



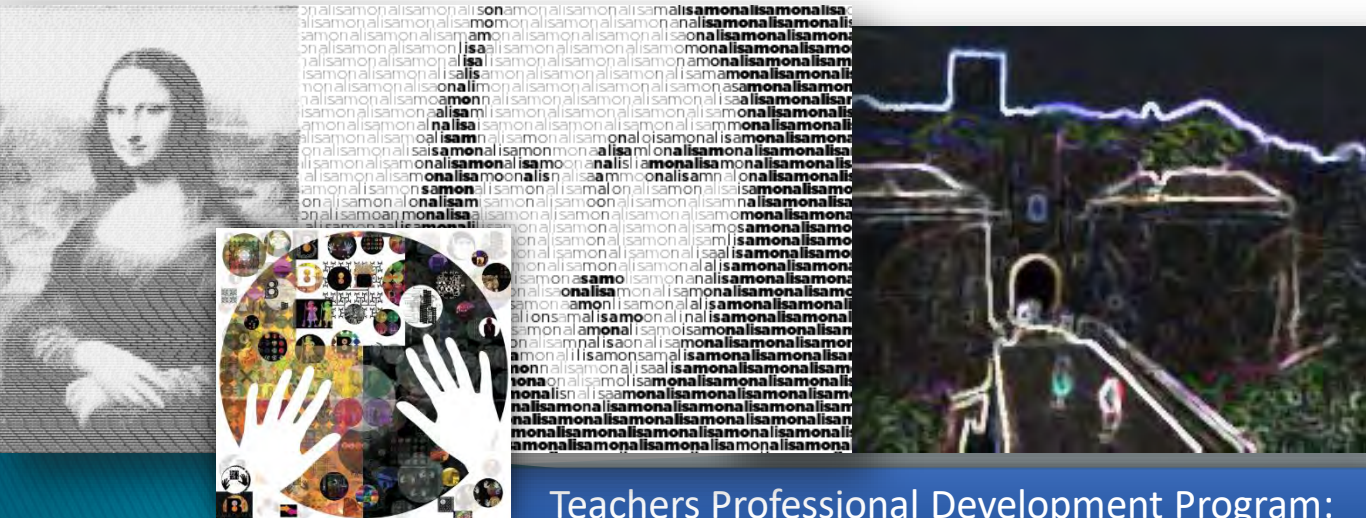
TM06.PPT Creative computing for learning and teaching introduction

Module: Creative computing introduction

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Teachers Professional Development Program:
“KIOS”

In the context of: Erasmus+,
Key Action 1. Learning Mobility of Individuals/
Mobility project for school education staff/Staff training
Rhodes, JULY 2017



LTEE Lab – www.ltee.gr

- ▶ ICT Enhanced Learning
- ▶ Mathematics education
- ▶ Science education
- ▶ Teachers training





Rhodes – long history, unique beauty



<http://www.rhodes.gr/en/>

<https://en.wikipedia.org/wiki/Rhodes>



Let's return to work



A few words about creativity,
creative computing,
and what/how are we try to
learn in the next days



Creativity – Learning - ICT



Creativity Crisis?



<http://www.newsweek.com/2010/07/10/the-creativity-crisis.html>



The Creativity Crisis

For the first time, research shows that American creativity is declining. What went wrong—and how we can fix it.

by Po Bronson and Ashlev Merrvman July 10, 2010



Creativity is decreasing....



Kyung Hee Kim at College of William & Mary studied the results for about **300.000** creativity test of children and adults



Kim discovered that IQ tests – were increasing until 1990 but since then is decreasing!.

“It’s very clear, and the decrease is very significant,” Kim says.

It is the scores of younger children in America — from kindergarten through sixth grade — for whom the decline is “most serious.”



Significance and consequences...





Who's fault is the creativity decrease...

Causes proposed:

A. The children watch pathetically tv and play video games for many hours instead of be engaged in creative activities.



B. The schools are not developing creative thinking instead they reinforce early convergent thinking.



Great supporters of creativity development in education



Ken Robinson: Author/educator

Creativity expert Sir Ken Robinson challenges the way we're educating our children. He champions a radical rethink of our school systems, to cultivate creativity and acknowledge multiple types of intelligence.

