

Digital competence in higher education
Design based research to bridge the gap between policy, teaching and research?

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Outline

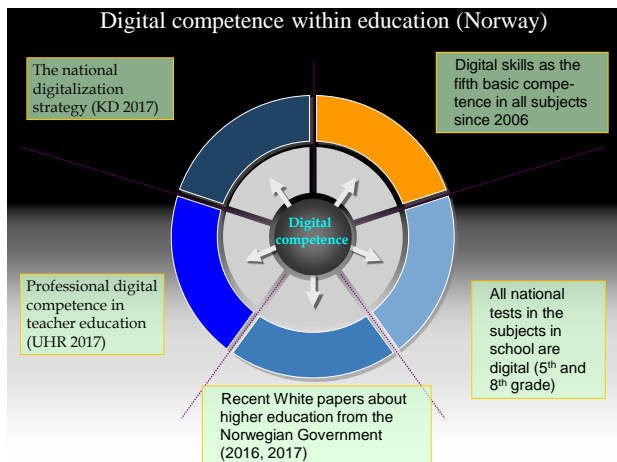
1		Introduction
2		Digital competence as transferable skill
3		Bridge teaching and research?
4		Case studies as examples

«(...) Context is not always everything, but it colors everything» (Pajares 2006, p. 342).

Digital competence – a “moving target”?

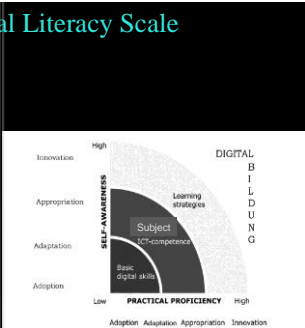


Digital competence within education (Norway)

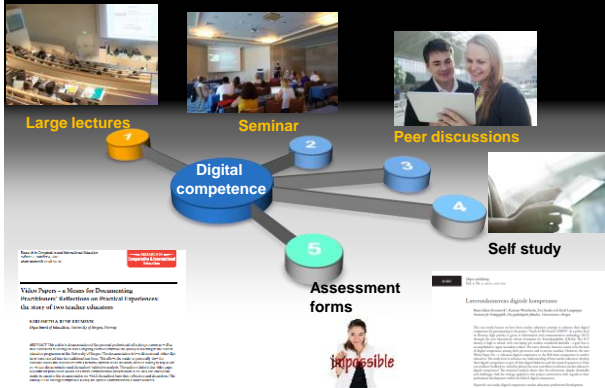


Bergen Digital Literacy Scale

- The SMIL-study (Krumsvik et al. 2013), N= 17 529 pupils & 2523 teachers
- The factor analysis was conducted with an oblimin rotation, as this allows the factors to be correlated (Russell 2002).
- The five questions came out as one factor explaining 60.0% percent of the variance.
- The digital index include how pupils perceive own digital competence, elementary ICT skills, basic ICT skills, subject related ICT skills, digital learning strategies and their overall digital competence.
- Together the index represent a mean of these five types of skills on a scale ranging from 1 to 7 where 1= no skills and 7= very good skills.
- A Cronbachs alpha value of .82 indicates that internal consistency of the digital competence index is high.



«Teach as we preach» in teacher education (Krumsvik et al. 2012)



Is it possible to “unpack” digital competence in higher education?

Can design based research bridge some of the gap between policy, teaching and research within this area?

How can digital competence improve educational quality?

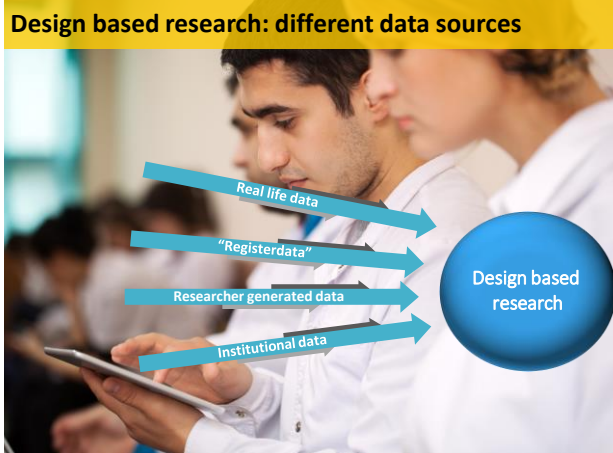
Design experiments and design research (Collins, Joseph & Bielaczyc 2004)

- The term “design experiments” was introduced in 1992, in articles by Ann Brown (1992) and Allan Collins (1992). Design experiments were developed as a way to carry out formative research to test and refine educational designs based on principles derived from prior research. More recently the term design research has been applied to this kind of work (p. 15).
- The need for approaches to the study of learning phenomena in the real world rather than the laboratory.
- The need to derive research findings from formative evaluation (p. 16).
- Nine principles (Wang & Hannafin 2005)

