



Digital Education and preventive efforts with dropouts

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"I've never tried that before, so I'm sure I can make it!" –
Pippi Longstockings



Hypotheses

The understanding of Digital Bildung and Digital Education will prevent High school dropouts

Humanoid Robots



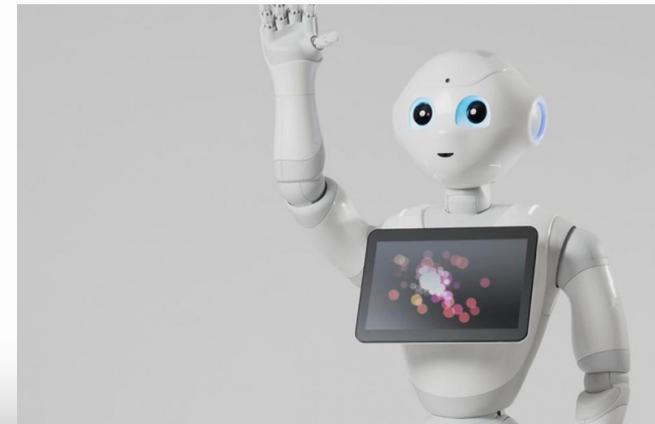
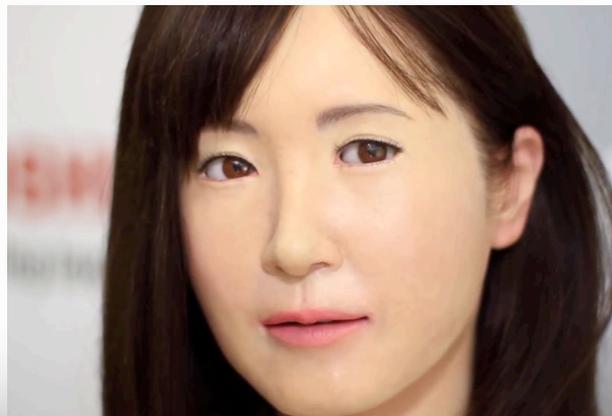
Future Robots will have moral and ethical sense

