

Fewer bricks more learning

By Peter Gorm Larsen,



Outline for my presentation

- The problem or the Paradox
- The society is changing
- New skills/competencies
- The system of education
- Pedagogical theories
- Possibilities of ICT
- Concluding remarks



The problem or the Paradox

- We have invented and love the new information and communication technology (ICT), but why do we not use it with more creativity and inventiveness in our societies?



A close-up photograph of a brick wall. The bricks are reddish-brown and arranged in a standard running bond pattern. The mortar is a light grey color. The text "The society is changing" is overlaid in the upper center of the image in a white, sans-serif font.

The society is changing

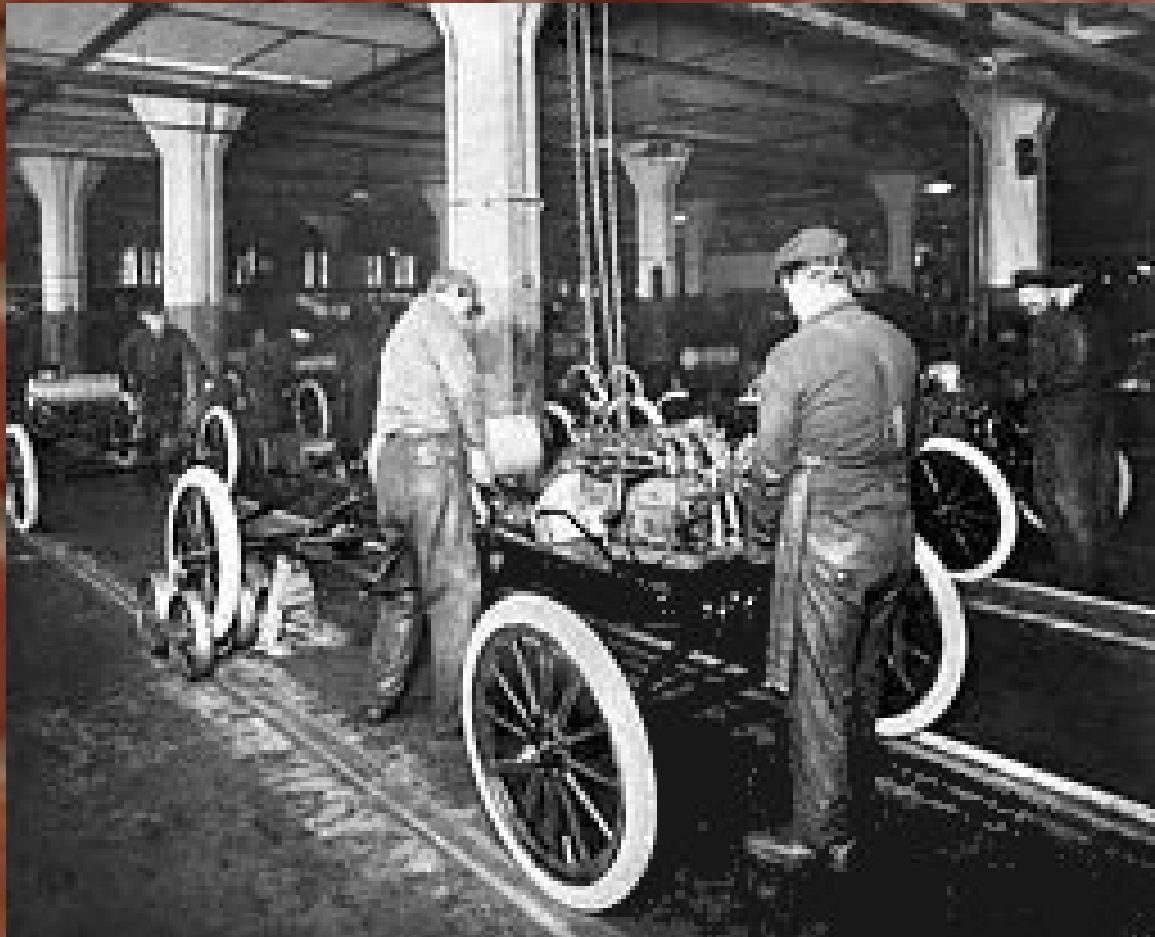
Rural society



Industrial society



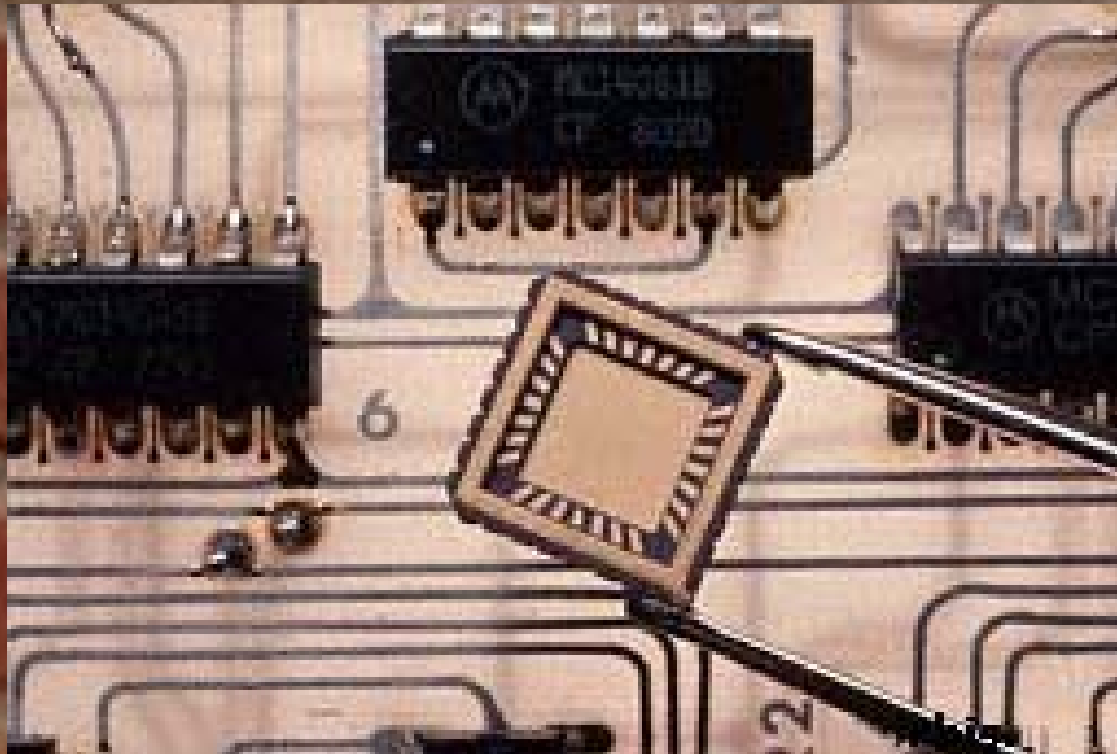
Industrial society - mass (Fordist) production



Industrial society: big cities,
traffic jams, high estate
prices and pollution



Information and knowledge society



or a digital, wired or
network society



The society is changing

- Globalisation and the New economy
- Information and communication technology (ICT)
- Social cohesion can be a problem



What kind of society?

- *Robert J. Samuelson, "The PC Boom--And Now Bust?" Newsweek, April 5, 1999, p. 52* "In 1990, company purchases of high-tech equipment (computers, communication gear, instruments) was 20 percent of all business investment, which includes everything from office buildings to industrial machinery... By 1998, it was 40 percent. And over the past decade, the computer industry (including software) has generated about 1 million new jobs..."



What kind of society?