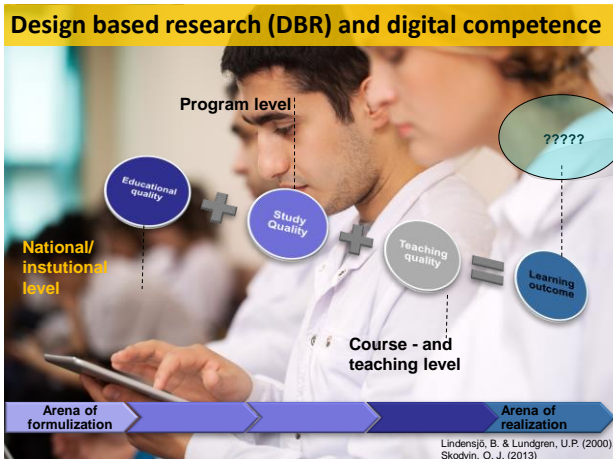
Research designs, DBR and digital competence



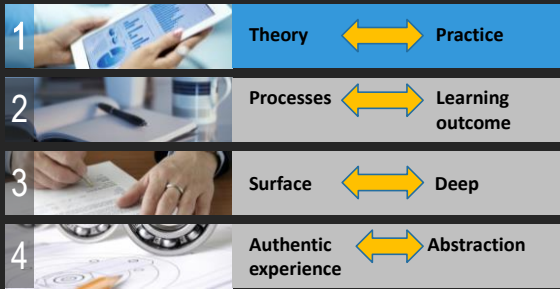
Design based research: different data sources



Design based research (DBR) and digital competence



The need for "a epistemological step back": What is the learning objective and research question?

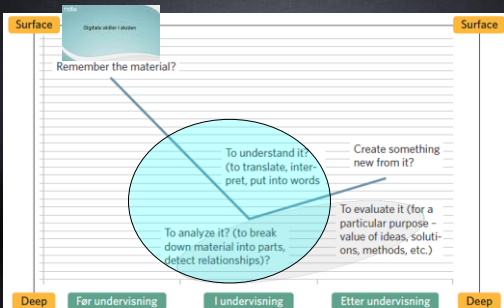


What is the learning objective and what is the best "research question to examine this learning objective?"

FLIPPING OR FLOPPING" ...?
«CHALK AND TALK»....?
«TELLING AND SHOWING"....?
«LEARNING BY DOING»...?

EXAMINE PARTS OF THE TEACHING DESIGN (SINGLE CASE) OR THE WHOLE TEACHING DESIGN (MULTI CASE)

Example: Flipped classroom in teacher education (pilot)



Figur 3.1 Omvendt undervisning i SMIL-studien, basert på SOLO og Blooms taksonomi. (Hattie, 2012; Anderson og Kraftwohl, 2001; Bloom 1956).

Case study 1:

The main aim of the design based research (case study) is to examine if, and eventually how formative assessment can enhance the educational aspects of a PhD-course within transferable skills (literature review-course)

The case study: PhD's and transferable skill (3rd cycle)

Flipped classroom

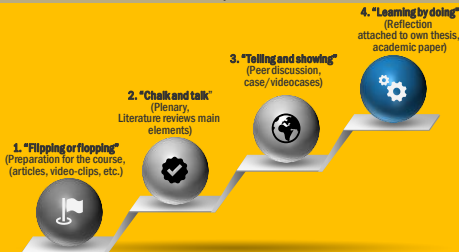
A variety of digital tools (21)

Formative e-assessment



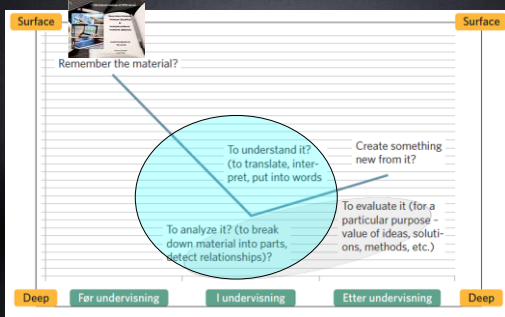
The DBR-framework of the course

1 month before the course <---The 2 course days-----> 1,5 month after the course

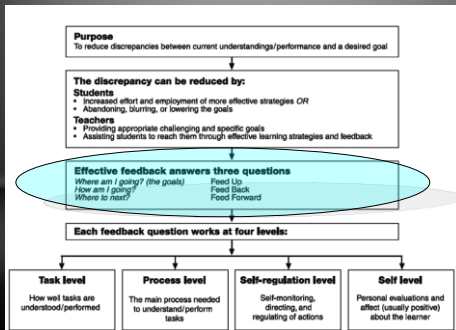


PHD-candidates' formative assessment of the pedagogical framework and the content of the PhD-course (3 times) through digital surveys, interviews and "live surveys" and peer discussions in situ.

