Practice-based research methods to guide designing for situated (networked) learning

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Designing for situated knowledge with Design Based Research
Case: Designing for online homework guidance

Practice-based research methods to guide designing for situated (networked) knowledge) 20/9 2016
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Overview

- The project: Develop Online Homework Guidance
- Pedagogical models – affordances
- Design Based Research as a method – Research process:
  - Domain knowledge
  - Lab
  - Experiments
  - Generalisation

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Who is talking?

Jens Jørgen Hansen

Associate Professor in Knowledge Communications

Background in Teacher education (1995-2011)

PhD in digital learning materials in schools

Research areas: Learning design, literacy, digital media and learning resources.

Played *Korfball* on the Danish national team ☺

The project: Develop Online Homework guidance

Homework guidance: tasks assigned to students by school teachers that are meant to be carried out during non-school hours (Cooper, 1989)

Online homework guidance: communication in an online environment between a trained academic homework tutor and learner facilitated by computer-mediated communication technologies (Richards & Viganó 2012)

The context

- Homework Online – nonprofit organisation led by State Library in Aarhus, Denmark

- Vision: 'provide free tutoring that helps young people to perform better in school and reach their learning potential'

- Operate a number of call centres for homework guidance in secondary education

- Offer a training program that recruits and trains volunteer tutors

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Potential of online homework

- extend learning beyond the classroom
- student can access specialised expertise
- get academic guidance specific to the learner's curricular challenges

Learning design - example of *"educational innovation"* (Conole 2013):

- use of digital technologies
- development of new learning design
- new pedagogical approaches and pathways to train and support tutors in their guidance of learners in secondary education.

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The problem

- Mobilising professional knowledge is critical
- Embedded in social practice as 'tacit knowledge' and prior experiences
- New tutors has neither professional knowledge nor theoretical guidelines
- Professional knowledge on Homework guidance:
    - Is poor
    - Handling a guidance situation is unique and complex
    - Demands an emphatic exploration of the learner and task
    - No "one-method-fits-all"
    - No "best practice"

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A contribution to the solution…

Which measures can make the professional knowledge explicit and visible and socialise new tutors into a network learning community?

Pedagogical models?

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Pedagogical models – affordance for human activity

Representation - of a selected part of the world (the 'target system')

Knowledge about the model > 'translated' into knowledge about the target system

Articulate concepts, tasks and processes in a target system

Action – guide understanding and competent handling new situations – a heuristic goal directed resource + support reflection-in-action and reflection-on-action (Schön)

Communication – support communication about practice between practitioners + resource for practice development

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How develop robust and relevant pedagogical models? Design Based Research!

'A systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development, and implementation, based on collaboration among researchers and practitioners in real-world settings, and leading to contextually-sensitive design principles and theories' (Wang & Hannafin, 2005)

Research Aim: practical and scientific

Pedagogical practical aim

What models and guidelines can strengthen HO's training program and guide new tutors and support their development of guidance competences?

Pedagogical scientific aim

How develop design principles and a theoretical perspective on Homework Guidance as a new field in guidance theory?

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DBR research process

1. **Domain knowledge Problem identification Analysing practice**

2. **Lab – generating design**

4. **Generalisation Implementation**

3. **Experiments in practice**

Domain knowledge – guidance traditions
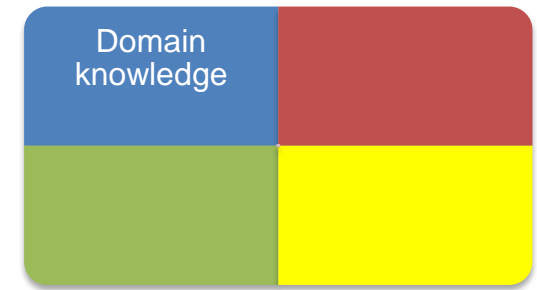
- Vocational guidance: guidance related to business activities or training

- Job Professional guidance: guidance related writing assignments inside or outside a training

- Study / vocational guidance, advice to students about educational choice, profession, occupation, etc.

- Personal guidance / counselling: help colleagues, students or other personal with social/personal problems.

- Homework guidance – not an established guidance tradition: develop a theory on homework guidance

Generating knowledge for design:
- *bricolage* activities + the researcher as *bricoleur*
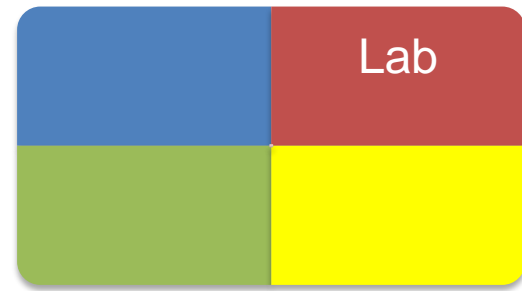
Model 1: Types of Homework Guidance

online

consultation

dialog

offline

Video tutorials
Khan Academy

Homework Online

Textbooks

Homework centre

Working definition on Home Work guidance
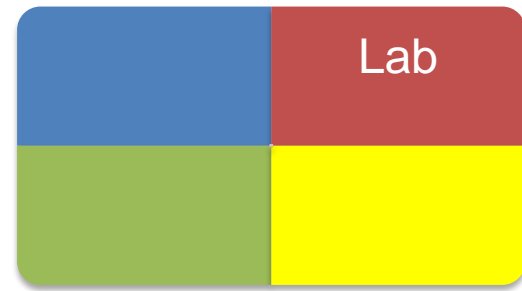
'Dialogical or consultative guidance designed to support students in making appropriate choices in their understanding and solving of school-related tasks with the aim to strengthen their plan for action and courage in learning' (Hansen & Remvig 2016)

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Model 2: The guidance compass
- What are the tutors tasks in the guidance situation?

