Organizational Systems, Leadership, and Teamwork

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Accelerating Engineering Research Center Preparedness Workshop
October 2-3, 2018 - Crystal City Hyatt Regency, Arlington, VA

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Agenda

- Fundamental Forces in Organizational Systems
- Fundamental Forces for Team Functioning & Effectiveness
- Enhancing Team Processes and Effectiveness
- Team Science Considerations
- Leadership
  - Targeting Team Processes
  - Shaping the System
Organizations are Multilevel Systems: Context, Levels, Task, and Time

- **Context**: Interactive and enacted
  - Person-situation interaction

- **Multilevel**: Top-down Effects and Bottom-up Emergence

- **Task**: Task-driven interdependencies
  - Determine goals, roles, and coordination demands

- **Time**: Temporal entrainment and dynamics
Organizations are Multilevel Systems: Top-Down Context Shapes Team & Individual Phenomena

- The hierarchical structure of social organizational systems creates a context
- Individuals are embedded in teams and teams are nested in the broader organizational context
- Context influences and constrains behavior at lower levels of the system
- Teams are the primary social unit in organizations – *meso is the juncture of macro and micro forces*
Emergence – Process is bottom-up

“A phenomenon is emergent when it originates in the cognition, affect, behaviors, or other characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon” (p. 55).


- Dynamic team processes emerge over time as relatively stable “emergent states”
  - Cognitive, motivational / affective, and behavioral
Emergence Process Dynamics

Contextual Influences

Composition Convergence
Compilation Divergence

Process mechanisms

(Kozlowski, Chao, Grand, Braun & Kuljanin, Organizational Research Methods, 2013)
Effective Leaders Harness Top-Down Mechanisms to Shape & Amplify Bottom-up Processes

**Techno-Structure**

**Macro:**
- Mission & Strategy
- Technology & Structure

**Meso:**
- Unit Technology
- Workflow Structure

**Micro:**
- Requisite Task KSAs
- Teamwork KSAs

**Enabling Processes**

**Within-Level Alignment**
- Leadership
- Organizational Climate

**Cross-Level Alignment**
- Shared & Distributed Knowledge
- Collective Motivation
- Collaboration & Coordination

- Technical Knowledge
- Process Knowledge

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Key Considerations for Team Effectiveness: Context, Levels, Task, and Time

- **Context**: Interactive and enacted
  - Person-situation interaction

- **Multilevel**: Top-down Effects and Bottom-up Emergence

- **Task**: Task-driven interdependencies
  - Determine goals, roles, and coordination demands

- **Time**: Temporal entrainment and dynamics
Team Task Workflows

Task Environment:
- Static

External Coupling:
- Loosely Coupled

Internal Coupling:
- Asynchronous
- Weak Linkages

Workflow Interdependence:
- Pooled
- Sequential
- Reciprocal

Team Task Complexity

Team Processes Resolve Dynamic Task Demands => Performance

- Environmental variation and shifts drive team task demands
- Team processes resolve (or fail to resolve) task demands
- Team processes link to team performance
- *Team performance is dynamic, adaptive, and emergent*

(Adapted from Kozlowski et al., 1996, RPHRM)
Enhancing the Effectiveness of Team Science
(National Research Council, 2015)

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Study sponsored by the National Science Foundation and Elsevier
Enhancing Team Effectiveness

(Kozlowski & Bell, 2003, 2013, in press; Kozlowski & Ilgen, 2006)

- 70+ years of research on work group & team effectiveness
- Focused on well-established findings
- **Emergent team processes** ➔ team effectiveness
  - Cognitive, motivational/affective, and behavioral processes
- **Interventions** that show demonstrated effects or promising findings for influencing the quality of team processes

**Findings guide application; Gaps guide future research**
Work Teams Are …

- Two or more individuals (~ 7+/- 2 or they self-organize into smaller units)
- Who interact (face-to-face or virtual network)
- Have one or more common goals
- **Exist to perform task-relevant functions**
- **Exhibit work interdependencies (goals, workflow, outcomes) and differentiated roles**
- **Embedded in an organizational system**
- **With boundaries and dynamic linkages to the system and task environment**
Enhancing the Effectiveness of Work Groups and Teams

