



SCHOOL DEVELOPMENT IN A DIGITAL & CHANGING WORLD












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Skolen I Digital Utvikling
Oslo, NORWAY 12/11/2015



2000

ASIA

2000		2003		2006	
Reading literacy		Mathematics		Science	
1.	 Finland 546	1.	 Finland 544	1.	 Finland 563
2.	 Canada 534	2.	 South Korea 542	2.	 Canada 534
3.	 New Zealand 529	3.	 Netherlands 538	3.	 Japan 531
4.	 Australia 528	4.	 Japan 534	4.	 New Zealand 530
5.	 Ireland 527	5.	 Canada 532	5.	 Australia 527
6.	 South Korea 525	6.	 Belgium 529	6.	 Netherlands 525
7.	 United Kingdom 523	7.	 Switzerland 527	7.	 South Korea 522
8.	 Japan 522	8.	 Australia 524	8.	 Germany 516
9.	 Sweden 516	9.	 New Zealand 523	9.	 United Kingdom 515
10.	 Austria 507	10.	 Czech Republic 516	10.	 Czech Republic 513
11.	 Belgium 507	11.	 Iceland 515	11.	 Switzerland 512
12.	 Iceland 507	12.	 Denmark 514	12.	 Austria 511
13.	 Norway 505	13.	 France 511	13.	 Belgium 510
14.	 France 505	14.	 Sweden 503	14.	 Ireland 508
15.	 United States 504	15.	 Austria 506	15.	 Hungary 504
16.	 Denmark 497	16.	 Germany 503	16.	 Sweden 503
17.	 Switzerland 494	17.	 Ireland 503	17.	 Poland 498
18.	 Spain 493	18.	 Slovakia 498	18.	 Denmark 496
19.	 Czech Republic 492	19.	 Norway 495	19.	 France 495
20.	 Italy 487	20.	 Luxembourg 493	20.	 Iceland 491
21.	 Germany 484	21.	 Poland 490	21.	 United States 489
22.	 Hungary 480	22.	 Hungary 490	22.	 Slovakia 488
23.	 Poland 479	23.	 Spain 485	23.	 Spain 488
24.	 Greece 474	24.	 United States 483	24.	 Norway 487
25.	 Portugal 470	25.	 Italy 466	25.	 Luxembourg 486

Two Global School Improvement Questions

Why some education systems don't improve?

- Competition
- Standardisation
- Test-based accountability
- De-professionalisation
- Privatisation

What makes some education systems successful?

- Collaboration
- Creativity
- Trust-based responsibility
- Teacher professionalism
- Equity

Two Global School Improvement Questions





**Challenge #1:
Digitalization**

Marc Prensky:
“Digital Natives, Digital
Immigrants” (2001)

