The Evolution of Education from Education 1.0 to Education 4.0: Is it an evolution or a revolution?

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Beer Sheva, Israel, 4 March 2019

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Abstract

The education systems implemented in most countries today are characterized by the definition of Education 2.0, while very few countries are pushing for reforms defined by Education 3.0. The presentation will discuss the features at the development stages of Education from Education 1.0 to Education 4.0 and will try to answer to the question whether this is an evolution or a revolution directed by the modernization of technology in parallel with the upgrade of student and industry needs. In parallel we shall highlight the role of Mathematics in this evolution.

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1919

2019

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1950 With air-condition

2019 with air-condition

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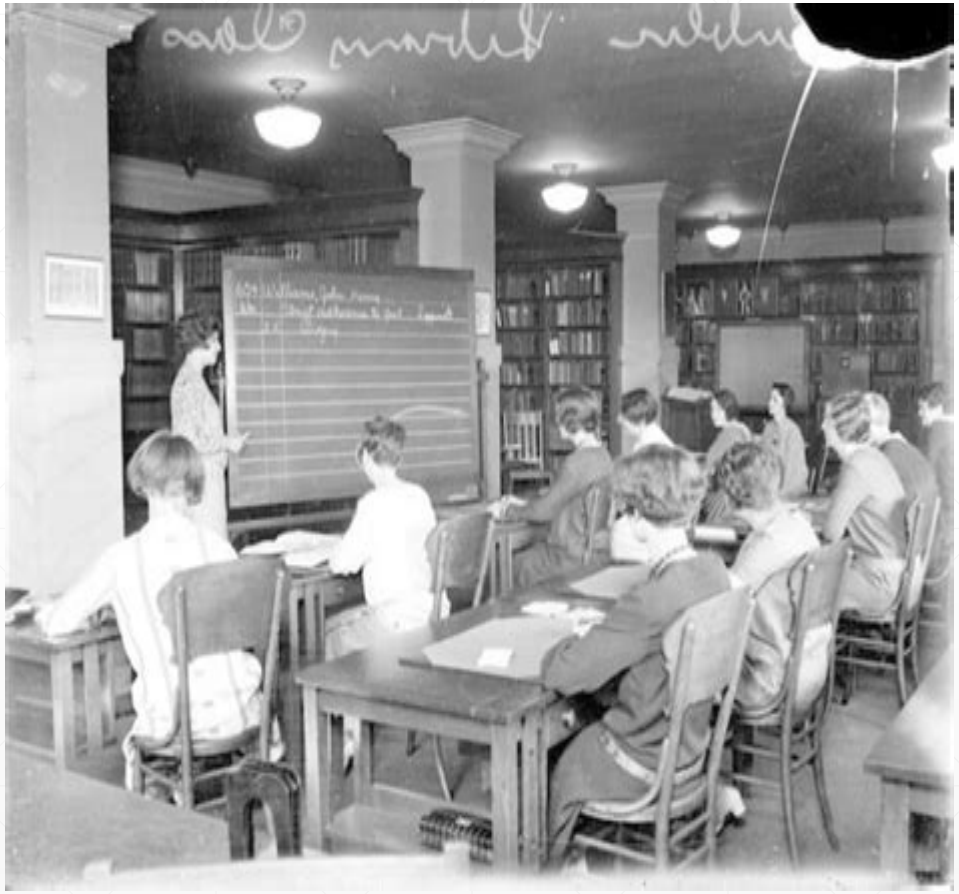

