Velkommen!

1

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Universitetet i Bergen
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Skolelederkonferansen "Skolen i digital utvikling"

Skolen i digital utvikling - Et blikk på kunnskapsgrunnlaget

Bergen

4. November 2020

2

Foredraget er basert på denne litteraturen:

Krumsvik, R.J. (2019). The current state of knowledge of educational technology research and where to go from here. *Nordic journal of digital literacy, 3-4(14), 91-98*

Krumsvik, R.J. (2020). Ontology, epistemology and context – and our social construction of educational technology. *Nordic journal of digital literacy, 1 (15), 3-7*

Krumsvik, R.J. (2020). Home schooling, remote teaching and digital Bildung in societal crisis. *Nordic journal of digital literacy, 2 (15), 71-85.*

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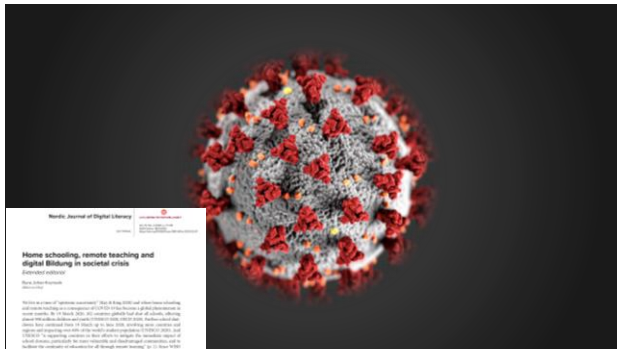

https://www.idunn.no/dk/2020/02/home_schooling_remote_teaching_and_digitalbildung_in_soci

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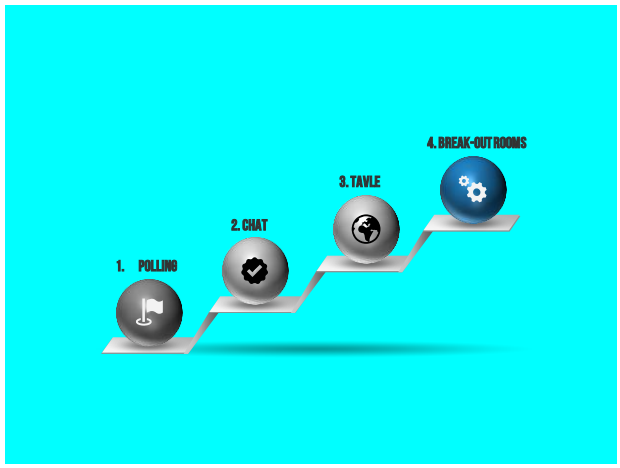

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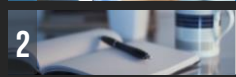
Disposisjon


1. Kunnskapsgrunnlaget og kunnskapsfronten & skolens oppdrag – danning og utdanning


2. Digital danning, digitale skiller og digitalt mangfold


3. Digital kompetanse og digital læring


4. Mangel på forskningsprogram, svakt teknologisyn og små forskningsprosjekt

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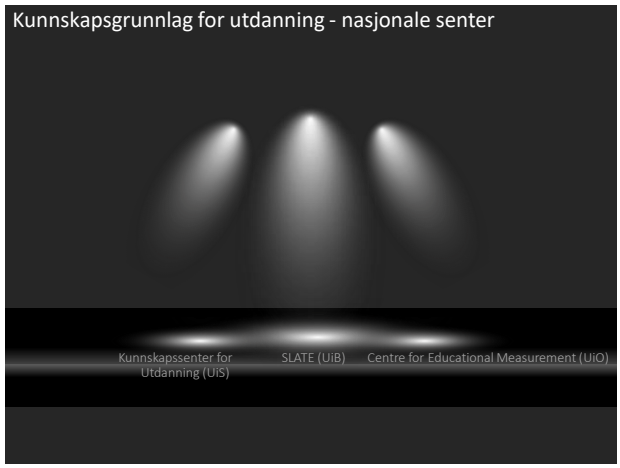


7

2002

"Technology alone does not lead to educational innovation or better learning" (Krumsvik 2002, p. 32)

8

2015

"(…) we have not yet become good enough at the kind of pedagogies that make the most of technology" (OECD 2015, s. 5)

