

# ID Education: Theory and Findings

By

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# Howard Gardner

- **“In the 21<sup>st</sup> century, the most valued mind will be the synthesizing mind:** the mind that can survey a wide range of sources, decide what is most important and worth paying attention to, and then put this information together in ways that make sense to [itself] and, ultimately, to others as well” (18).
- *--Five Minds for the Future (2008)*

# Wicked Problems

- Evade clear definition
- Multi-causal, many interdependencies, unstable
- Based in paradox—mutually contradictory true statements
- Cannot be generalized beyond its context
- No single solution
- Interventions: Lead to unanticipated consequences,
- Cut across jurisdictional lines, and
- Require uncomfortable personal and societal changes

From: Brown, Harris, Russell, *Tackling Wicked Problems*  
(2010)

## Emerging Consensus Definition of IDS

\* “Interdisciplinary studies may be defined as a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession . . . IDS draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective.”

-- Klein & Newell, “Advancing Interdisciplinary Studies,”  
in Gaff & Ratcliff, *Handbook of the Undergraduate Curriculum* (Jossey-Bass, 1996)

## Allen Repko's Definitions of IDS

- “A process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline, and draws on the disciplines with the goal of integration their insights into a more comprehensive understanding” in *Interdisciplinary Research: Process and Theory*, 2<sup>nd</sup> ed. (Sage, 2012)
- “A cognitive process by which individuals or groups draw on disciplinary perspectives and integrate their insights and modes of thinking to advance their understanding of a complex problem with the goal of applying the understanding to a real-world problem” in *Introduction to Interdisciplinary Studies* (Sage, 2014).

## Points of Consensus on IDS

- Its focus exceeds the scope of a single perspective.
- A particular interdisciplinary study has a specific substantive focus.
- The distinctive characteristic of its focus is that it is broad or complex.
- Interdisciplinarity is characterized by an identifiable process or mode.
- Interdisciplinarity draws explicitly on the disciplines.
- Those disciplines provide insights into the specific substantive focus.
- Interdisciplinarity requires integration.
- The objective of integration is instrumental since the goal of interdisciplinarity is pragmatic: to solve a problem, resolve an issue, address a topic, answer a question, explain a phenomenon, or create a new product.

# Association for Interdisciplinary Studies

- Founded in 1979 by social scientists teaching interdisciplinary liberal education courses; humanities faculty quickly achieved parity, but few from nat. sci.
- Committed to developing IDS as a profession
- Focuses on intellectual/cognitive challenges of IDS
- Promotes scholarship on interdisciplinarity
- Internationalizing: Pres., Canada; P-elect, Netherlands
- 1/13 name change from Integrative to Interdisciplinary

# IDS in History of U.S. Ed

- Origins in reaction to disciplinary hegemony, SSRC, ed theories of John Dewey and Robert Maynard Hutchins
- By 1960s found mostly in experimental colleges, free-standing and within traditional universities or colleges
- Motivated by resistance to authority, desire for change in basic institutions, focus on student learning
- 1980s: Associated with honors, env. & women's studies
- 1990s: Part of package of innovations in liberal mainstream of higher education

• 2000s: Continued focus on interdisciplinary research



## A. IDS Outcomes: Traditional Liberal Arts Skills

- Critical thinking
- Analytical thinking
- Writing -- clarity and precision
- Research
- Deeper understanding of their world  
(ask why, not just memorize)
- Challenge world-taken-for-granted

## B. IDS Outcomes: Interdisciplinary Habits of Mind

1. Drawing insights from diff. perspectives into a complex issue
  - Strive for adequacy in each discipline and feel for its perspective
  - Seek out diversity of perspectives for richer/comprehensive understanding
  
2. Evaluating Insights
  - Assume each disciplinary perspective has at least a kernel of truth
  - Bracket and set aside/suspend personal convictions
  - Seek out all sides of argument; avoid overstatement/overconfidence
  - Look for strengths in arguments you dislike, weakness in those you like

## B. IDS Outcomes: Interdisciplinary Habits of Mind

### 3. Modifying Insights

- Seek commonalties not compromises, e.g. win-win
- Think holistically, contextually, systematically
- Think dualistically (either/or) in drawing on disc., but also inclusively (both/and) in integrating their insights
- Embrace contradiction: Ask how it can be both
- Use the techniques for creating common ground (redefinition, extension, reorganization, transformation) in adjudicating conflicts between disciplinary insights

## B. IDS Outcomes: Interdisciplinary Habits of Mind

### 4. Integrating disciplinary insights into a more comprehensive understanding of complex issue

- Expect multiple causes and effects
- Look for unexamined linkages and unexpected effects
- Be responsive to all perspectives but dominated by none of them (strive for balance)
- Integrate as you go; don't wait for all disc's insights
- Don't fall in love with a solution until see full complexity
- Value intellectual flexibility and playfulness

# Interdisciplinary Outcomes

## C. The University

- Greater student interest/motivation in gen ed courses
- Introduce disciplines comparatively (1st year)
- Place disciplines in perspective (capstone)
- Reallocate faculty resources
- Faculty development
  - \* Renewing and stretching
  - \* Challenge disciplinary presumptions

# Interdisciplinary Outcomes

## D. Society

- Real world issues increasingly complex, need ID approach. No one discipline adequate.
- Bridge the gap between ivory tower and real world.
- Potential to move beyond Thomas Kuhn's normal science to revolutionary science.
- Right the balance of Western thought by extending dominant scientific paradigm to include both/and thinking of holism as well as either/or thinking of reductionism.

