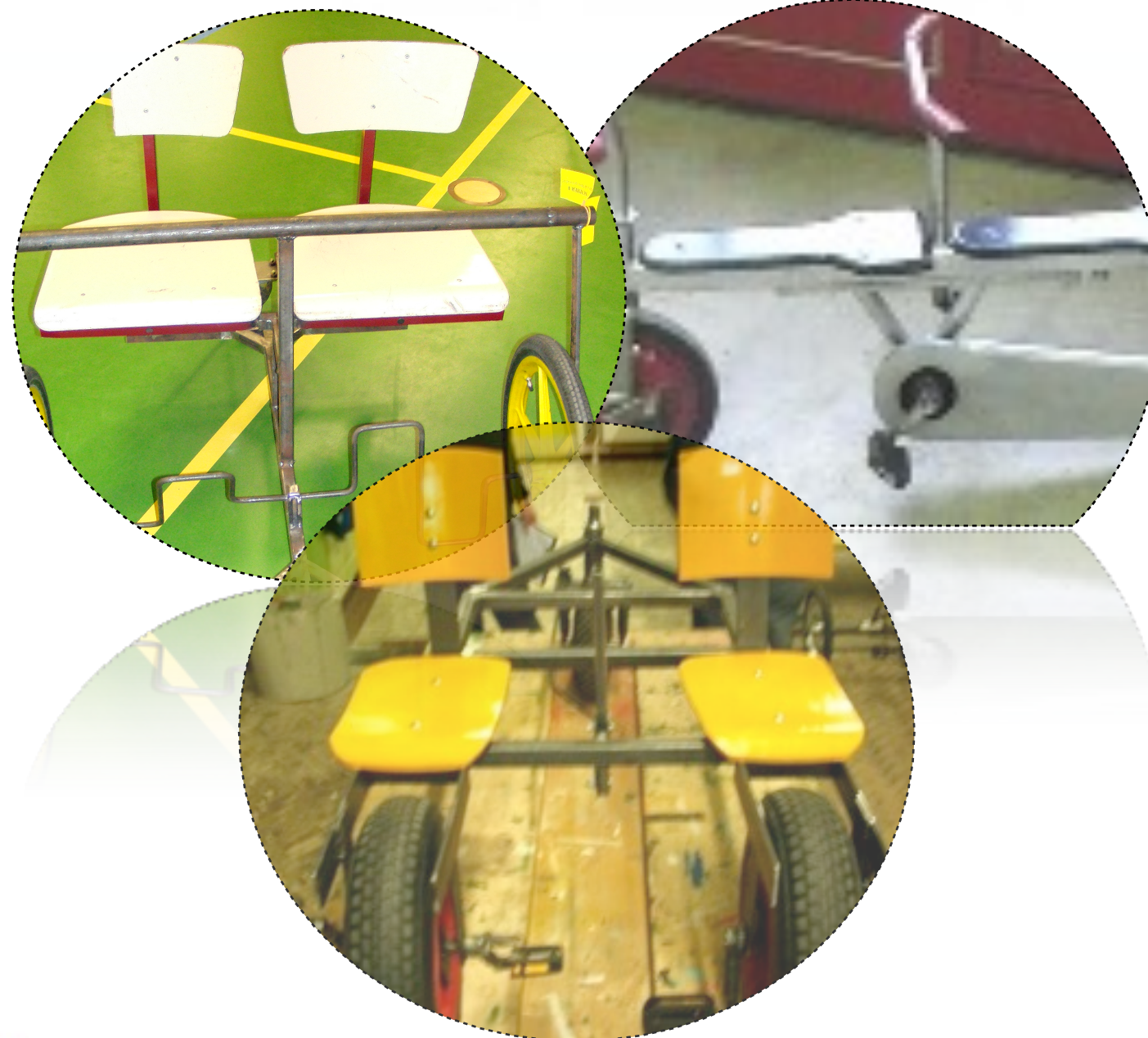


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A case study of a video-based design research



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- The case: DBR project in PVSE (2005-2010)
- The video: 3 camera approach observations
- CHAT and Design Based Research
 - Triple stimulation?