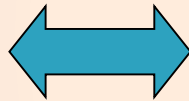
"We are educating people out of their creativity," Robinson says. It's a message with deep resonance. Robinson's **TEDTalk** has been distributed widely around the Web since its release in June **2006**.

Guilford, Craft, Sternberg, Torrance, Csikszentmihalyi, Runco, Boden, Ξανθάκου,



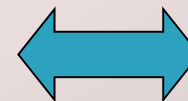
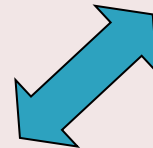
Questions rise consequently...

What is creativity?



What Education has to do with creativity?

What is the role of Computing and ICT?





Usual misconceptions about Creativity...

Lack of discipline in the school/class?

truth:

It concerns techniques for the development
of divergent thinking



Privilege of a gifted minority?

truth:

It can be developed by any one using appropriate
approaches

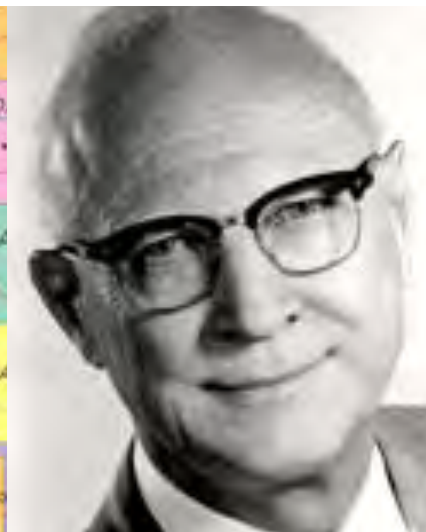
It has only to do with the arts?

truth:

It concerns every field of the human activity – problem
solving



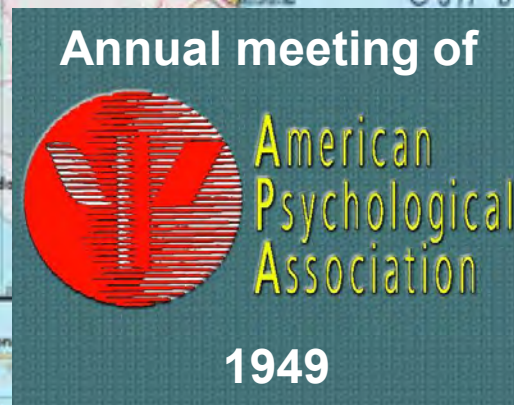
The beginning of the modern creativity psychology



J. P. Guilford
«Father of the
creativity
research»



Emphasized the significance of creativity and called the researchers to start study it. The studies of creativity was maximized on 1960 and 1970 decades. Creativity research is still an active field.



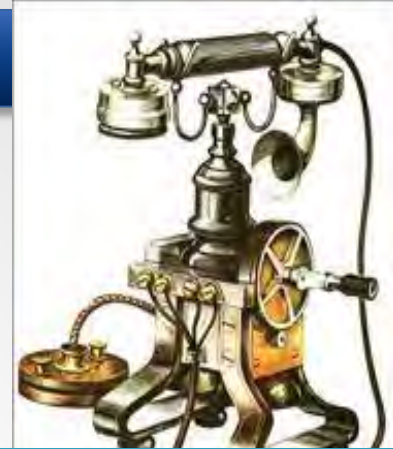
Annual meeting of

1949





The concept of Creativity



Creativity

**Generation/making of
any
work/product/artefact/idea**

**Expressive
Creativity**

*Innovation on
conveying thoughts
and feelings
effectively*

**Functional
creativity**

*Idea generation and
synthesis for the
proposal of new
effective problem
solving methods*

