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Team Problem Solving and Motivation Under Disorganization

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Aims and Objectives

• Exploring how disorganization affects teams and their motivation
  • Does changing the rules of interaction between team members affect problem solving and motivation?

• Understanding of what type of organizational structure is suited to each type of team.
  • Does the manner in which the team members are connected affect problem solving and motivation?
Disorganization

• First introduced in the 60’s
  (Merton, 1968; Crozier, 1969; Cohen et al., 1972)

• Over the years various definitions have been given
  (Warglien and Masuch, 1996; Abrahmson, 2002)

<table>
<thead>
<tr>
<th>Structural Disorganization</th>
<th>Functional Disorganization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topology of the team</td>
<td>Rules of Interaction</td>
</tr>
<tr>
<td>How the team is structured</td>
<td>How the members of the team interact with each other and the environment</td>
</tr>
</tbody>
</table>
Disorganization Continuum

Volunteer Organizations

Disorganized

Religious Organization  SCARF  Museum  HANTSAR  Scouts

Organized


The Data

• Data set
  • Individuals sought information through the New Forest Community Volunteering Centre about volunteering. N. 226 (Employed n. 118)
  • Web-based survey- Quantitative

• Measure

  • Validated PSM (Perry 1996) P-O fit volunteer (Bright 2008) and Volunteer Intensity scales (Rodell 2013)
The simulation contains 5 teams (Based on continuum)

Each team consist of 5 – 7 members (volunteers)

Each team is unique (different breeds)

The main task for all teams is carry out is fund raising

Each team member is a volunteers and only volunteers for a limited time

The real world data is fed into the simulation through initial conditions
The Model – Agents

- Two scenarios are modelled
  - Disorganisation (Structural and Functional)
  - Organisation (Structural and Functional)

- 4 Types of Agents

<table>
<thead>
<tr>
<th>Volunteer (V)</th>
<th>Time volunteered in hours (t), effort (Volunteer intensity) (e), PSM (m), POV fit (p), level (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task/Problem (P)</td>
<td>Complexity (comp), level (l)</td>
</tr>
<tr>
<td>Solution (S)</td>
<td>Efficiency (ef), level (l)</td>
</tr>
<tr>
<td>Opportunity (O)</td>
<td>Level (l)</td>
</tr>
</tbody>
</table>
The Model – Functional

- Disorganised (Functional)
  - Teams move freely
    - Randomly selected directions
  - Team member can interact with any P, O or S regardless of level

- Organised
  - Team members can only engage with P, S, O with one on a similar level
    \[ V_l \neq P_l \text{ OR } V_l \neq S_l \text{ OR } V_l \neq O_l \]
  - Repulsion Happens
The Model – Decision Making

• Decision Making
  – Resolution
    • Happens when a team and the other 3 agents come into contact
    \[ T_c \equiv \sum_{i=1}^{n} (Vt_i + Ve_i +Vm_i + Vp_i) \]
    Team Capability

  – Fail & Redistribution
    \[ T_c + S_{me\ (ef)} \geq P_{comp} \]
    \[ F_c = F_c + 1 \]
    \[ T_c + S_{me\ (ef)} < P_{comp} \]
    \[ R_c = R_c + 1 \]
The Model – Motivation

\[ T_c > P_{comp} \quad \text{Low Complexity Problem} \]
Increase Motivation -> \[ Vm_i = Vm_i \times 1.1 \]

\[ T_c \leq P_{comp} \quad \text{High Complexity Problem} \]
Increase Motivation -> \[ Vm_i = Vm_i \times 1.2 \]

\[ T_c + S_{me} (ef) < P_{comp} \quad \text{Failed Problem Resolution} \]
Decrease Motivation -> \[ Vm_i = Vm_i \times 0.8 \]
The Model – Reporting

- The number of volunteers, opportunities, solutions and problems that are in the environment at any point in time
- Total efficiency of solutions
- Total difficulty of problems
- The number of completed tasks (team/total)
- The number of failed tasks (team/total)
- Motivation level (team/total)
- Problem latency
- Comparison between failed and completed
Further Development

• What’s next?
  • Introducing new volunteers into the system and replace to the old volunteers
  • A new volunteer (N) can join any team I
    \[ \sum V_n < 7 \]

• If a new volunteer encounters a team that is full it will check the following with each agent that are in its range
    \[ \text{IF } \sum V_n < 7 \text{ and } \text{IF } N \sum t, e, m, p > V \sum t, e, m, p \]
    then N replaces V at the place

• Changing team leadership
  • After a certain amount of time lapses
  • Special leaders inserted into the system directly (occasionally)
    • Leader (depending on type) goes and replaces the leader of the team
Conclusion and Outlook

• The next step is to further develop the simulation
  – Optimise and test
  – Run and Gather data
  – Data analysis

• Upon completion we aim to
  – Develop and understanding of what type of organizational structure is suited to each type of team
  – Exploring how disorganization affects teams and motivation
Thank You!

Q & A
Back up Slides
Public Service Motivation

“An individual’s orientation to delivering service to people with the purpose of doing good for others and society”
(Hondeghem and Perry 2009, p. 6)

• Motives: rational, norm and affective

• Original six dimensions:
  • Attraction to Policy Making
  • Social Justice
  • Commitment to Public Interest
  • Civic Duty
  • Self-sacrifice
  • Compassion