9

2015

"(…) adding 21st-century technologies to 20th-century teaching practices will just dilute the effectiveness of teaching" (OECD 2015, s. 5)

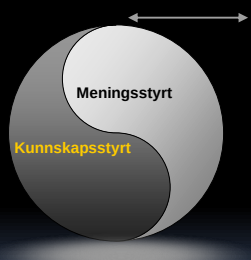
10

Annerkjennelse av ulike roller

- Skoledere er eksperter på skoleledelse
- Lærere er eksperter på undervisning
- Elever er eksperter på elevrollen
- Foreldre er eksperter på foreldrerollen
- Forskere er eksperter på forskning
- PPT/Statped er eksperter på spesial-pedagogikk

11

Evidensbasert kunnskap, erfaringsbasert kunnskap, handlingsboren kunnskap, taus kunnskap, etc.



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Kunnskapsgrunnlaget og kunnskapsfronten→ internasjonalt, makro-, meso- og mikronivå

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Different discourses and different purposes-→ different educational research designs

Level 1a Meta analysis and systematic reviews
Level 1b Randomized controlled trials (with concealed allocation)
Level 2 Quasi-experimental studies (using matching)
Level 3 Before-and-after comparisons
Level 4 Cross-sectional, random sample studies
Level 5 Process evaluation, formative studies and action research
Level 6 Qualitative case study and ethnographic research
Level 7 Descriptive guides and examples of good practice
Level 8 Professional and expert opinion
Level 9 User opinion

(After Pawson 2006, pp. 49-50).

Primærstudier eller "forskning på forskning"

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Forskning på undervisnings- og læringskontekster

Vanskelig å isolere IKT i praksisnær forskning (men det kan gjøres i grunnforskning)

- Allerede i 1983 nevnte Richard E. Clark (Clark 1983) at å sammenligne IKT-bruk med ikke- IKT bruk i skolen er et noe utdatert forskningsdesign, da konteksten den blir brukt i kan variere mye.
- I dag finner man at digitale verktøy, digitale plattformer og digitale læremidler, er vevd sammen med bruk av et mylder av analoge læremidler gjennom en skoledag
- Viktig at man tar høyde for dette i praksisnær forskning

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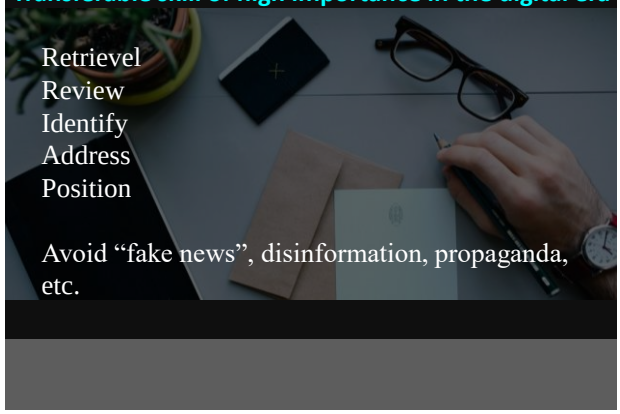
Why focus especially on literature review?
Transferable skill of high importance in the digital era



Retrievel
Review
Identify
Address
Position

Avoid “fake news”, disinformation, propaganda, etc.

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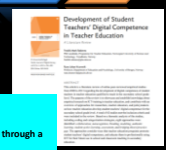
Hvordan finne kunnskapsgrunnlaget/kunnskapsfronten?
Literature review (forskning på forskning er en omstendelig prosess)

2011
Pilot (Krumsvik & Myrseth)

2014
Artikkel publisert



2012
Røkenes/Krumsvik

- 3104 hits.
- 304 articles
- 239 articles were inspected through a full-text mapping.
- Of the remaining 239 screened articles, 42 articles met all the inclusion criteria for the review.