Asimo



Pepper – the friendly robot

NASA's Valkyrie robot, Lifelike communication android



China future busses



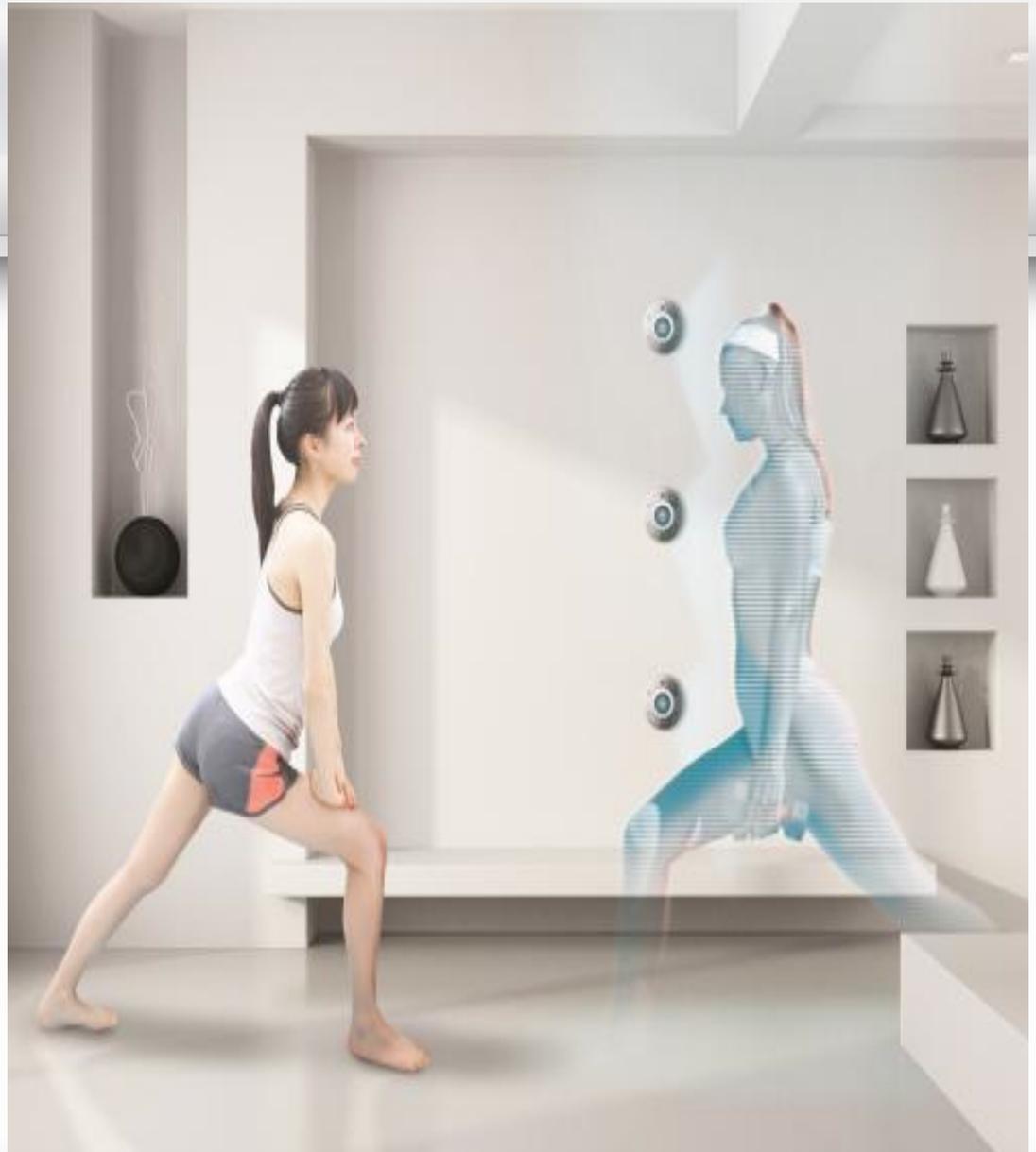
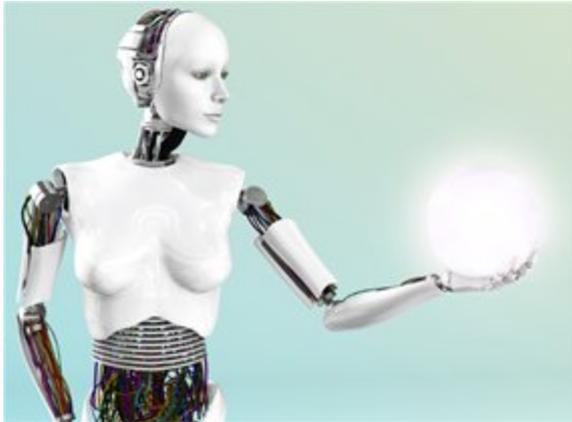
China is thinking in big and bold ways when it comes to how it will **reduce pollution** and a new plan to build a “straddling bus” is among the boldest space-age schemes yet.

In an effort to go green and relieve congestion without widening roads, the Shenzhen Huashi Future Parking Equipment c company is developing a “3D Express Coach”, also known as a “three-dimensional fast bus”.



Hologram Personal Trainer

Holographic systems that project 3D images of personal trainers or friends and family from home



10 year olds and no motivation to learn



Possible measures:

- The high motivated students drops from 5th grade to 10th grade.
Motivation drops with the age.
- The students experience school life as boring and monotone.
- The Students lag behind and does not complete Secondary school.
- The students lack motivation to learn.
- Teaching methods and practical learning
- Learning must be challenging and relevant
- Involve the students and make the students responsible for their own learning
- Many 10th graders are not interested in learning at school, hardly ever do their homework and don't listen to their teacher.

(Hattie, 2009, Kunnskapsdepartementet,2012,
Kunnskapsdepartementet, 2011)

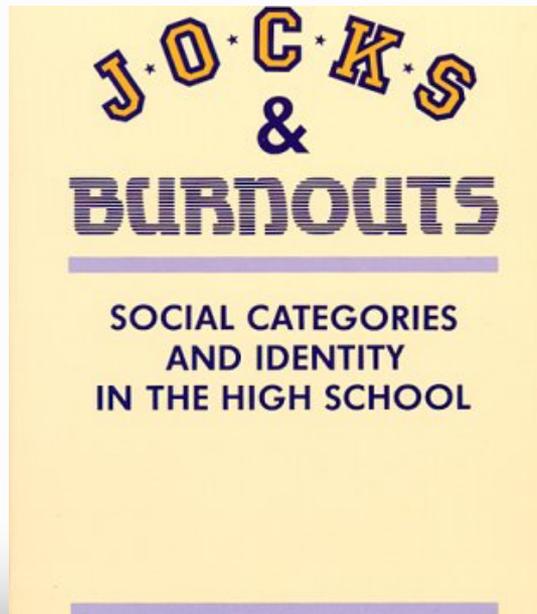
Introduction

Drop out

Jocks
Preps
Cheerleaders
Dorks
Punks
Gamers



Burnouts = Drop outs
Duff = Designated Ugly Fat Friend



More and more students are not finishing high school How to fix this problem? More money and more tests are not the answer