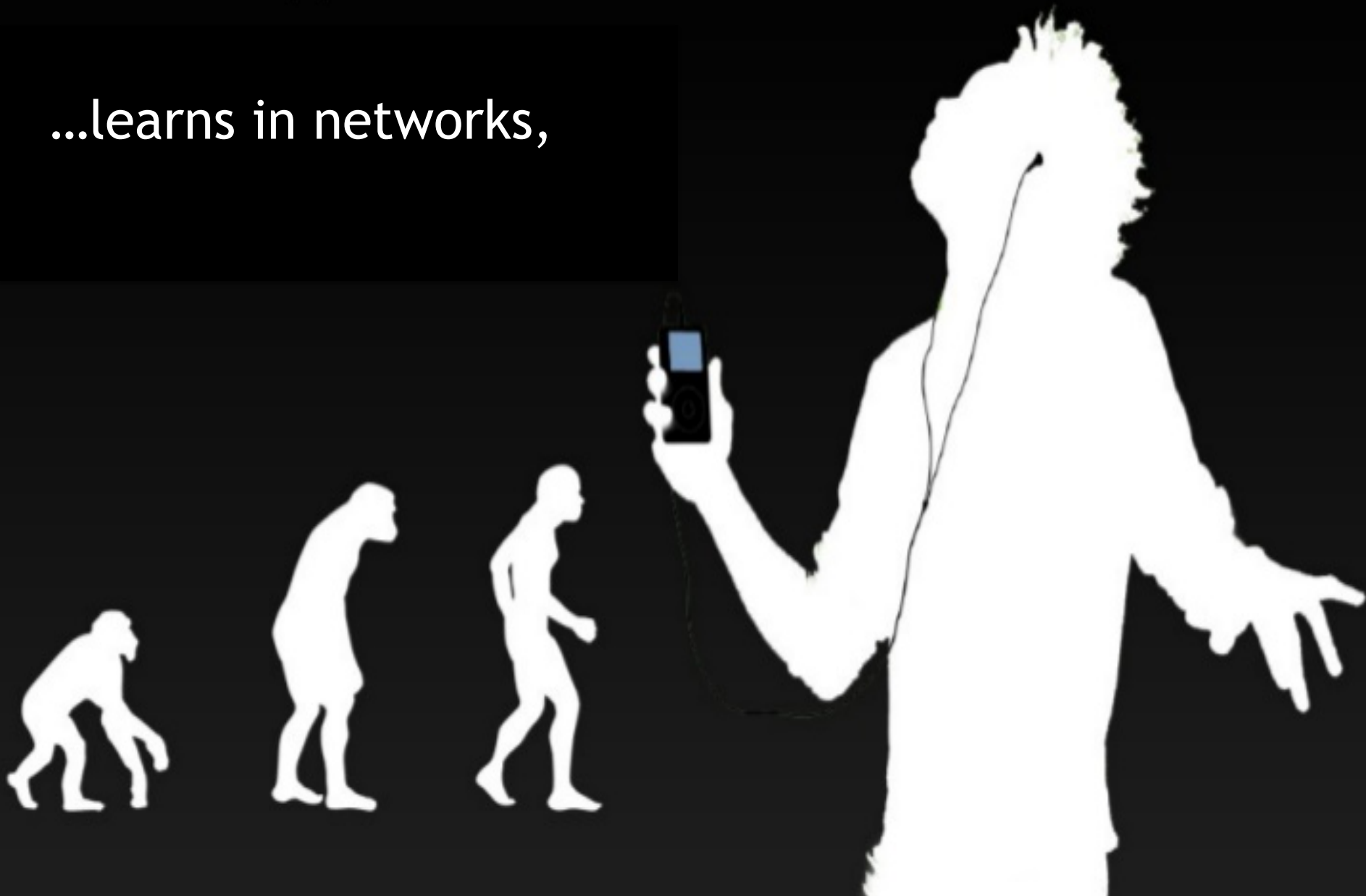


“Our students have changed radically. Today’s students are no longer the people our educational system was designed to teach.”