1960 portability

2019+ portability

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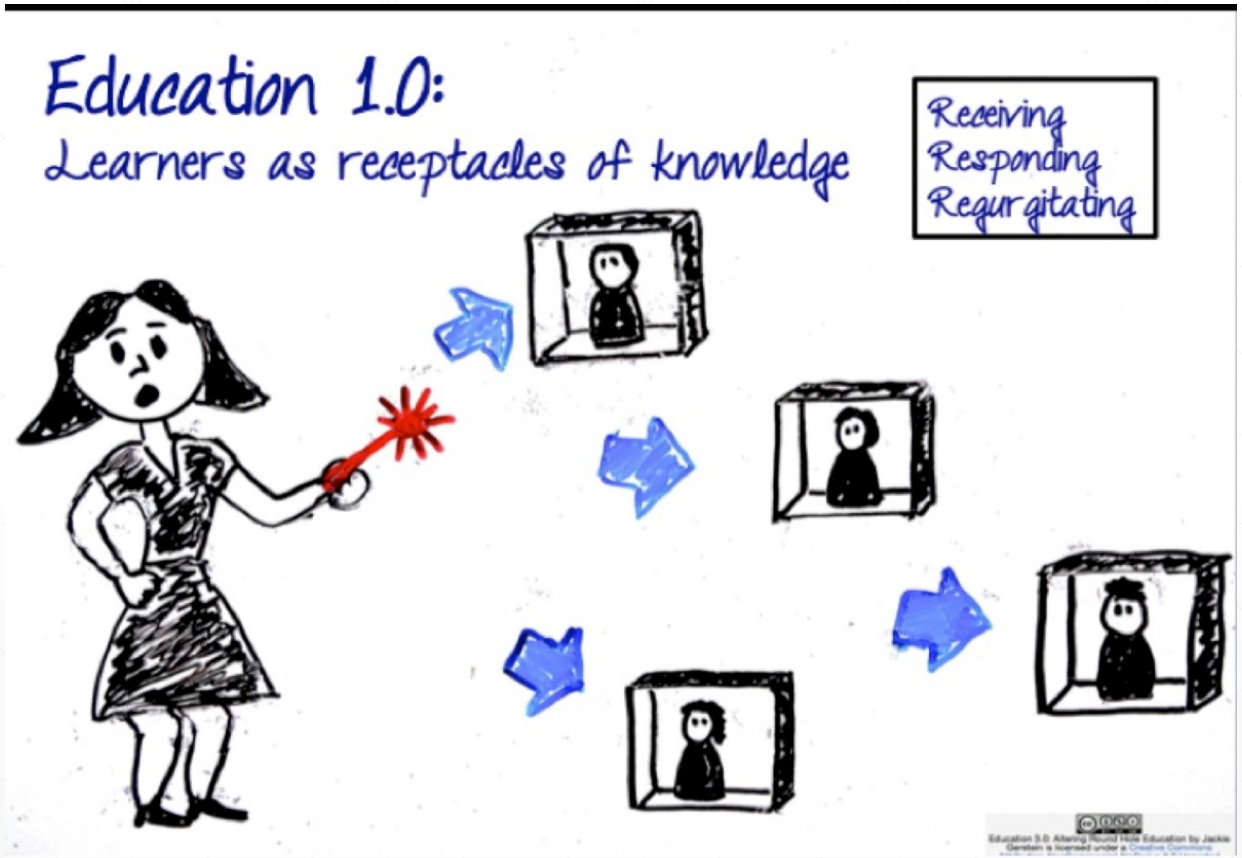
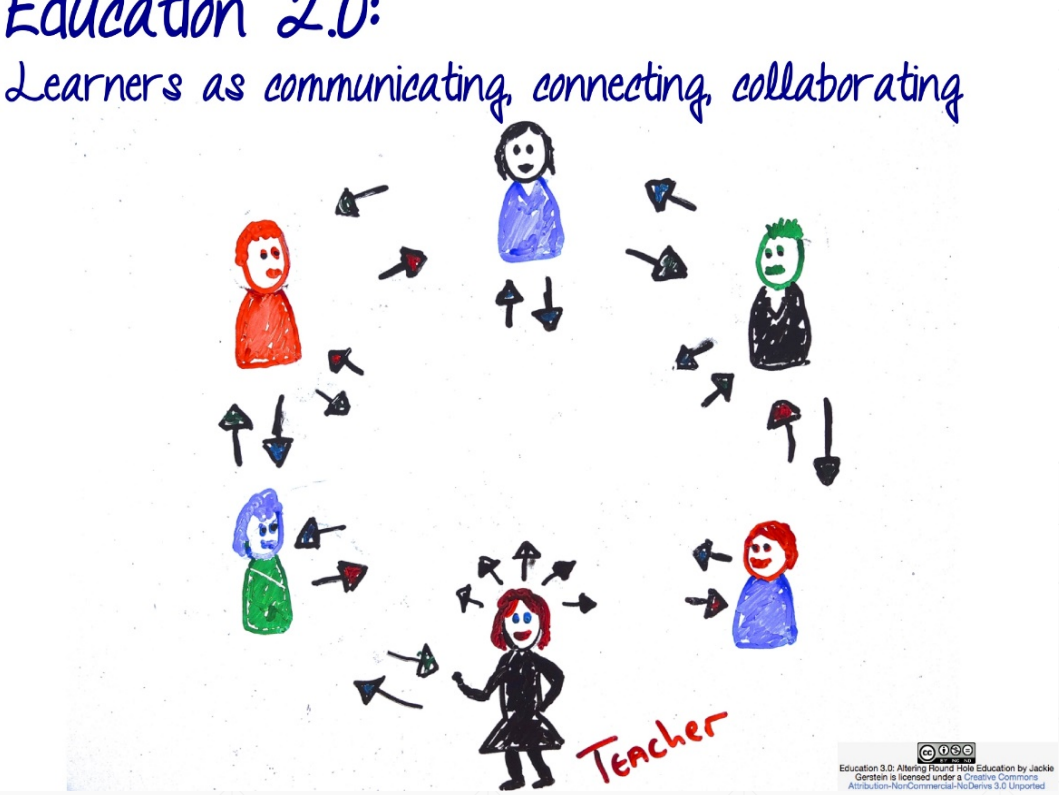
EDUCATION 1.0

