The Case for Project Management Graduate Education

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Asia Pacific International College
My Thesis

- Projects and programs behave as complex systems
- Project managers need fresh perspectives, values and reference models
- It is essential to move beyond the normative stage
- Development should be intellectually based
- Postgraduate education enlarges perspectives, values and reference models
“We are dealing with complex challenges that are unpredictable; they cause confusion, ambiguity, conflict and stress. As we wrestle with these challenges, we recognize that there are no easy answers and that for these problems to be solved we are all going to have to learn new ways of solving them.”

Carmine Marcello, Program Director, Ontario Grid Control Centre Transformation Project, Hydro One Inc., Ontario
Realities of Professional Practice

- Real life situations are imperfect
- Often not enough information is available; too costly to obtain; too little time to gather
- Decision making is constrained; conflicts are predominant
- Insufficient time to undertake complicated evaluations
- Problems/contexts are so complex that cannot be modelled
- Situations have progressively moved from the predictable to unpredictable
- Our ability to influence have diminished over time
- On projects risks that we do not know often cause failure not those we can identify.
Project population space

Environmental Complexity

Increasing project complexity
Increasing environmental instability/uncertainty/change
Increasing Chaos

Complex/Simple
Simple/Stable
Simple/Turbulent
Chaotic

Simple
Stable
Turbulent

Project Complexity
The Cynefin* model

Sense making and response

Disorder

Complex
- Pattern management
- Matriarchal/Patriarchal leadership
- Probe, Sense, Respond

Known
- Analytical/Reductionist
- Oligarchic leadership
- Sense and respond

Chaos
- Turbulent and unconnected
- Charismatic or tyrannical leadership
- Act, Sense, Respond

Order

Source: Cynthia Kurtz & David Snowdon

*. Pronounced kun-ev'in www.cynefin.net
Projects as phenomena

- **Mental models, time** $t_0$
  - Interpretation of complex world (dependent on actor’s experience, time & place)

- **Revised models, time** $t_1$
  - New learning from feedback & changes in environment (time & space) reshapes mindset

- **Revised models, time** $t_2$
  - New learning from feedback & changes in environment (time & space) reshapes mindset

- **Revised models, time** $t_3$
  - New learning from feedback & changes in environment (time & space) reshapes mindset

- **Knowledge on complex problem, time** $t_0$
  - Action at time $t_1$

- **Feedback, reflection on performance, time** $t_1$
  - New action at time $t_2$

- **Feedback, reflection on performance, time** $t_2$
  - New action at time $t_3$

- **Feedback, reflection on performance, time** $t_3$
  - Next Cycle

Project or Program (complex-messy)
Projects as dynamic systems

Project Life Cycle

- Project status at time t₁
- Project status at time t₂
- Project status at time t₃
- Project status at time t₄
- Project status at time t₅

Health of the Project assessed at time t₁ by Project Health Check

PH-Check Report Card (enabling factors)

Project progress estimated at time t₁ by project manager

Project Progress Report (Cost, Time, Quality, ...)

Correlate enabling factors & measured results

Intervention required?

Next Assessment

Apply intervention

Yes

No
Empirical study, 2003

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<th>Importance</th>
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# Projects as complex systems

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<th>No. of Variables/Processes</th>
<th>Project Creation</th>
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<td>QM Strategy</td>
<td>QM Master Plan</td>
<td>Construction &amp; Manufacturing QM</td>
<td>Implement QM</td>
<td>Verification, Acceptance &amp;</td>
<td>Lessons Learnt</td>
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**Functional (Managerial) Integration**

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**Product and Process Integration**
## Project Management Typologies

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<tr>
<th>Typology</th>
<th>Environmental complexity</th>
<th>Project complexity</th>
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<tbody>
<tr>
<td>Transformative</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Normative</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Bureaucratic</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Ad-hoc</td>
<td>Low</td>
<td>Low</td>
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</table>

### Diagram:

- **Type 1 Ad-hoc**
- **Type 2 Bureaucratic**
- **Type 3 Normative**
- **Type 4 Transformative**
Normative vs. Transformative Competencies

- Traditional competencies ~ normative model
- Suitable for defined projects in stable conditions
- Yet projects/programs falling outside this zone are on the rise
- Normative people feel frustrated when faced with uncertainty and chaos
- Need different mindset to function effectively in an environment of complexity, uncertainty and change
What is normative model?

- Assumes universality of order, rational choice and intent
- Objective, rational, technical, best practice....
- Based on Taylor’s Scientific Management approach
- Nearly one century old; still dominant management mindset
- The entire QA movement based on scientific management
- On conditions of instability and chaos the application of ‘best practice’ may cause failure!
## The normative professional

<table>
<thead>
<tr>
<th>Character</th>
<th>Technical, logical; problem-solving</th>
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</thead>
<tbody>
<tr>
<td>Capability</td>
<td>Solvable, convergent problems</td>
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<tr>
<td>Approach</td>
<td>Solving problems; applying knowledge competently and rationally</td>
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<tr>
<td>Criteria</td>
<td>Logic, efficiency, planned outcomes; cause-effect, proof</td>
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<tr>
<td>Epistemology</td>
<td>Objectivism: knowledge is stable and general; precedes and guides action</td>
</tr>
<tr>
<td>Validation</td>
<td>By reference to others' expectations: standards, accepted wisdom, established discourse; 'truth'</td>
</tr>
<tr>
<td>Thinking</td>
<td>Primarily deductive / analytical; sceptical of intuition</td>
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<tr>
<td>Profession</td>
<td>A bounded, externally-defined role, characterised by norms, values and a knowledge-base common to the profession</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Objectivity, rules, codes of practice</td>
</tr>
<tr>
<td>Professional standards</td>
<td>Defined by the employer, professional body or other external agency according to its norms and values</td>
</tr>
<tr>
<td>Professional development</td>
<td>Initial development concerned with acquiring knowledge, developing competence and enculturation into the profession's value system; continuing development concerned with maintaining competence and updating knowledge</td>
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After Lester, 1994
Some observations