Dropout nation



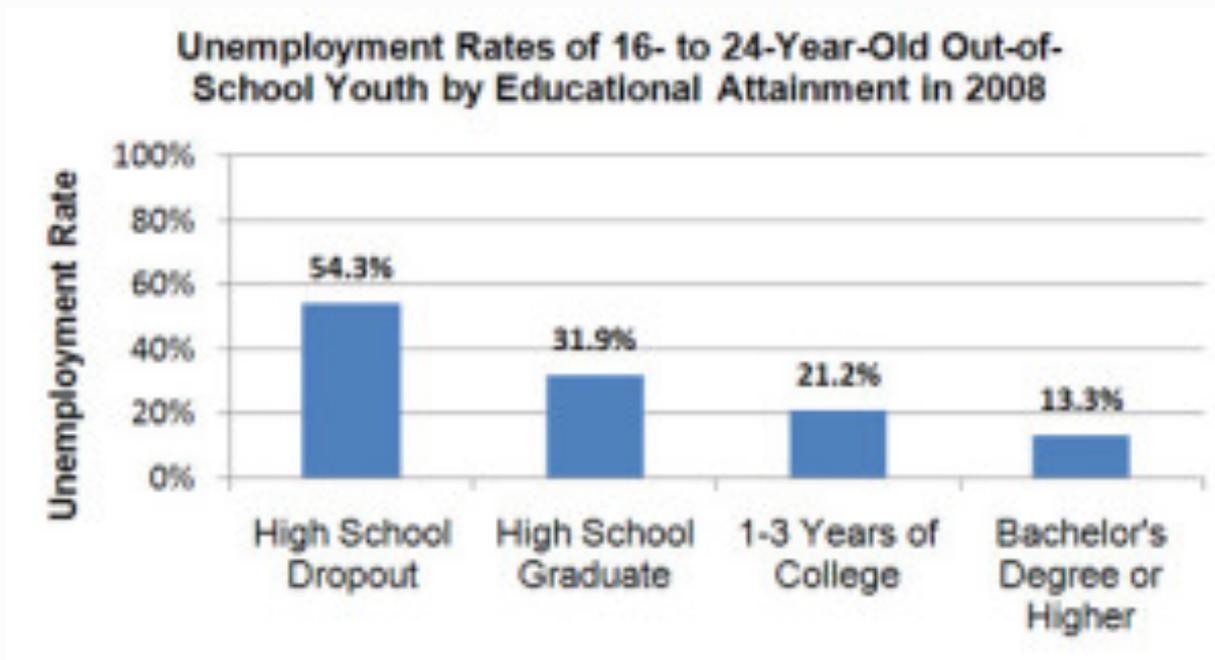
”Shawn Sturgill, 18, had a clique of his own at Shelbyville High, a dozen or so friends who sat at the same long bench in the hallway outside the cafeteria. They were, Shawn says, an average crowd. Not too rich, not too poor; not bookish, but not slow. They rarely got into trouble. Mainly they sat around and talked about Camaros and the Indianapolis Colts.

These days the bench is mostly empty. Of his dozen friends, Shawn says just one or two are still at Shelbyville High. If some cliques are defined by a common sport or a shared obsession with Yu-Gi-Oh! cards, Shawn's friends ended up being defined by their mutual destiny: nearly all of them became high school dropouts.”



Drop out = unemployed

In the US:
High school dropouts are having a harder time finding and keeping jobs than individuals with higher levels of education.



Drop out in the Norwegian school

- 95% of norwegian youth starts in high school.
- 30% drops out
- Most drop outs in vocational subjects and among boys
- Most finish high school in Sogn og Fjordane and least in Finmark.

Ny giv = New possibilitets



- This is the government commitment in completing high school.
- One of the measures used is intensive training in reading, writing and calculating for students that are within the lowest level at tenth grade.
- 8/10 school leaders find the measures working very well.
- $\frac{3}{4}$ students that have participated find what they have learned interesting and useful.
-
- The students experience the teachers having more faith in them and that there are higher demands to them in the learning process.
- The conclusion is that the measures lift the weakest students the most.

”The system spits on you, if you dont have the papers from completed elementary school.”



- Norwegian government have used 3.3 billions on preventing dropouts.
- It doesn't help
- ”Thomas used to sit in the back at Stovner High school, listen to music, shirked school a lot and was not able to motivate himself to follow what was going on at the blackboard.”
- He didn't attend adult education because of his math barrier from 8th grade.