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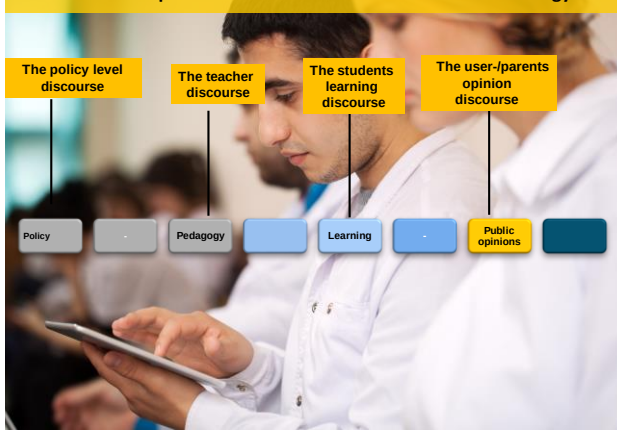
At least 4 important discourses about educational technology



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Når konteksten endrer seg

Allmueskoleloven 1848

Lese, skrive, regne, muntlig

Kunnskapsløftet 2006

Lese, skrive, regne, muntlig og digitale ferdigheter

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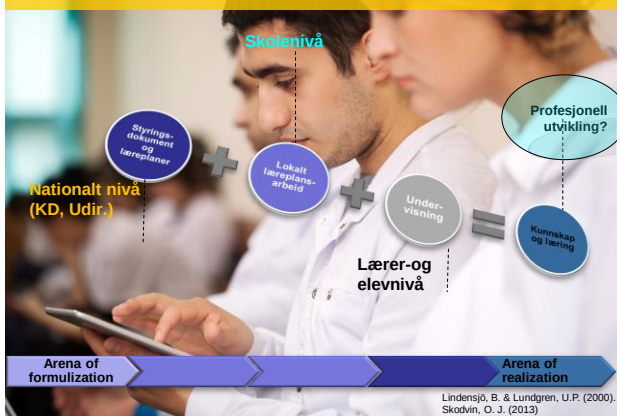
Intensjoner og realiteter?



Lindensjö, B. & Lundgren, U.P. (2000). Skodvin, O. J. (2013)

20

Stereotyper og anekdoter om elevens digital kompetanse (Krumsvik et al. 2020)

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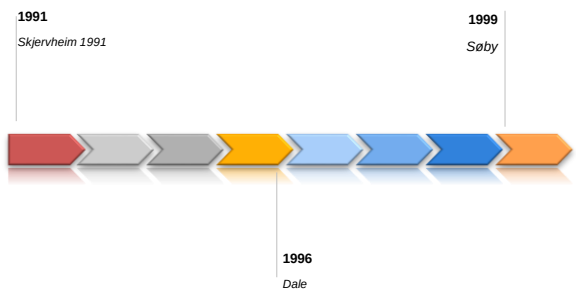
Digital danning: Fortid, nåtid og fremtid



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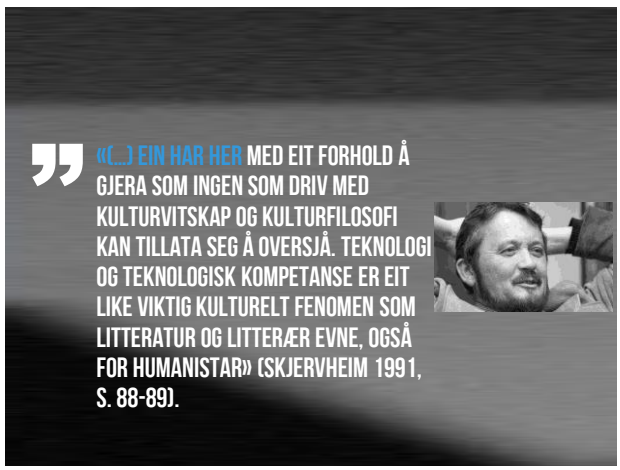

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Tilbakeblikk – digital danning

- Digital dannelse ble anvendt i den politiske debatten allerede ved inngangen til 2000-tallet (se f.eks. Stortingets Forhandlinger 2000/2001, s. 1517, og Stortingsmelding nr. 49, Breiband for kunnskap og vekst (2002, s. 59).
- Derfor var dette også et tema i NOU 2003:16, som la grunnlaget for Stortingsmelding nr. 30, *Kultur for læring,* Kunnskapsløftet (2006) og siden Fagfornyelsen (2017).