- Projects/programs as emergent systems
- Learning and practice merge at points of interaction/intervention
- Competence refers to adequacy of internal models that are used for complexity reduction purposes
- Meaning of professionality changes to autonomy, self reference and group self organisation
- Success also depends on prevalence of shared values, intrinsic rewards and strong personal & group ethics
Essential Qualities of Professional and Executives

Professionals & executives should:

- Be creative and lateral thinkers
- Possess critical thinking/conceptualisation skills
- Be strategists and integrators
- Be reflective learners
- Possess ability to optimise/customise solutions across technical, organisational, financial, social and environmental angles
- Be proactive to tap opportunities & resolve uncertainties (constant value addition/risk reduction)
- Be innovative & contribute to evolution of best practice
### Professional leaders and managers

<table>
<thead>
<tr>
<th>character</th>
<th>professional leaders and managers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>character</strong></td>
<td>creative, interpretive; design</td>
</tr>
<tr>
<td>capability</td>
<td>congruent futures; 'messes,' problematic situations, divergent problems</td>
</tr>
<tr>
<td>approach</td>
<td>understanding problematic situations and resolving conflicts of value; framing and creating desired outcomes</td>
</tr>
<tr>
<td>criteria</td>
<td>values, ethics, congruence of both methods and outcomes; systemic interrelationships, theory, faith</td>
</tr>
<tr>
<td>epistemology</td>
<td>constructivism: knowledge is transient, situational, personal and unique; both informs action and is generated by it</td>
</tr>
<tr>
<td>validation</td>
<td>by questioning fitness for purpose, fitness of purpose and systemic validity; 'value'</td>
</tr>
<tr>
<td>thinking</td>
<td>inductive, deductive and abductive; uses 'intelligent intuition'</td>
</tr>
<tr>
<td>profession</td>
<td>a portfolio of learningful activity individual to the practitioner, integrated by personal identity, perspectives, values and capabilities</td>
</tr>
<tr>
<td>professionalism</td>
<td>exploration of own and others' values, personal ethics, mutual enquiry, shared expectations</td>
</tr>
<tr>
<td>professional standards</td>
<td>negotiated by the participants and other stakeholders in the practice situation in accordance with their values, beliefs and desired outcomes</td>
</tr>
<tr>
<td>professional development</td>
<td>ongoing learning and practice through reflective practice, critical enquiry and creative synthesis and action; continual questioning and refinement of personal knowledge, understanding, practice, values and beliefs</td>
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**After Lester, 1994**
Development of Project Managers

- “One solution fits all” does not work
- Quick fixes do not generally work
- Approach development of project managers holistically
- Needs a learning laboratory

Competence
- Managerial & technical competence
- Leadership & ethics
- Learning & innovation competence
- Risk management competence

Knowledge
- Core bodies of knowledge
- Broad based knowledge
- Research-based learning
- Tacit and formalised knowledge
- Learning resources & tools
- Knowledge creation & management

Industry & Society
- Innovation
- Sustainability
- Business & government dynamics
- Regional development
- Networks

Technology
- Technological innovation
- Technology dimension
- Technology services
- Technological advancement
- Communication & collaborative technologies
## From normative to transformative state

<table>
<thead>
<tr>
<th>Model</th>
<th>Level 1 - Aware</th>
<th>Level 2 - Informed</th>
<th>Level 3 - Involved</th>
<th>Level 4 - Competent</th>
<th>Level 5 - Transformative</th>
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</table>
| APIC  | • Understands the theory and is guided by it  
      • Has some ability to factor in context and dynamics  
      • Is receptive to learning | • Ability to search & select theory, adjust to context and optimise to achieve goals  
      • Uses experience & professional judgement as guide to planning & action  
      • Can identify knowable unknowns and guides efforts towards the results | • Ability to contextualise knowledge  
      • Demonstrated competency in a range of application fronts  
      • Has established measurements for system improvement  
      • In general feels comfortable with new situations  
      • Can use expertise to revise goals, plans & actions | • Acknowledged competency & ability to guide change  
      • Has established feedback & optimised the application of theory in the context of the problem  
      • Holistic systems approach to problems, goals & plans  
      • Manages new situations and challenges beyond expectation  
      • Ability to manage large endeavours and systems with greater complexity | • Innovation focus to improve/extend application areas  
      • Holistic approach to problems, goals, plans and actions; engendering new solution spaces  
      • Strategic planning & leadership of large complex systems  
      • Novel approaches to complex problems; synthesis mindset  
      • Fostering creativity, inspiring peers, teams & organisations in terms of strategy, implementation & people  
      • Ability to unlock value creation potential & inspire peers & teams to achieve exceptional results  
      • Merges learning and practice |
Conclusions

• Projects and programs as complex dynamic systems
• Characterised by complexity, uncertainty and change
• Changing nature of professional practice
• Need a learning lab approach to promote creative-reflective learning and development
• Focus is on capability to manage complexity and change
• Emphasis on transformative competencies
  – Emotional intelligence
  – Creativity
  – Value focus
  – Holistic and systems approach