# Steps in Interdisciplinary Process

(Heuristic not Descriptive; Iterative)

## 1. Draw on disciplinary perspectives

- Define problem
- Identify relevant disciplines
- Develop working command--concepts, theories...
- Gather relevant disciplinary knowledge
- Study problem from perspective of each discipline
- Generate disciplinary insights into problem

## 2. Integrate their insights through construction of more comprehensive understanding

- Identify conflicts in insights
- Evaluate concepts and assumptions
- Create common ground
- Identify linkages between disciplinary insights
- Construct interdisciplinary understanding
- Apply and test understanding

# Thinking Skills for Part 2 of Process

- Holistic, contextual, systemic.
- Spectrum or continuum, interacting levels, interdependent causes.
- Synthesize/integrate, ecological, co-evolving.
- Both/and thinking embracing overlap, interpenetration, tension, mutual contradiction.



# Why Integrate?

## \* A. Learning Outcomes

\* Synthesis/integration higher order thinking skill

\* Strong-sense critical thinking

\* Balanced thinking--judgment

\* Ambiguity--from tolerance to seeking out

\* Experts/expertise demystified

\* Empowered--address complex real-world issues

## Why Integrate (continued)

### B. Students intellectually motivated

- See real-world relevance of education
- Get to think about the big picture
- Motivated to learn
- Move from talk to answers

### C. Faculty

Teaching becomes fun again, not a job

# Problem-based Typology of

Characteristic	LOA inside	LOA in and out	Both + ill-defined
Nature	narrowly ID	broadly ID	wicked
Examples	Alzheimer's, impact of acid rain	obesity epidemic	U.S. energy policy
Approach	basic TS	IDS	TDS
Literatures	SciTS	also AIS	also td-net
Teams	medicine and/or natural sciences	also social sciences	also stakeholders and policy makers
Assumptions	epistemological	also ontological	also values
Challenges	interpersonal and organizational	also cognitive and conceptual	also political and context-specific
Objective	explain and	understand and	apply and cope

# Depth in Interdis Studies -

## 1

### A. Disciplinary Knowledge

- Feel for its perspective
- Command of its key concepts, theories, and methods
- Awareness of its distinguishing assumptions, i.e., epistemological & ontological

### B. Integrative Knowledge

- Linkages between variables studied by different disciplines
- Command of interdisciplinary process

# Depth in Interdis Studies -

## 2

### C. Integrative Skills

- Familiarity with techniques for creating common ground
  - Redefinition
  - Extension/contraction
  - Reorganization (spectrum/continuum, envelope, interpenetration, facilitation)
  - Transformation
- Familiarity with techniques for constructing ID models.  
(See Repko, *Interdisciplinary Research* 2<sup>nd</sup> ed (2012.)

# IDS Teaching Tips

- Model interdisciplinary thinking.
- Permit discussion to shift freely from clarifying what discipline is saying, to why it's saying it (theory and underlying assumptions), to critique, to how it relates to preceding discipline, to application to topic and to personal life, to where you are in IDS process.
- Integrate as you go, not all at once at the end.
- Let students in on what you're trying to accomplish.
- Foreshadow and sum up so they don't get lost in process.

# ACROSS-CURRICULAR EDUCATION Curriculum

- Design alternatives to distribution models
- Cluster and link courses
- Integrative seminar or discussion groups
- Build learning communities
- Master learner, grad student facilitators
- Incorporate new interdisciplinary fields

# Strategies for Integrating Curriculum

- \* • organize courses around topic, theme, issue, idea, problem, question
- design introductory and senior capstone seminars, theses, and projects
- cluster disciplinary courses around theme or field of interest
- link disciplinary courses with integrative seminars or discussion groups
- devise courses and units that reflect on the process of integration
- engage in team teaching
- building learning communities
- use particular integrative approaches, such as systems theory, feminism, and textualism
- give students models of interdisciplinary knowledge and integrative process
- require integrative portfolios
- offer residential living-learning experiences
- foster integrative learning approaches to fieldwork, internships, travel-study, and service learning that complement interdisciplinarity



# Strategies for Faculty Development

- \* • Offer summer or academic-year seminars, workshops, colloquia
- Include ID interests in existing faculty development programs and programming of teaching & learning centers
- Use existing system of seed money to stimulate curriculum and research development
- Channel indirect costs and overhead from external grants to create new seed grants
- Use sabbatical leaves for ID research and curriculum development
- Travel to meetings of ID organizations and programs at other institutions
- Participate in institutes, workshops, and meetings

## Strategies for Faculty Development (continued)

- Hire consultants
- Hold regular meetings of course and program faculty
- Schedule retreats and faculty work days
- Encourage informal study groups, teaching circles, research networks
- Build and maintain course and program portfolios for faculty
- Mentoring, peer coaching, visiting colleagues' courses, and team teaching
- Build interdisciplinary resource collections in library and in program offices

# Assessing Interdisciplinary Studies

[www.units.muohio.edu/aisorg](http://www.units.muohio.edu/aisorg)

## A. Student Papers

- *Term Papers*

Boix Mansilla, Duraisingh, Wolfe & Haynes (2009)

“Targeted Assessment Rubric” (rubric and article)

- *Senior Capstone Projects*

Wolfe & Haynes (2003), “Interdisciplinary Writing

Assessment Profiles” (rubric and article)

## B. Courses

*“Guide to Interdisciplinary Syllabus Preparation”*

useful resources on course design <selected ID syllabi

## C. Gen Ed Program

*AIS Interdisciplinary General Education Guidelines*