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Digitalt mangfold, digitale skiller og digital danning (Castells 2001; La Rue 2011, Fournier-Sylvester 2020)

- Barnekonvensjonen feiret 30-årsjubileum i 2019 og allerede i 2003 ble barnekonvensjonen innlemmet som en norsk lov. Den har en spesiell posisjon da den går foran andre norske lover dersom de står mot hverandre, og har i dag status som barnas egen grunnlov. I Artikkel 13 blir det nevnt at:
- *Barnet skal ha rett til ytringsfrihet; denne rett skal omfatte frihet til å søke, motta og meddele opplysninger og ideer av ethvert slag uten hensyn til grenser, enten det skjer muntlig, skriftlig eller på trykk, i kunstnerisk form eller gjennom en hvilken som helst uttrykksmåte barnet måtte velge (FN's Barnekonvensjon 2003, s. 13)*
- Dette tangerer selvsagt også det tverrfaglige temaet Demokrati og medborgerskap i Fagfornyelsen

Digitale skiller:
"The research reflects the actual use of technology is heavily influenced by the socioeconomic status of both the individual and the school they attend. This achievement gap has often been referred to as an "opportunity gap," defined as a difference in either economic or academic resources available to students. The integration and use of technology in schools are following this same pattern" (Dolan 2016, s. 32). Dette ser vi også konturene av her til lands (Krumsvik et al. 2020).

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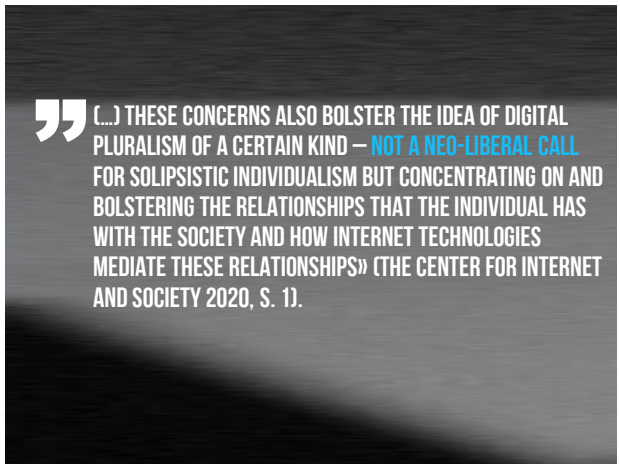

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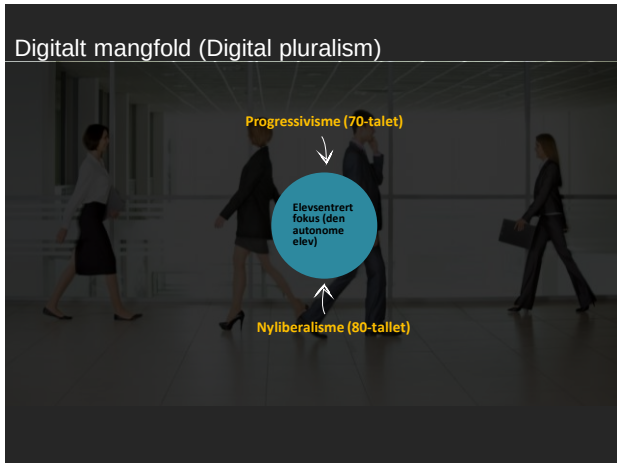
Digitalt mangfold (Digital pluralism)



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Og det er for første gang i skolehistorien at danning er nevnt eksplisitt i Opplærings-loven §1.1 og begrepet kompetanse defineres for første gang i læreplanverket i denne overordnede delen.
Men det har blitt ganske jevnlig jevnt fra 1910 og utover.
F.eks. i 1964 som vi ser her (25 ganger på 60 sider):

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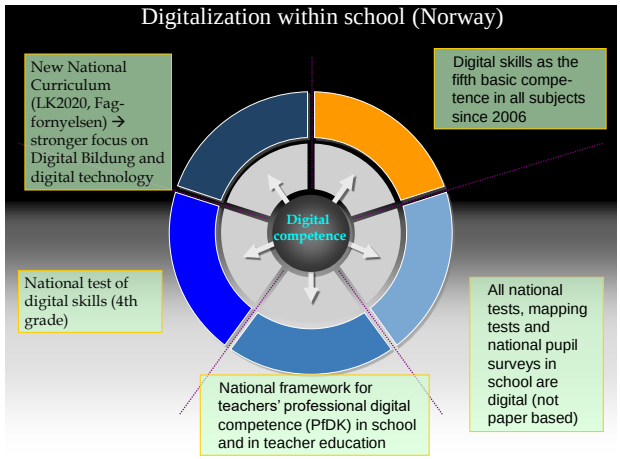
Digitalization within school (Norway)