- *Todd Oppenheimer, "The Computer Delusion", The Atlantic Monthly, July, 1997, 280(1): 45-62. "In the past decade ... the number of jobs requiring computer skills has increased from 25 percent of all jobs in 1983 to 47 percent in 1993. By 2000, ... 60 percent of the nation's jobs will demand these skills...and pay an average of 10 to 15 percent more than jobs involving no computer work."*





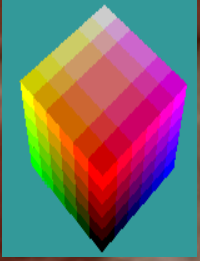
What kind of society?

- "U.S. CITES RACE GAP IN USE OF INTERNET", Washington Post 07/09/99, quoted in Edupage, 9 July 1999... Internet users are divided by race and income level, according to a recent Commerce Department study...the Internet is largely used by whites with incomes of \$75,000 and above...are more than 20 times more likely to have Internet access than homes at the lowest income levels... households that identify themselves as black and Hispanic are just 40 percent as likely as white households to have Internet access.



Outline - where are we?

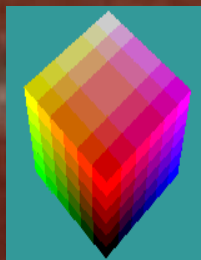
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New skills/competencies

- 3R: Reading, writing, Arithmetic
- Communication - literacy
- Application of numbers - numeracy
- Problem solving
- Working with others
- Improving own learning performance
- Knowledge of ICT computer literacy

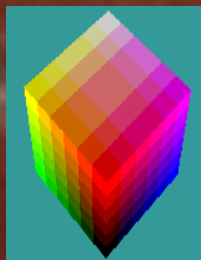




New skills/competencies

- People need to be creative, innovative, flexible and mobile. People need to learn foreign languages (Lisbon European Council, 2000). They need to learn how to navigate in chaos and have entrepreneurship (Lisbon European Council, 2000). People need to learn to learn, because knowledge gets obsolete so fast...be important that people can find, evaluate, select and present information...we can talk about information literacy (Bruce, 1997).








New skills/competencies

- How do we give people these skills and competencies?
- How do we avoid gaps of knowledge?
- How do we avoid a new gap between the centre and the periphery?



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Why do I have bricks as my
wallpaper?



The system of education

- The traditional state run educational system can not give people all these important skills and competencies.
- There will be a large group of people in the periphery, who will never get a chance to get these skills. They will be marginalized and have no access to the prosperity in the New economy or the knowledge-based society.
- Social cohesion will be a big problem for the nation states, if they don't do anything.
- Can intelligent mobile IT learning cubes give people the necessary skills?



The problem or the Paradox

- We have invented and love the new information and communication technology (ICT), but why do we not use it with more creativity and inventiveness in our societies?



The system of education is still living in the age of the industrialisation (1800)



Schools work like factories -
put people together in more
or less closed compounds



