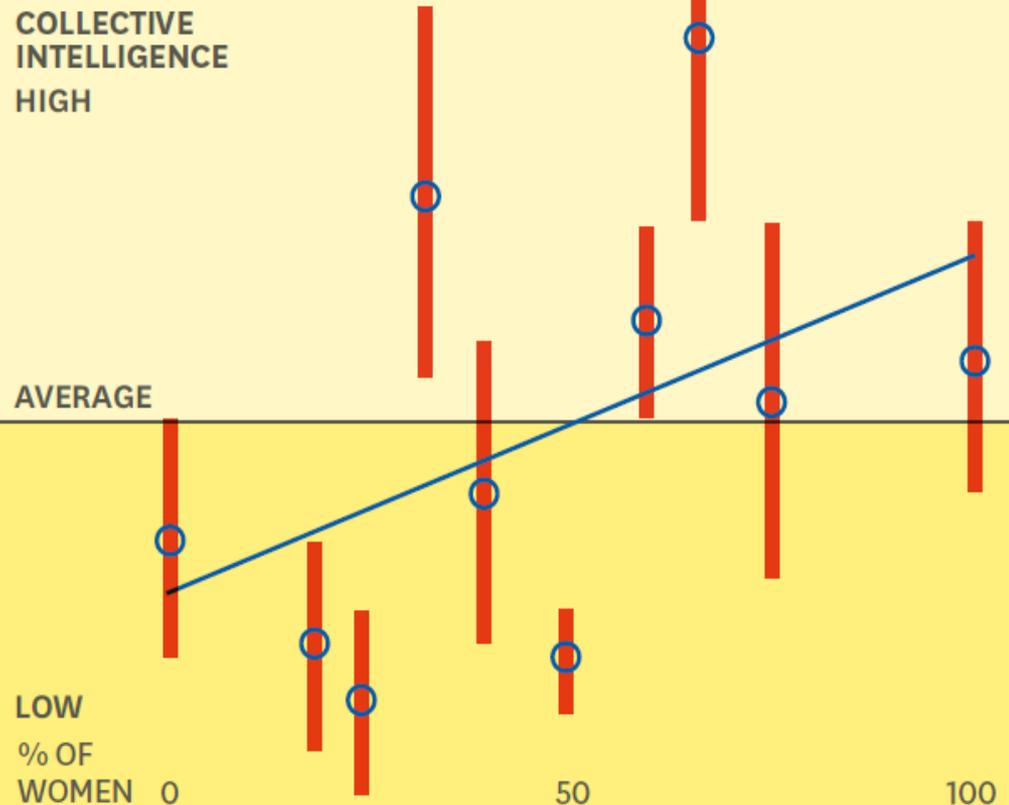
- Predicts performance above and beyond individual intelligence (Woolley et. al., 2010)



Collective Intelligence & Gender

The Female Factor

The chart plots the collective intelligence scores of the 192 teams in the study against the percentage of women those teams contained. The red bars indicate the range of scores in the group of teams at each level, and the blue circles, the average. Teams with more women tended to fall above the average; teams with more men tended to fall below it.



How do women enhance CI?

- Social sensitivity
 - Read nonverbal cues and make accurate inferences about what others are feeling or thinking.

Playful

Comforting

Irritated

Bored



How do women enhance CI?

- Groups with more women also exhibited greater equality in conversational turn-taking



- Uneven distribution in speaking turns negatively predicts CI
- Higher proportion of women leads to more even distribution of speaking

Gender Diversity & Team Process

- Positive effects of gender diversity on team process
- Greater gender heterogeneity increases the likelihood of participation among team members.
 - Men and women's level of **influence** is most equal in gender-balanced groups (Carli, 2001; Craig & Sherif, 1986; Taps & Martin, 1990).
 - Members of heterogeneous groups report greater feelings of **efficacy** about their tasks (Lee & Farh, 2004)
 - Members of heterogeneous groups report better **morale** (Jehn, 1999) than members of homogeneous groups

Are a few, “token” women enough?

