Educational technologies in a globalized world

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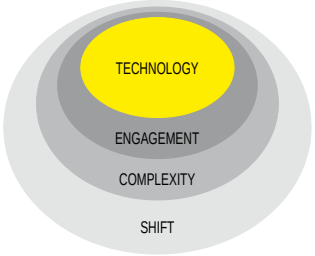
ASEM Forum on Lifelong Learning
Grand Nikko, Bali

Digital Revolution in Higher Education

New Challenges for Teachers



The Ministry's vision is that "The students must become lifelong learners because now the world is changing rapidly. They have to learn a lifetime to keep up with the times"

Dr. Anies Baswedan , Minister of Culture and Primary & Secondary Education

Overview of talk:

1. Presentation
2. Challenges
3. Technucation and the TECS Model
4. Discussion

Aarhus University, Department of Education (DPU)

Research Program on:

Future Technology, Culture and Learning

Interdisciplinary research focusing upon research at the convergence of emerging technology and cultural learning processes.

http://edu.au.dk/en/research/research-areas/future-technology-culture-and-learning/

Ongoing research

1. Technucation: Cathrine Hasse, Jamie Wallace, Stine Trentemøller, Ann Katrine Bønnelykke Soffer, Anne Katrine Kamstrup, Ann-Thérèse Arstorp, Gertrud Lynge Esbensen + Xenia Niemann,Trine Jørgensen; Stine Harrekilde, Bjarke L. Andersen. Danish Research Council till December 2015

2. iPads in schools: Cathrine Hasse, Jamie Wallace, Theresa Schilhab Louise Bøttcher, Stine Trentemøller. Research C + UCC + MET. December 2016

3. TIPP: Jamie Wallace + Helge Suneson. Technology in Production Processes (**TIPP**) - Design and use of technologi in the food industry)**. Technological Institute, December 2016**

4. Educational robotics (NORO): Cathrine Hasse + Oliver Tafdrup. Research Council + AU 2017.

5. MOOCS. Bjarke Lindsø Andersen.

New Challenges for using OER

- How do learners learn to
- "effectively search, select, and use massive educational materials"?
- **Bowon Kim (ed) 2014**
  - **Open Educational Resources in Lifelong Learning KNOU Press**
  - ASEM Education and Research Hub for Lifelong Learning

OER (Open Educational Resources)

Cathrine Hasse
Projects :

Before 2011
Science education in Europe
Physicists and Engineers
Learn technological literacy

Now:

Educational Technology in DK:

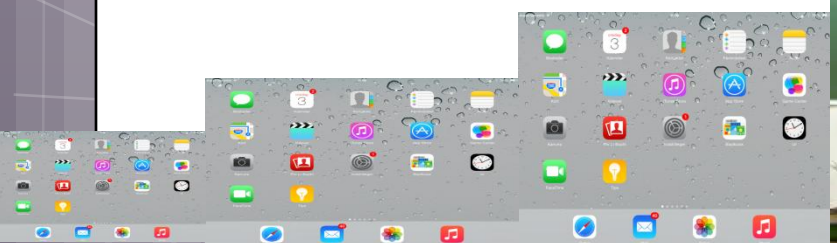
Teachers

do not learn technological literacy at University Colleges

The *Technucation Project* - 2011-2015(The Danish Research Counsel)

The Niels Bohr project – 1996-2002
(The Danish Research Counsel)
The Cultural Dimensions of Science
2002-2005
(The Danish Research Counsel)
UPGEM 2005-2008
European Commission, 6th FP

How do **teachers** learn to "effectively search, select, and use massive educational materials"?




Educational technologies in a globalized world= new teachers competencies in lifelong learning

New teachers competencies in lifelong learning with technology in schools

Research: Studying teachers lifelong learning in 13 scho

Aim: To develop teachers education at university colleges

The Technucation-project financed by the Strategic Danish Research Council 2011-2015

Teachers lifelong learning with technology – but without technological literacy

[New technologies] calls for another way of thinking about teaching in general - and we also need to learn about all these opportunities. So, you've got these technologies in school (e.g. iPads), but I have not learned about them in teacher's college, and I think very few people actually have....

So I can understand that there are many teachers who do not really throw themselves into it all, and I even belong to a younger generation (…), but I can see the emerging problem areas.

- (Lesi, younger teacher).

Challenges assessing and using OER

Academic users, such as students, teachers and course providers, need the “right” content for their learning and/or teaching. The OERs developed in a context are not always “right” content in other contexts.

(Tsuneo Yamada 2014,18)

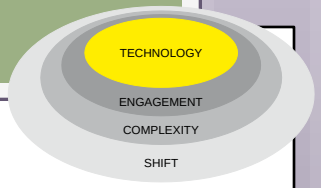
Technological literacy an answer?

"The resurgence of global issues in the 21st century has much to do with the recognition that in the wake of accelerating globalization, the nation state is no longer the all-powerful entity it once was. Heads of global corporations are joining with national leaders to remind schools that we now live in an interdependent world. Educators are rethinking the curriculum, and technology is changing the way we teach and learn"

Laurence Peters, 2009, p. 35

Global Education: Using Technology to Bring the World to Your Students

TECS – a model for Technological Literacy in Teacher's Education



Technological literacy in teachers education is:

"Learning to learn to evaluate and analyze:
a. New technology – design

(.e.g. "Englishlization" (Kwok-kan Tam 2004)

b. Technology in a situational practice,

c. Technology and its complex economic and political pathways

d. The professional shifts

and the interaction between these factors."