Clarification

The challenge	Student qualifications
Plan for action	Motivate to learn

Students task

Students as learner

Guidance

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Model 3: Curriculum framework – *What shall the tutors know, do and based on what values?*

	General tutor competence	Guidance competence	E-learning competence	Academic competence
Knowledge	Knows the philosophy of Homework Online	Knows the guiding models	Knows the HO communication platform	Has subject related knowledge
Skills	Share knowledge Supportive to other tutors	Uses the guiding models. Offer differentiated guiding.	Uses online communication tools and resources.	Can find and guide about relevant subject knowledge
Values	Values being part of a community, based on cooperation, knowledge sharing and mutual support.	Values the learner's individuality and seeks to find his personal motivation.	Is interested in technology and stays updated about technology use.	Sees himself as an academic model and mentor.

Model 4: Scenes of Guidance
- *How manage the process of guidance?*

Flow	Front stage - Visible communication	Backstage - Invisible reflection
1. Welcome and presentation	Mutual presentation	Pay attention to the dual function as an academic authority and informal friend.
2. Clarification	The learners pedagogical challenge Framing of time and roles	What is the learner's academic task? What is the learner's academic level? What guidance strategy should be used?
3. Guidance	Guidance methods: coaching, explaining, guiding, demonstration, co-creation, assessing, referring	Guidance situation – solving the task Develop opportunity and motivation
4. Summarize and exit	Evaluation: Was the learner pleased with the guiding session?	Reflection: How did it go, what went well and why? What should I consider for next time?

Model 5: Guidance methods
– *what are my strategies in action?*

Coaching	Explaining	Guiding	Demon-stration	Co-creation	Assessing	Recom-mending
Ask critical and clarifying	Explain concepts and methods	Describe procedures for solving tasks	Showing solving a task	Working together to address a task	Evaluate an assessment	Recommend materials: online resources, textbooks etc.

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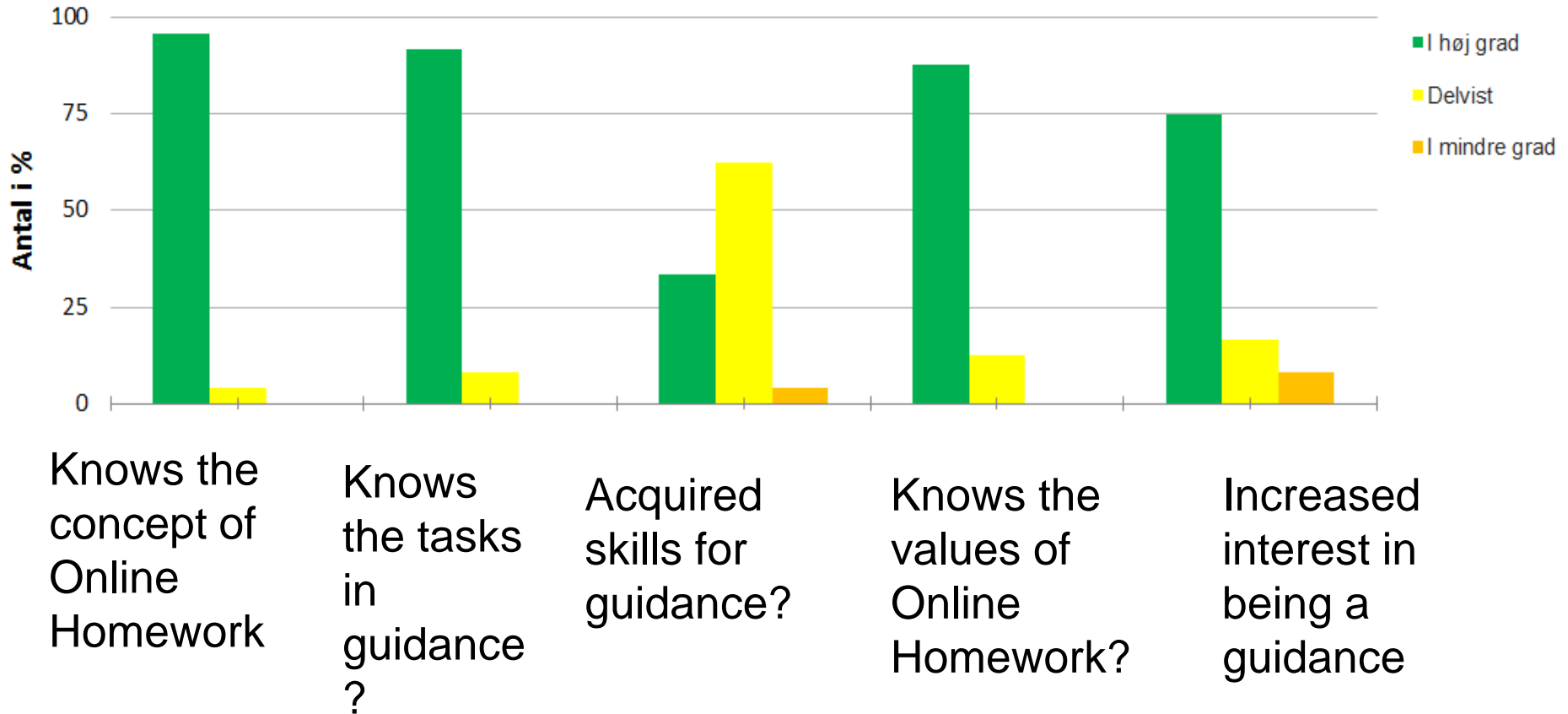# Experiments