- No!
- Having a few —token— women on teams does not appear to be sufficient in order to improve group process
- Solo women were less talkative than women in the majority whereas the opposite was true for men (Myaskovsky et al., 2005).
- Even has detrimental social consequences. (Allmendinger & Hackman, 1995).
- Integration of women into male-dominated orchestras led to declines in member satisfaction and social functioning when the proportion of women was below 50%

Implications for STEM

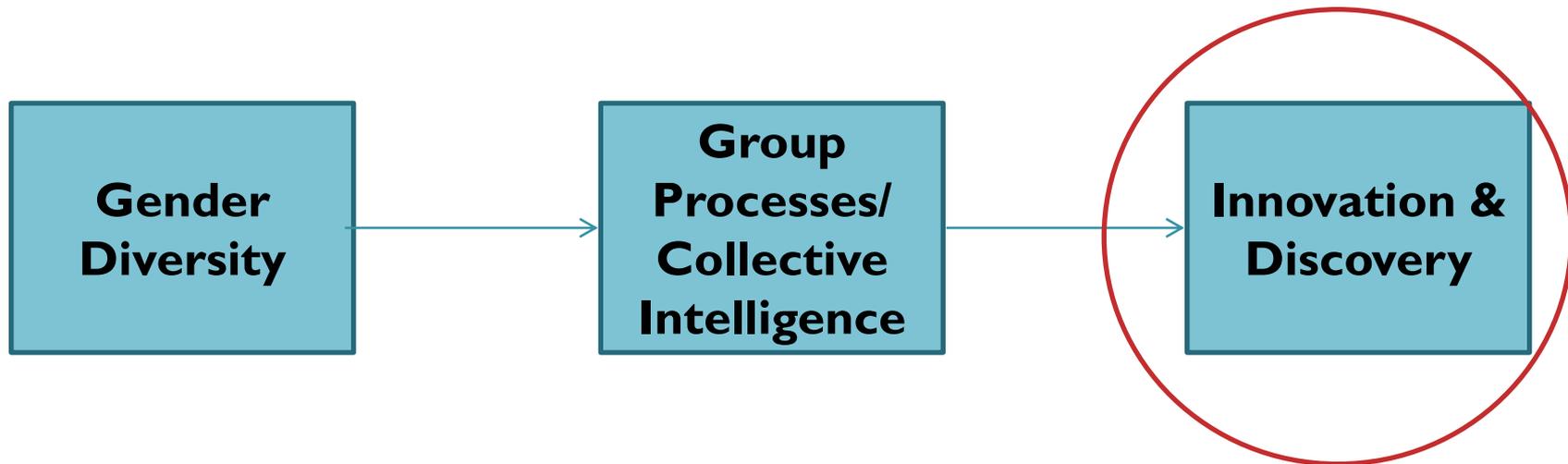
- Underrepresentation of women in STEM
- Causes and proposed solutions are primarily framed on the individual level, i.e. in terms of the way individual women confront these issues (Corley, 2005).
 - Lack of role models, differential access to social networks, and issues related to work life balance and family responsibilities (Blackwell, Snyder & Mayriplis, 2009; Blickenstaff, 2005; Fox, 1991; Kyvik & Teigen, 1996; Sonnert, Fox & Adkins, 2007).
 - Mentoring and career development programs for women (Blickenstaff, 2005; Cronin & Roger, 1996).

Implications for STEM

- Research on gender and teams indicates that, there is another level that plays a crucial role in scientific work—teams.
- Institutions need to pay attention to gender issues at this level as well.
 - Scientific teams missing out on female talent
 - Women who are members of STEM teams may not be participating to their fullest if they are minority or solo members of teams
 - STEM teams missing benefits of CI

Implications for STEM

- Gender diversity in STEM is often advocated for social and political reasons.
- Enabling equal access to and participation in STEM fields is a worthy social goal.





**Thank you and feedback
welcome!**

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