Understanding the Culture of Collaboration: An Exploration of Transnational Research Partnerships

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The World's Grand Challenges ...a few examples

- Global Climate Change
- Poverty
- Our Energy Future
- Clean Water
- Emerging Infectious Diseases
- Terrorism and Security

Society's Challenges

- Scale--increasingly transnational
- Scope---beyond a single discipline, institution, or nation
- Calls for
  - Multi-institutional approaches to what used to be done in isolation
  - Transdisciplinary Teams
  - Global Partners

The Promise of Global Research Partnership

- Amass and harness resources
  - Intellectual
  - Material
- Augment institutional gaps
- Innovation
- Speed of discovery
- Offer complementary strengths
- Intellectually diversify the team

Aim

- To describe practices that support or deter multinational, interinstitutional research collaboratives, as perceived by involved individuals

Two-Fold Sampling Strategy

- Collaboratives deemed to be successful

- Collaboratives deemed as not successful

Denrell, J. (2005). Selection bias and the perils of benchmarking. Harvard Business Review: 83(4), p 114-121

Methods

- Design
  - Case study
  - Semi-structured interview
- Purposive Sample
  - 15 cases
  - 4 continents
  - Data gathered between October 2007-April 2008

Findings…
An Array of Distinct Categories

- Differ in Number & Type of Interface
  - Few/tangible
  - Multiple/subtle
- Each Additional Interface
  - Increases interaction costs
  - Increases time to both data collection and research outputs

Thus...

- Practices that best support inter-institutional research vary dramatically, depending on the nature of the collaborative

Conceptual Framework for Inter-Institutional Collaboratives

- Time to Research Outputs (vertical axis)
- Complexity of Interface (horizontal axis)

Differing Cultures
Sensitive Topic
Human Subjects

Differing Scientific Languages
Academic Cultures

Bridging
Peers

Data Sharing

Parallel Facility Sharing

Institution Bears Risk
Individual Bears Risk

Findings: Categories of Inter-Institutional Research

- #1: Parallel facility sharing
- #2: Data sharing
- #3: Bridging peers—Collaboratives with a single scientific language and culture
- #4: Collaboratives with diverse scientific languages and cultures, not involving human subjects or sensitive topics
- #5: Collaboratives involving human subjects and/or culturally or politically sensitive topics

#1: Parallel Sharing

- Shared use of space, equipment, labs
- May not demand interpersonal collaboration or even contact
  - "…people aren't working with each other, they are working with the equipment"
- "Collaboration" is essential to access the game
- Typically among <u>institutional peers</u>, shared scientific language (scientific world is the same, even if geographic world is not)

Characteristics of Parallel Sharing

- Institutional agreements, clear rules, defined protocols support coexistence
- Administrative champion
- Additional funds spur added productivity
- Rapid path to faculty productivity
  - "...the table is set."
- Intellectual property issues may emerge as actual interaction evolves

Parallel Play

- Term is from developmental psychology

  (Mildred Parten, 1932)

- Preschool children play beside each other, not with each other
- Foundation for later
more cooperative play

#2:   Data Sharing Collaboratives

- A.   Voluntary
  - Typically successful
- B.   Mandated *de facto*
  - Typically successful
- C.   Mandated *post hoc*
  - Typically troubled

2A.   Voluntary Data Sharing

- Sharing
  - Data
  - Electronic images
  - Techniques/technology (after patent)
- Impetus
  - Collateral gain
- Functions like a "parallel" model
- Champion not notable

Mandated Data Sharing

- 2B. Monitoring networks
  - Effective—coexistence is an *a priori* assumption
  - Guided by gate keeping protocols
  - Uniform scientific language and expectations
- 2C. Mandated *post hoc*
  - Collaboration forced
  - Not productive
  - "Scientists want to protect their ideas and their data...it is our capital"
  - Minimum of what must be shared will be shared

#3: Bridging Peers: Collaboratives with a Single Scientific Language and Culture

- Characterized by functionality at each node of partnership
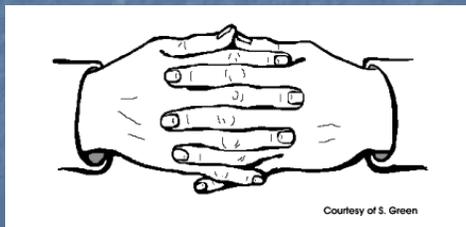
Courtesy of S. Green

Common Characteristics

- Nature of the work is transnational

- Investigators had early experiences with research in at least two countries (not just travel abroad)

- Intergenerational mentoring

Characteristics Continued

- Shared scientific language

- Peer institutions

- Often enabled by modest funding

- Champion of some sort may enable that funding

Disabling Factors

- Partnership is not equally valued by both institutions

- Research evolves questions that require connection where none exists
  - New institution or nation
  - New scientific language

#4: Collaboratives with Diverse Scientific Languages and Cultures
not involving human subjects or sensitive topics

- More barriers and challenges noted
  - Time, leading to concerns about decreased productivity
  - Disagreements and frustration regarding appropriate ways to proceed when issues arose

Challenges

- Heightened when institutions were not peers or seldom met face-to-face

- Clarity of the construct of study matters

- Clarity of the goal matters

Interdisciplinary Work Can Create Challenges

- "Sometimes there are different scientific languages....may make it difficult for some of the partners to have the work valued in their own institutions."