Factors that Shape, Leverage, or Align Processes

Organizational System, Contextual Contingencies, and / or Environmental Dynamics and Complexity

- Environmental dynamics and complexity drive team task demands
- Team processes align team member resources to fit demands
- Team outputs influence the environment
- Cycles are reciprocal over time

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Key Team Processes and Recommended Interventions

Team Process Typology:
- Cognitions
  - Knowledge
  - "Thinking"
- Motivational States
  - Effort & Affect
  - "Feeling"
- Behaviors
  - Skills
  - "Doing"

Targeted Team Processes:
- Cognitions
  - Team Climate
  - Mental Models
  - Transactive Mem
- Motivational States
  - Team Cohesion
  - Team Efficacy
  - Group Potency
- Behaviors
  - Coord/comm
  - Competencies
  - Regulation & Adaptation

Recommended Interventions:
- Team Design
- Training & Development
- Leadership

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Organizational Systems & Team Effectiveness

Accelerating ERC’s
October 2018
<table>
<thead>
<tr>
<th>Cognitive Processes</th>
<th>Concept</th>
<th>Evidence</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Climate</td>
<td>Strategic imperatives</td>
<td>Meta-analysis; Substantial research foundation</td>
<td>Application ready; Train science team leaders to build a strong team vision &amp; mission climate</td>
</tr>
<tr>
<td>Team Learning</td>
<td>Psychological safety; learning from errors; supportive feedback; open leadership</td>
<td>Substantial systematic research foundation</td>
<td>Application ready; Train science team leaders to create psychological safety to support team learning</td>
</tr>
<tr>
<td>Knowledge Building</td>
<td>Information sharing mechanisms</td>
<td>Meta-analysis; Computational modeling</td>
<td>Develop communication and knowledge sharing protocols; Leadership can shape the process</td>
</tr>
<tr>
<td>Team Mental Models</td>
<td>Shared knowledge structures</td>
<td>Meta-analysis</td>
<td>Application ready; Train science team leaders to conduct pre-briefs and debriefs; Provide team training</td>
</tr>
<tr>
<td>Transactive Memory</td>
<td>Team distributed memory</td>
<td>Meta-analysis</td>
<td>Facilitate interaction and shared experience; Research needed on interventions</td>
</tr>
</tbody>
</table>
## Motivational / Affective Processes

<table>
<thead>
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<th>Motivational / Affective Processes</th>
<th>Concept</th>
<th>Evidence</th>
<th>Recommendations</th>
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</thead>
<tbody>
<tr>
<td>Team Cohesion</td>
<td>Task commitment and social attraction</td>
<td>Multiple meta-analyses</td>
<td>Leaders can shape and influence cohesion formation</td>
</tr>
<tr>
<td>Team Efficacy</td>
<td>Shared confidence for goal attainment</td>
<td>Meta-analysis</td>
<td>Application ready; Train science team leaders to build and instill team efficacy; Provide team training</td>
</tr>
<tr>
<td>Conflict Management</td>
<td>Group emotions</td>
<td>Research foundation</td>
<td>Application ready; Train basic skills to team leaders and team members to manage task, relationship &amp; process conflict</td>
</tr>
</tbody>
</table>
## Behavioral Processes

<table>
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<tbody>
<tr>
<td>Team coordination, cooperation, and communication</td>
<td>Combination of member actions; information exchange</td>
<td>Systematic research foundation</td>
<td>Application ready; Design supporting goal and feedback systems; Train science team leaders to develop team regulatory skills; Provide team training</td>
</tr>
<tr>
<td>Team member competencies</td>
<td>Teamwork KSAs</td>
<td>Systematic research foundation</td>
<td>Application ready; Provide teamwork skills training to science team members</td>
</tr>
<tr>
<td>Team regulation</td>
<td>Regulation of attention and effort</td>
<td>Systematic research foundation</td>
<td>Application ready; Train science team leaders to develop team regulatory skills</td>
</tr>
</tbody>
</table>
Science Team Challenges:
- They are like other work teams, but can be **complicated**