- Authoritarian
- The student is the passive recipient
- Teacher-centered system - the teacher gives knowledge as the absolute leader in the classroom
- Technology is forbidden in the classroom



EDUCATION 2.0

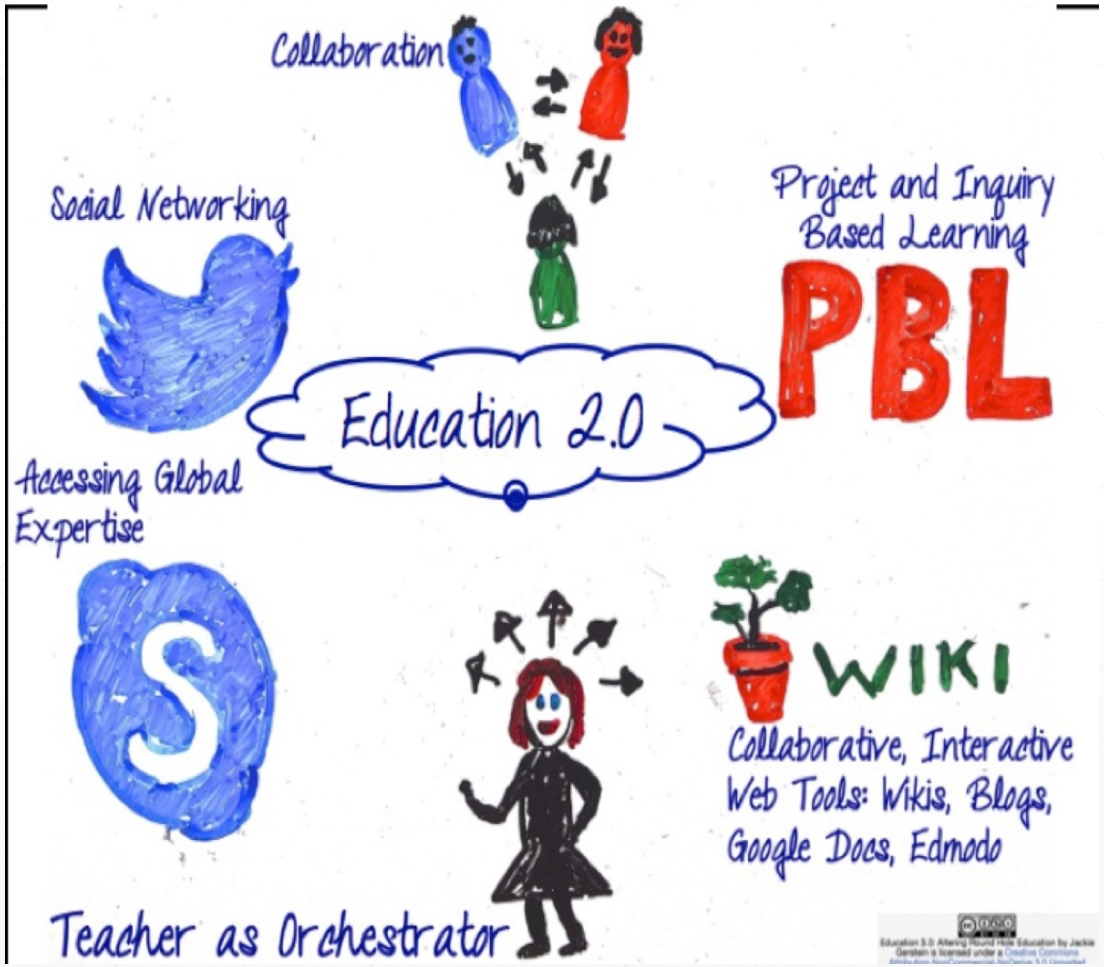
- Communication and collaboration are starting to grow
- Exam-based approach - the result is the examination - Memorization of knowledge
- An underestimated student-centered approach, we call it but do not apply it.
- Some people think they stopped talking about teaching and they talk about learning and learning outcomes but they are still on paper.
- the schools are still talking about hours of teaching ..... But we should talk about hours of learning !!!