Academic Culture Can Also Challenge Clarity of Purpose

- "It is important that the research culture of your partners is similar, otherwise you may be judged doing weak work at home, yet it is fine for your collaborators."

Time is a Key Factor: Illustrative Comments from Senior Faculty & Administrative Proponents

"There are significant costs. Time, travel-- grants take longer to develop."

"Inexperienced faculty often underestimate costs, what this sort of interaction really takes."

"These efforts take time, and a young faculty member's productivity might be lower, so for assistant professors it is too scary.

These Realities Shape Faculty Behavior

"My institution is looking for number of publications and dollars. If this slows me down, I am not interested."

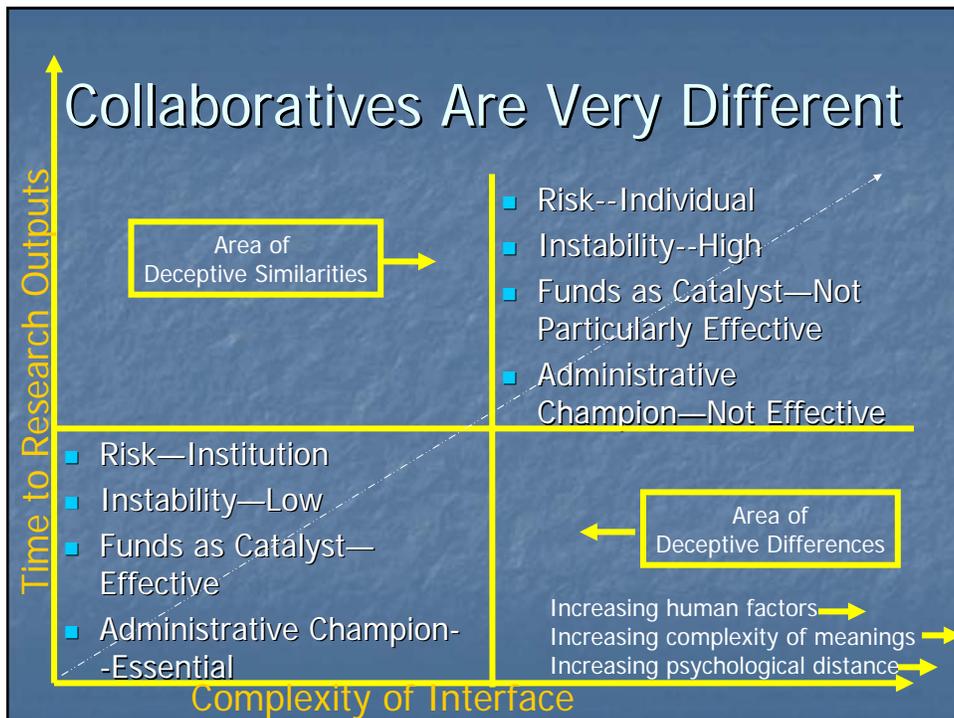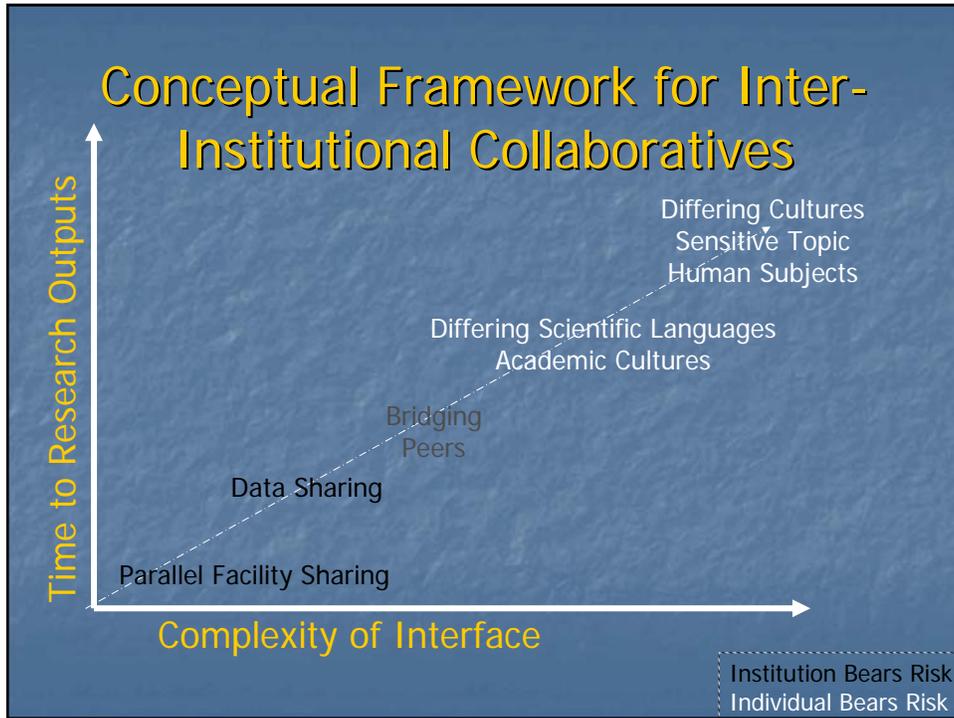## Incentive System is Broader than Institution, Bigger than Champion

