Lifelong Learning for Creativity and Innovation

Reijo Aholainen, European Commission, DG Education and Culture
Lifelong Learning for Creativity and Innovation

1. **Why creativity and innovation?**
   1. Social and Economic background
   2. Basic Concepts

2. **Creativity and Innovation context**
   1. Innovation concerns all fields
   2. Measuring and indicators

3. **Education and training for promoting innovation**
   1. Skills and knowledge needed
   2. Partnerships

4. **Innovation for improving lifelong learning (LLL)**
   1. Learning first, learner in the centre
   2. Re-think curricula, re-think learning methods and environment
   3. New technologies in the service of better learning

5. **European Year of Creativity and Innovation 2009**
1) Why creativity and innovation - social and economic background

- **Economic challenges**
  - Innovation is the key for long-term growth in a knowledge economy.

- **Demographic challenges**
  - Ageing population and increasing immigration
  - Innovative developments for social services.

- **Global and social challenges**
  - Climate change, energy, pollution, water, health, safety
  - Need for new sustainable responses – and soon!

- **Technological change and challenge**
  - Cumulative growth of knowledge and information
  - Information and Communication Technologies lead growth
  - Digital competences and digital divide
Europe is lagging behind the USA and Japan

Indicators of innovation, EU and US
... and the new emerging economies are catching up

- China has become world’s top exporter of computers and second to the US in electronics and telecoms
- Also its R&D investments and R&D intensity are increasing substantially
- China and South Korea have a significant share of high tech patent applications
- Asia is to an increasing extent retaining its own stock of human resources for S&T
- South-East Asia has become a new major player for tertiary education
1) Why creativity and innovation – some basic concepts

- **INNOVATION** =
  A new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method, business practice, workplace organization or external relations” (Oslo Manual, OECD 2006)

- **INVENTION** =
  Occurrence of a new idea.

- **CREATIVITY** =
  Imaginative activity fashioned so as to produce outcomes that are both original and of value (NACCCE, 1999)
  - creativity is possible in all areas of human activity
  - all people have creative capacities
Creativity is the infinite source of innovation

- **Creativity is about thinking - cognitive – and behaviour**
  - All children are creative, all have some sorts of special gifts
  - Creative thinking, thinking out of box
  - Synthesize and combining data and information
- **Creativity concerns all fields**
  - Creative sector, culture industries grow fastest
- **Creativity requires open environment, creative people from different fields**
  - Learning cities, learning regions
  - Florida’s 3T framework (Talent, Technology, Tolerance)
- **Impossible to impose**
  - But can be encouraged, supported and improved
The Knowledge Triangle: Innovation, Education and Research
2. Creativity and Innovation context

- Growing need to innovate across society and economy
- Knowledge, skills and abilities of people are the major source of innovation and competitive advantage
- All fields are concerned
  - Not only arts and culture, or high tech and business
  - But all – private and public
- Growing role of countries and regions
  - Competition and growth
  - Human capital – and Social capital
  - Talent, Technology and Tolerance (Richard Florida)
Innovation is changing ... world is changing

- Innovation used to be about R&D and High Technology
- Broad definition includes also service sector
- And the public sector
- Open innovation is often combined and asks help from user and consumers
Human Capital is the key ... for the innovation skills

- No one-size-fits-for-all
- Present models of innovation involve especially soft skills
  - Learning to learn, problem solving, risk assessment, decision-taking
  - Communication skills, teamwork, social skills
  - Entrepreneurial skills, sense of initiative
- Learning and knowledge-creation skills increasingly important
- ‘Absorptive capacity’, a new key to performance
  - To recognise the value of new information, to assimilate and to apply
- Digital competence
Innovation has to be measured, but how?