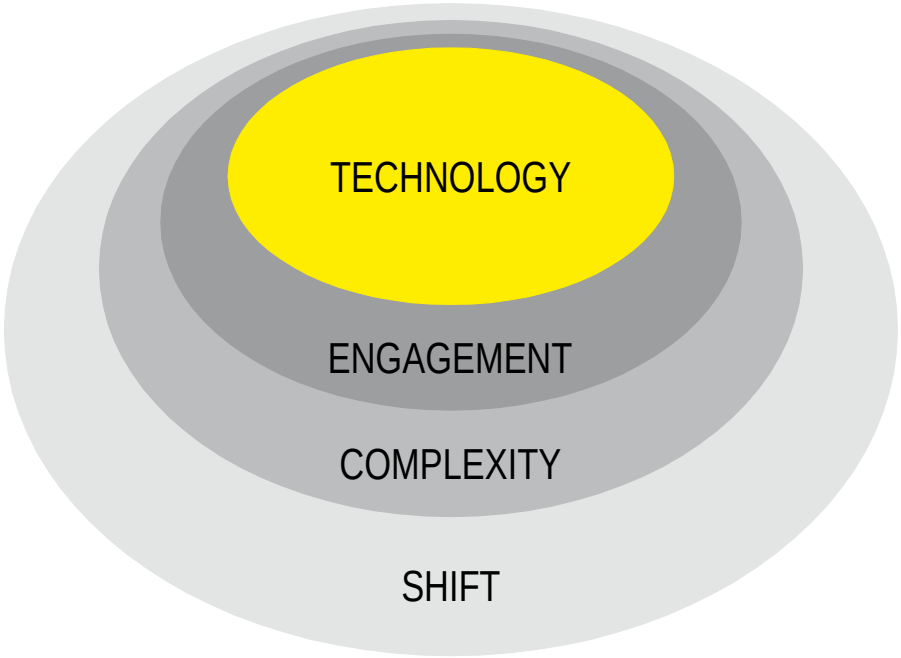
What is the three most important technologies in your daily worklife?

89,9 % of Technucation informants define 'technology' as learning intensive 'electronic devices'.

Young pre-service teachers=digital natives but no technological literacy in control group (n/238)

In intervention group (n/178) less 'instrumental' approach.

The TECS Model



www.technucation.dk

T = *Technology* as design and learning intensive devices

E = *Engagement* in using technology in situated practice

C = *Complexity* and often diverse commercial networks comprising technology

S = *Shift* in professions through the use of technologies

Digital revolution in Higher Education?
In need of teachers learning to:
"effectively search, select, and use massive educational materials"

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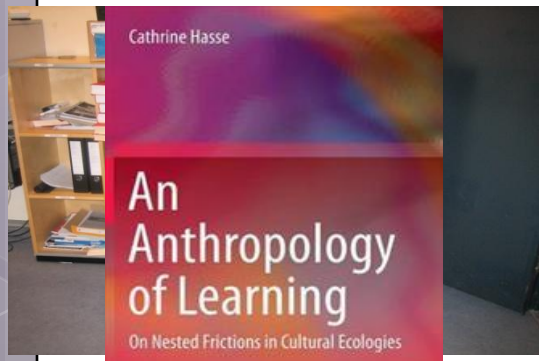
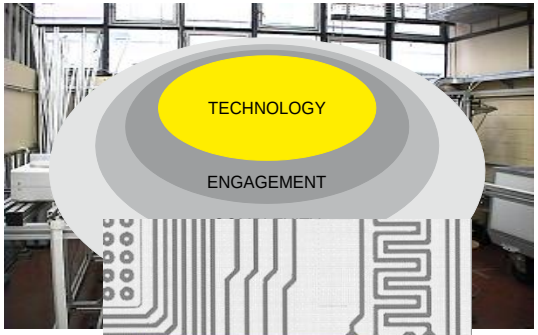
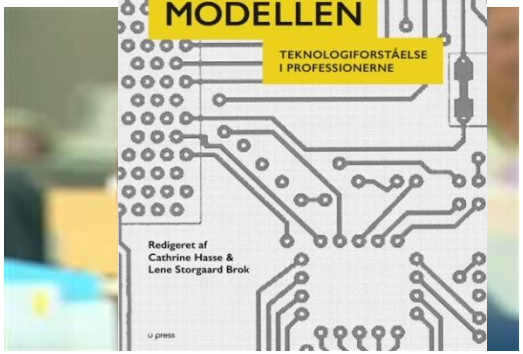
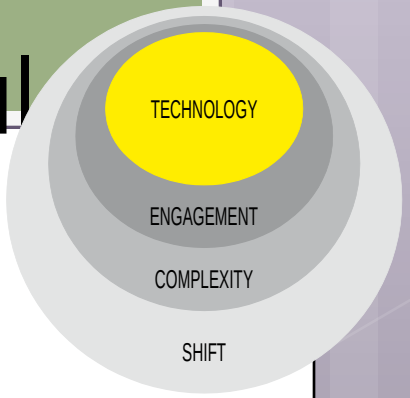






New Frontiers in Technological Literacy Breaking with the Past
Edited by John R. Dakers

TECS-model for technological literacy in Higher Education



- Significant difference in how
- students view
- technology with or without TECS
- ”instrumental” vs
- ”non-instrumental”
  - (Burlin and Favrholt 2015 - ANOVA (Analysis of variance 5 %.)

- In relation to the model I actually think it worked really well (…)A as the session progressed, they became more and more positive, and jumped on the bandwagon, so to speak. (Kim, Teacher)