Using Complexity Leadership Theory to Plan for Emergent Change

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Four Categories of Change Strategies

Focus on Changing Individuals

Prescribed Final Condition

Disseminating Curriculum & Pedagogy
Development and Dissemination
Faculty Self-Development

Developing Policy
Old (Top Down) Leadership
New (Empowering) Leadership

Developing Shared Vision

Focus on Changing Environment/Structures

Emergent Final Condition

How they Work
Focus on Changing Individuals

Prescribed Final Condition

Design
Implement
Evaluate

Emergent Final Condition

Focus on Changing Environment/Structures


How they Work

Individuals

Prescribed

Environments

Emergent

CURRICULUM & PEDAGOGY

REFLECTIVE TEACHERS

Leading Change

John P. Kotter

SHARED VISION

Kotter’s Eight Stage Change Model
Change is episodic, with a clear beginning and end

1. Create urgency
2. Form a powerful coalition
3. Create a vision for change
4. Communicate the vision
5. Empower action
6. Create quick wins
7. Build on the change
8. Make it stick

Little guidance exists for emergent change
Groups are a common feature of both reflective teachers and shared vision, but serve different purposes in each case.

Complexity Leadership Theory

Change is cyclic and ongoing

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<thead>
<tr>
<th>Change is cyclic and ongoing</th>
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<tbody>
<tr>
<td>1. Disrupting patterns to encourage interactions between individuals</td>
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<td>2. Developing rules that create interdependency to encourage teamwork</td>
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<td>3. Encouraging dissenting opinions to increase tension</td>
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<td>4. Avoiding stifling regulations</td>
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<td>5. Articulating the vision</td>
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<td>6. Identifying emerging knowledge from interactions</td>
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<td>7. Communicating emerging knowledge to formal leadership</td>
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<td>8. Implementing knowledge</td>
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Changing Teaching Practices from a Complexity Leadership Perspective

Three Examples

• CU Boulder (Wieman Course Transformation Model)
• U of Maryland College Park (Marbach-Ad Research Group Model)
• Iowa State University (Ogilvie Learning Community Model)

Wieman Course Transformation Model

Course Level → Program Level

• Disrupt existing patterns
  – Start with focus on upper-division E&M course. 13 instructors met 7 times to set goals. Significant support by post doc.
  – Developed an assessment instrument
• Encourage Novelty
  – Core Question: “What is junior E&M1 about? How is it different from the introductory E&M course?”
• Interpret Emerging Events
  – Significant “behind the scenes” work by post docs and others to synthesize ideas and report back to larger group
  – Course level led to broader program level goals (and shared language in the department)

Course Level Led to Broader Program

Level Goals

Electricity and Magnetism 1

Classical Mechanics/Math Methods 1

Quantum Mechanics 1

Broad Learning Goals for Upper-Level Physics
1. Math/Physics Connection
2. Visualization
3. Knowledge Organization
4. Communication
5. Problem-Solving Techniques
6. Problem-Solving Strategies
7. Expecting and Checking Solution
8. Intellectual Maturity

http://www.colorado.edu/sei/departments/physics_learning.html

Marbach-Ad Research Group Model

Start with Important Topic Area

• Disrupt existing patterns
  – Focus on 7 microbiology courses, Want to Minimize overlap, allow courses to build on one another
  – 12 instructors meet monthly. Supported by a graduate student.
  – Develop assessment instrument

• Encourage Novelty
  – Core Question: “What do we want our students to truly understand and remember 5 years after they have completed our set of our courses?”

