

**Taking Stock of Integration at the Century Mark**  
**Julie Thompson Klein, Professor of Humanities**  
**Wayne State University (USA)**

**The Benchmark of Integration**

- Pohl, van Kerkhoff, Hirsch Hadorn, and Bammer: “the core methodology underpinning the transdisciplinary research process.”  
(“Integration.” *Handbook of Transdisciplinary Research*, 411-24. Springer, 2008)
- Klein and Newell: the “acid test” of interdisciplinary studies.  
(“Interdisciplinary Studies.” *Handbook of the Undergraduate Curriculum*, ed. Gaff & Ratcliffe, 393-415. San Francisco: Jossey Bass, 1996.)

**Shifts in The ID/TD ⇄ Intergration Link**

- Historical movements for unity, synthesis, and integration of knowledge
- Education: from “integration” to “integrative,” from “unity” to “unifying”
- TDR: from OECD to Trans-sector TDR and Science of Team Science

**Principles of Integration emerging from historical perspective**

- 1) **Variance:** no universal formula, nested approaches
- 2) **Platforming:** interaction structure, integration potential, collaboration readiness and antecedent conditions, “fundament” (Bergmann & Jahn, “CITY:mobil,” *Handbook of TDR*, 89-102)
- 3) **Iteration:** bootstrapping, triangulation, teasing out differences, reflective balance & weaving, moving back & forth, patterning & testing; integration ≠ a final stage
- 4) **Communicative Rationality:** shared language culture, social learning, translation-negotiation-mediation, intersubjectivity, heuristic vs. algorithmic thinking (C. Despres, et al. “Retrofitting Postwar Suburbs.” *Handbook of TDR*, 327-41)

**Shifts in Meaning in Education**

- 1935 meeting sponsored by the National Education Association and 1937 book on *Integration: Its Meaning and Application*
  - participants concluded that complete unity was impossible
  - proposed thinking of “unifying,” not “unified” approaches
- 1948 workshop sponsored by Foundation for Integrative Education
  - participants distinguished *content integration* -- bridging physical sciences with arts and letters -- from *process integration* – emergent in the interplay of an individual and an environment
  - also distinguished *integration* as synthesizing accepted postulates from *integrative* building of new conceptual modes capable of producing a holistic experience
- Latter half of 20<sup>th</sup> Ct. in social science research and higher education:
  - ID generalizing and connecting current knowledge forms versus constructing new “integrative” concepts (e.g., “area” and “gender”)
- Latter half of 20<sup>th</sup> Ct. in integrative learning movement. Association of American Colleges & Universities and Carnegie Foundation (<http://www.aacu.org/>)
  - IDS part of a larger family of boundary crossings involving disciplines, fields, professions, parts of curriculum, theory and practice, cultural groups, race and gender, academic and non-academic norms of knowledge

## **Transdisciplinarity**

- **OECD (1972):** “a common system of axioms for a set of disciplines,” e.g., anthropology construed as science of humans and their accomplishments
  - Organizing languages: general systems, structuralism, and cybernetics
- **Extension of OECD connotation of new synthetic frameworks:** general systems, structuralism, Marxism, policy sciences, feminism, ecology, and sociobiology

### **Alignment with Complexity and Problem Solving**

- **OECD (1982):** weight shifted to *interdisciplinarity exogenous to the university*, originating in real problems of the community; supplementing, enriching, and interrogating *endogenous university interdisciplinarity* based on production of new knowledge with the aim of achieving unity of science  
(*The University and The Community: Changing Relationships*. Paris: CERI).
- **Mode 2 (1994, 2001):** a new mode of knowledge production  
Shift: ”application”> “contextualization,” *agora*, “socially robust knowledge”

### **Trans-Sector TD (Europe)**

Key Networks: Swiss Academies of Arts and Sciences <td-net>

<[www.transdisciplinarity.ch](http://www.transdisciplinarity.ch)> and Australian National University

Integration and Implementation Sciences (<http://www.anu.edu.au/iisn/>)

Emergence of literature on Integration: IISN notion of a “hub” or “college of peers”

**Integration:** situated in problems of the *Lebenswelt*, complexity, diverse forms of knowledge, bridging theory and case practice, participatory research with stakeholders in society, pragmatic means of improving decision making and social change.

*State-of-the-Art Literature:* Means, Language, Concepts/Abstract Ideas, Models, Products, Framework, Methods/Tools, Types of collaboration

### **Science of Team Science (USA)**

Emergence of new interdiscipline: collaborative form of “transcendent” IDR generating new methodological and theoretical frameworks for defining and analyzing social, economic, political, environmental, and institutional factors in health/well-being

- National Cancer Institute Conference on “The Science of Team Science: Assessing the Value of Transdisciplinary Research.” 30-31 October 2006. Bethesda, MD (USA)  
(<http://cancercontrol.cancer.gov/brp/scienceteam/index.html>)  
-“The Science of Team Science: Assessing the Value of Transdisciplinary Research.” *American Journal of Preventive Medicine*, 2008, 35(2S), S77–S249.  
(<http://cancercontrol.cancer.gov/BRP/scienceteam/ajpm.html>)
- Science of Team Science conference. 22-23 April 2009. Chicago, IL USA  
(<http://scienceofteamspace.northwestern.edu/agenda>)

**Integration:** *Collaboration Readiness* and *Antecedent Conditions*, negotiating and resolving conflicts; in/formality of interactions on team; frequency of collaborative activities (e.g., attending meetings with co-investigators and trainees)

*Quality and scope of ID and TD integration:* e.g., development of integrative conceptualizations, methodological approaches, training programs bridging two or more fields, emergence of new hybrid fields