Educational Design & ECOP
Considerations and propositions

Scholarly exchange
November 17, 2015, Heerlen

Susan McKenney
Open University & Twente University
Today’s session

• Presentation with some foundational ideas

• Inventory your concerns (during lunch)

• Discuss potential considerations for your own work

• Possibly
  • Sharing some insider case stories
  • Yielding some new goals
Foundational ideas

About design
- What is educational design (research)?
- What supports curriculum design?

About designers
- What are common designer struggles?
- What can we learn from expert designers?
- What are competencies of designers, design leaders and design consultants?

About teacher designers
- What is known about teachers as designers?
- What is known about supporting (university) teacher design teams?

About ECOP designers
- Nourishing the (ECOP) designer identity?
- You tell me: How does ECOP already…?
Expectations for today

Realistic
- Models that can help
- Evidence describing how to use models
- Known struggles
- Lenses that help identify & frame issues
- Relevant design challenges and experiences

Not realistic
- Supermodels
- Evidence of model effectiveness
- Ready-made solutions
- Lenses that resolve issues themselves
- Identical design challenges and experiences
About design

ENGINEERING DESIGN PROCESS

- Ask: Identify the need & constraints
- Imagine: Develop possible solutions
- Plan: Select a promising solution
- Create: Build a prototype
- Test and evaluate prototype
- Improve: Redesign as needed
- Research the problem
The big picture

- Detailed design models can help structure specific design tasks
- Existing resources help do this
- But when embroiled, it can be easy to forget the big picture
- Overview of key facets is needed to anticipate, steer and monitor design progress.
- Today’s session focuses on key facets of the overall process, and translating those to specific activities
What is educational design (research)?
Design as a noun?

- Example: “What a pretty design!”
  - Art
- Example: “Look at the design of this house”
  - Plan
Design as a verb?

- Example: “Who designed that boat?”
- Modeling
- Example: “Can we design a solution to that problem?”
- Innovating
Design as an adjective?

- Example: Selling design(er) furniture, e.g. www.dwr.com
  - Aesthetic, functional
- Example: Learning about design thinking, e.g. www.ideo.com
  - Empathetic, rational, creative
Design …

Is:
- Artistic
- Planned
- Modeled
- Innovated
- Aesthetic
- Functional
- Rational
- Creative
- Empathetic

But also involves:
- Change
- Systems
- Inspiration
- Stakeholders
- Action
- Reflection
- Research
- Ideation
- Selection

And can even be a disposition…
So what are we talking about?

As a field, educational design is:
- A creative art and a disciplined science
- Concerned with the intentional processes
- That yield plans, products, programs, processes or policies
- To directly or indirectly support teaching and/or learning
- In formal or informal settings

Some related fields:
- Instructional design
- Learning design
Generic model for ED(R) processes

Adapted from the generic model for educational design research (McKenney & Reeves, 2012)
Original generic model for EDR

(McKenney & Reeves, 2012)
Challenges and opportunities in analysis & exploration

- **Purposes**
  - Baseline (for now & later)
  - Problem analysis
  - SWOT analysis

- **Methods**
  - Often more qualitative
  - E.g. observe, interview, review documents

- **Scientific understanding**
  - Existing situation
  - E.g. teacher attitudes, learner behaviors, prevalence of problem
Challenges and opportunities in design & construction

- **Purposes**
  - Research-informed design
  - Reality-informed design
  - User-owned design

- **Methods**
  - Typically conceptual, not empirical (cf. theoretical framework)
  - Documentation crucial

- **Scientific understanding**
  - Design framework
  - Design reasoning
Challenges and opportunities in evaluation and reflection

- **Purposes**
  - Alpha: Soundness, feasibility
  - Beta: Local viability, institutionalization
  - Gamma: Effectiveness, impact

- **Methods**
  - Highly varied, often mixed methods
  - e.g. Quasi-experiments in case studies

- **Scientific understanding**
  - Characteristics of the intervention
  - What the intervention engenders and why

**Evaluation**
- Establish the focus
- Frame guiding questions
- Select basic strategies
- Determine specific methods
- Draft and revise a planning document
- Create or seek instruments
- Collect the data
- Analyze the data
- Report the study