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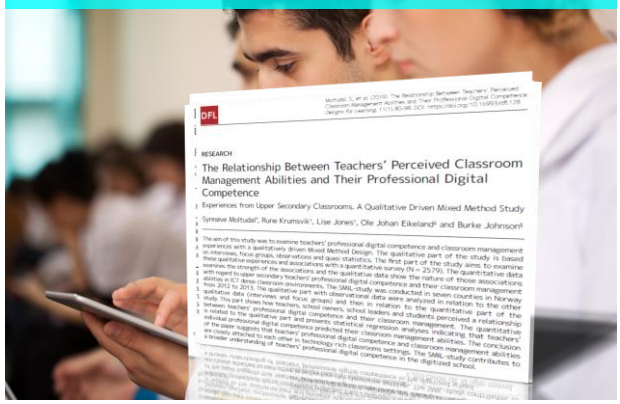
Hovedfunn: Evne til god klasseledelse, god digital kompetanse og bredt didaktisk repertoar



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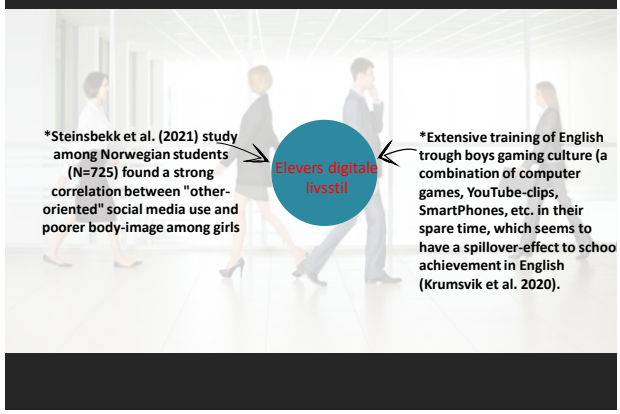
Funn: digital livsstil og "spill-over"-effekt?



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«(…) Context is not always everything, but it colors everything" (Pajares 2005, p. 342).

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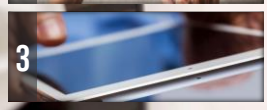
Nettbrett i skoleutvikling: "top-down", "middle-way-out" or "bottom-up"?
(the distinction between incremental and fundamental changes in teaching practices
(Cuban, Kirkpatrick & Peck 2001)





- Tamim et al. (2015) analysed the policy levels intentions, and what kind of rationale lies behind tablets in schools. In such policy documents, the research revealed that the countries in this review seem to lack sufficient educational frameworks or research-based evidence for their initiatives.
- Important to understand the distinction between incremental and fundamental changes in teaching practice (Cuban, Kirkpatrick & Peck 2001)

Nasjonal policy | Nasjonal læreplan | Skole-utvikling | Lok. l.p. arbeid | Digital kompe-tanse | Digital danning | Vurderings - former | Digital didaktikk

Incremental — Fundamental

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Incremental or fundamental changes in teaching practices?

A recent and interesting quantitative study (*N* = 12 686) from Bakken, Pedersen, Von Soest & Sletten (2020) published in August 2020 about remote teaching and home schooling in Oslo during COVID-19 shows that:

Almost half of the students were fairly or very satisfied with the teaching. Many believe that home schooling has worked well. But 61% thought they had learned less than they used to (…) The findings show a large spread in terms of how much and what types of teaching they have received (Bakken et al. 2020, p. 4).

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Incremental — Fundamental

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- Kunnskapsgrunnlaget viser at det er ikke grunnlag for å hevde at spesielle programvarer eller infrastrukturer alene vil medføre store endringer i læring og skoleprestasjoner
- Kort sagt: Metaanalysene fra 1991-2014 viser at IKT generelt sett har en liten til moderat positiv innvirkning på skoleprestasjoner.
- De nyeste meta analysene (2014-2020) viser at IKT har en positiv, moderat innvirkning på skoleprestasjoner
- Pedagogiske og didaktiske aspekt synes å spill inn

If we first glimpse at the latest meta-analysis concerning educational technology in teaching, we can see that Kulik and Kulik's (1991) meta-analysis found an average effect size of 0.30.