The frameworks are implemented in the training program's new course materials

We observed the use of the materials in a training program session.

The research question:

Can pedagogical models stimulate the educational designers strategically reflection and contribute to the development of the tutors' competences in action and reflection on their role and practice as tutors?

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Training Course evaluation

Knows the concept of Online Homework

Knows the tasks in guidance?

Acquired skills for guidance?

Knows the values of Online Homework?

Increased interest in being a guidance

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Usability - guidance models

- Offers a language for understanding and reflection

- Offers methods for action

- Support reflection in practice and on practice (Schön 1983)

- 'In addition, the DIDACTIC MODELS [guidance models] offers a good insight in what situations you might encounter and how to handle them'. (Student)

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Experienced tutor

'Now I read the course material, and I think it was exactly designed with the things that we do in the situations when we guide, but that we do not think about… It gave a huge understanding of what you do in the situation, and it looked as if the homework tutor can get a clearer idea of what happens in a tutor session'
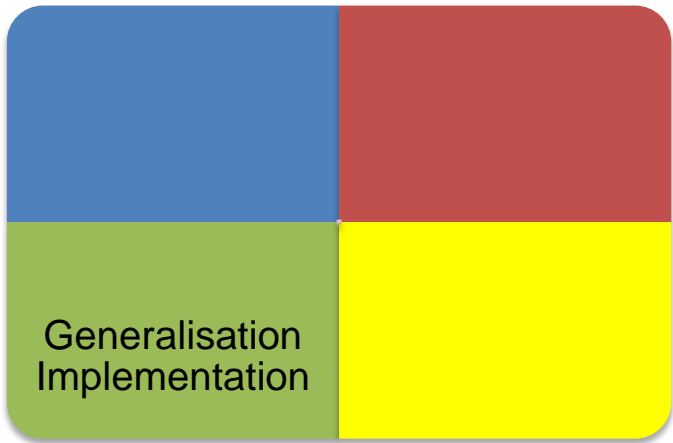
The models:

- mirror the existing practice of the tutor

- provide an effective understanding of how new tutors can be socialized into the practice of guidance.

- Serve as a new educational language that reflect and qualify existing action and reflection on practice.

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Generalization

Course materials

Generalisation Implementation

Guidance models

Website

Training course

LEKTIER-ONLINE

Findings – solutions for practice

- Developed socially robust models for guidance with a transformative effect
- Produced recognized course materials for use in training program, course materials, website
- Qualified Homework onlines traing program
- *But…*

'Design experiments are conducted to develop theories, not merely to empirically tune 'what works' (Cobb et al. 2003)

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Theoretical findings
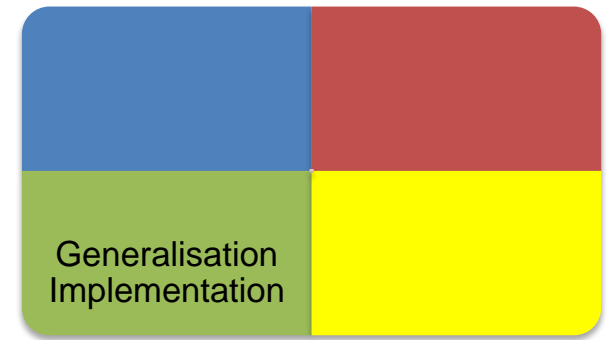
Generalisation
Implementation

Definition on Home Work guidance:

'Dialogical or consultative guidance designed to support students in making appropriate choices in their understanding and solving of school-related tasks with the aim to strengthen their plan for action and courage in learning'

Design principles for guidance models:

Develop robust and relevant pedagogical model that can:

- Mirror practice and the existing network learning community **(Representation affordance)**

- Guide tutors + Support participation into a network learning community **(Action affordance)**

- Offer language for planning and reflection in and on action **(Communication affordance)**

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Thank you

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