A lot of bricks! They look like factories



Schools work like factories



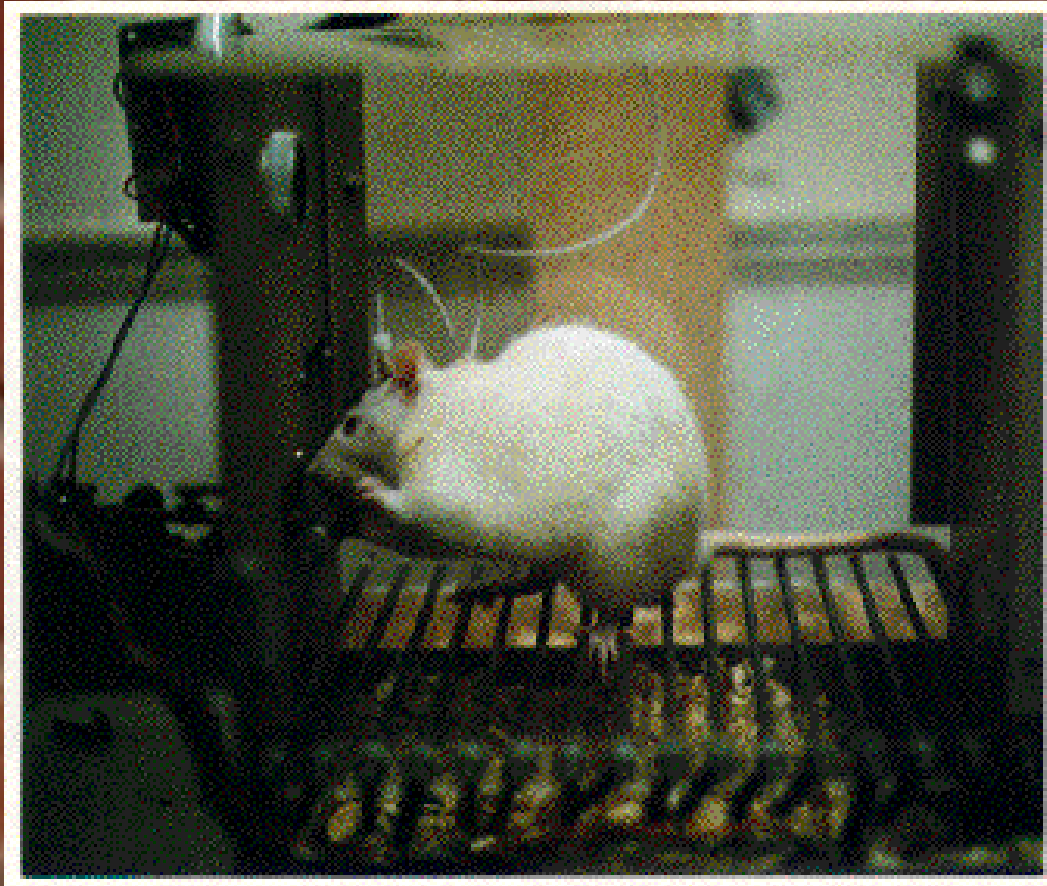
Discipline and control more
than creativity and innovation



The classroom is still central
for learning



Did you say mass production,
prisons or Skinner boxes for
rats?



The educational system is not very innovative when it use ICT

- Prefer standard operation procedure (SOP)
- Scheduled lessons of 45 minutes
- A traditional old curriculum based on physical books
- The teacher is still in Centrum



They also use mobile technology
in the educational system!



More computers in four-sided rooms, lot of walls, no invention, money lost!







Is that creative? Is that
Networking? Is that good
learning environments?