Pedagogical framework: Flipped learning design

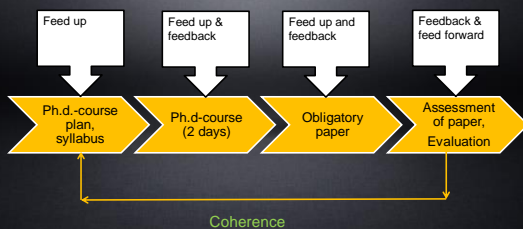


Theoretical framework: Formative assessment (Hattie & Timperley 2007)



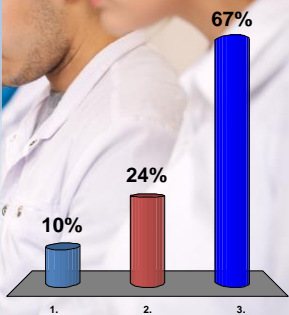
Feed up, feed back and feed forward (Hattie and Timperley 2007) in digital learning communities

Literature review on ph.d.-level



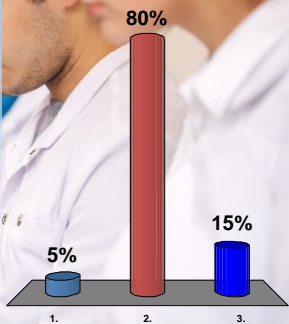
Have you read the recommended literature for the course?

- 1. No
- 2. Yes
- 3. Partly



Have you watched the 6 video clips before the course ("Flipped learning")?

- 1. No
- 2. Yes
- 3. Partly

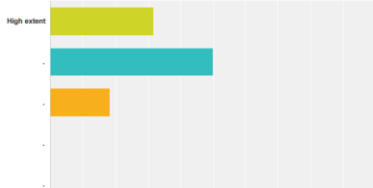


Digital elements (flipped classroom) in PhD-courses

Evaluation of "Literature review on PhD-level", 30-31. March 2017

Q6 To what extent do you think watching the 6 video clips supported your own learning outcome in the course?

Bevart: 22 Hoppet over: 0

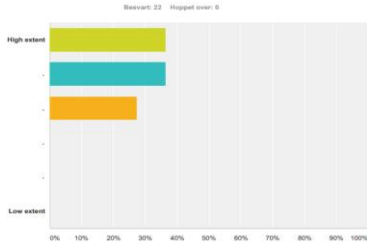


"The videos are a useful way to get an introduction to the topic before reading the literature in more detail. I have already applied some of the tips to my own review/ work (Peter)

Peer discussions and e-formative elements (Flinga) in the PhD-course

Evaluation of "Literature review on PhD-level", 30.-31. March 2017

Q8 To achieve the main goals for the course we had some peer discussions and Flinga-cases ("Telling and showing") about the main elements of literature review during the two course days. To what extent do you think the peer discussions and Flinga-cases supported your own learning outcome of the course?



Obligatory paper, Assessment part 1: feed back

Obligatory paper, literature review at PhD-level
by
Professor Rune Johan Krumsvik & associate professor Fredrik Mork Rokenes

Assessment, NN

This is an impressive, well-written and nearly complete narrative review that clearly shows how you are capable of positioning your doctoral work in the forefront of knowledge in your research field. You clearly identify a knowledge gap in the literature that justify why you want to conduct a literature review. We want to applaud you for being very thorough and transparent with the method both in the retrieval and the review stages of your review. The tables, figures and appendices support and inform your review and your argumentation, and we especially like that you designed a flow chart to show the different stages of the retrieval stage.

Obligatory paper, Assessment part 2: feed forward

"Thank you so much for the feedback in my paper! It is educational and encouraging. I will use it actively further on when revising my paper" (Mark)

2. Method

[This study will take the form of a narrative/traditional review of the literature], as part of an ongoing PhD-thesis. A narrative review is meant to systematically investigate, summarize and assess previous literature (Krumsvik & Roknes, 2016).

Search strategy:

An extensive search for published literature of the last 30 years was conducted. The primary databases searched were Embase, Medline and PsychINFO. The search strategy used was: (adolescen* OR youth OR teen* OR children OR young) AND trend* AND (internaliz* OR complant* OR psychosomatic OR mental OR subjective health). All searches were within article title and abstract. Several complementary searches were performed to insure a sufficiently broad search strategy using an adjusted syntax. These databases were Web of Science and for Scandinavian literature SweMed and the Norwegian source "Helsebiblioteket" were searched.

Kommentert [A2]: Maybe include a definition of this term so that the reader knows exactly what you mean by this label?
Kommentert [A2]: In this paper, you could have elaborated a bit on what the main aim and research question is in your doctoral project. However, this is also easy to read from your review focus.
Kommentert [A2]: Krumsvik & Roknes, 2016

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