The case

Design based research in 3 phases:

- Case study (06/07)
- Intervention I at 2 schools (07/08)
- Intervention II at 4 schools (08/09)



The case

- **Intervention:**

Design and construct a tandem tricycle

Providing vs. guided co-construction (Mercer)



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The case

Method:

DBR: assignment for students,
tools for teachers to implement

qualitative: interviews, observations
(all video)

quantitative (phase 2/3):

pre- and posttests



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The case



The case

Conclusions:

Designing by students leads to better understanding

Teachers should simulate 'real' design process

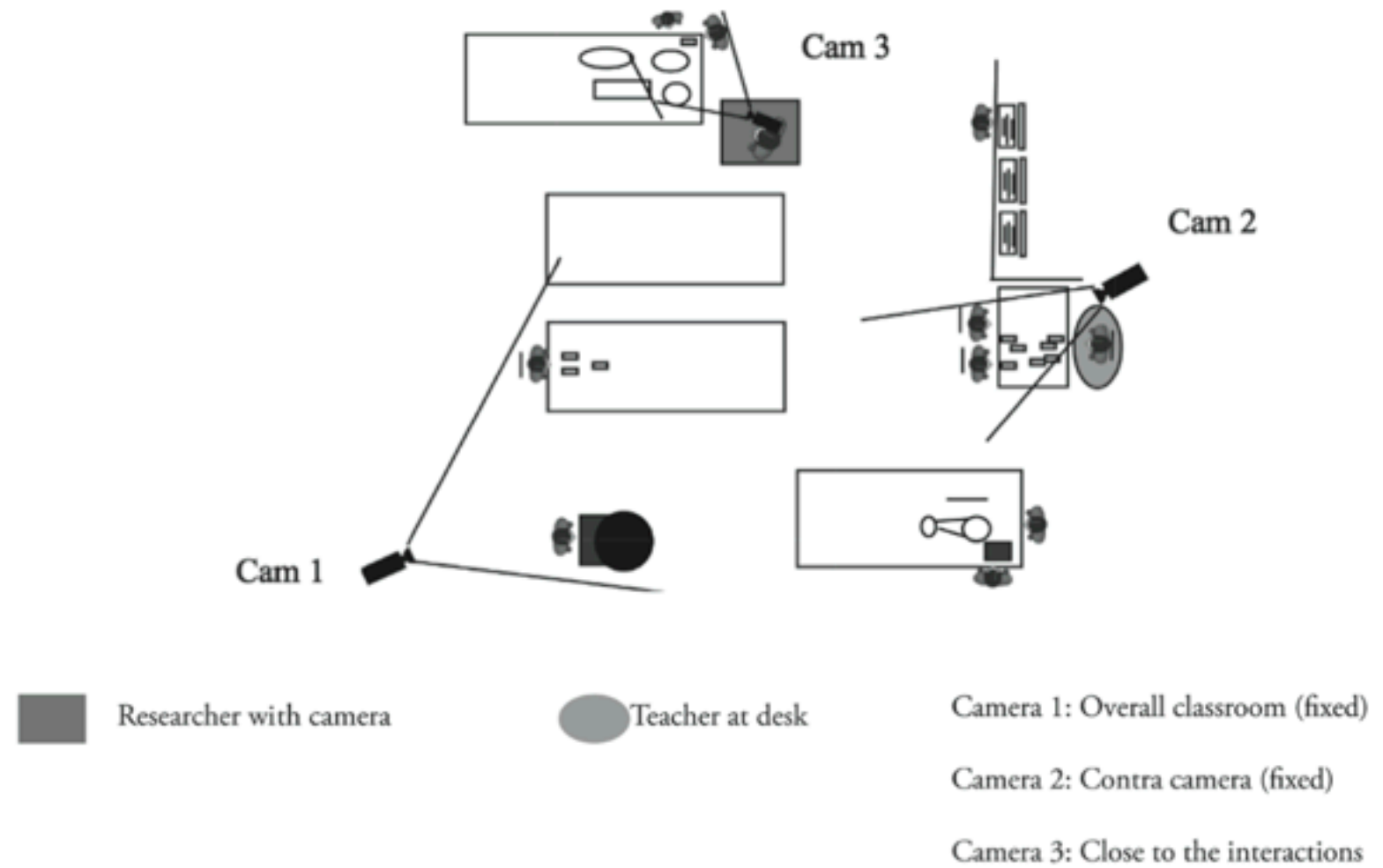
Models/drawings as tools between theory and practice