Continue 2.0

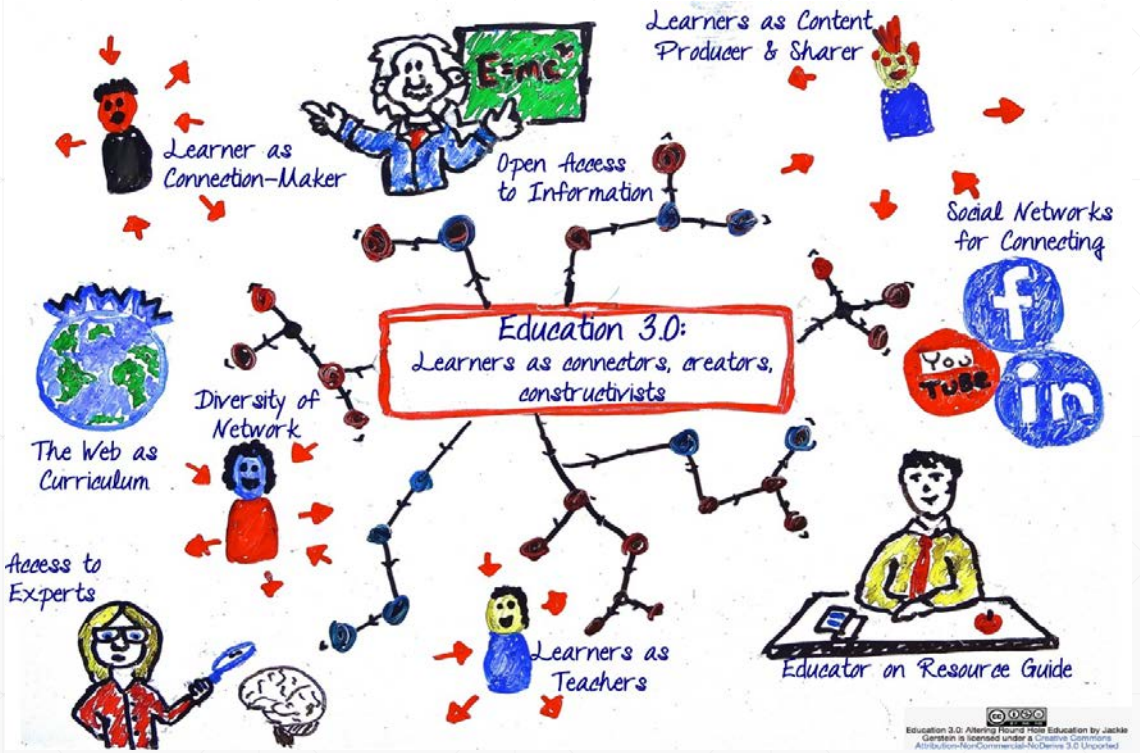
EDUCATION 2.0

- Invasion of technology and social networking
- We apply technology to the classroom as a trend indicator, but ..... the class continues to have the same structure.
- Complete confusion ... .. students know the technologies better than teachers
- No design for what is used and what is not
- Many choices, there is no money for buying and applying, uncoordinated technology correlation with the curriculum ... .. the system can not properly follow the evolution of technology ... there is no teacher training ..... data is everywhere ... .. Google Search faster from traditional libraries ... the web knows more than our teacher ....
- The classmates communicate faster and smarter ... ... electronically ... they collaborate on plans
- Students give technical knowledge to their teachers ....



EDUCATION 3.0

- Student-Centered approach
- The teacher is transformed into a Coordinator/facilitator, advisor, learner and practice guide
- The student is researching
- Flip classroom method applies
- More dialogue, technology is everywhere, the student is self-learning and everywhere.