Found on the Internet

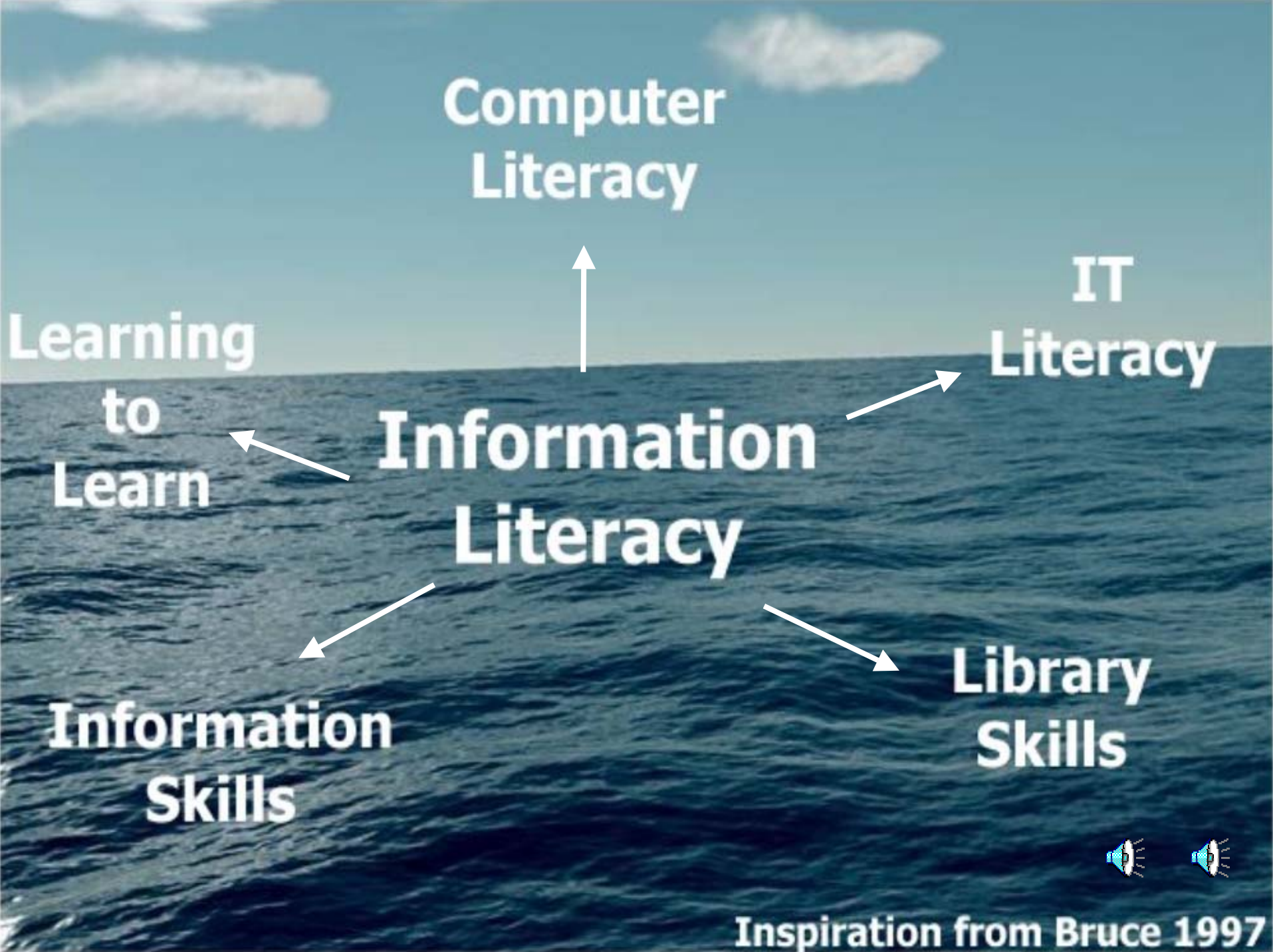


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Pedagogical theories

- Information Literacy
- Problem based learning
- Piaget and Constructivism
- Vigotsky
- Management by Objectives



**Computer
Literacy**

**IT
Literacy**

**Learning
to
Learn**

**Information
Literacy**

**Information
Skills**

**Library
Skills**



Problem based learning

- Find solutions to problems. Don't spend time on a static curriculum in a changing world.
- Don't teach in a class. Students are too different. No teachers, only consultants.
- More motivating to work with problems.
- Learning by doing. Build on experience
- Don't spoil the memory with unnecessary facts, data and commands.

Piaget, Papert and Constructivism

- Play with materials (computers).
- Hands on experience.
- Teaching by telling is de-emphasised.
- No smooth instructions and small steps.
- Intellectual conflicts and challengers.
- Active learner, feelings are important.
- Non-linear thinking, many strategies.
- Varied steps, roller coaster ride.



Vigotsky

- Learning is a social process.
- Dialog and verbal communication more than instruction.
- (Create IT environments for collaborative learning - forums, conferences and Intranets).
- Metacognition - Awareness of methods to "learn to learn".