**Reflection**
- Organic
- Structured
What is curriculum?

The curriculum refers to the content and purpose of an educational program together with their organization (Decker Walker, 1990)

- **Levels** (vertical/horizontal alignment)
  - Supra: International; treaties and comparisons
  - Macro: system/nation/state, curricular framework
  - Meso: school, university, institute
  - Micro: class, group, teacher
  - Nano: student, individual

- **Curricular components and alignment**: vdAkker Spider web
- **System coherence**

**Curriculum representations**

- **Intended curriculum** (policy makers, designers)
  - the ideal curriculum (the vision or basic philosophy underlying a curriculum)
  - the formal/written curriculum (intentions as specified in curriculum documents and/or materials)

- **Implemented curriculum** (teachers)
  - the perceived curriculum (interpretations by users, particularly teachers)
  - the operational curriculum (as enacted in the classroom)

- **Attained curriculum** (students)
  - the experiential curriculum (learning experiences from student perspective)
  - the learned curriculum (resulting learner outcomes)
What supports curriculum design?

- Models
  - Prescriptive | Descriptive
  - Linear | Cyclical
  - Context | Independent
What supports curriculum design?

- Models
  - Prescriptive | Descriptive
  - Linear | Cyclical
  - Context | Independent

- Can help guide
  - Process
What supports curriculum design?

- **Models**
  - Prescriptive | Descriptive
  - Linear | Cyclical
  - Context | Independent
- **Can help guide**
  - Process
  - Product

Nine events that activate processes needed for effective learning (all need to be present).

1. Gain attention
2. Inform learner of objectives
3. Stimulate recall of prior learning
4. Present stimulus material
5. Provide learner guidance
6. Elicit performance
7. Provide feedback
8. Assess performance
9. Enhance retention and transfer
“Well, you finally did it Davis, you came up with a milk carton that nobody can open.”
What are common designer struggles?

• Time
  • We should really pilot this but it is already behind schedule
• Alignment
  • Do the materials, activities and assessment connect?
• Coherence
  • Do the units and modules build together toward the same goals?
• Tensions
  • Do different stakeholders have different goals? (e.g. real vs quasi needs)
• Tradeoffs, e.g.
  • Effectiveness vs practicality
    • Three hours would work but 30 min is the maximum feasible
  • Ownership vs efficiency
    • Teachers will understand this better if they create these themselves, but classes start in a week
## Designer needs

<table>
<thead>
<tr>
<th>Knowledge Type</th>
<th>Focus Area</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge for designed products</td>
<td>Learning and instruction</td>
<td><em>How to garner and maintain learner engagement with specific content areas at certain ages?</em></td>
</tr>
<tr>
<td></td>
<td>Curriculum and media</td>
<td><em>What are guidelines for effective versus distracting features in learner workbooks, and how do these differ among ages and instruction language proficiency?</em></td>
</tr>
<tr>
<td>Knowledge for design learning processes</td>
<td>Teaching and teacher learning</td>
<td><em>How does teacher knowledge evolve over phases of teacher preparation, induction and professional development?</em></td>
</tr>
<tr>
<td></td>
<td>Organization and leadership</td>
<td><em>How to leverage diversity and mitigate conflict in heterogeneous educational design teams?</em></td>
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<td></td>
<td>Policy and social contexts</td>
<td><em>How to sensitize designers to policies that influence the adoption, uptake, and use of their products?</em></td>
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<tr>
<td></td>
<td>Evaluation and measurement</td>
<td><em>What evaluation approaches are more practical, valid, and reliable for specific content and grade levels?</em></td>
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</tbody>
</table>
What can we learn from expert designers?

The Lawrence Hall of Science

A Designer Speaks: Jacqueline Barber
How to Design for Breakthrough: A story of Collaborative Design across Disciplines

Abstract
How does one design for breakthrough? The goal of this paper is to communicate the potential for working across disciplines and domains in order to design breakthrough approaches and solutions to persistent problems in education. By breakthrough I mean a discovery that leads to new understanding and removal of barriers to progress. I reflect on a particular design experience that brought together players with different expertise; specifically, I describe the challenges we faced, and share the discoveries we made about how to take best advantage of what the diverse set of individuals brought to the table.