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The video

Figure 2.3 Video data collection in the classroom



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The video

	video (hrs)	Schools	Students
Case study	30	1	6
First experiment	40	2	65
Final experiment	30	4	87



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The video Information at three levels

Baseline level: research narrative

**Methodological level: adjustments in
intervention and method**

Metalevel: shifting perspective



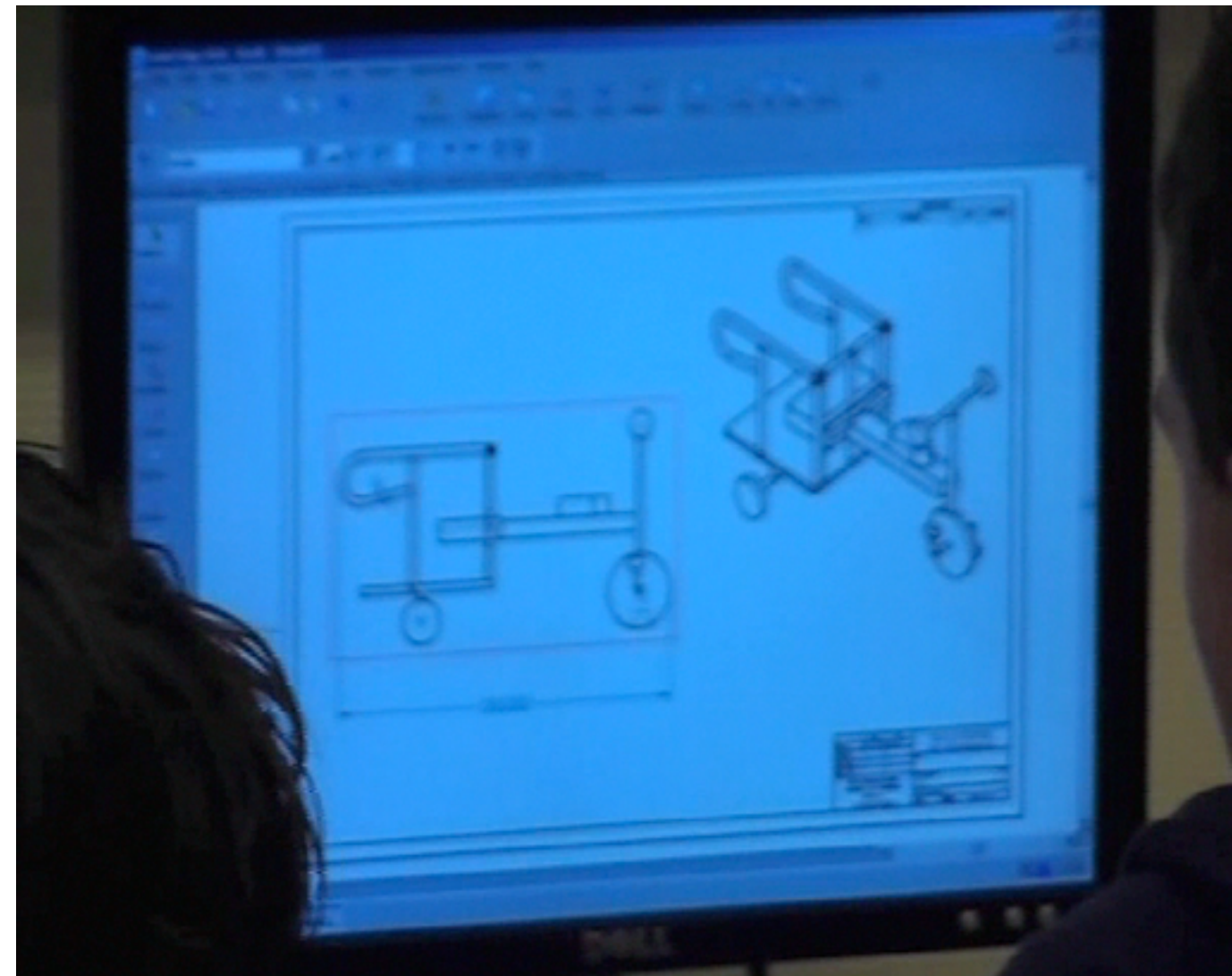
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Baseline level