- The classical style classroom no longer exists
- Lesson Plans are now called Learning Plans



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2020+

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2030+

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COMPARISON

EDUCATION 1.0 > 2.0 > 3.0

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EDUCATION 4.0

- Co-creation and innovation in the centre
- Whenever and wherever

  Flipped classroom applied

  Interactive practical exercise – face-to-face

- Learning is done at home or outside school, while in school students develop skills
- Development of personalized teaching and learning
- Learning Plans are now called Creativity Plans
- The technology

  Its free or/and easily accessible,

  Increased use of virtual reality
  Continuous evolution and innovation and therefore a need for continuous training and development of new knowledge and skills by all

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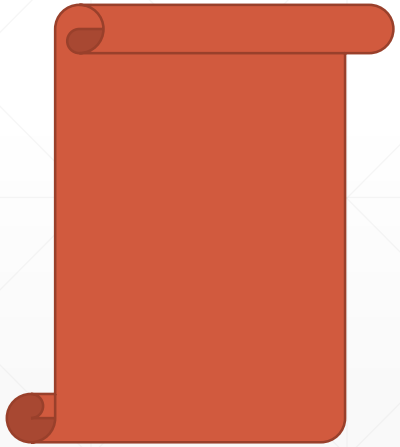
COMPARISON

EDUCATION 3.0 > 4.0



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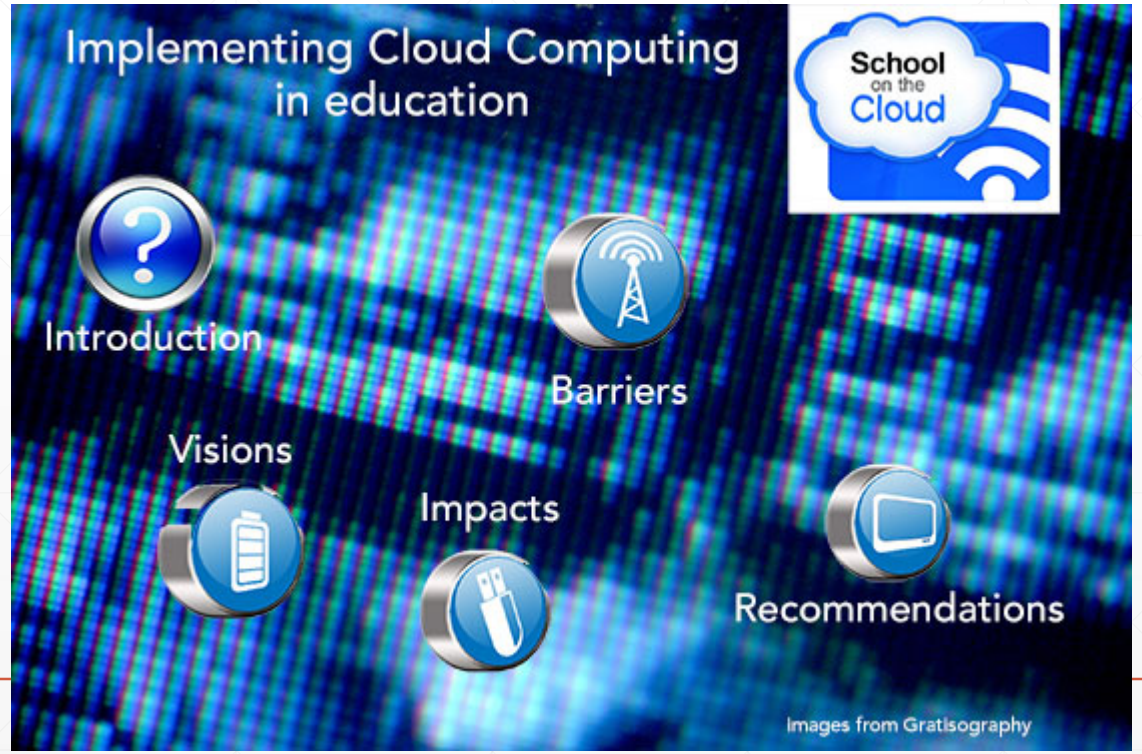
What is needed?

