Practitioners conducting educational design research: Tales of tension and triumph

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EAPRIL Conference 2013

Where Practice and Research on Learning and Development Meet

November 27-29, 2013
What is educational design research?

“...a genre of research in which the iterative development of solutions to practical and complex educational problems also provides the context for empirical investigation, which yields theoretical understanding that can inform the work of others.”

- McKenney & Reeves, 2012
Goals of EDR

Solutions to real and complex problems (e.g.)
- Programs
  - Trainer development
- Processes
  - Learning model
- Products
  - Learning resources
- Policies
  - New organizational structures

Scientific understanding (e.g.)
- Describe
  - What is present or happening
- Explain
  - Why things are such
- Predict
  - Cause and effect
- Prescribe
  - How to manipulate phenomena
Characterizing EDR

Design research is a genre of scientific inquiry for
  • Solving problems in practice, while simultaneously
  • Generating scientific understanding that is (also) of value to others

Design research is
  • **Theoretically-oriented**: existing scientific understanding as input; new scientific understanding as output
  • **Interventionist**: solutions aim to transform practice
  • **Collaborative**: researchers, teaching/learning practitioners
  • **Responsively grounded**: emergent insights steer process
  • **Iterative**: multiple cycles of analysis, development, investigation
Design research processes

(McKenney & Reeves, 2012)
Implementation & Spread

- Implementation
  - Adoption
  - Enactment
  - Sustained maintenance

- Spread
  - Dissemination
  - Diffusion

- Roles:
  - Implementers
  - Facilitators
  - Program champions

- Values
  - Make a difference/solve a problem
  - Innovate, design
  - Learning of students, educators, others

- Expectations
  - Change takes time (process, not event)
  - Strategies must evolve with actor needs
Design research processes

(McKenney & Reeves, 2012)
Design research processes

(McKenney & Reeves, 2012)
Analysis & Exploration: Roles

Practitioners
- Own the problem(s)
- Share (emic) insights into key issues & causes
- Share sources of inspiration and/or concern (often from first or second hand experience)

Researchers
- Study the problem
- Question why things are
- Share sources of inspiration and/or concern (often from theory and research literature)
Analysis & Exploration: Core values

- Activities in this phase are particularly insightful when researchers and practitioners value:
  - Realism – grounded in here and now
  - Critique – rational exploration of problem, seeking to understand (and not avoid) pertinent issues, even sensitive ones
  - Open mindedness – willing to explore or try on different lenses

- Activities in this phase usually initiate a longer-term partnership, and are therefore served by:
  - Open, 2-way communication
  - Mutual respect
  - Acknowledgment of and trust in mutual interests, if not curiosity about other roles or even desire to try them on
Design research processes

(McKenney & Reeves, 2012)
Design research processes

(McKenney & Reeves, 2012)
## Design & Construction: Roles

<table>
<thead>
<tr>
<th>Role</th>
<th>Practitioners</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizers</td>
<td>Usually limited</td>
<td>Most often orchestrators</td>
</tr>
<tr>
<td>Consultants</td>
<td>Often</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Designers</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>Developers</td>
<td>Rarely</td>
<td>Sometimes</td>
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Design & Construction: Core values

• Activities in this phase are particularly productive and innovative when researchers and practitioners value:
  • Both analytical and creative mindsets
  • (both are needed across EDR, but particularly in this phase)

• Activities in this phase are particularly served by:
  • Teamwork
  • Communication
  • Creativity
  • Orchestration
Design research processes
(McKenney & Reeves, 2012)
Design research processes

(McKenney & Reeves, 2012)
Evaluation & Reflection: Roles

Practitioners
• Expert
• User/client
• Stakeholder

Other common groups
• Users: Children
• Experts: Subject matter
• Stakeholders: Parents

Researchers
• Data collectors
• Process facilitators

• In EDR, sometimes practitioners are both respondents and researchers, as they may also facilitate processes and/or collect data
Evaluation & Reflection: Core values

• Results from this phase are particularly robust if there is:
  • Tight alignment between goals and methods
  • Transparent and well-justified frameworks for data analysis
  • Openness to unforeseen

• Activities in this phase are well-served if value is placed on:
  • Reasoning, empathy, especially for
    • Top down and bottom up analyses (deduction and induction)
  • Association, especially for
    • Systematic reflection and outside connections
Design research processes

(McKenney & Reeves, 2012)
Design research processes

(McKenney & Reeves, 2012)
Constant connections with practice

(McKenney & Reeves, 2012)
Ideally also…

(McKenney & Reeves, 2013)
EDR challenges

- Fluency in multiple areas of literature
  - Educational innovation, research methods, topic of inquiry
- Diverse skill set
  - Educational researcher, intervention designer, implementation facilitator
- Time, time time
- Requires partnerships (collaboration)
Modalities for engaging in design research cooperation

Common formal affiliations for design researchers

- Research institute external researcher(s) (e.g. MSc/PhD/PostDoc)
- Research institute internal researcher(s) (e.g. MSc/PhD/PostDoc)
- Teams & consortia
- Target or related setting in-house researcher(s) (is extremely rare given the goal of producing scientific understanding)
Bringing expertise together: 3 examples