Original

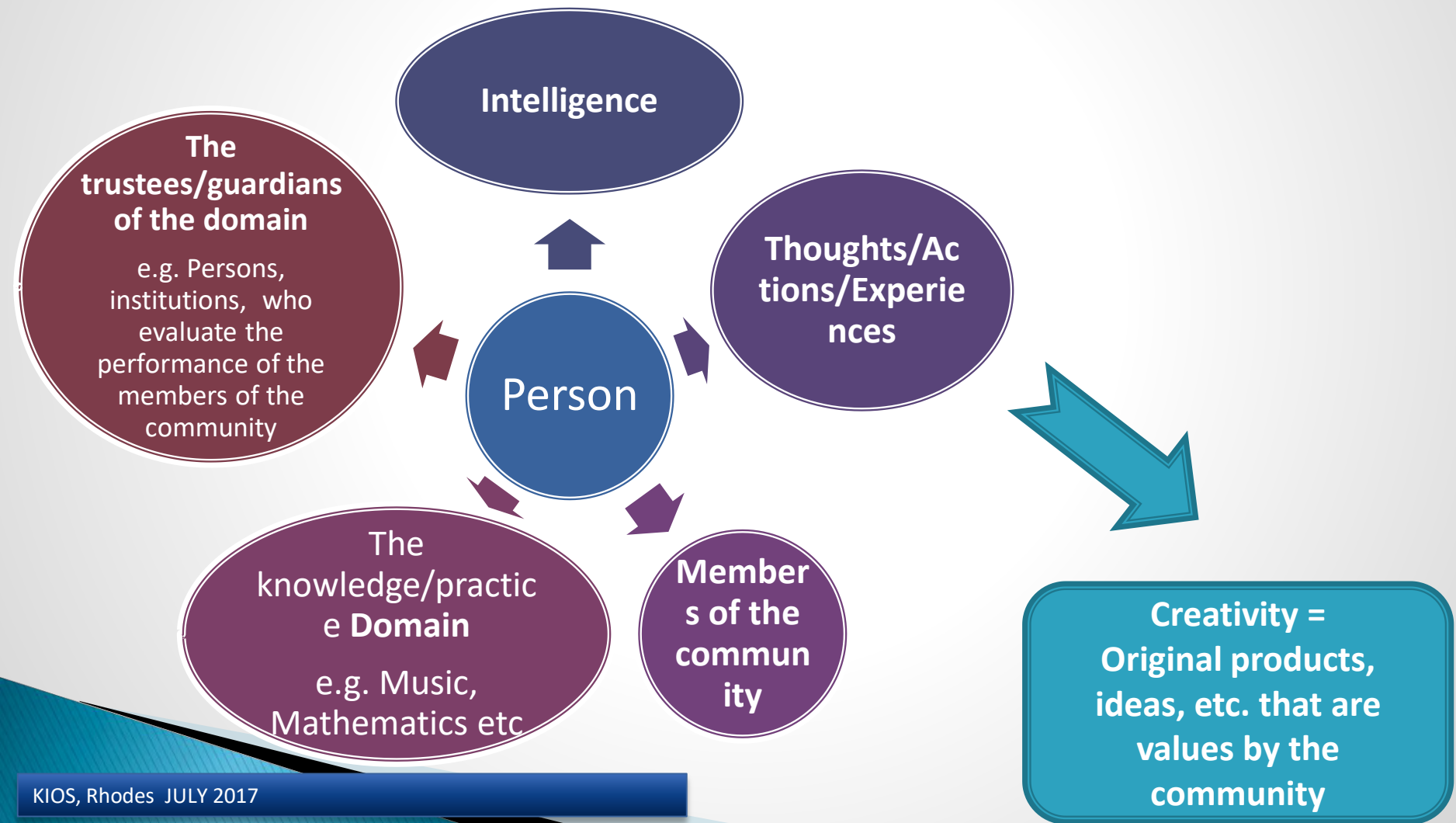
Valued

**In the framework of a
community**

**We focus on Functional Creativity for problem solving but we
combine expression means e.g. storytelling, multimedia.**



Ecosystemic – social model for the concept of creativity by Csikszentmihalyi M.





Who can develop his/her creativity?



Where is the creativity
gen?

