Relating Shared Leadership to Team Effectiveness

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PURPOSE

To examine how sharing the ME Capstone version of the Full Range of Leadership Model within a capstone design team relates to team effectiveness.

Research Question:

How does the degree of shared leadership across the Full Range of Leadership relate to undergraduate mechanical engineering capstone design team effectiveness?

ENGINEERING LEADERSHIP?

"By 2020 we aspire to engineers who will assume leadership positions from which they can serve as positive influences in the making of public policy and in the administration of government and industry."
(NAE, 2004 p. 50)

Vision2030
Mechanical Engineering Education

"Engineers must lead in their communities, in local, state and federal governments, and help lead society to a sustainable world. There are probably no second chances, now is the time for action, and we have to get it right. Now is the time for engineering leadership, our country needs it and our planet needs it."
(ASME, 2011,p. 3)

How much did your program emphasize leadership skills?

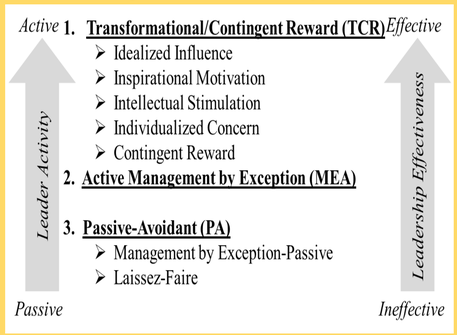
1=Little/None; 2=Slight; 3=Moderate; 4=High; 5=Very High
(Knight & Novoselich, 2014)

Waning Student Engagement

Leadership →

Effective Teams

The ME Capstone Full Range of Leadership Model



Transformational/Contingent Reward (TCR): developing team member strengths, maintaining a **compelling vision**, showing **strong sense of purpose**, and **instilling pride** in team members for being associated with her/him (Novoselich & Knight, 2015).

Active Management by Exception (MEA): a consistent focus on **maintaining standards**, identifying, and **tracking mistakes** among team members (Avolio, 2011).

Passive-Avoidant (PA): either a **delay in action** until serious issues arise or a **total absence of involvement**, especially when needed (Avolio et al. 2011).

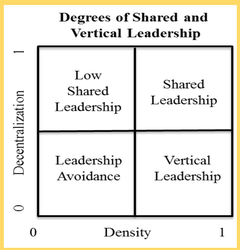
METHODS

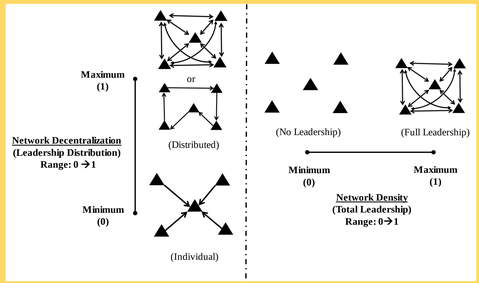
Data Collection:

- ME capstone teams, 2014-2015 AY
- Online Survey
- Round robin and individual survey items
- 45 Complete Teams = 209 Students

Variables & Analysis:

Shared Leadership Measures:





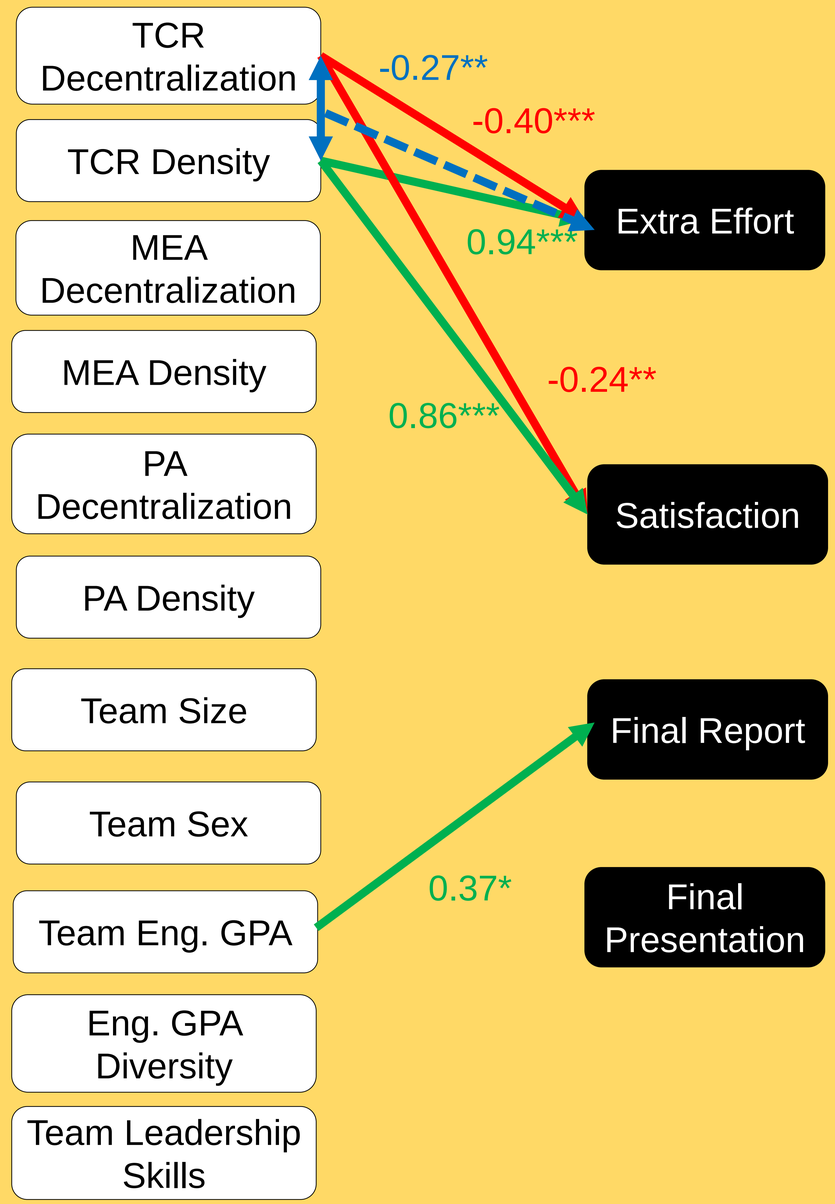
Calculated for all three forms of Leadership: TCR, MEA, PA (6 total variables)

Regression models determined relationships with team effectiveness:

Effectiveness Component	Measure	Source	Description
Group Process	Extra Effort Scale	Survey MLQ form 5X	Team average 3-item scale (α=0.90)
Individual Satisfaction	Satisfaction Scale	Survey MLQ form 5X	Team average 2-item scale (α=0.90)
Task Performance	Final Presentation Grade	Course Coordinator	Grade 100 pt scale
	Final Report Grade	Course Coordinator	Grade 100 pt scale

Controlled for: Team Size, Team Sex, Team Eng. GPA, Eng. GPA Diversity, and Team Leadership Skills

RESULTS



Implications:

- **Shared TCR Leadership may enhance Capstone team extra effort and team member satisfaction.**
- **Faculty should encourage TCR leadership behaviors over others.**
- **Faculty may encourage leadership from multiple team members.**
- **Consider mitigation of divergent pathways for teams.**