- NGO employee works on her PhD through EDR
- Curriculum developers seek research partnerships for survival and quality boost
- Intern mentors in industry, teachers in higher education & researchers form consortium for improving workplace learning
Example 1: About the Para-educator research and development
Example 1: Process yielding Para-educator research and development

<table>
<thead>
<tr>
<th>Analysis &amp; Exploration</th>
<th>Design &amp; Construction</th>
<th>Evaluation &amp; Reflection</th>
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<tbody>
<tr>
<td>Learning needs and context analysis; Design framework underpinning professional development program</td>
<td>Design 1 evaluation (pilot)</td>
<td>Impact evaluation 24 months support subsided</td>
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<tr>
<td>- Management interviews</td>
<td>Design 2 evaluation (institutionalization)</td>
<td>Systematic reflection to distill design heuristics</td>
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<tr>
<td>- Teacher interviews</td>
<td>Design 3 evaluation (summative)</td>
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<td>- Classroom observations</td>
<td>- Document review</td>
<td>- Structured self-report</td>
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- 7 sub-studies (white boxes)
- Research methods per phase (grey boxes)
Example 1: Key outcomes of the Para-educator research and development
Example 1: Tensions & triumphs in the Para-educator research and development

Tensions
- Multiple roles
- False clarity (oversimplification) of EDR
- Quick iterations

Triumphs
- Collaborative structures
  - empathy, trust, solidarity;
  - concrete, structured activities
- Institutional capacity: team & management learned to:
  - Question assumptions re: training
  - Plan/work systematically
  - Use (multiple sources of) empirical data for decisions
  - Anticipate dilution, plan support
  - Value collaboration as essential for most decisions
Example 2*: About the Science & literacy curriculum

* Courtesy of Jacqueline Barber: Barber, J. (2013). Keynote address at the annual meeting of the International Society of Design and Development in Education. October 7-10, Berkeley, CA.
Example 2: Processes yielding the Science & literacy curriculum

• Over the course of four years
• Funded by different research and sources
  • Bringing complications and opportunities
• It took the expertise of 639 individuals
  • 44 developers, 523 teachers, 23 researcher/evaluators, 38 scientist advisors & 11 literacy advisors
• Working through new and existing networks
  • With expertise centers and lead teachers across the country
• To prototype and finalize materials, informed by
  • Student results, teacher concerns, disciplinary experts
• That were attractive enough to be published
  • By major publisher with broad distribution networks
Example 2: Key outcomes of the Science & literacy curriculum collaboration

- Classroom experiences, learner books, teacher guides
- Equivalent or higher learning gains in literacy and science
- Teachers spend more time on science and have more learner-to-learner discourse in their classrooms
- Publications describing both research and development
Example 2: Tensions & triumphs of the Science & literacy curriculum collaboration

**Tensions**
- Multidisciplinary team was uncomfortable
- Rigor vs. reality
- When to think fast, when to think slow

**Triumphs**
- Survival – revival
- New aspects of quality
- Unforeseen pathways (e.g. second language learners)
- Identification of productive synergies in developer team; partners who share goals but have different tactics
Example 3: About the Workplace learning consortium
Example 3: Processes in the Workplace learning consortium

- Teams of workplace learning (intern) mentors from industry together with vocational education teachers
  - Their focus: improving the quality of workplace learning
  - Internally-focused research & development: analyze needs, design interventions, evaluate effects

- Scientific research: examines how such teams function and how to support them
  - Team phases: forming, storming, norming, performing
  - Team focus: mutual engagement, joint enterprise, shared repertoire

- Data collected through:
  - Questionnaires, interviews, focus groups, discourse analysis
Example 3: Key outputs* of the Workplace learning consortium

- Interventions in 6 contexts
- Materials, resources and expertise to support them
- Publications on the team processes

*As this work is ongoing, it is too early to report on outcomes
Example 3: Tensions & triumphs of the Workplace learning consortium

Tensions
- Multiple agendas
- Differing reward systems

Triumphs
- Local ownership
- Development of empathy
Reflections on the examples

• Processes
  • Theoretically-oriented, interventionist, collaborative, responsively grounded, iterative

• Outcomes
  • Solving problems in practice, while simultaneously
  • Generating scientific understanding that is (also) of value to others

• Tensions
  • Among stakeholders, concerning priorities, goals, and tactics

• Triumphs
  • Goals met in sustainable ways that also yielded unforseen benefits
Considerations for practitioner-led educational design research

When to (not) use this approach?
- Not sensible for primarily design challenges
- When is knowledge creation also an explicit goal?

Modalities
- Cooperation with research institutes: affordances and constraints
- Are other modalities on the horizon? Which ones? Why?

How can practitioner-researchers be supported to:
- Understand, appreciate and support the various roles in EDR
- Try on new roles
- Acknowledge that individuals have varying affinities for certain roles
Developing as a community

To those conducting educational design research: The field needs your:

• Rich examples
  • To inform: how tensions are tackled; what triumphs can be achieved
  • To inspire: demonstrating that it is within reach

• That are also
  • Credible: sufficiently rigorous and transparent
  • Accessible: focused, clear, coherent

• Shared within EAPRIL 2013 and beyond among
  • Fellow practitioners: EAPRIL 2014?
  • Other audiences: teachers, educational leaders, parents, policymakers, researchers
EAPRIL Conference 2013

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Thank you!
For discussion beyond today…

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