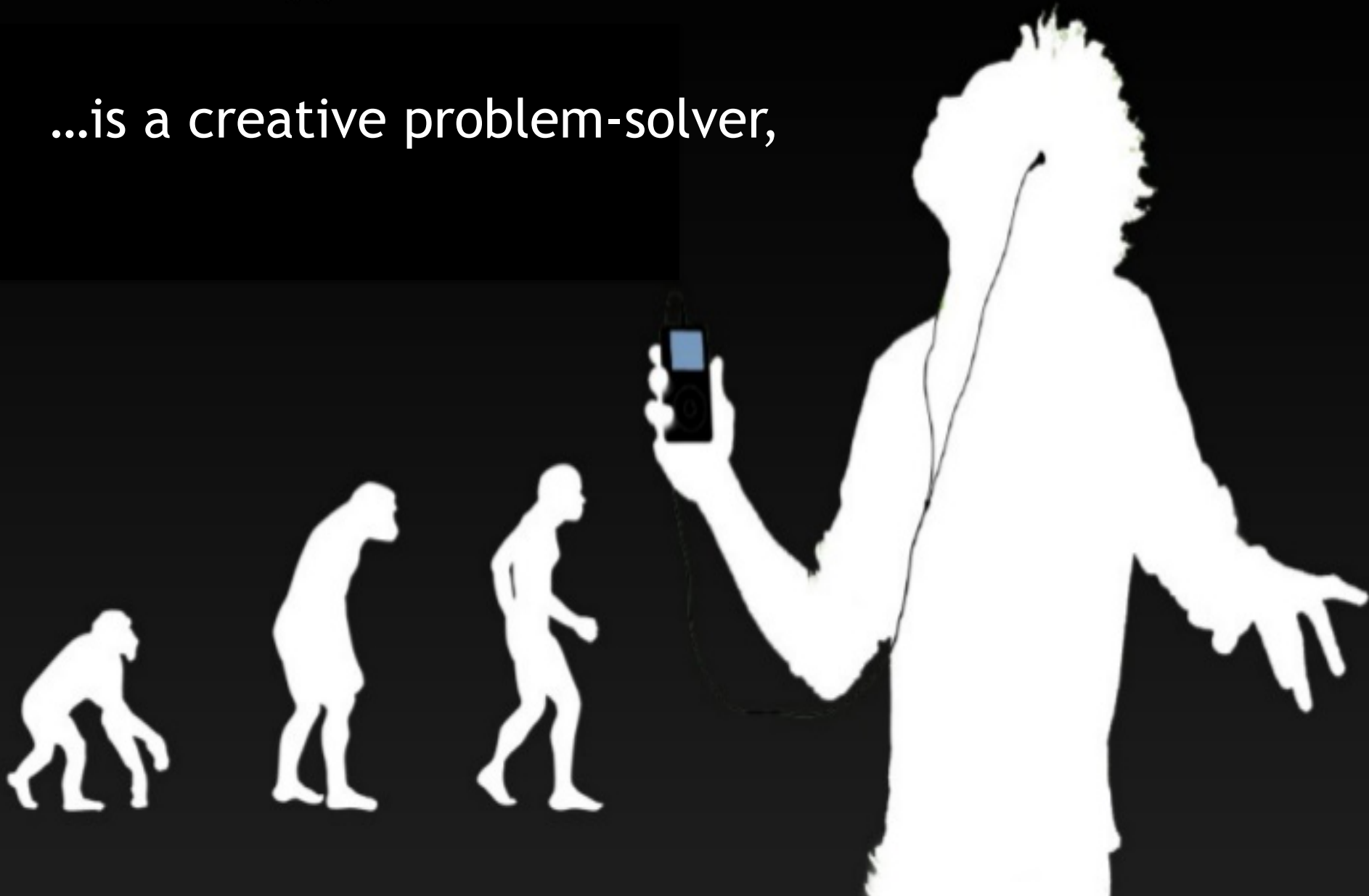
Homo Zappiens

...learns in networks,



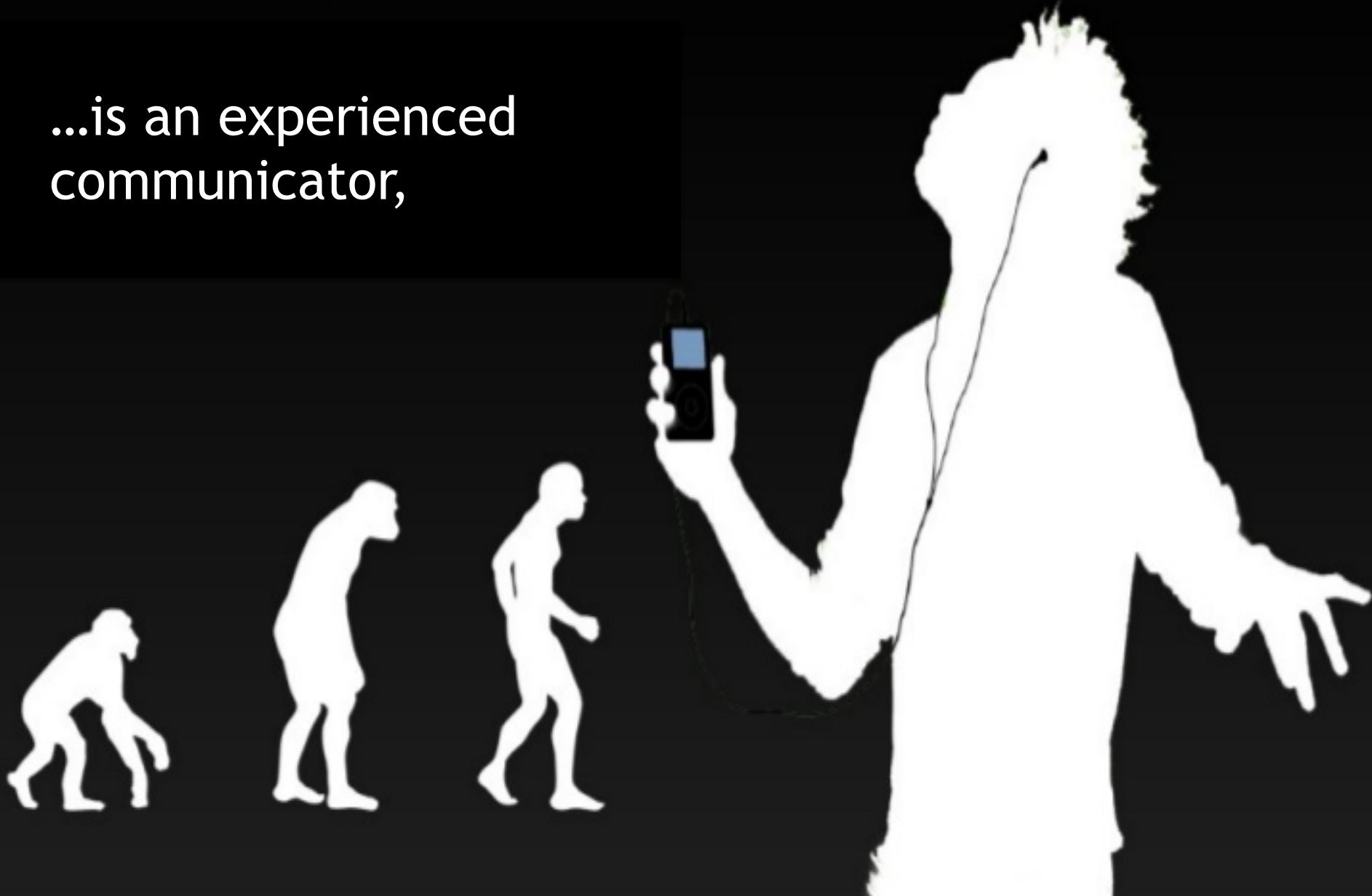
Homo Zappiens

...is a creative problem-solver,



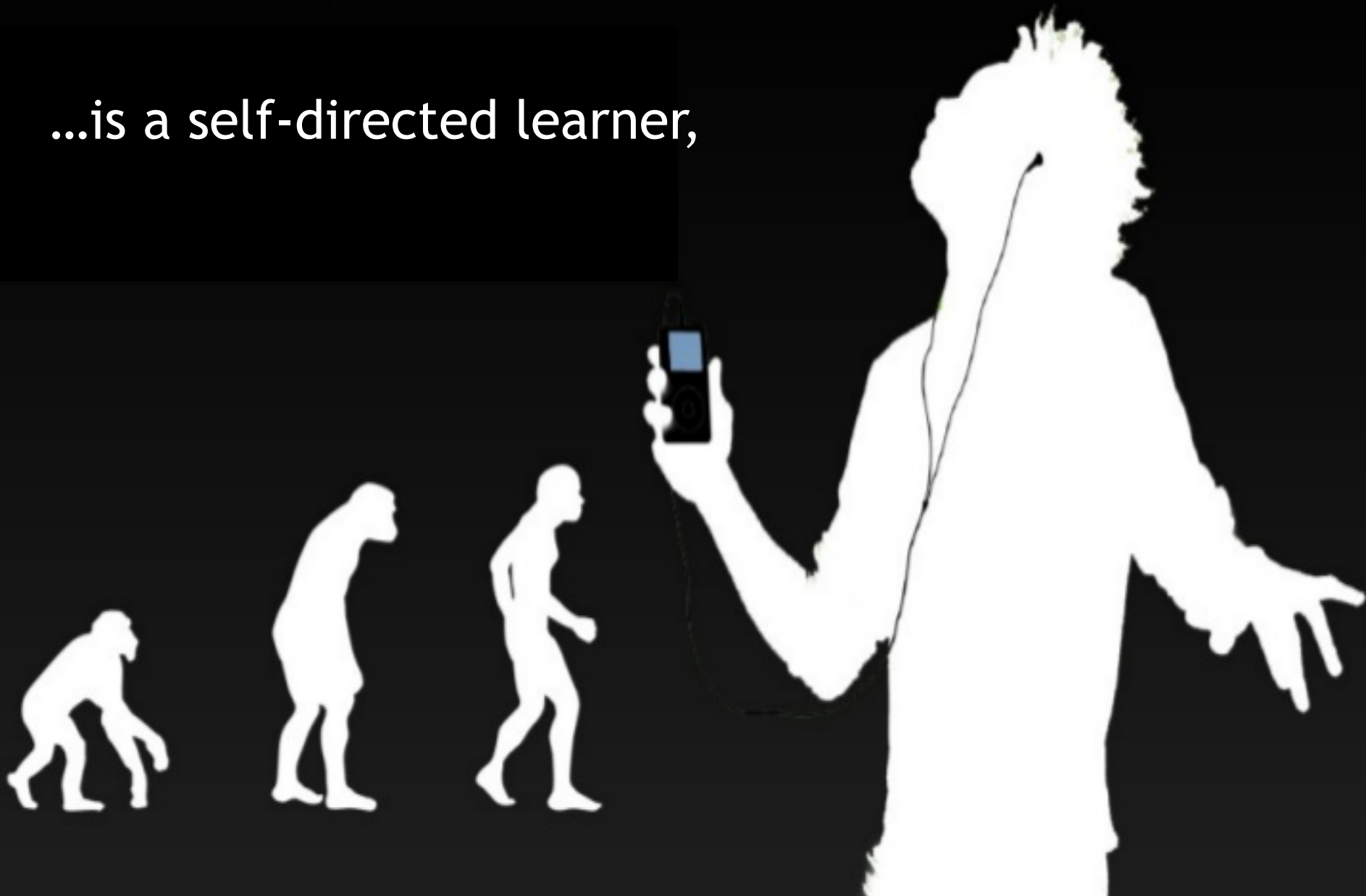
Homo Zappiens

...is an experienced
communicator,



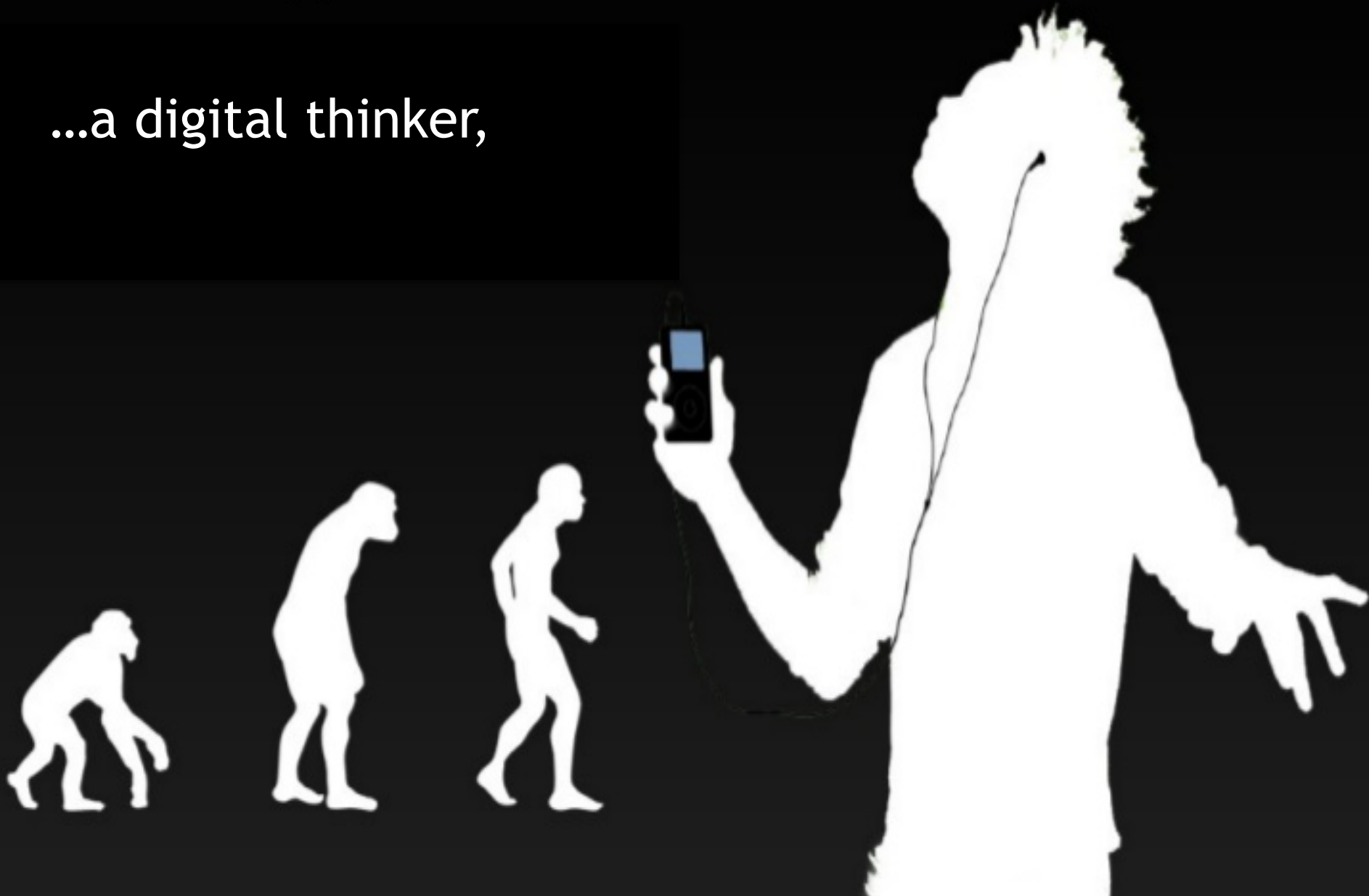
Homo Zappiens

...is a self-directed learner,



Homo Zappiens

...a digital thinker,



Homo Zappiens

...can process discontinuous information,



Homo Zappiens

...and is an accomplished experimenter.



BELIEF:

Teaching methods in our schools are outdated. Therefore teaching and learning must be changed to comply with learning of the new generation.

What does research on
learning and brain tell?

Research finding 1: Shallower information processing

Carr, N. (2011). *The shallows: what the Internet is doing to our brains*. New York, NY: WW Norton.

