

Generative Metaphors for Teacher-Researcher Partnerships in Design-driven Science Ed Reform

A Commentary

Symposium:

Participatory Design
of Web-based LE:

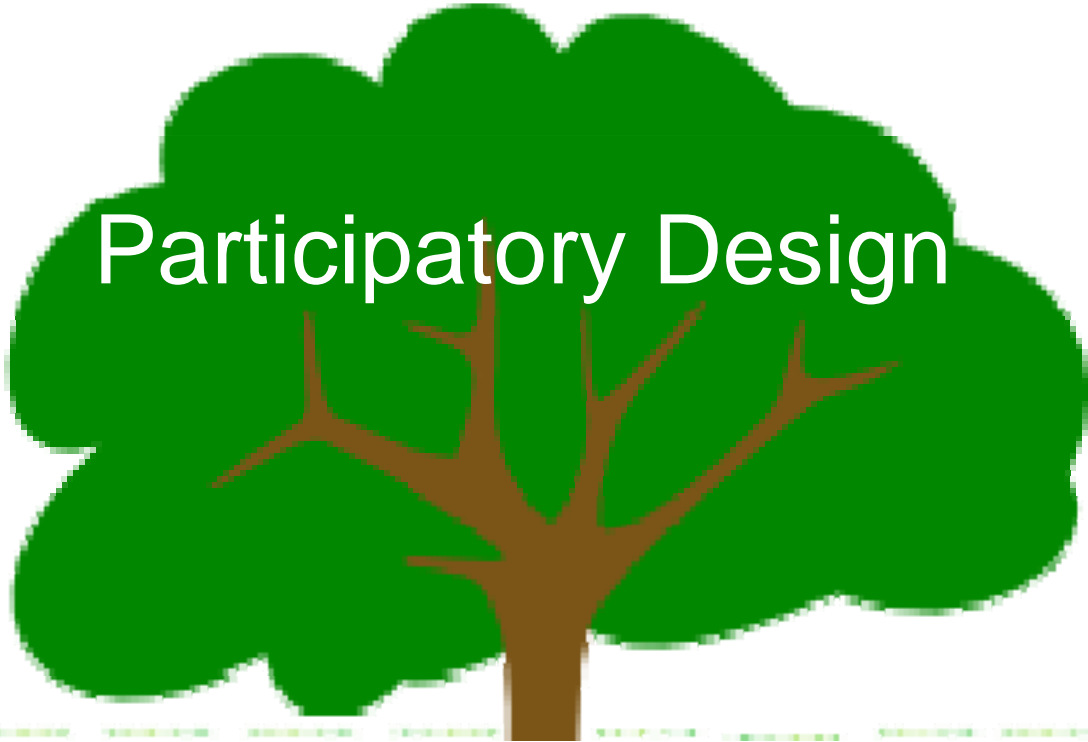
Challenges &
Responses

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Generative Metaphors

- Generate new insights (Schön, 1978)
- Example: Which metaphor of “slum” generates better insights for policy
 - Slum as a plight or “cancer” → removal
 - Slum as community → respect organic integrity



Participatory Design



Participatory Design

Joint Application
Design

Norwegian Industrial
Democracy Project

Socio-Technical
Systems

Collective Resources

Asaro, P. M (2000). Transforming society by transforming technology: the science and politics of participatory design. *Accounting, Management, & Information Technology*. 10, 257–290.

What this Metaphor “Provides”

- Increased Adoption
 - End-users may be more likely to adopt a shared design than one externally imposed
- High Fidelity Adoption
 - Design is guided by a higher resolution image of the field so it may constitute a better fit
 - End-users better aware of intent and rationale of design features
- Desirable Values
 - Democratic interactions are an ideal in and of themselves

Case Studies Reveal Tension

- Emphasis on different perspectives between researchers and teachers
 - Eventual design decisions seem slanted toward “researcher” perspective
- Movement from more open/democratic process to more structured/directed
 - Though not to be confused with authoritarian or highly controlled processes!
- Tension between reform goals and participatory goals

Differences in Grounding Motivation

- Improving the work-life of workers
- Increasing adoption of pedagogical innovations
- Countering negative “forces” of information technologies in the workplace
 - Deskillling workers
 - Increased surveillance & managerial control
- Maintaining integrity of pedagogical innovations

Generative or Impeding?

**Participatory
Design** → **Democracy**

User ↔ **Designer**

Source Domain: Similar Challenges

- Early on
 - Different conceptions between designers and “users”
 - User knowledge seems tacit to designers – do not have a shared vocabulary
 - Designers’ perspective seem to dominate
- Later on
 - Concern that growing focus on design is at the expense of workplace democracy

Asaro, P. M (2000). Transforming society by transforming technology: the science and politics of participatory design. *Accounting, Management & Information Technology*. 10, 257–290.

Kensing, F., Blomberg, J., (1998). *Computer Supported Cooperative Work* 7: 167–185.

Symmetry in the Case Studies

- Science expertise of teachers
 - Was an arena of more balanced interactions
- “Hybrid” participants (teacher guides)
 - Offered mediatory interactions
- Decision junctures in which both teachers and researchers were on novel ground
 - Resulted in symmetric interactions

Alternative Metaphors

- **E-Lancers & Portfolio Workers**
 - Emphasis on endgoals
 - de-emphasis of participatory goals
 - Emphasis on individual skills & knowledge
 - versus “researchers” and “teachers”
- **Transformative Communication**
 - An exchange thru which both partners are transformed

Malone, T. (2004). *The Future of Work: How the New Order of Business will Shape your Organization, Your Management Style, and your Life*. Cambridge, MA: Harvard Business Press.

Handy, C. (1989) *The Age of Unreason*. Cambridge, MA: Harvard Business School Press.

Polman, J. L., & Pea, R. D. (2001). Transformative Communication as a Cultural Tool for Guiding Inquiry Science. *Science Education*, 85, 223-238.

Alternative Metaphors (cont.)

- Third Space

- Draws on colonialism studies (e.g., Bhabha, 1994)
- Overlap contains an unpredictable combination of attributes of each of the two bordering spaces
- Old assumptions of **BOTH** the colonizers and the colonized are open to question, challenge, reinterpretation, and refutation

Muller, M. (2002). Participatory Design: The Third Space in HCI. In J. Jacko & A. Spears (Eds.) Handbook of HCI. Mahwah, NJ: LEA

Open Questions

- Is Participatory Design a productive metaphor?
 - Does it push us to incorporate more democratic interactions?
 - Researchers have much to learn about classroom life
 - Establishing ongoing trust & collaboration between these communities
 - Is this the most productive for Sci Ed. Reform?
 - Are pedagogical ideals at risk?
- Are there more productive metaphors we should explore?