Introduction
Every designer strives to make significant advances through innovative designs. Progress comes from incremental change, but seeking something that results in “that breakthrough” is something to which all educational designers aspire but few achieve. Reaching the bar for innovative — something new and creative—is relatively achievable. But, achieving innovation won’t necessarily result in significant advances. The question I tackle in this paper is: How does one design for breakthrough?

The insights shared below come from the collaborative work of a team that I (a science curriculum designer) led, with P. David Pearson (a literacy researcher) to create a combined science and literacy
What can we learn from expert designers?

Design Dimensions

Across phases of design (i.e., analysis, development and evaluation) **what processes and strategies** are **critical** to later successfully obtain **large scale implementation** with significant impact on learners?
What are competencies of designers, design leaders and design consultants?

**Designers** need:
- Teamwork, social skills
- Empathy, grounding in stakeholder realities
- Process, overview, flexibility

**Design consultants** additionally need:
- Insight into common tendencies (foresee consequences)
- Varied repertoire
- Facilitation skills

**Design leaders** additionally need:
- Mobilization, orchestration, management skills
And for designers conducting research...

- The ability to see and combine roles

<table>
<thead>
<tr>
<th>Roles (key work in each phase)</th>
<th>Researcher learning about</th>
<th>Analysis &amp; Exploration</th>
<th>Design &amp; Construction</th>
<th>Evaluation &amp; Reflection</th>
<th>Implementation &amp; Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant/facilitator</td>
<td>Gets people to expose their (knowledge of) the problem(s)</td>
<td>Supports design with expertise; manages people processes</td>
<td>Trouble-shoots when plans derail</td>
<td>Supports with advice/expertise; champion, moral purpose</td>
<td></td>
</tr>
<tr>
<td>Designer</td>
<td>Gathers descriptions and explanations</td>
<td>Crafts design process as well as designed products</td>
<td>Recommendations for revision/use</td>
<td>New ideas for what could (not) work</td>
<td></td>
</tr>
<tr>
<td>Researcher</td>
<td>Frames and studies problem</td>
<td>Supports design with research</td>
<td>Rigorously investigates solutions</td>
<td>Observes to broaden understanding of context</td>
<td></td>
</tr>
</tbody>
</table>
And for designers conducting research...

Cross-cutting competences

• Orchestration
  • Mobilizing all that is needed for simultaneously attending to key aspects of each phase

• Empathy
  • Exploring and attending to the needs, wishes and concerns of stakeholders

• Flexibility
  • Easily and regularly switching between creative and analytical perspectives

• Social competence
  • Robust repertoire of social/communication/interaction strategies
And for designers conducting research...

<table>
<thead>
<tr>
<th>Cross-cutting competencies (key uses in each phase)</th>
<th>Researcher learning about</th>
<th>Analysis &amp; Exploration</th>
<th>Design &amp; Construction</th>
<th>Evaluation &amp; Reflection</th>
<th>Implementation &amp; Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Orchestration</td>
<td>Literature review</td>
<td>Exploring solutions</td>
<td>Screening</td>
<td>Adoption</td>
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<td></td>
<td></td>
<td>Field study</td>
<td>Mapping solutions</td>
<td>Expert appraisal</td>
<td>Enactment</td>
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<tr>
<td></td>
<td></td>
<td>Site visits &amp; networking</td>
<td>Constructing solutions</td>
<td>Pilots</td>
<td>Sustained maintenance</td>
</tr>
<tr>
<td></td>
<td>Empathy</td>
<td>Attending to</td>
<td>Creating designs that</td>
<td>Understanding and</td>
<td>Dissemination and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>needs, wishes,</td>
<td>are usable, practical</td>
<td>interpreting data</td>
<td>diffusion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>concerns of stakeholders</td>
<td>and congruent with</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Flexibility</td>
<td>Critically investigate</td>
<td>target group</td>
<td>Deduce and induce;</td>
<td>Goal-oriented</td>
</tr>
<tr>
<td></td>
<td></td>
<td>problem; uncover</td>
<td>needs/wishes</td>
<td>Question why and</td>
<td>improvisation</td>
</tr>
<tr>
<td></td>
<td>Social competence</td>
<td>Developing trust,</td>
<td>Negotiation,</td>
<td>Engendering</td>
<td>Providing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>building relationships,</td>
<td>stimulation</td>
<td>cooperation,</td>
<td>leadership,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inviting frankness</td>
<td></td>
<td>mitigating</td>
<td>modeling positive</td>
</tr>
</tbody>
</table>

...
About teacher designers
What is known about teachers as designers?