Case study



Intervention I



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Baseline level

Intervention I:
teacher training



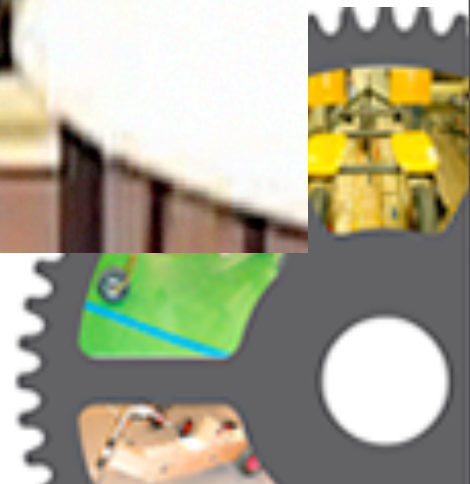
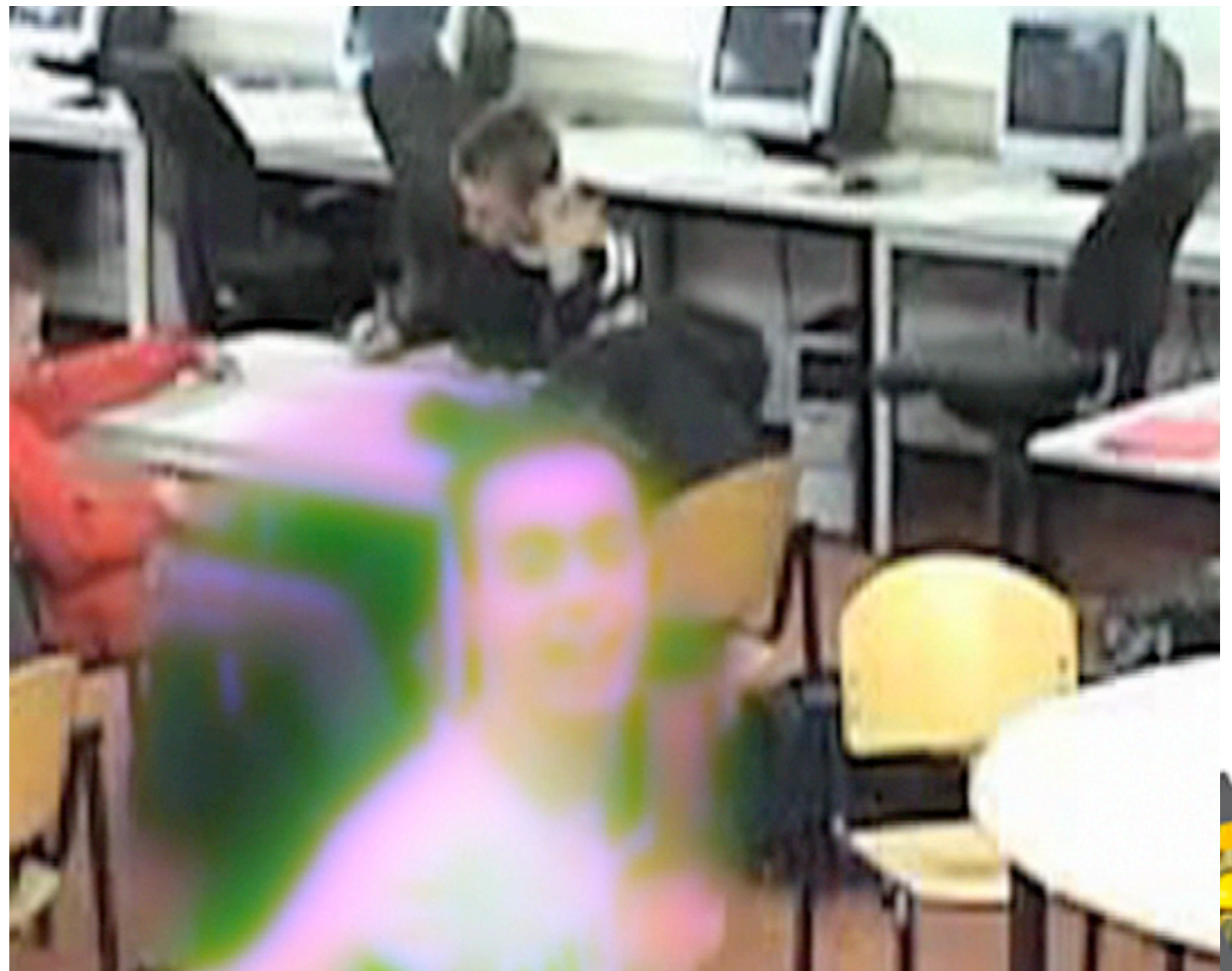
Intervention II