Drop out solution 1: All students have a teacher relationship that promotes learning

School researcher Thomas Nordahl found in his search for student motivation and success in school:

- Coaching and attitude to education and school work counts the most. Meaning there must be a qualitative cooperation between the school and parents.
- Responsibility for your own learning only for the students that can handle it.
- The teacher must be a competent and direct class leader creating qualitative relationship.

(Overland & Nordahl, 2013, Nordahl 2010 & 2012)

Math decides drop out percentage

- Weak school results leads to a weak attachments to the labor market.
- Every student that completes high school gives the society a gains in nearly one million kroner.
- The more math you learn the more salary you will get when you start working.
- Norway is in need of thousands of engineers and the fear is connected to the consequences for the welfare state
- Technological development and global competition has increased the demand of engineers among others. At the same time labor market has become more demanding for the employers with low competence.
- To changes will create economic growth and these are technological progress and bigger mobility for the workforce. This leads to a bigger competition to get the jobs that requires the least education.

(Falch, 2010, 2014)

Drop out solution 2: Get over the Mathbarrier



- $\frac{1}{4}$ Norwegians have math anxiety according to Brain scientist Helge Brovold
- $\frac{1}{3}$ Norwegians says they cant help their children in middle school with their homework.
- The problem is that people disconnect when it comes to math and they have decided in advance that they are not able to do it.
- Brovold says the answer is technology.
- The brain scientist fears that all the creative human being will deselect math and that the subject only will attract the factual and disciplined students.
- The consequence is loosing the real good brains that have the ability to new thinking and inovation.



Drop out solution 2: Get over the Math barrier

- Teaching math in Norway consists mainly of the students sitting solving tasks.
- Only 40% of the teachers in Norway that teach math on 8th grade have math specialisation.
- Too little focus on which thinking processes that are needed to be able to give reach a higher competence on sciences.
- More focus on competence less on reproducing Knowledge
- To give good, creative and exciting math education you need a professional security.
- The subject must not be communicated as a tree year “discipline punishment”.
- The math language is incomprehensible and boring, which does not fit well with the youth of today that wants to use themselves and feel that they matter for others.

([Brovold](#), Helge, 2011)



”Rocks into gold ” by Gudmund Hernes

- More than one measure must be taken to decrease the drop out percentage.
- Early intervention to close the knowledge gap.
- Drop outs is not a new problem, but the consequences are more severe.
- Severe differences between the classrooms, concluding that this is where the change must be made. Within the teachers own practice in the classroom(Hernes, 2010:s. 44).

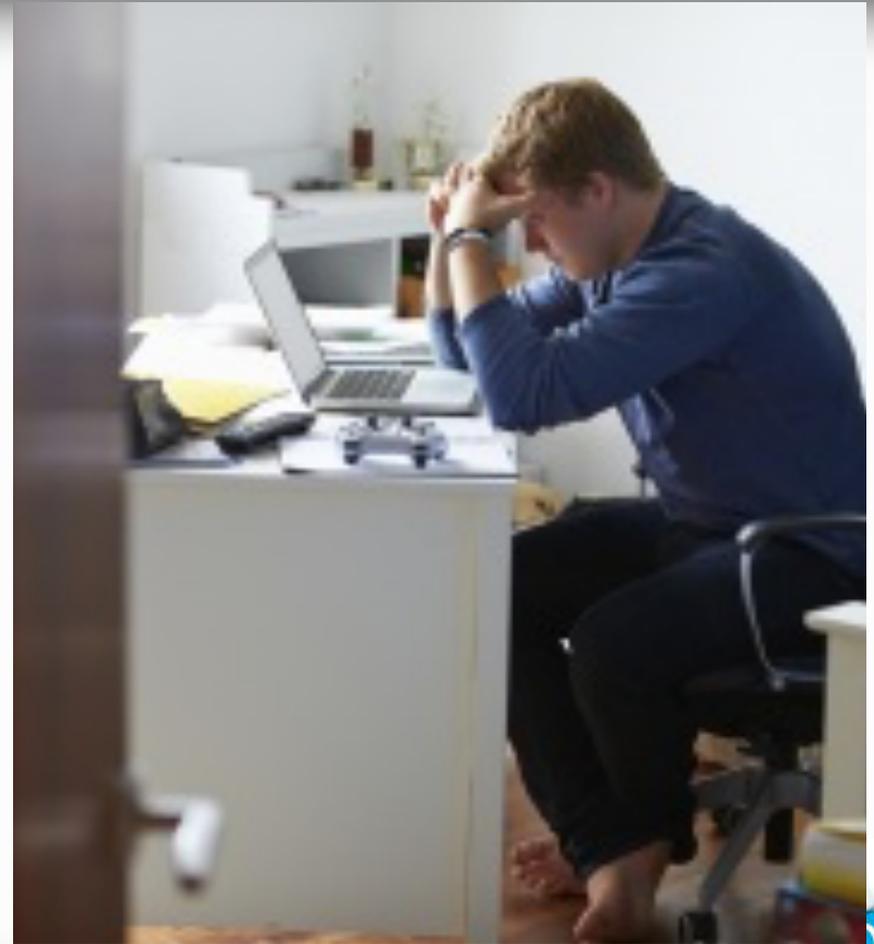
Measures suggested:

- Students must have basic skills as reading, writing, computers and calculating.
- Low competence from elementary school matters most in relation to drop out.
- The main challenge is that the schools don't base their learning on the situation. They must decipher the students problems, ha a professional look at what needs to be done and ask : what does this student struggle with?

THEN : follow up and make changes.

Drop out solution 3: Remove loneliness

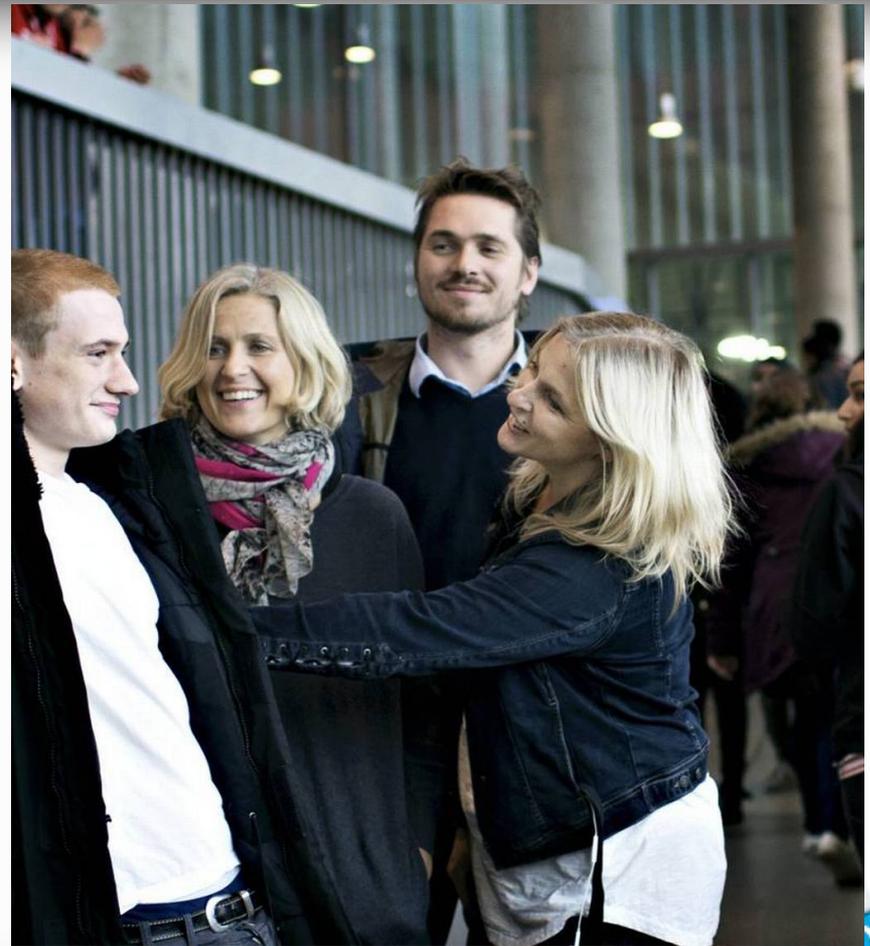
- During the last 10-15 years the drop out percentage has been at the 30 %.
- The researchers at NTNU found that loneliness is the most important reason to students intentions when dropping out of school.
- Social experience and social relationships in school decides their motivation to stay and learn.
- Students with low competence or have special needs come out the worst.



(Frostad & Mjaavatn, 2014)

Drop out solution 3: Woken up and driven to school a whole year

- Nåkve (19) was the the terrible student in lower high school but it turned in upper secondary.
- He used to be at war with the teachers. So if something went wrong they were to blame and they followed a bad sircle.
- These boys have too much freedom in school and they are getting to many negative feedbacks on their work (Nordahl).
- They lack motivation and inner structure to handle school.