**Ecological framework**

**Powerful design heuristics**

**Teacher-designer consciousness and situated experience**

**Realistic understanding of design practices**

<table>
<thead>
<tr>
<th>Transferable teacher knowledge</th>
<th>Powerful design heuristics</th>
<th>Teacher-designer consciousness and situated experience</th>
<th>Realistic understanding of design practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Know-what</strong> (fundamental knowledge base)</td>
<td>What is design thinking and which models or frameworks are likely to be most useful for teachers in a given situation?</td>
<td>What intuitive knowledge, awareness and experiences do teachers bring with them to design technology enhanced learning?</td>
<td>What do teachers typically consider when designing technology enhanced learning and what issues do they typically overlook?</td>
</tr>
<tr>
<td><strong>Know-why</strong> (productive beliefs)</td>
<td>Why is teachers' careful attention to shaping design processes (before and during their enactment), critical for successful outcomes?</td>
<td>Why are teachers more and less aware of their own decision-making rationales in certain situations?</td>
<td>Why do teacher designers make certain kinds of design decisions and how does this change with experience?</td>
</tr>
<tr>
<td><strong>Know-how</strong> (repertoire for action)</td>
<td>How do healthy design processes proceed (and how similar or different are they from the natural design inclinations of teachers?)</td>
<td>How do teacher design schemas develop and how does this relate to their own intuitive knowledge?</td>
<td>How do teachers use their TPACK during design and in what ways does this influence their overall pedagogical design capacity?</td>
</tr>
<tr>
<td><strong>Know-when</strong> (judgment of ideas and processes in various contexts)</td>
<td>When should teachers choose, re-assess or change a particular approach to guide the design process?</td>
<td>When do teachers decide to improvise and when are one's own ideas put to use, given the setting and goals?</td>
<td>When do teachers base decisions on tacit (rather than reflective) knowledge, and when do they draw on (other) design expertise?</td>
</tr>
<tr>
<td><strong>Know-who</strong> (awareness for consulting relevant expertise)</td>
<td>Who should teachers consult for guidance on design processes and/or the products of design in certain contexts?</td>
<td>Who might enrich and inspire teacher awareness or educational connoisseurship?</td>
<td>Who do teachers consult during different stages of design work and for which main purposes?</td>
</tr>
</tbody>
</table>
What is known about supporting (university) teacher design teams?

• Procedural support highly needed by most teams
  • Seeing/understanding the process
    • Overview of core processes
    • Mapping existing work to core processes
    • Chunking/phasing
  • Commonly skipped/shortened
    • Developing shared vision
    • Articulating a design framework
    • Testing alignment and coherence
    • Piloting
    • Reflection/revision

• Substantive support (maybe less for university experts)
  • Needed for conversations that draw out their PCK
  • Needed to point out trade-offs (e.g. practical concerns, external priorities, existing orientations)
About ECOP designers
Nourishing the (ECOP) designer identity?

Around the world, there are accomplished people dedicated to raising the quality of design of educational processes and materials.

ISSDE was formed to help this group work effectively as a coherent professional design and development community.

The goals of the Society are:

- improving the design and development process
- building a design community
- increasing our impact on educational practice

The Fellows are designers and project leaders with outstanding records, together with some representatives from government agencies and foundations that fund such work.

2016 ISDDE Annual Conference - Utrecht, Netherlands

Infrastructuring the Design Continuum

The ISDDE’16 conference will take place from September 19-22, 2016 in Utrecht, The Netherlands. It will be hosted by the Netherlands National Institute of Curriculum Development (SLO). The conference draws upon the intellectual, experiential, collaborative, and aesthetic opportunities for inspiration afforded by this location and the region.