Rosen and Salomon (2007) found a mean effect size of 0.46 in their meta-analysis in mathematics. However, this increased to 0.90 when constructivist learning environments were applied.

Tamim et al.'s (2011) second-order meta-analysis of 25 meta analyses, 1055 primary studies and 100 000 students found an overall mean effect size of 0.35.

Sung, Chang & Liu (2016) found an overall mean effect

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Adaptive learning and homework

Results from Rawson, Stahovich, and Mayer (2017) reveal that *time-on-task* (actual time spent on a task) is positively correlated with grades, where educational technology contributed towards avoiding some of the well-known methodological pitfalls in previous homework research.

Adaptive learning

*Concerning the relationship between homework and educational technology, Roschelle et al. (2016) studied 2,850 mathematics students who used adaptive learning software and homework as central parts of an intervention. The authors found that students in the intervention group had higher scores in an end-of-the-year standardized mathematics assessment when compared with a control group that continued with existing homework practices.

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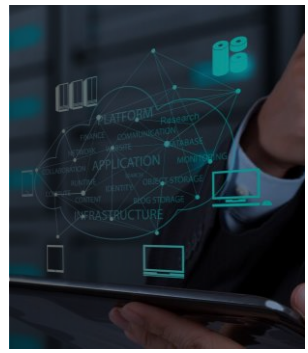
Multimedia learning (Mayer 2014)

- Cognitive Theory of Multimedia Learning (CTML) tar utgangspunkt i multimediaprinsippet, som tilsier at den lærende har bedre læringsutbytte fra multimedia når man benytter seg av ord og bilde, og ikke berre ord.
- Prinsippet er basert på 11 eksperimentelle studier og har en samlet median-effektstørrelse på d = 1.39 (Skaar & Krumsvik 2015)



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Multimedia learning

Cirka 100 studier har vist at de 9 prinsippene spiller inn på vår fortåelse av mulitmodalitet ved at det kan enten kan regulere iboende last, redusere overflødig last og fostre relevant kognitiv last, og dette er basert på tre metaanalyser (Mayer, 2014d; Mayer & Fiorella, 2014; Mayer & Pilegard, 2014). Dette handler altså om ulike modaliteter (tekst, bilde, lyd, animasjon) sine egenskaper i ulike læringskontekster og for ulike elevgrupper på mikro-nivå I eksperimentelle studier.

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Digital læring (multimedia læring) og "mode effect"

(Mayer, 2014; Mayer & Fiorella, 2014; Mayer & Pilegard, 2014)

(Mayer, 2014; Mayer & Fiorella, 2014; Mayer & Pilegard, 2014)

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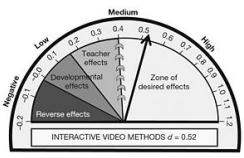
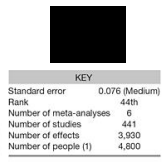
Example: Bridging theory and practice for psychology students (N= 172)

- "Interactive video, a combination of computer-assisted instruction and video technology, is used as an instructional media for teaching and training" (Mayer & Moreno, 2002, p. 88; Hattie 2009, p. 228).





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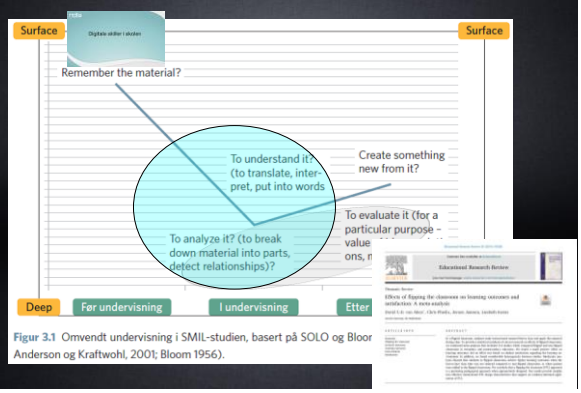
Flipped classroom: "In a flipping the classroom (FTC) approach, students study instructional material before class (e.g., by watching online lectures) and apply the learning material during class» (Alten et al. 2019, p. 32).



Figur 3.1 Omvendt undervisning i SMIL-studien, basert på SOLO og Bloor Anderson og Kraftwohl, 2001; Bloom 1956).