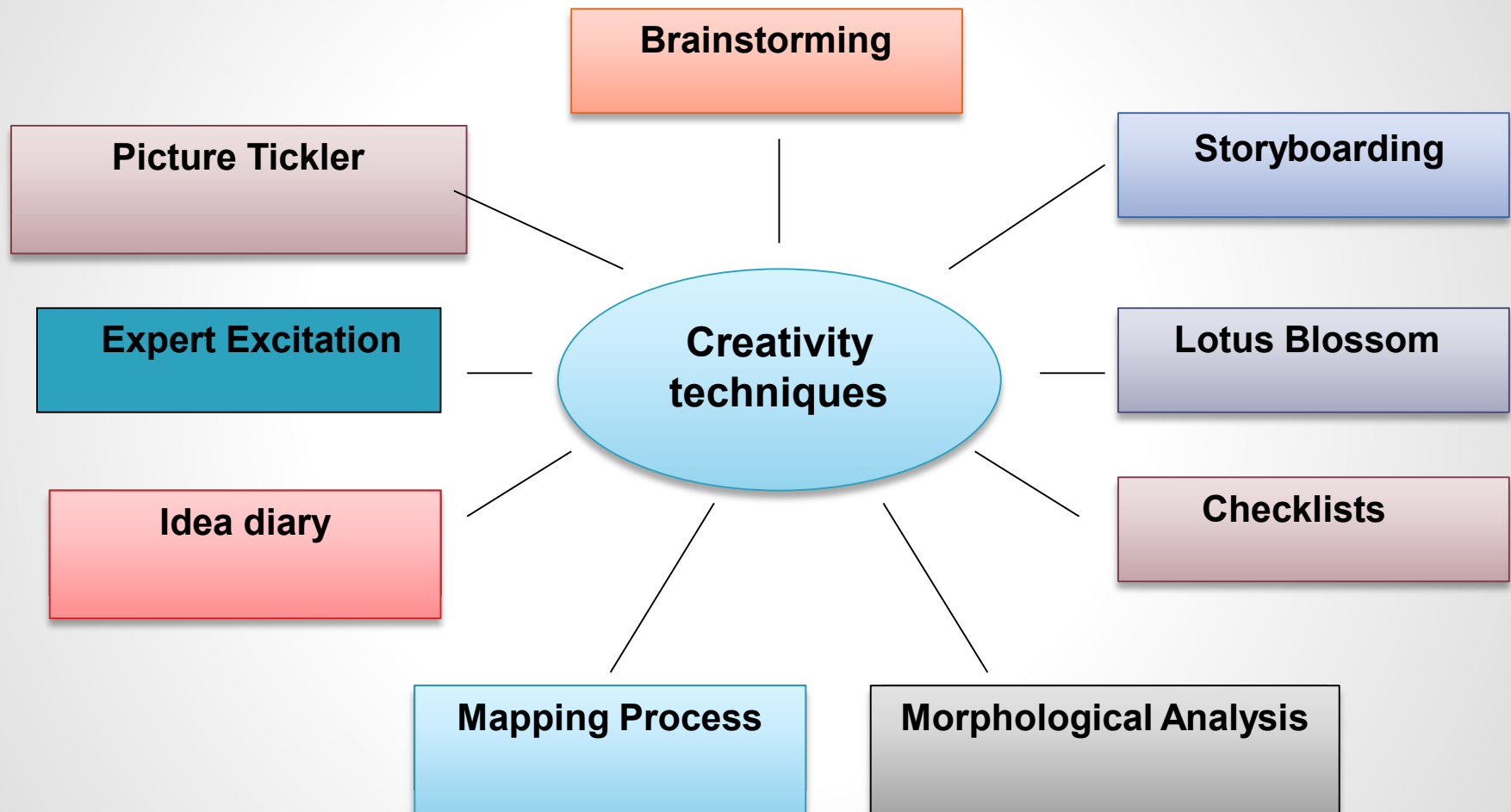
Creativity is not a privilege of a charismatic
minority.

«*Democratic creativity*» term coined on 1999 by National Advisory Committee on Creative and Cultural Education that every student could develop his/her creativity.