The EU Funded Project : School on the Cloud (2013-2016)
(http://www.schoolonthecloud.net/)
has demonstrated that leadership for change is needed.
The main issue today is no longer access to technology, but the capability to establish meaningful leadership for Cloud-based learning, teaching and administration.



L-Cloud: Developing Tomorrow's Cloud Education Leaders
(new EU funded project 1 October 2018 – 30 September 2020)

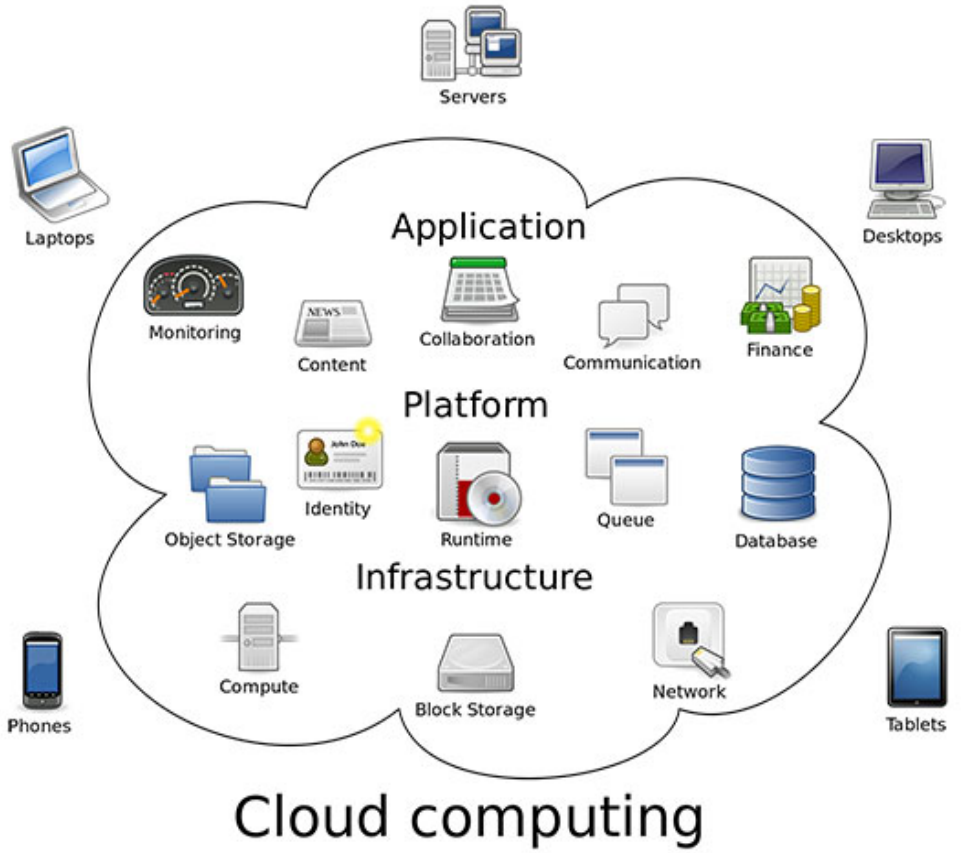
Cloud is designed to promote the leadership for change and is aiming at:

1. *Developing Guidelines for Skills and Competences for **Adaptive Education Cloud Leaders** - During this process, the partners will filter the results from SoC Network project and will extract the information needed. They will also utilize guidelines developed in partner countries, in Europe and Internationally for preparing this qualification framework.*

2. ***Developing a Qualification Framework for Education Cloud Leaders** based on Skills and Competence. This process includes the definition and validation of the competence framework as well as the definition of an International Professional Certification Programme.*

3. *Designing a training **course** for developing adaptive education cloud leaders*

All tools are moved into the Cloud



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Simple as that…

BYOD

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Simple as that…

BYOD

Bring your own device

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owlypia

B Y O D

Bring your laptop, tablet or smartphone, your portable charger and your own access to the Internet (3G or 4G)

Owlypia is a global online competition inspired by The Intellectuals' Challenge (TIC) which aims to inspire intellectual curiosity and enhance the academic success of young minds across the world.

Theme of the year 2018-2019: C R E A T I V I T Y BEYOND THE BORDERS

Owlets for young minds aged 11-14

Owlys for young minds aged 15-18

FIVE SUBJECTS

80%

Art & Design

Economics & Business

Literature & Culture

Science & Technology

Social Sciences

COMMON GROUND

20%

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For more info: www.owlypia.org / info@thalescyprus.com / +357 22283600

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How children use devices in developing countries?

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11th EUROMATH & EUROSCIENCE 2019

13-17 March 2019

www.euromath.org , www.euroscience.info

Probably the only international conference for pupils of age 9-18.

Students write abstracts and full papers for proceedings, they present at the conference as individual presenters or in groups.

They also participate in competitions during the event developed through the

Le-MATH EU funded project outputs in implementation

- MATHFactor
- MATHeatre
- SCIENCE-Factor
- SCIENCE-Theatre
- MATH-Poster Design Competition
- SCIENCE-Poster Design Competition
- MATH-Presentation Competition
- SCIENCE-Presentation Competition

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video

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"School to Career"

New proposed project under EEA Norway Awards

Expecting results, Stage 1 passed.

Within several schemes and tools for improving school counselling we are proposing the change of

LLL (Life-Long-Learning)

to

LLA (Life-Long-Adaptability)

To succeed in the future, learners will need to think like employees, and employees will need to think like learners!

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Messages from the recent study of Universities UK organization , published in August 2018
Title of study: Solving Future Skills Challenges

- *The most important capital for the world of work ahead is skills.*
- *[The industrial strategy] helps young people to develop the skills they need to take up the high-paid, high-skilled jobs of the future.* Prime Minister's Office, 2017
- *...a revolution more comprehensive and all-encompassing than anything we have ever seen.*
- *The rate of change could well outpace the ability of existing policies, mechanisms and approaches to respond adequately.*
- *Educational systems are 'increasingly at risk of being outdated'.*
- *The least automatable occupations almost all require professional training and/or tertiary education.*

Solving Future Skills Challenges

- *The linear career path is expected to cease to exist.*
- *Educators are in the position where they are having to prepare learners for jobs that don't yet exist, using technologies that have not yet been invented.*
- *65% of children entering primary schools today will ultimately work in new jobs and functions that currently don't exist.*
- *Nearly 50% of the subject knowledge acquired during the first year of a four-year technical degree will be outdated by the time the students graduate.*
- *Many jobs don't yet exist, which will be using technologies that have not yet been invented, but we are spotting and solving problems that we have yet to define clearly.*

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New Project Proposal
STEAME

- STEAM : Science-Technology-Engineering-Arts-Mathematics
- What is the last **E**?

