Technology-enhanced learning

WP 2011-2012 Objective 8.1 Technology enhanced Learning

Cultural Heritage and Technology-enhanced Learning Unit

Information Society and Media Directorate General

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The workprogramme 2011-2012

Challenge 8: ICT for learning and access to cultural resources

- **Obj 8.1 : to develop technologies and methodologies that make people learn more effectively and support the acquisition of new skills.**

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Objective ICT-2011.8.1 Technology-enhanced learning

Target outcomes

a) Adaptive tutoring systems

b) Educational technologies for science, technology and maths

c) Workplace Learning (targeting, in particular, SMEs)

d) Creativity in learning processes

e) Exploratory activities

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Target outcome a)

Technology Enhanced Learning systems endowed with the capabilities of human tutors

Foci: Advance systems' capabilities to react to learners' abilities and difficulties and systems' understanding and use of the appropriate **triggers** (praise, comments, etc.) **influencing learning**.

Characteristics:

- use of **systematic feedback** based on innovative ways of interpreting the user's responses - particularly in relation to deep/shallow reasoning and thinking.
- improve learners' **metacognitive skills**, understand and exploit the underlying drivers of their learning behaviours.

Technologies: Natural language interaction (dialogues); rich and effective user interfaces; pedagogically sound; smart and personalised instructional design

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Instrument: STREP

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Target outcome b1) Educational technologies for science, technology and maths

B1)

- Supporting students to understand and construct their knowledge and meanings of scientific, technological and/or mathematical subjects.
- **Characteristics of the solutions**:

  - accompanying the learners through the complexity of a subject (*technologically and methodologically*)

  How?

  - activating and feeding curiosity and reasoning
  - support the creative applications of the theory

Instruments: STREP; NoE

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Target outcome b2) Educational technologies for science, technology and maths

B2)

Supporting European wide federation and use of remote laboratories and virtual experimentations for learning and teaching purposes.

Output:

- Services enabling online interactive experimentations
  accessing and controlling real instruments, or using simulated solutions
- Stimulus to the growth of the network of labs
  – Open interfacing components for easy plug-and-play of remote and virtual labs

Research characteristics: user interfaces mediating the complexities of creation and usability of experiments, in pedagogical contexts - in primary and secondary schools, universities, etc..

Instrument: IPs that include large scale pilots.

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Target c)
Advanced solutions for fast and flexible deployment of learning opportunities at the workplace (targeting, in particular, SMEs)

Context: networking/fostering (cross-) organisational learning and help SMEs to adopt and sustain effective learning attitudes.

Characteristics:

- faster, situated, just-in-time up-/reskilling
- lower the costs/efforts of production quality instructional material - in continuing education and training processes.
- novel business training models – undertanding overcoming barriers to adoption - take up of the technologies

Focus: specifically on the needs of SMEs - in sectors without an established tradition in the adoption of learning solutions and - facing innovation and competitiveness challenges deriving from efficiency needs or new processes/products development.

Partnership: include SMEs /professional associations. SMEs users actively involved in pilots.

Instruments: IP

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Target d) Computational tools fostering creativity in learning processes

Context: Creativity in the learning environments

Focus: innovative tools encouraging

- nonlinear, non-standard thinking and problem-solving
- exploration and generation of new knowledge, ideas and concepts, or new associations between existing ideas or concepts.

Application: supporting people's learning as well as the formation and evolution of creative teams

Approach: technological solutions that facilitate questioning and challenging, foster imaginative thinking, widen the perspectives and make purposeful connections with people and their ideas.

Instrument: STREP

Target e)
Exploratory activities

Looking ahead – specific exploratory actions – 10+ years horizon - for:
Fundamentally new forms of learning through ICT

Networking and test-beds:
Establishment of a pan-European network of living schools for validations, demonstrations and showcases

Instrument: CSA

Expected impacts

- Stronger and smarter **adaptation and personalization** of educational technologies.
- **Engagement** in science, technology and maths,
- Timely and more **cost-effective up/re-skilling** through learning technologies and their sustained adoption.
- Emergence of **new learning models**, including models invoking creativity

Use of instruments, budget and call planning

- **Use of instruments** per target outcome

  a) STREP; b) STREP/NoE (b1) and IP (b2); c) IP; d) STREP; e) CSA

- **Budget: 60 Meur**
  - IP/STREP: EUR 53 million with a minimum of 40% to IPs and 30% to STREPs
  - NoE/CSA: EUR 7 million
- **Call: 8**
  - **opens** 26/7/11 – **closes** 17/1/12

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To know more

ICT research results

http://cordis.europa.eu/ictresults/index.cfm

Technology Enhanced Learning Research

http://cordis.europa.eu/fp7/ict/telearn-digicult/telearn_en.html

Digital Agenda for Europe

http://ec.europa.eu/information_society/digital-agenda/

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