Originality scales => Personal, Group, Global



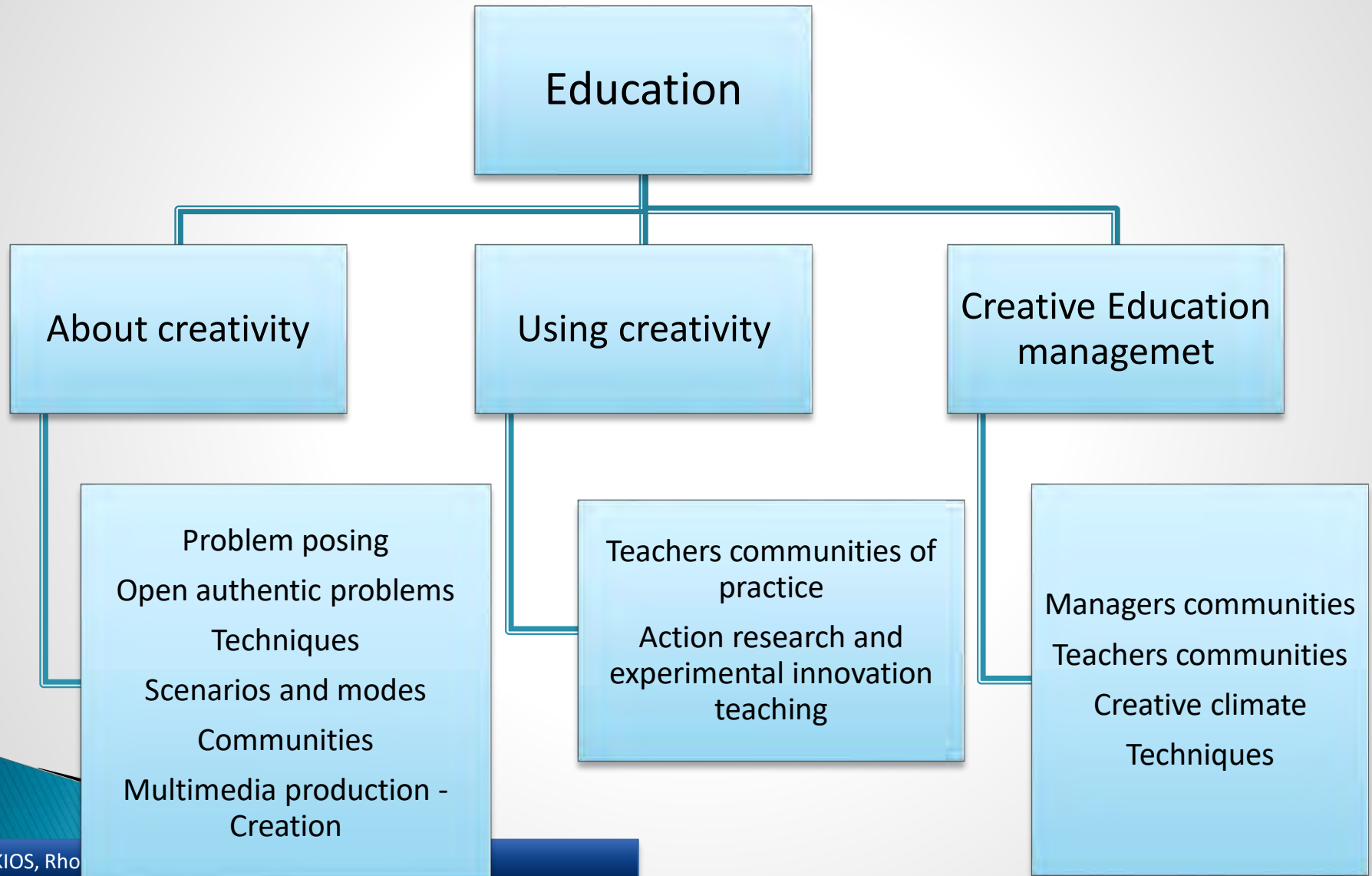
Creativity cultivation techniques



Creativity can be cultivated using the proper techniques (Sefertzi, 2000)



Education and creativity





The creative organization climate features

- ▶ **Personally meaningful challenges**
- ▶ Opportunities for **initiatives**
- ▶ Support for the proposal of **new ideas**
- ▶ **Confidence**
- ▶ **Dialogue** and argumentation without fighting
- ▶ **Risk taking support** - Experimentation



Ekvall and Ryhammar (1999)



Creativity and ICT

Hypothesis A'

ICT: mechanical algorithmic entities that reinforces only convergent thinking
e.g. CAI, behavioral software

Janus of ICT

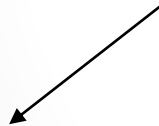


Hypothesis B'

ICT: valuable tools that support the creative production of products by scientists, musicians, engineers, writers, artists...

Automatism

Creativity tool



KIOS, Rhodes JULY 2017





In other words



**The PC as a music
reproduction
machine**



**The PC as a music
creation tool**





What kind of software we choose for creative computing?