- Institutional incentive/disincentive structure will trump the presence of a champion or funding

- Politics and broader reward system of a particular scientific culture will trump the institutional incentive/disincentive structure

#5: Collaboratives with Human Subjects or Sensitive Topics

- Marked increase in time for Institutional Review Board approval on US side
- Extended time period for approval in partnering institution
- Translation and back translation challenges (time, cost, availability of translators)

#5: Human Subjects/Sensitive Research Continued

- Reliability and validity of instruments tested in only one language
- Compliance may mean different things in different nations
  - Research integrity potentially viewed differently
- Again, complexity of the construct matters

Conceptual Framework for Inter-Institutional Collaboratives

Time to Research Outputs (vertical axis)

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Sensitive Topic
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Differing Scientific Languages
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Bridging
Peers

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Parallel Facility Sharing

Complexity of Interface (horizontal axis)

Institution Bears Risk
Individual Bears Risk

Collaboratives Are Very Different

Time to Research Outputs (vertical axis)

Area of
Deceptive Similarities

- Risk--Individual
- Instability--High
- Funds as Catalyst—Not Particularly Effective
- Administrative Champion—Not Effective

- Risk—Institution
- Instability—Low
- Funds as Catalyst—Effective
- Administrative Champion--Essential

Area of
Deceptive Differences

Increasing human factors
Increasing complexity of meanings
Increasing psychological distance

Complexity of Interface (horizontal axis)

- Champion
  - Effective or even essential in Q III
  - Not essential or potentially even helpful in Q II
- Stability
  - Decreases along Q III to Q II
- Individual risk
  - Increases along Q III to Q II
- Institutional risk
  - Decreases along that same axis
- Time
  - Most important in Q II
- Money and Intellectual Property
  - More important in Q III

Yet Success Defined Similarly

- Research Dollars
- Publications
- Foundation for more research
- Patents (in some disciplines)
- In some cases, opportunities for graduate students, teaching collaboratives

Conclusion

- Research collaboratives vary dramatically in the dimensions of interaction that need to be negotiated and accommodated
- Thus, interaction costs are different
- Effective strategies also vary

Languages Impacting Collaboration

- Scientific Language
- Institutional Language and Culture
- Potential for Precision of Study Constructs and Project Goals
- Spoken Language
- Implicit Social Language of Larger Culture
- Language of Profit

Recommendations

- Plans should carefully consider the type of collaborative, the partners, and structures and processes necessary for success
- Senior faculty and mentors should be thoughtful in advising junior faculty and graduate students, appreciating risks of time and instability in some collaboratives

Development Time Should Include

- Clear understanding of the goals of each partner
- Criteria for success
- Criteria for abandonment of the project
- Expectations around intellectual property
- The meaning & costs of research integrity/compliance

NOTE!

- This extends the time *before* the perceived beginning

Recommendations Continued

- Proposal development should consider real costs, inclusive of time and what that time costs
- Funders must become cognizant of these as well
- Special issues with human subjects
  - One full FTE of staff for IRB coordination between two US AHC (Moraham et al, 2006)
- Outcome expectations should reflect what is possible, by type of collaborative
- Implications for faculty reward and retention system

Further Study

- Intellectual Property
- Compliance
- Human Subjects
- Faculty Incentive & Reward Systems
- University/Corporation Collaboratives

Recommendations From Respondents

- Socialize graduate students in interinstitutional research

  ..."Our students are in a four dimensional world. Are we in two?"

Respondents Recommendations

- Creation of incubator interaction spaces
- Use of social networking space for community building
- Coaching, content in graduate seminars on virtual teams, reading electronic & virtual body language; formal training in "interaction repair"
- Graduate student exchanges

Respondents Recommendations

- Mediator, culture broker, not necessarily just a native speaker

- A formal leader "on the ground" in all "serious" collaboratives

Global Partnerships

- Questions????

- Comments????

- Critique???