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Methodological level

Camera
awareness



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Metalevel Shifts in perspectives:

Issues on Bbaseline level	Implications for next phase Methodological level	Shifts on Meta-level
	Intervention sublevel	Data sublevel
<p>Case study - Knowledge remained situated</p> <ul style="list-style-type: none"> - Models were provided - Client needs to be real - Integration subject matter* 	<ul style="list-style-type: none"> - Guidance and instrument for teachers (with suggested lessons) - Prototype competition 	<ul style="list-style-type: none"> - More distant video approach (more schools, more students) - Also quantitative data <p>Reflection on production process may lead to recontextualisation (prototype)</p>
<p>First experiment - Drawings disappear during process</p> <ul style="list-style-type: none"> - Models in experimental condition are better - Minimal guidance on theory and modelling* - Little or low quality student drawing* 	<ul style="list-style-type: none"> - 'Prototype lessons' (explicit attention for models) - Backward engineering models 	<ul style="list-style-type: none"> - Focus of observations around week 3-6 <p>Models should be tools like professional designers</p>
<p>Final experiment</p> <p>a) First study Better performing schools have:</p> <ul style="list-style-type: none"> - Teachers with academic background - Higher teacher-student ratio 		<ul style="list-style-type: none"> - Deeper qualitative analyses needed <p>'Disciplined perception' should be promoted (vocational & academic)</p>
<p>b) Second study At best performing schools:</p> <ul style="list-style-type: none"> - Explicit attention for disciplines - Models as tools the entire process 	<p>Parameters for assignment and teacher guidance:</p> <ul style="list-style-type: none"> - Potential theory-rich assignment - Teacher student ratio - Teachers' background - Use modelling as core - Explicit reflection on disciplines 	<p>Integrated pedagogics with modelling as core activity.</p>
<p>found in interviews or member checking</p>		



CHAT & DBR

- Engeström: formative intervention & double stimulation
- Agency participants
- Open ended
- improving theory & practice



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CHAT & DBR

- In education ‘triple stimulation’?
 - Tools for teacher and student (and researcher)
 - What are the boundaries, what are the systems, what’s the activity?
 - Open unit of analysis?



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