Sparrow, B., Liu, J., & Wegner, D. M. (2011). *Google effects on memory: Cognitive consequences of having information at our fingertips*. *Science*, 333(6043).



Research finding 2:
*Increased distractibility
and poor executive
control*

Ophir, E., Nass, C. I., & Wagner, A. D.
(2009). **Cognitive control in media
multitaskers**. *Proceedings of the
National Academy of Science of the
United States of America*, 106,
15583-15587.



Research finding 3: Altered reward-processing and self-control mechanisms

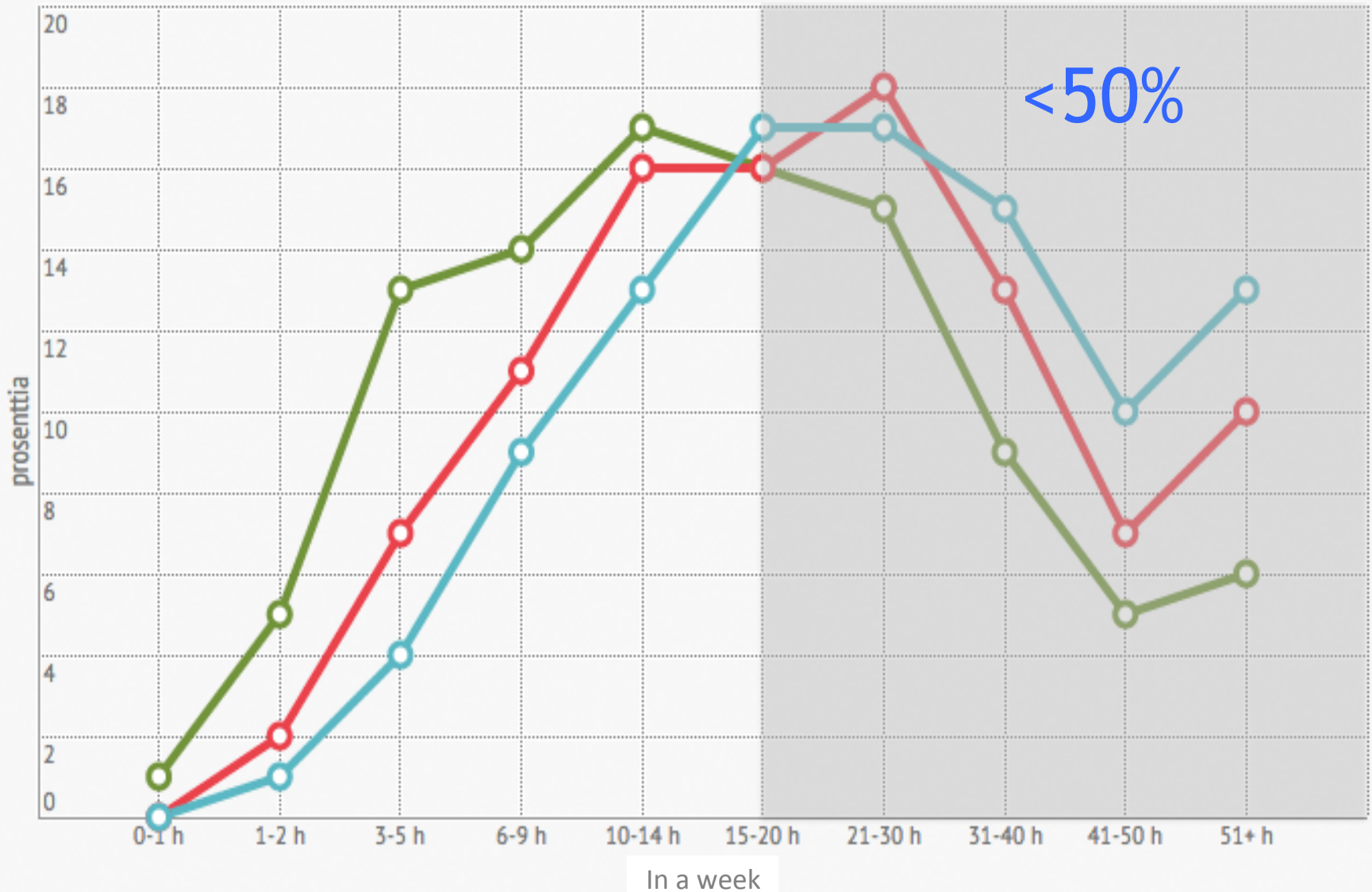
Loh, K. K. & Kanai, R. (2015). **How has the Internet reshaped human cognition?** *The Neuroscientist*, 1-15.

Sampasa-Kanyinga, H. & Lewis, R. (2015). **Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents.**

Cyberpsychology, Behavior, and Social Networking, 18, 380-385.