Management by Objective

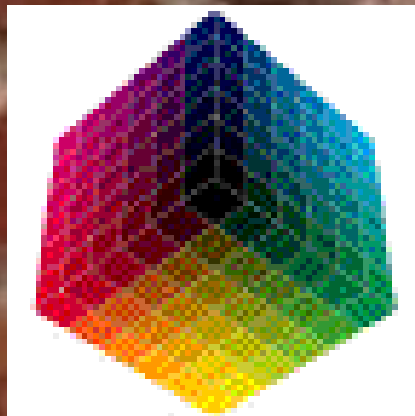
- Mission statement with clear objectives.
- Feelings are important, create values.
- Awareness of the meaning of the activities, create projects.
- No hierarchy, snobberies and myopic department thinking.
- Innovative, creative and interdisciplinary task groups.



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Why not use ICT more creative? Why not make intelligent mobile learningcubes instead of more buildings of bricks?



We can make learning independent of place and time. But still more social than distance education.



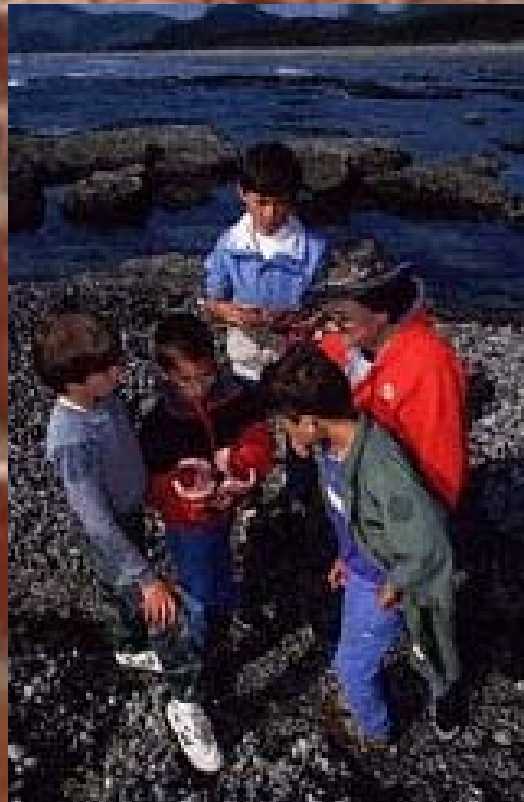
Why not make learning in
the wild nature?



Why not get hands-on or
sand-on?



Why not leave the big cities
and get primary experiences?



Why not go out in the periphery?



Do we have the technology to reach the peaks - to create intelligent mobile learning cubes?