Creative Computing Tools of KIOS

Digital Storytelling

Audacity, MoovieMaker, Gimp
Creative writing techniques

Interactive Storytelling

Interactive fiction and novels authoring
tools: Inklewriter, Quest, Visual Novelty

Mobile games and Augmented Reality

Aris, Taleblazer Authoring tools



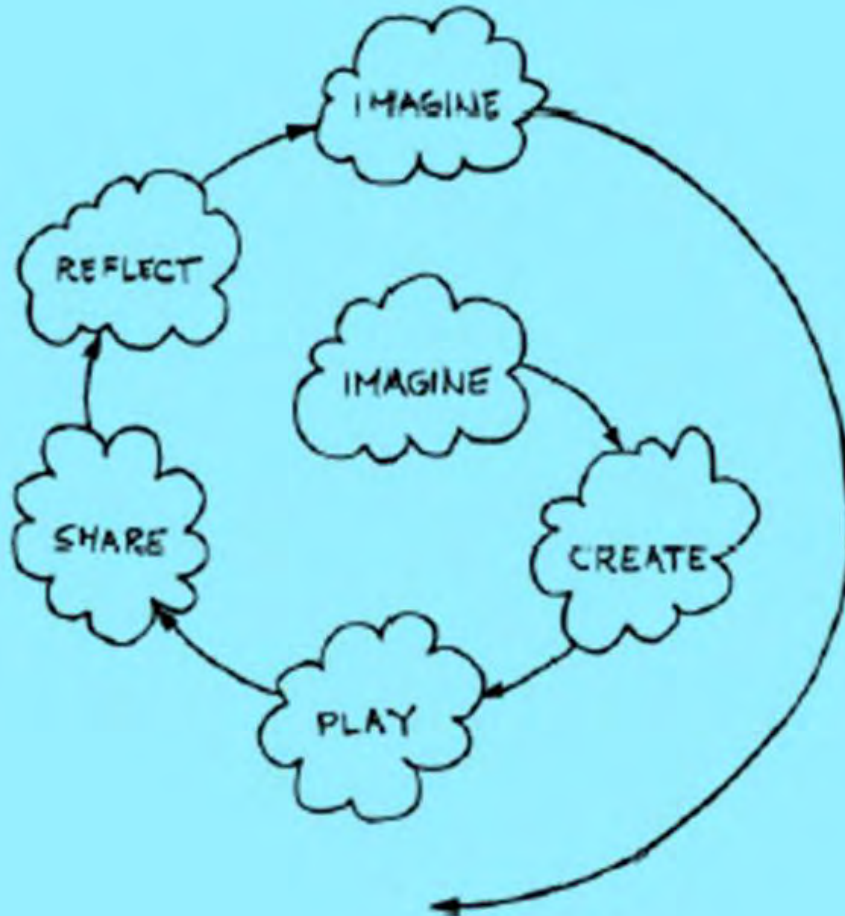


Why emphasize on story?

- ▶ Story as a knowledge representation structure (Bruner)
- ▶ Story as an egocentrism overcoming mean (Piaget => Hughes)
- ▶ Storytelling as a teaching method (Egan)
- ▶ Interactive storytelling ?????
 - Dialectics



Cultivating creativity using ICT



**The Kindergarten
approach for
problem solving
By M. Resnick**

- **Fluency**
- **Originality**
- **Elaboration**
- **Self-efficacy**



Creative computing???

Creative computing is... creativity.

Computer science and computing-related fields have long been introduced to young people in a way that is disconnected from their interests and values – emphasizing technical detail over creative potential. Creative computing supports the development of personal connections to computing, by drawing upon creativity, imagination, and interests.

<http://scratched.gse.harvard.edu/guide/>

Creative Computing Magazine was one of the earliest magazines covering the microcomputer revolution. Published from October 1974 until December 1985, Creative Computing covered the whole spectrum of hobbyist/home/personal computing in a more accessible format than the rather technically oriented BYTE. Ted Nelson, known for the invention of hypertext, was briefly the editor.

<https://archive.org/details/creativecomputing>



Creative computing???

- In our view creative computing aims to bridge the narrative intelligence to the paradigmatic one (according to Bruner).
- Combining computing, mathematics and science with the development of stories is the future of the arts. This kind of staff is natural cultural environment for the children.
- Empowering the teachers will fill the gap and ensure the role of education in the creativity cultivation.
- The cultural an historical environment helps also to build on the treasure of the long history and rich culture of Europe.



End!



Notes

- ▶ <http://www.educationnews.org/technology/storium-for-schools-brings-narration-gameplay-to-the-classroom/>
- ▶ <https://storium.com/>