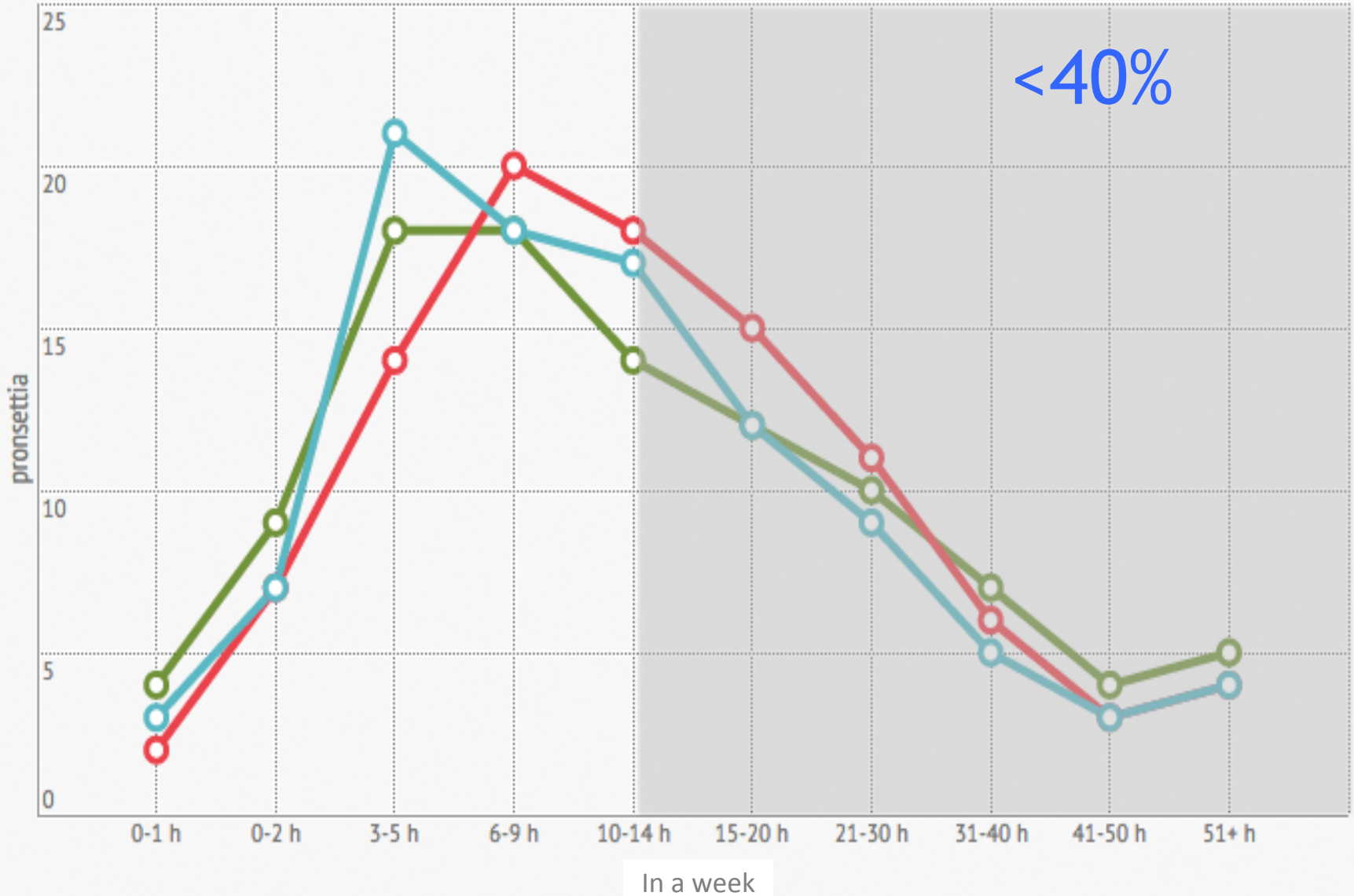


How many hours young people spend in the Internet a week in Finland?



13-17-year-olds 18-22-year-olds 23-29-year-olds

How many hours young people spend social media a week in Finland?



13-17-year-olds 18-22-year-olds 23-29-year-olds

POSSIBLE CONSEQUENCE:

Digital immersion changes the way children think and process information. This may make conceptual, deeper learning difficult - or in some cases impossible.

WHAT THIS MEANS TO SCHOOL DEVELOPMENT:

It may be that the problem is not the teaching methods in schools but rather the possible changes in children's brain functioning that impede learning.