We have laptops

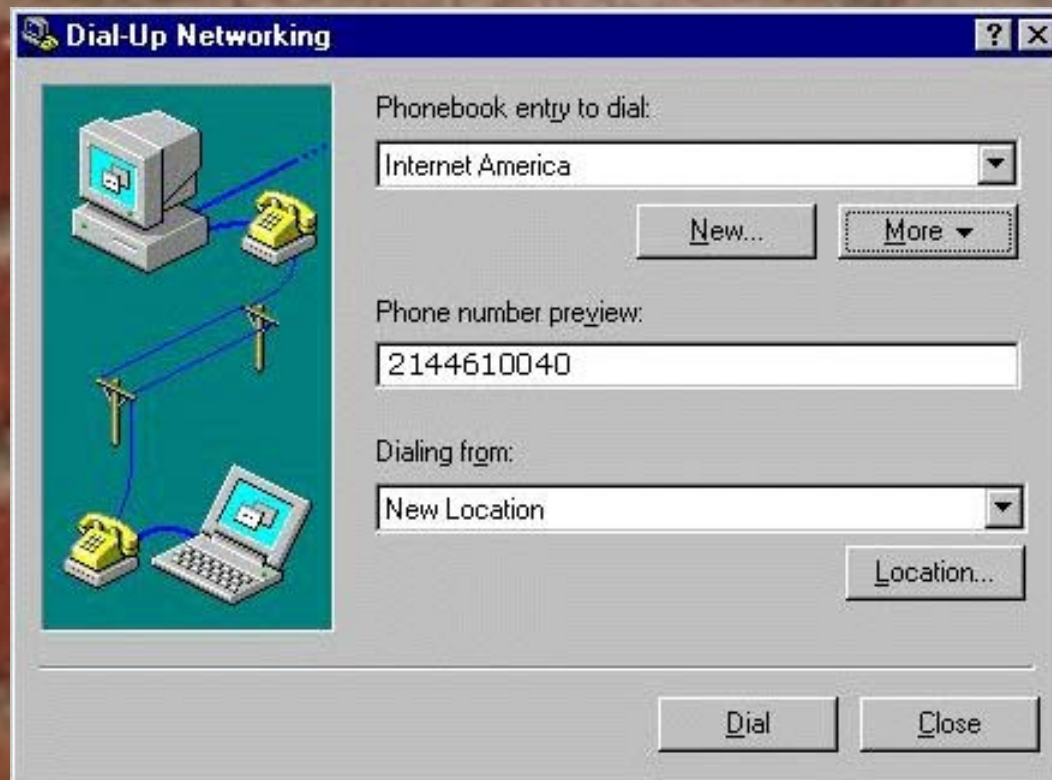


We mobile cell phones





We can make and have already networks



The military have a lot of
experience



The military have a lot of experience in intelligent mobile (learning) cubes



The military have a lot of experience with intelligent mobile (learning) cubes



The military have a lot of experience with intelligent mobile (learning) cubes



The military have a lot of experience with intelligent mobile (learning) cubes



The military have a lot of experience with intelligent mobile (learning) cubes



The military have a lot of experience with intelligent mobile (learning) cubes



The private business sector do also have useful experiences regarding intelligent mobile (learning) cubes. (Fleet management)



