Teams: The Secret Ingredient for Innovation in the Sciences

UAB Health Services, Outcomes, and Effectiveness Research (HSOER) Training Program
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@anthonychood #teamscience #SciTs
Objectives: At the conclusion of this workshop, participants will be able to identify and describe:

- Differences between
  - Teams and Groups
  - Creativity
  - Innovation
  - Entrepreneurship
  - Strategy

- Primary types of conflict in teams
  - Task
  - Relationship
  - Process
What is a team?
What is a team?

• “Two or more individuals with different roles and responsibilities, who interact socially and interdependently within an organizational system to perform tasks and accomplish common goals” (NAP report, p. Sum-1).
Current trends in scientific research

• 90% of all science and engineering pubs are by 2 or more authors
• Most pubs authored by 6-10 researchers across multiple institutions
• Researchers are not always academics
• Team size continues to increase

Translational Science Paradigm

U. Of Washington, T-Phases
https://www.iths.org/investigators/definitions/translational-research
Patient Centered Outcomes Research Institute (PCORI)

http://www.theamericannurse.org/index.php/2012/04/02/supporting-research-with-patient-centered-outcomes/
Community-Based Participatory Research

Source: https://ui.uncc.edu/story/geographers-doctors-and-community-members

Source: http://cssr.gmu.edu/cssr-capabilities/community-based-participatory-research
The Business of Teamwork

Team-Based Creativity

• The exchange and combination of divergent yet complementary bits of information between 2 or more team members that produces something that is both novel and potentially useful (Amabile, 1983; Amabile et al., 1996; Gino et al., 2010; Nahapiet & Ghoshal, 1998)

Team-Based Innovation

• Implementation of a novel or useful discovery or product (Hulsheger et al., 2009)
• Translation (taking action to move and transform the idea from one phase to another)
The Business of Teamwork

Team-Based Entrepreneurship

• Opportunity-seeking behavior.
• Income generation. Profit maximization. Wealth creation.

Team-Based Strategy

• Advantage-seeking behavior.
• How to out-perform and out-compete others. (e.g. Ireland, Hitt and Simon, 2003)
• Sustainability. Long-range planning.
What is conflict?
3 Primary Sources of Conflict

Task conflict
- Ideas, viewpoints and opinions (Jehn, 1995)

Relationship conflict
- Interpersonal incompatibilities, annoyance, frustration (Jehn, 1995)

Process conflict
- Task delegation, resource allocation, workload sharing (Jehn & Bendersky, 2003)
Conflict can be *Contagious*

- **Dyadic Involvement**
  - A
  - B
  - C
  - D
  - E

- **Partial Involvement**
  - A
  - B
  - C
  - D
  - E
  - F

- **Full Involvement**
  - A
  - B
  - C
  - D
  - E
  - F

**Mechanisms for Conflict Contagion**

<table>
<thead>
<tr>
<th>Conflict Dynamics</th>
<th>Coalition Formation</th>
<th>Emotional Contagion</th>
<th>Threats to Outcomes</th>
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<tbody>
<tr>
<td>Resolution Potential</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
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<tr>
<td>Competitive Tactics</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
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</table>

**Outcomes**

- **Performance**
  - High

- **Efficiency**
  - High

- **Creativity**
  - High

- **Turnover**
  - Low

- **Satisfaction**
  - Moderate

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Conflict can be *Multiplex*

Psychological Safety in Teams

- “In the context of teams, psychological safety (PS) refers to team members’ assessment that the team’s environment is safe for interpersonal risk-taking (Edmondson, 1999).”

- “PS influences willingness to engage in potentially threatening behaviors, such as many of those associated with creativity and learning in groups.”

Psychological Safety  (Edmondson, 1999; Edmondson & Lei, 2013)

Do team members feel comfortable engaging in potentially risky interpersonal behaviors such as:

- Admitting errors
- Asking for help
- Speaking up
- Challenging/Questioning/Vetting

Without concern for:

- Devaluation, distortion or discounting of expertise
- Rejection
Transactive Memory Systems (TMS)-Mental Model of Tasks, Expertise and People

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<thead>
<tr>
<th>Tasks</th>
<th>Expertise</th>
<th>People</th>
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### Transactive Memory Systems (TMS)-Mental Model of Tasks, Expertise and People

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<tbody>
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<td>Grantsmanship</td>
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<td>Susan</td>
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<tr>
<td>Data analysis</td>
<td>Biostats</td>
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<td>Comm Organizing</td>
<td>Church Leader</td>
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<td>??</td>
<td>Health Disparities</td>
<td>Karen</td>
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<td>Publish</td>
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<td>John</td>
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<td>Clinician</td>
<td>Chris</td>
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<td>Qualitative Surveys</td>
<td>CBPR</td>
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For Discussion/Next Steps

• What are you going to differently as a result of this information?

• Can conflict be avoided?

• How can you create a psychologically safe team environment?
Questions?
Agency for Healthcare Research and Quality (AHRQ) TeamSTEPPS®: Strategies and Tools to Enhance Performance and Patient Safety
UAB Office of Interprofessional Simulation for Innovative Clinical Practice
UAB Office of Interprofessional Simulation for Innovative Clinical Practice
NSF Innovation Corps and I-Corps™ at NIH
Business Model Canvas: A Tool for Teams

**Customer**
- Who will your business serve?

**Problem**
- What is the problem your customer has?

**Solution**
- How will you solve your customer’s problem? (The features of your product or service)

**Message**
- How do you get your customer to know, like, and trust you? What is your story? How do people find you?

**Revenue**
- How will you make money from your customer?

**Benefit**
- What draws your customer to want your product or service? What are you really offering your customer?

**Competition**
- How is your customer currently solving the problem? What are the existing alternatives?

**Advantage**
- Why are you better than everything else out there? What makes you special?

**Distribution**
- How does your product or service get to your customer?

**Startup Needs**
- What do you need to get started (money, people, things, technology, activities)?

**Costs**
- What is essential to keep your business going (money, people, things, technology, activities)?

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8th Graders Innovating at Phillips Academy
Daddy’s Pooh Pooh (Web-Based Morning Show for Kids)