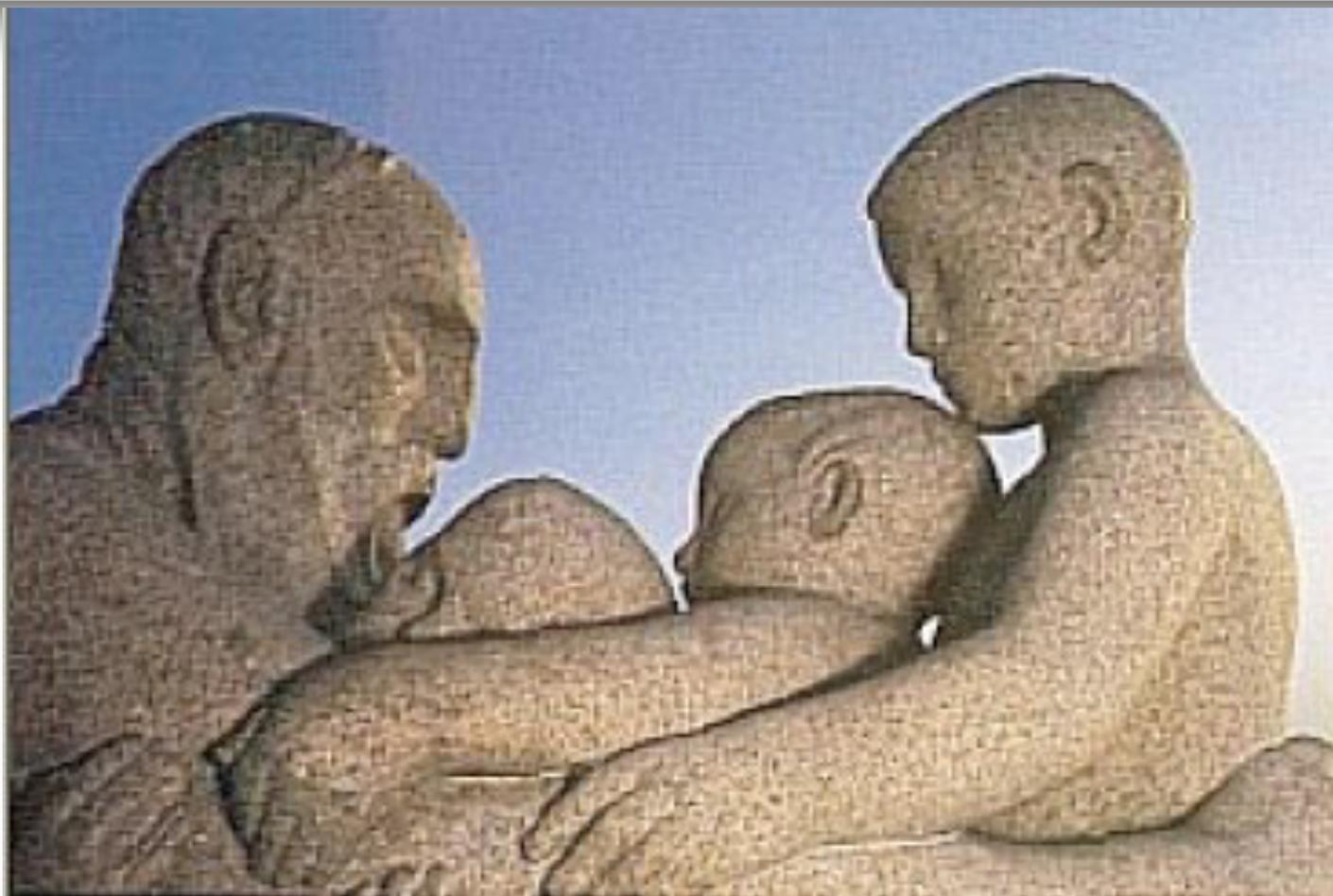
Searching for the connection to future learning

Inclusion of the societies cultural and commercial diversity in the perspective of future learning