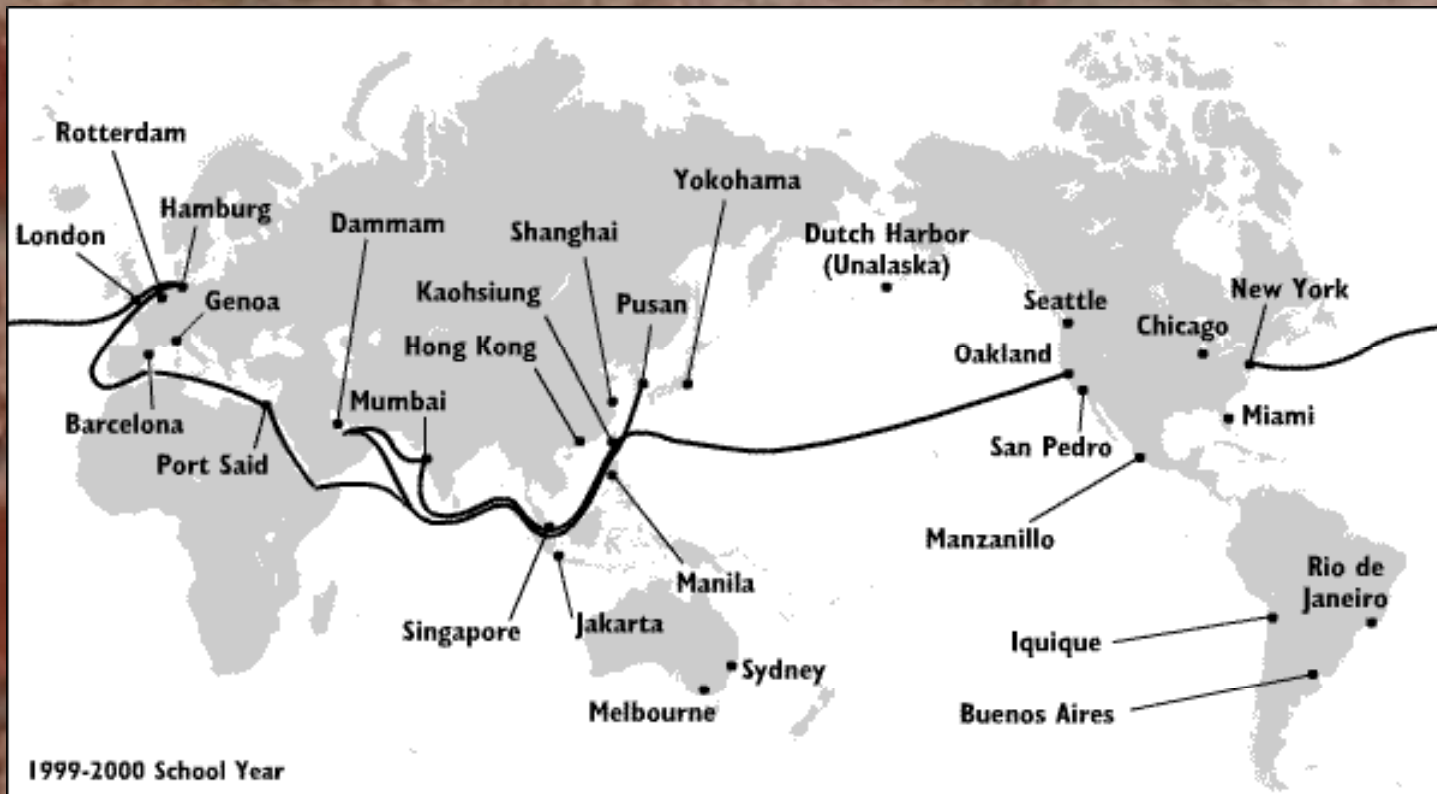
Some schools have been innovative - but not yet intelligent mobile learning cubes








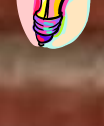
Follow a moving container around the world from the Internet!



Follow a moving container around the world from the Internet

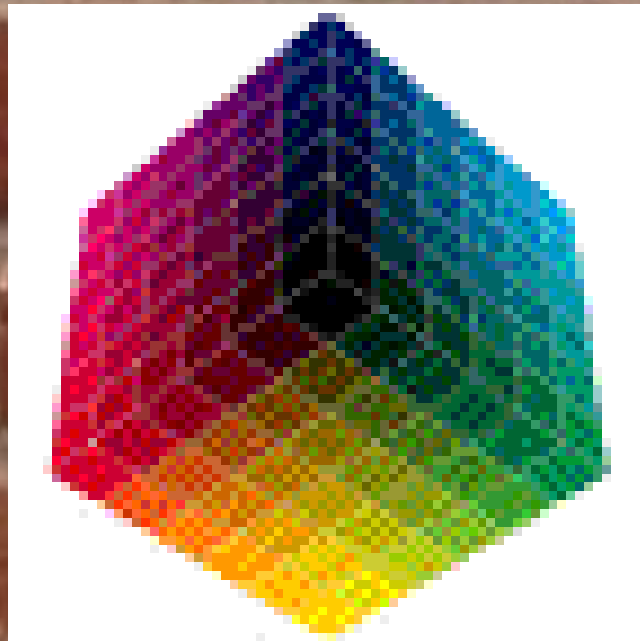


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Concluding remarks

- We can use the ICT more innovative in the educational system.



Concluding remarks

- No more overcrowded buses which drive to polluted city centres.



Concluding remarks

- Fewer bricks, more and better learning. The last kingdoms of bricks have been built!



Thank you for your attention - here some links

- The paper "Lesser bricks more learning" URL:
- www.policy.dk/learningcube.htm
- www.portugal.ue-2000.pt/uk/docmne_main00.htm