• Community Innovation Statistics
  – Developing step by step
  – Focus on product and process innovation
  – Covers industry and many service sectors
• OECD Oslo Manual
• European Innovation Scoreboard
  – Input indicators (15)
  – Output indicators (10)
• Global Innovation Scoreboard
• OECD Innovation Strategy under preparation
Some conclusions from innovation indicators

• New policy demand
  – New and better indicators
  – Widening area to monitor
• Weak to moderate relation between Input and Output
  – Relevance of present output indicators
• Micro-level data – Macro-level conclusions
• Education input – black box?
  – Nordic Countries perform well both in education and innovation
  – Lifelong learning is the common nominator of innovative countries
3. Education and training promoting creativity and innovation

- Education provides knowledge, skills and competences for innovation
- Education and research produce new knowledge for innovation
- Education and training can foster and cultivate creativity which is the ultimate source of innovation
- Partnerships and networks bring innovation to education
The Education Triangle: Knowledge, Skills and Attitudes
All levels of education and training can promote creativity and innovation

- Learning first, learner-centred approach
- Creativity and skills on equal footing with knowledge
- Better exploitation of the potential of ICT
- Partnerships and Networks
EU Recommendation emphasises transversal, soft and generic skills

EU Recommendation (2006) defined the modern key competencies for LLL:

1. Communication in the mother tongue;
2. Communication in foreign languages;
3. Mathematical competence and basic competences in science and technology;
4. Digital competence;
5. Learning to learn;
6. Social and civic competences;
7. Sense of initiative and entrepreneurship; and
8. Cultural awareness and expression.

Higher Education for creativity and innovation

- **Scientific knowledge and research skills**
- **Generic key competences**
- **Encourage creative thinking**
- **Partnerships**
  - Co-operation and networking locally, regionally, across boundaries
  - Knowledge brokerage, transmission of research results
  - Entrepreneurial university
  - Triple Helix model of innovation
4. Innovation and creativity for improving lifelong learning

- Making education and training better promote innovation may imply that the education system itself needs to become more innovative and development-oriented;

- Innovation as a means of improving equity and efficiency: pedagogical content, organisational services, innovation and creativity

- Innovation in education not a new thing – but it is not used systematically.
Learner-centred approach supports motivation and confidence

- Learning is a cognitive process,
  - motivating curiosity
  - utilising various learning approaches
  - learning is social
- Modern learning uses the ICT potential
- Using partnerships and networks as learning tools
- Support from an encouraging learning environment
Re-think curricula, learning methods and learning environment

- Curricula - clear objectives and flexible implementation
- Teacher cooperation and continuing training
- Exploitation of the ICT potential
- Student assessment
- School as a learning organisation
- Promoting learning culture
- Wider school autonomy – but with accountability
ICT to support lifelong learning

- ICT generally has a positive impact on learning
  - Both on quality and on equity
- ICT has not revolutionised teaching methods
- ‘eLearning’ concept is developing towards innovative learning through using new technologies
  - collaborative learning,
  - connecting learning communities,
  - creative inquiry,
  - designing new contents, methods, tools and spaces for learning
- Time to move
  - from perceiving ICT diffusion and use as a goal
  - instead see ICT as an enabler
ICT for innovation and ICT through innovation

- Learning habits of future generations are changing;
- eLearning is becoming more social and interactive;
- User-centred /user-owned/user-created learning and online services;
- Time for critical and open reflection on ICT for learning
- Fostering innovation skills requires
- ICT enhanced learning as a teaching approach/strategy
European Year of Creativity and Innovation 2009

- The overall objective is to promote creativity and innovation in society and economy in general and in learning in particular.
- Year will consist of awareness raising information and events and initiatives at European, national, regional and local level.
- Purpose is to promote policy debate in EU, Member State, national, regional and local levels.
European Year of Creativity and Innovation 2009

- Covers all sectors from arts and culture, to design and fashion to business and high technology
- Decentralized structure at European, national, regional and local level
- Invites all interested to participate, organize and act
- Networking and partnerships
- No specific funding – but excellent opportunities to associate with
- And where is will there are resources
Creativity connects the education and knowledge triangles to enhance innovation in society.