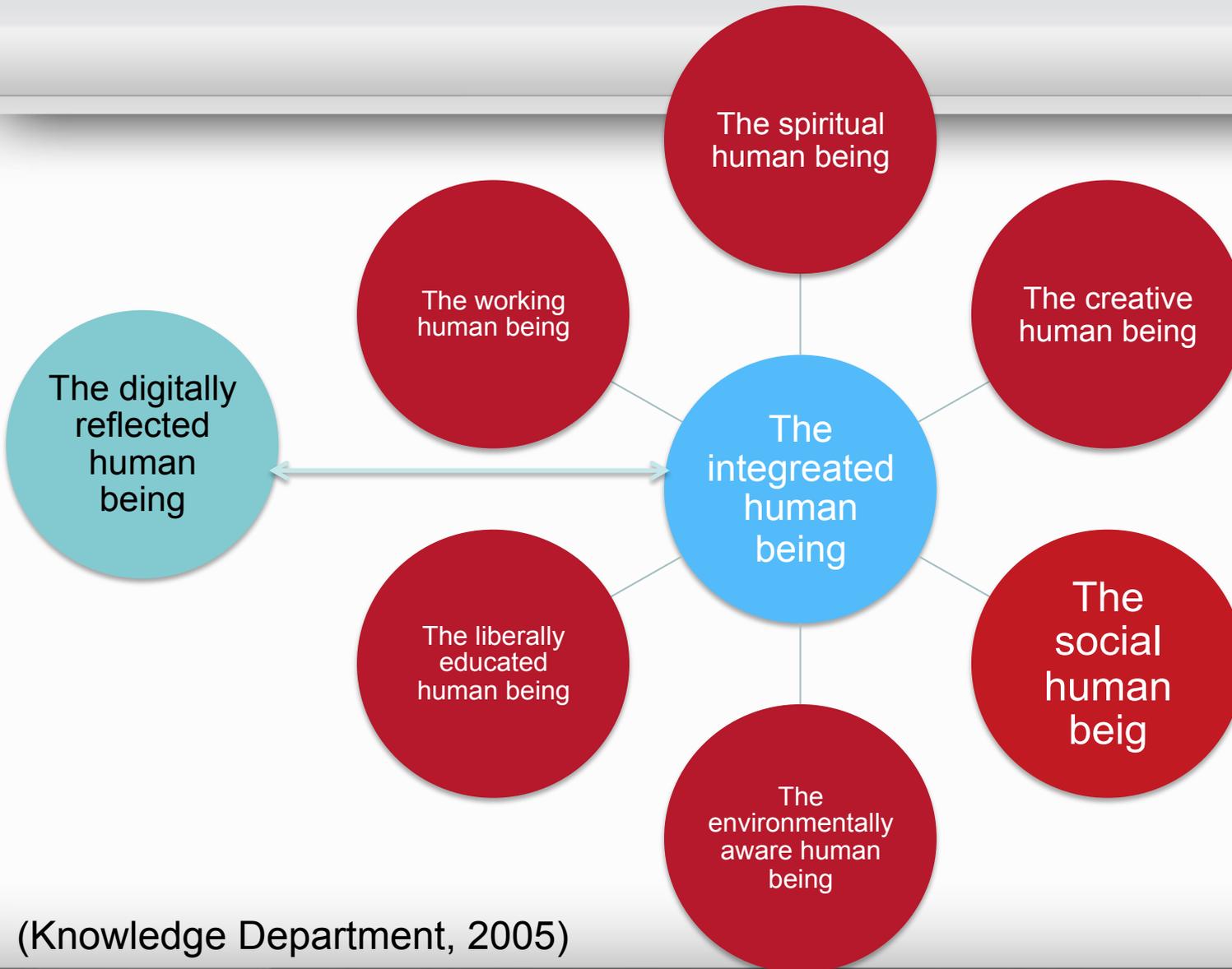
The [phd study Future learning and Digital Bildung.](#)



The Integrated human being



The Integrated human being



(Knowledge Department, 2005)

Clarification of concepts

Competence

The ability to master complex challenges and the performance of a complex activity or task.

The mastering of challenges in education, work, social life or in the personal life.

Competence involves the ability to meet complex demands by drawing on and mobilising psychosocial resources.

(White paper nb.30, Culture for learning, 2003), (Erstad et.al, 2014), ([DeSeCo](#), 2005).

Digital competence

Digital competence is a Cultural competence and underlines the child's perspective in need of certain conditions to develop an ability to reflect on media in a greater meaning (Erstad, 2005).

Digital competence is one of eight key competencies and is defined as the confident and critical use of information society technologies for work, leisure and communication. Competences related to logical and critical thinking, to high- level information, management skills and well-developed communication skills (European commission, 2006).

Digital competence encompasses knowledge, skills and attitudes related to technologies(European commission, 2006).

Digital literacy

Digital literacy is to master digital practices by recognising, understanding and reinterpreting contexts and with this being able to change participation. Its central to be conscious and be able to make conceptual recourses relevant to be able to know how to solve specific tasks and meet demands in given contexts and across contexts (Bjørgen, 2014).

Digital literacy has been defined by Lanham (1995) Glister (1997), Tyner (1998), Knobel (1999), Lanksher and Knobel (2003) and Buckingham (2003, 2006).

Gilster (1997) presents digital literacy and explains it as the ability to understand and use the information as a variety of digital sources and even called it literacy in the digital age.

Digital competence or media literacy

Erstad (2010) prefers to use **media literacy** instead of digital competence because:

1. The history belongs to media literacy from the 1980s and comes from media education (Buckingham, 2003). This includes all technologies and media forms.
2. There is a danger in becoming too oriented towards the present day technologies such as IT literacy, ICT literacy or computer literacy. The future perspective is not included.
3. It's a broader aspect of living in a media sopped society and not only skills in operating application and information.