The theme, Infrastructuring the Design Continuum, refers to designer efforts to develop and implement the human and material resources required for supporting education in and across various system levels.
You tell me: How does ECOP already…?

- Have shared:
  - Processes
  - Language
  - Resources
  - (Learning) goals

- Document:
  - Examples
  - Successes
  - Challenges

- Practice:
  - Collaboration
  - Experimentation
  - Monitoring

- Develop:
  - Individual learning
  - Teamwork
  - External partnerships
  - Internal specialization
Let’s inventory your concerns…

• When it comes to the ECOP work in general, and especially the new curriculum changes:
  • What are your joys?
  • What are your frustrations?
  • What are your ambitions?
  • What questions do you have?
  • What issues would you like to discuss?
Key considerations moving forward

• Coherence in a modular curriculum
Thank you!
For discussion beyond today…

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3 Lenses

Remembering that EDR can accommodate various...

- Ontologies (What is reality?)
  - Objective
  - Subjective

- Epistemologies (What is knowledge?)
  - Empirical observation
  - Community-created insights

- Methodologies (How is research conducted?)
  - Qualitative methods
  - Quantitative methods

In what spaces shall we choose to operate? What are some options?
Ponterotto: Research paradigms

• Positivism
  • Same basic goals and methods as natural sciences
  • Hypothetic-o-deductive methods; single, objective reality

• Post-positivism
  • Similar to positivism but accepting that reality cannot be completely captured; emphasis on theory falsification (as opposed to verification)

• Constructivism-Interpretivism
  • Relative positions, multiple realities (based on own perspectives)
  • Hermeneutical approach – interaction to yield deep insights

• Critical-ideological
  • Disrupt and challenge the status quo: emancipation and transformation
  • Researcher’s proactive values are central to the task, purpose and methods
## Lincoln & Guba: Quality indicators

<table>
<thead>
<tr>
<th>Transparency</th>
<th>Soundness criteria</th>
<th>Trustworthiness</th>
<th>How to achieve (in EDR), e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal validity</td>
<td>“truth” (warrants for causality)</td>
<td>Credibility</td>
<td>Prolongued engagement</td>
</tr>
<tr>
<td>External validity</td>
<td>Findings can be informative elsewhere</td>
<td>Transferability</td>
<td>Thick descriptions</td>
</tr>
<tr>
<td>Reliability</td>
<td>Findings are consistent and repeatable</td>
<td>Dependability</td>
<td>Reuse of design frameworks, transplanting interventions</td>
</tr>
<tr>
<td>Objectivity</td>
<td>Findings shaped by respondents, not researcher bias, motivation or self-interest</td>
<td>Confirmability</td>
<td>Triangulation of data collection methods</td>
</tr>
</tbody>
</table>
## Wagner: Cooperation forms

<table>
<thead>
<tr>
<th>Research Process</th>
<th>Data extraction agreement</th>
<th>Clinical partnership</th>
<th>Co-learning agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct, systematic, inquiry designed, conducted and reported by researcher</td>
<td>Systematic inquiry cooperatively designed and reported by researcher and practitioner</td>
<td>Reflexive, systematic inquiry stimulated in part by ongoing collegial communication</td>
</tr>
<tr>
<td>Expert roles</td>
<td>Researcher as researcher; practitioner as practitioner</td>
<td>Researcher as researcher and collaborator; practitioner as practitioner and collaborator</td>
<td>Researcher as researcher-practitioner; practitioner as practitioner-researcher</td>
</tr>
</tbody>
</table>
## Interactions in EDR: Some stories from the field

<table>
<thead>
<tr>
<th>Type</th>
<th>Country</th>
<th>Setting</th>
<th>Main participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascade-Sea</td>
<td>PhD</td>
<td>Southern Africa</td>
<td>Facilitator teachers</td>
</tr>
<tr>
<td>PictoPal</td>
<td>PostDoc PhDs Others</td>
<td>Nederland</td>
<td>Early literacy</td>
</tr>
<tr>
<td>Maitri</td>
<td>PhD</td>
<td>India</td>
<td>Remedial teaching</td>
</tr>
</tbody>
</table>
Cascade-Sea: Background & Goals