**TABLE 1-1. Dimensions of Team Science**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity of team or group membership</td>
<td>Homogeneous</td>
</tr>
<tr>
<td>Disciplinary integration</td>
<td>Unidisciplinary</td>
</tr>
<tr>
<td>Team or group size</td>
<td>Small (2)</td>
</tr>
<tr>
<td>Goal alignment across teams</td>
<td>Aligned</td>
</tr>
<tr>
<td>Permeable team and organizational bounds</td>
<td>Stable</td>
</tr>
<tr>
<td>Proximity of team or group members</td>
<td>Co-located</td>
</tr>
<tr>
<td>Task interdependence</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Heterogeneous</td>
</tr>
<tr>
<td></td>
<td>Transdisciplinary</td>
</tr>
<tr>
<td></td>
<td>Mega (1000s)</td>
</tr>
<tr>
<td></td>
<td>Divergent or Misaligned</td>
</tr>
<tr>
<td></td>
<td>Fluid</td>
</tr>
<tr>
<td></td>
<td>Globally distributed</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
</tbody>
</table>

**SOURCE:** Created by the committee.
<table>
<thead>
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<th>Concept</th>
<th>Evidence</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Structure</td>
<td>Structure of roles, responsibilities, goals, and authority</td>
<td>Substantial research foundation</td>
<td>Application ready; Apply design principles for larger science “teams”</td>
</tr>
<tr>
<td>Workflow Design</td>
<td>Structure by which information and effort flow among team members</td>
<td>Substantial research foundation</td>
<td>Application ready; More complex workflows necessitate more active leadership, coordination, and communication protocols</td>
</tr>
<tr>
<td>Virtuality</td>
<td>Distribution of team members across time and space</td>
<td>Substantial research foundation</td>
<td>Places increased demands on science team leaders to coordinate information &amp; effort</td>
</tr>
<tr>
<td>Team Composition</td>
<td>The pattern of individual differences (e.g., demographics and ability, experience, values, personality, culture, etc.) across team members</td>
<td>Meta-analyses</td>
<td>A critical input for team effectiveness Focus on key knowledge &amp; skills; orientation toward collaboration &amp; teamwork</td>
</tr>
</tbody>
</table>
Team Leaders are “linking pins” that integrate teams or units in a hierarchical organizational system.

Integration via leaders as linking pins

Differentiation by problem, project, discipline, function, etc.
Between Team Linkages - Hierarchy and / or …

Teams of Teams, Team Networks – Multi-Team Systems

Liaison Roles – Lateral Team Links
Linking Diverse Members: International Science Team
- Activate a team network; prevent “faultlines”

Developmental Sequence

Formation
- New Teams
  - Mentor
  - Objectives:
    - Meld new members to the team, its mission, & goals;
    - Build shared affect and attitudes to bond members to the team

Development
- Novice Teams
  - Instructor
  - Objectives:
    - Build skill proficiency for individuals;
    - Develop self-efficacy, knowledge, & cognitive-structure

Refinement
- Expert Teams
  - Coach
  - Facilitator
  - Objectives:
    - Promote team capabilities & behavior;
    - Build team-efficacy, shared mental models, & compatible behavior
    - Aid situation assessment, maintain & recover team coherence

Team Leader Role:
- New Teams: Mentor
- Novice Teams: Instructor
- Expert Teams: Coach & Facilitator

Task Cycle
- Low Intensity Task

Learning Cycle
- SET LEARNING GOALS
- GUIDE PROCESS FEEDBACK
- DIAGNOSE ERRORS
- MONITOR PERFORMANCE

Low Intensity Task
- High Intensity Task
Leadership Theory “Tools” or Concepts

- Transformational Leadership
  - Compelling vision, engaging members, collective orientation

- Relational Leadership
  - Crafting roles & relations, facilitating proaction & initiative

- Functional Leadership
  - Ensure task accomplishment & team functioning
  - ‘leader’s job make sure it’s done, not necessarily to do it all’

- Shared Leadership
  - Leadership functions are distributed across the team
Improving Science Team Effectiveness

➢ A wealth of solid research support for the importance of several key team processes ➞ team effectiveness
  ➢ Cognitive – Unit-team climate, TMM, TM
  ➢ Motivational – Team cohesion and team efficacy
  ➢ Behavioral – Team competencies and regulatory mechanisms

➢ A wealth of theory and empirical support for interventions that enhance team processes and performance
  ➢ Team design, team training, team leadership
Thanks … Questions?
Resources