(Erstad, 2005)

Digital Native

Today's youth born with a digital possibilities that earlier generations could not imagine. This generation is seen as something other than their parents that are the digital immigrants (Prensky, 2001).

Studies show that these young people not necessarily have higher digital competence even if they are huge consumers of the digital artefacts. The differences can be as large within the generation as it is between the generation. Growing up with digital technologies is not the same as having the necessary competence to handle working life optimally and to be able to contribute in the development of a digital society (Kalsnes, 2012).

Digital Bildung

Digital Bildung is a widened dimension of the concepts competence and Bildung. It includes the development of a human being in today's knowledge society and sets out to develop digitally reflected human beings.

Digital Bildung is different from Digital literacy in emphasising on the Bildung perspective of the educational roles in the society in the digital context.

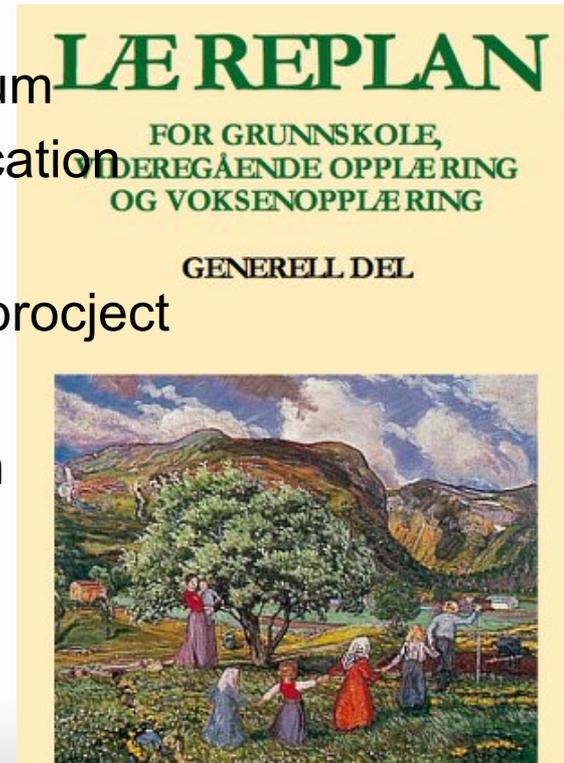
(Lillian Gran, 2015 inspired by ITU, 2003)

Competence rather than reproducible knowledge

A synthesis study
on the implementation of competence aims in the
Norwegian school after the introduction of the
Knowledge promotion

Core curriculum

- Deepens the objects clause in the Education act, enters the overarching aim of the education and contains the values, the culture and the knowledge based foundation for elementary education in Norway.
- Continued from the reform 1994 and the curriculum from 1997 and introduced by the Ministry of Education and Research 1993.
- The government wants a new core curriculum a project introduced by Knowledge [minister Torbjørn Røe Isaksen](#). Where the aim is a compliance between the different parts of the curriculum.



The liberally educated human being

The focus on Bildung shall be something everybody is used to in order to create a society that remains democratic and consisting of authoritative members of the society.

The training must give cohesive structure of knowledge, skills and attitudes. The training should also give the individuals a wide perspective on how the processes in a sphere of activities affects another.



Digital Bildung

Digital media has a great impact on the modern child's communication, culture, identity and learning processes, there is a need to raise the children in the digital sphere. The teachers are incompetent in terms of the youths digital world(Lotte Nyboe, 2009).

Historic and social analyse in the society is bound together and the individuals potential to Bildung, further formation and renewal is the code of todays society where you need to be further formatted to be operable in life (Lars Qvortrup ,2004)

Digital Bildung is an interface, exchange and transition and can only be understood as a permanent transition (Lars Løvlie, 2003):

Digital Bildung is a vision where the students are given an opportunity to use ICT competently and innovatively to develop skills, competence and personal aims in becoming civilians (Morten Sjøby, ITU, 2003)

Digital Bildung is a dialogic negotiation (Olofsson et.al, 2011) within the complex field and practices and can be understood through Luhmanns contingency formula (Haugsbakk, 2011)

Learning in the future



Time perspective

Contribution of the study

The digitally reflected human being

The solution to how the college and university sector shall meet the so called digital natives (Prensky, 2001).

A specific part of the core curriculum as an expansion of the seven humanities.

Digital Bildung moves from the competence concept in terms of the digital context in an own dimension of reflexivity.

In practical education this means the digitally educated human beings reflect on their own identity in the digital sphere considering their own development and role in the society (George Mead).