- Need for teacher guides
- Need for support to create them
  - Human support limited
- EPSS as a supplement?
- What are the characteristics of a valid and practical support tool that has the potential to impact the performance of (resource) teachers in the creation of exemplary lesson materials for secondary level science and mathematics education in southern Africa?
Cascade-Sea: Overview of the process

5 Tenets
- Local relevance
- Collaboration
- Authenticity
- Mutual benefit
- Continuous (re-) analysis

**Diagram**
- Needs & context analysis
- Design, development & formative evaluation
- Semi-summative evaluation

Number of participants:
- Literature review & concept validation
- Site visits
- Prototype 1
- Prototype 2
- Prototype 3
- Prototype 4
- Final evaluation
- Query

Cycle width is proportional to time
Scale: | | = circa 6 months
Cascade-Sea: Landing the helicopter
Cascade-Sea: In light of your concerns?

Electrolytic Cells

Summary
Timing
10 Introduction
25 Lesson Body
15 Conclusion
50 Total lesson time

What are you trying to achieve?
At the end of this lesson, let pupils:
1) Define electrolysis, electrical circuit
2) Write half cell equations

Connections to textbook
The textbook associated with this lesson is...

Involve pupils in evaluating scientific areas in the community. For example, what are their perceptions of technology?
PictoPal: Background & Goals

- Lack of pedagogical models for technology integration, especially with young children;
- Literacy education in NL is very strong in the technical aspects of reading and writing; also strong in storybook understanding and listening comprehension; but the functions of written language (a large area of national interim goals) is relatively under-represented in the curriculum, and not at all present in technologies.
- Challenge: Explore innovative ways for technology to address these issues
# PictoPal: Overview of the process

<table>
<thead>
<tr>
<th>Researcher (assignment)</th>
<th>Prototype &amp; Year</th>
<th>Tool &amp; Implementation</th>
<th>Teacher Design &amp; Teacher Learning</th>
<th>Pupil Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developers</td>
<td>0 - 2003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carolina (B)</td>
<td>1 – 2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tjeerd (B)</td>
<td>2 – 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andrea (B)</td>
<td>2 – 2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marita (B)</td>
<td>3 – 2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marc (B)</td>
<td>3 – 2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AnnaMarie (M)</td>
<td>4 – 2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Class Team (B-D)</td>
<td>5 – 2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nikki (B)</td>
<td>5 – 2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amina (D1-4)</td>
<td>6 – 2009-12</td>
<td></td>
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<td></td>
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<tr>
<td>Ferry (D1-4)</td>
<td>7a – 2010-13</td>
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</tr>
</tbody>
</table>
PictoPal: Landing the helicopter
PictoPal: In light of your concerns?
Maitri: Background & Goals

- Slums of Ahmedabad almost 5 million people
- Remedial classes to improve learning and keep kids in school
- Designed to supplement, not supplant the government school system
- Classes run by ill-qualified volunteers with limited resources;
- How to provide good quality teaching and learning?
# Maitri: Overview of the process

<table>
<thead>
<tr>
<th>Analysis &amp; Exploration</th>
<th>Design &amp; Construction</th>
<th>Evaluation &amp; Reflection</th>
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<tr>
<td><strong>Learning needs and context analysis:</strong></td>
<td><strong>Design 1 evaluation (pilot)</strong></td>
<td><strong>Impact evaluation 24 months support subsided</strong></td>
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<tr>
<td><strong>Design framework underpinning professional development program</strong></td>
<td><strong>Design 2 evaluation (institutionalization)</strong></td>
<td><strong>Systematic reflection to distill design heuristics</strong></td>
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<td>- Management interviews</td>
<td>- Document review</td>
<td>- Structured self-report</td>
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<td>- Teacher interviews</td>
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</tbody>
</table>
Maitri: Landing the helicopter
Maitri: In light of your concerns?

Teacher to Harini:
“I have often encountered a feeling that our fuzzy ground realities are almost a botheration and a hindrance to the researchers in seeking their objective, as if it compromises their quest, as if they have to come and first clean up my kitchen to be able to work in it, and that often leaves us practitioners feeling undermined and in an unequal position with them; but this experience truly put us on an equal platform.”