• Interpret Emerging Events
  – Instructors change their courses and discuss experiences with group.
  – Assessment results help to guide discussion.
  – (Spread did not occur)


*Marbach-Ad, G., Briken, V., Fraueith, K., Gao, L.-Y., Hutchens, S. W., Joseph, S. W., ... Smith, A. C. (2007). A faculty team works to create content linkages among various courses to increase meaningful learning of targeted concepts of microbiology. *CBE Life Sciences Education*, 6(2), 155–62. doi:10.1187/cbe.06-12-0212*
Iowa State University
Learning Community Model

• Disrupt existing patterns
  – Focus on 5 science departments to improve 1st and 2nd-year science courses
  – Four Learning Communities (LCs)
  – In successful department: new faculty assignments, co-teaching

• Encourage Novelty
  – Simple Message: “students should do science in the first two years of college”
  – In successful LC: faculty teaching same large-lecture course

• Interpret Emerging Events
  – Post doc to support LC work (new ideas, time)
  – In successful department: supportive department chair (personal interactions, time in faculty meetings)
  – (Spread did not occur)

Change Initiatives from a Complexity Leadership Perspective

Key Features
• Disrupt existing patterns:
  – Support: Working groups need support (e.g., post doc or grad student)
  – Interdependence: Individuals have a reason to work together (e.g., new course assignment)

• Encourage Novelty
  – Moderate Diversity: Groups have some diversity of ideas/experiences, but not so much that it is a barrier
  – Simple rule: Work framed by compelling, simple rule or question (e.g., “students should do science in their first two years”)

• Interpret Emerging Events
  – Facilitation: interpreting within groups
    • post doc or grad student played an important role
    • Additional one-on-one communication outside of group meetings
  – Communication: Spreading ideas outside of groups
    • Shared Language: extracting principles from details
Complexity Leadership in Action: Broncos FIRST

“What would it mean for institutions to take student retention seriously? It would mean that institutions would stop tinkering at the margins of institutional life and make enhancing student retention the linchpin about which they organize their activities.” (Tinto, 2012, p. 116)

Complexity Leadership in Action: Broncos FIRST

In 2014, WMU was awarded a $3.2 million grant by the DoE First in the World program to promote and study institutional transformation towards improving student success (defined as progress towards graduation).

Through a collaborative change model that involves optimizing and coordinating current institutional efforts as well as promoting cultural change through Professional Learning Communities (PLCs).
We planned the project from inception as an emergent change initiative shaped by Complexity Leadership principles.

Broncos FIRST Overall Model

Broncos FIRST Logic Model

Purpose of Program:
To improve persistence and completion of low-income students who enter WMU

Inputs/Resources
Critical Components
Carbon Resources
E.g.: Kalamazoo Promise
Kalamazoo Regional Chamber of Commerce
External Funding

Existing WMU programs
Existing WMU faculty and staff

Create interactions within WMU
Build Community Partnerships and Develop Mentoring Program

Intervention 1
T1 Community Mentoring
T2 Reciprocal Mentoring in PLC

Intervention 2
Professional Learning Community Projects

Improved Persistence among Program Students

Key Metrics:
Retention 1st to 2nd year
> 2nd to 3rd year
> GPA 1st year
End of 2nd year

Institutional Learning Related to Persistence
Increased formal and informal connections between WMU knowledge and student success

Key Metrics:
Ista to 2nd year
> 2nd to 3rd year
> GPA 1st year
End of 2nd year

Institutional Transformation
Support of students through persistence
New programs

Key Metrics:
Retention 1st to 2nd year
> 2nd to 3rd year
> GPA 1st year
End of 2nd year

External funding

Disrupt Existing Patterns

• Fundamentally – using grant to look inward at ourselves rather than outward or at “fixing” specific student groups.
• Process – bringing faculty, staff, administrators and the students themselves together to address collaboratively identified issues and challenges.
• Outcomes – not prescribed

Encourage Novelty

• PLCs are not “directed” – they will co-create their own curriculum and identify issues/questions for projects collaboratively
• Make-up of the PLCs VERY diverse, and include students as experts of their own experiences
• Facilitators trained to foster authentic discussion – including disagreement
• Larger network-building approaches
Interpret Emerging Events

• The largest line item in the budget is for RESEARCH on our process and on the emerging outcomes of the project.
• We have a direct communication line to the President and Provost, and our advisory board contains key associate deans and administrators who can scale up and institutionalize projects and recommendations.

Determining Results

• It can be difficult to “measure” emergent results – we have multiple approaches to measure change, both quantitative and qualitative.
• Our research design is intensively focused on process and intentionally open to emerging results.
Questions?

• www.wmich.edu/changeresearch.com