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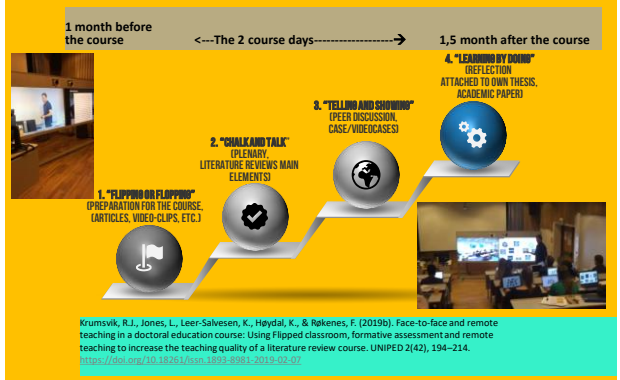
Flipped classrom on doctoral level



Krumsvik, R.J., Jones, L., Leer-Salvesen, K., Høydal, K., & Røkenes, F. (2019b). Face-to-face and remote teaching in a doctoral education course: Using Flipped classroom, formative assessment and remote teaching to increase the teaching quality of a literature review course. UNIPED 2(42), 194–214. https://doi.org/10.18261/issn.1893-8981-2019-02-07

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«(...) Internet use, and educational technology in general, are only as good as the teacher who use it» (Castells 2001, s. 258)

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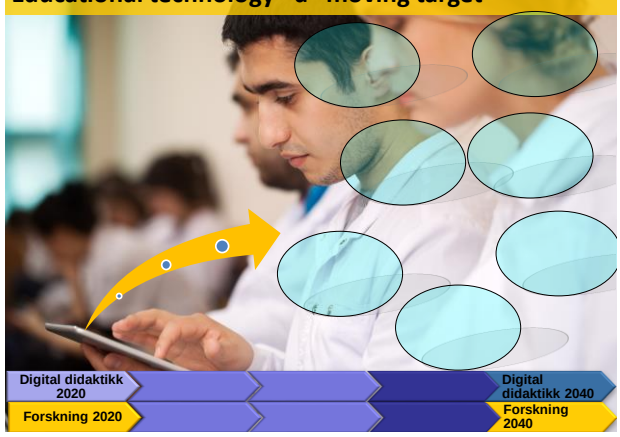
Educational technology - a "moving target"



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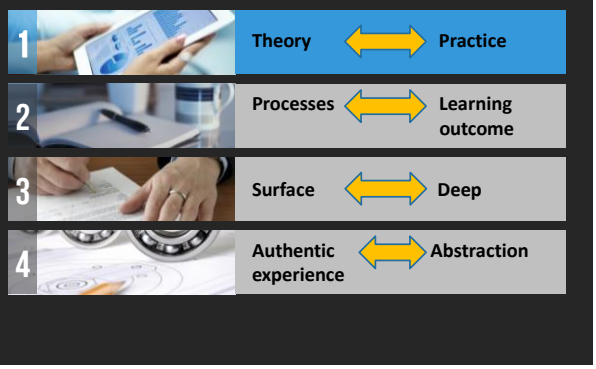
”..Ein må rygga eit steg attende og prøva få perspektiv på føresetnadane for det ein gjer” (Skjervheim 1972, s. 57).
Kva er læringsmålet og kva for analoge og digitale læremiddel trengs?



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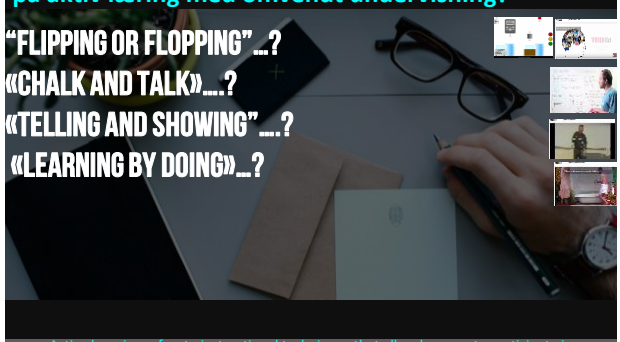
Hva er læringsmålet og hvordan kan man legge vekt på aktiv læring med omvendt undervisning?



«Active learning refers to instructional techniques that allow learners to participate in learning and teaching activities, to take the responsibility for their own learning, and to establish connections between ideas by analyzing, synthesizing, and evaluating» (Gogos 2012, s. 1).

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Oppsummering

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