What is needed?

Model of STEAME Schools

Guidelines for new organizational structures for such a school

Training of Teachers

Change in Curricula, Tools, Methods

Mathematics is the interconnecting/catalyst link in STEAME

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Examples of Completed EU funded project in mainly Maths Education
Summary of outputs and where to find them

- MATHEU : Identification, Motivation and Support of Mathematical Talents in European Schools, 2003-2006

  Manuals

- Le-MATH : Learning Mathematics through New Communication Factors, 2012-2014

www.le-math.eu

- EDIPUS: European Digital Portfolio for University Students

www.edipus.me

Completed EU funded projects on Maths Education
Summary of outputs and where to find them

- MATHGames: Games and Mathematics in education for adults 2015-2018

  http://www.vmsmedien.de/mathgames/

- MATH-Labyrinth: Increasing the level of knowledge through solving mathematical problems 2015-2017

  http://www.math-labyrinth.eu/

- MATH-Debate-The Voice of Students-Searching Excellence in Math education through Increasing the Motivation for Learning 2016-2018

  www.mathdebate.eu

- DIS-Code: Disconnected, discouraged, 2016-2018

  http://www.allyouneediscode.eu/dis-code

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The THALES Programme

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תודה לך על תשומת הלב

Thank you for your attention

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www.euromath.org

www.euroscience.info

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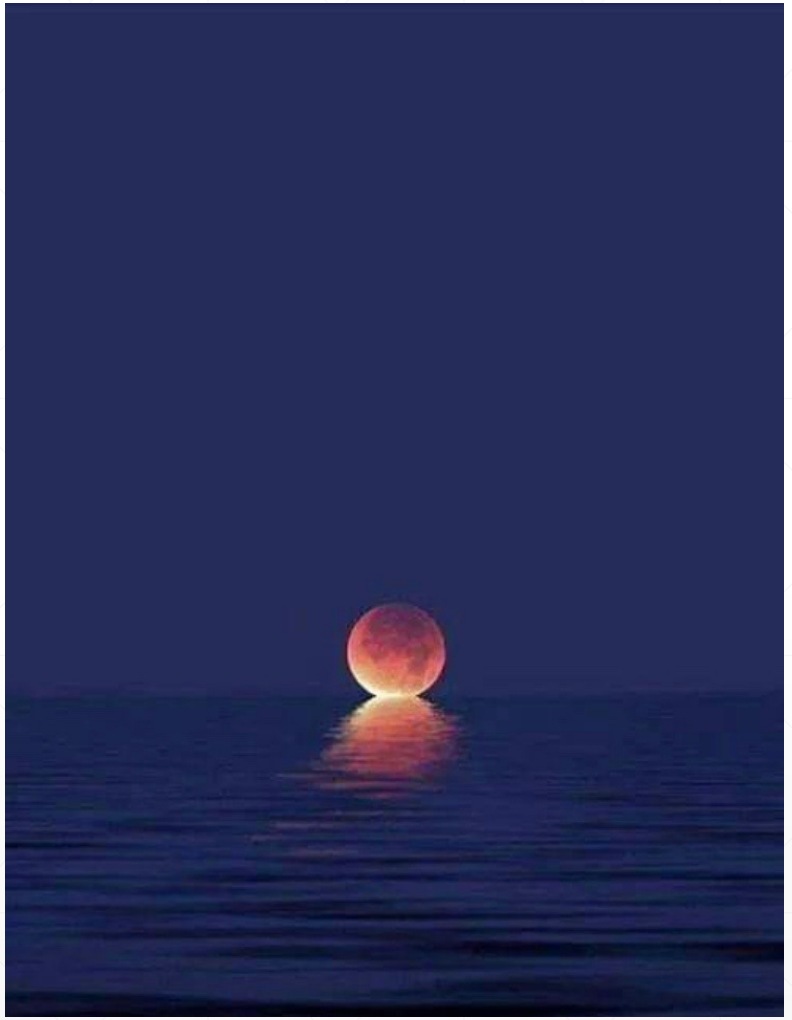
www.pro-gnosis.eu



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