Challenge #2:
Equity

Student achievement in reading, mathematics and science (PISA)

Quality of student achievement improves

Weak equity and high quality

Strong equity and high quality

Weak equity and low quality

Strong equity and low quality

Equity of education system enhances

Weakness of the relationship between achievement and family background (ESCS Index)

Student achievement in reading, mathematics and science (PISA)

Quality of student achievement improves

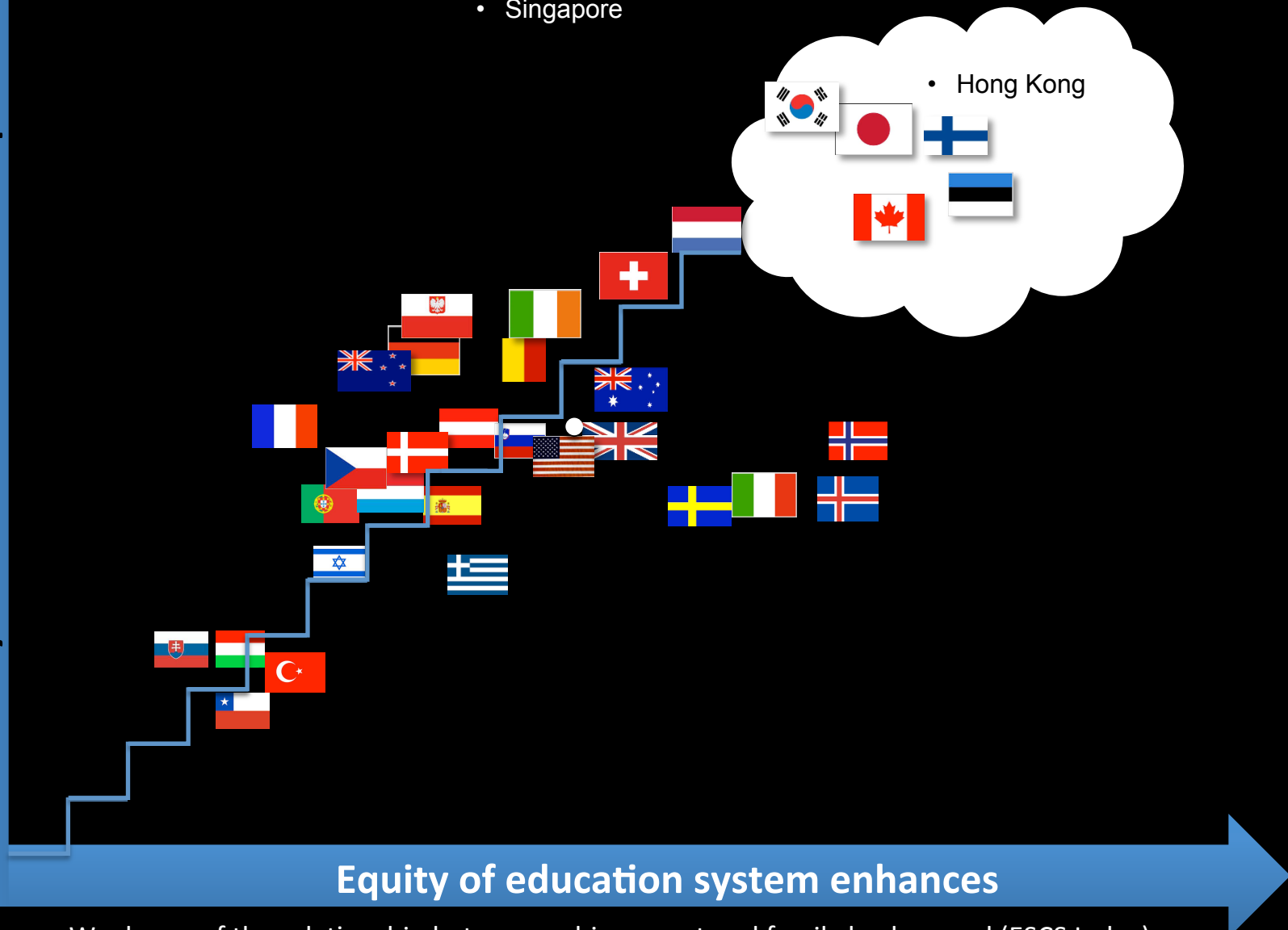
Equity of education system enhances

Weakness of the relationship between achievement and family background (ESCS Index)

• Shanghai

• Singapore

• Hong Kong



"Highest performing education systems are those that combine excellence with equity."

- OECD (2013)

CONCLUSION:

The Aims of Education

To enable students to understand the world around them and the talents within them so that they can become fulfilled individuals and active, compassionate citizens.

- Sir Ken Robinson (2015)

TAKKI!



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