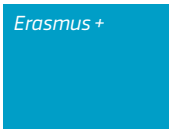
Key Activity 3

ICT for Learning

Erasmus + : Building on Experience, Best Practices in ICT for Learning



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INTRODUCTION

The Lifelong Learning Programme (2007-2013)[1]

As the flagship European Funding programme from 2007 to 2013 in the field of education and training, the Lifelong Learning Programme (LLP) was designed to create opportunities for people across Europe to have access to stimulating learning materials and environments at all stages of their lives.[2] It was an umbrella programme and, as such, integrated various educational and training initiatives.

The Lifelong Learning Programme was divided into four sectoral sub-programmes (Comenius, Erasmus, Leonardo da Vinci, Grundtvig), a Transversal programme, and Jean Monnet. The four sub-programmes cover the entire learning cycle from early childhood, through school, higher education and training, until adult life. The Transversal programme aimed to complement the sectoral sub-programmes. It fostered European co-operation in across at least two of the sub-programme areas. The four key activities (KA) of the Transversal Programme were:

- Policy Co-operation and Innovation in Lifelong Learning (KA1)
- Languages (KA2)
- Development of Innovative ICT-based Content, Services, Pedagogies and Practice for Lifelong Learning (KA3)
- Dissemination and Exploitation of Results and Exchange of Good Practice (KA4)

Key Activity 3 – Information and Communication Technologies (ICT)

Digital content and digital equipment are powerful tools for improving the quality of and access to education and training. They can be used to improve the personalisation of learning, as well as to diversify the way education and training are delivered. As such they have immense potential as drivers of change and innovation in educational practices. As one of the four key activities of the Transversal Programme, Key Activity 3 – ICT has supplemented the sectoral sub-programmes by enabling transnational cooperation on innovative ICT-based learning approaches. As a result, ICT use in education and training has been mainstreamed to facilitate its integration in lifelong learning policies.

Priorities for Key activity 3 have been set annually by the European Commission and the initiative has been open to all organisations and institutions working directly or indirectly in these fields. Projects had to integrate a clear European dimension with partners from at least 3 LLP countries for MPs and from at least 5 LLP countries for NWs. The funding has been allocated via 2 instruments:

1. For further information on the Lifelong Learning Programme, please visit: http://eacea.ec.europa.eu/llp/index_en.php
2. The last Call for Proposals under the Lifelong Learning Programme was published in 2013 and selected projects will still be running up to 2016.

- Multilateral Projects (MP) supported the development of innovative ICT-based content, services, pedagogies and practices for lifelong learning. These projects encouraged innovation and creativity in learning and teaching and boosted the use of new ICT tools and trends across all stages and sectors of learning; they also addressed the needs of groups at risk of exclusion, such as early school leavers, special needs students, employees requiring re-skilling or up-skilling, etc.

- Multilateral Networks (NW) supported the building of partnerships and the networking of learning communities with a view to exchanging ideas and experiences related to ICT for learning. The networks promoted greater linking and connectivity between learning communities and fostered creativity and innovation through the use of ICT. Networks supported knowledge sharing, increasing the visibility and awareness of the benefits and impact of ICT for learning, and contributed to its uptake and efficient use.

Projects funded under KA3-ICT of The Lifelong Learning Programme

KA3-ICT was not about developing technology itself, but about the use of ICT tools to transform, diversify and innovate learning environments and experiences. This includes aspects such as the use of simulations, discovery learning, attracting drop-outs back to education, enabling learning outside the educational environment and bridging the 'digital divide' between those with access to technologies and relevant skills, and those without.
The impact of the projects funded in this area has been threefold:

- Projects have contributed to piloting innovative ideas and building knowledge at institutional and individual level. They have also created communities of stakeholders, improving the exchange of practices and experiences among culturally and professionally different actors, thus achieving results that could not be pursued within national boundaries. As such the European dimension has been a distinguishing trait of these projects.

- Projects have also had an impact at individual level, with many hundreds of people involved in such unique cooperation projects on concrete, practical, and common challenges. The programme has therefore contributed to reinforcing the European dimension of education and training. Impact at systemic level, however, has been less visible. This third dimension is now a clear priority for the new generation of programmes such as Erasmus+.

- Finally, projects have supported a renewed focus on innovation in education through ICT. During the 7 year lifespan of the LLP there was evidence to suggest two significant benefits: on one hand, the increased importance of digital skills for employability and social inclusion and on the other, the clear enhancement of innovative ways of learning and digital content. ICT is now an essential part of the educational policy agenda and of Erasmus+.

Erasmus+

As of 1 January 2014, a new set of EU programmes for education, training, youth, sport, the audio-visual sectors, culture, EU aid volunteers and citizenship have been launched. The main activities of the previous programmes continue (learning mobility, cooperation projects and support for policy reform), and activities are strengthened where the systemic impact is strongest and where there is a clear EU added value.
The new Erasmus+ Programme brings together all EU and international schemes for education, training, youth and sport, replacing seven existing programmes: the Lifelong Learning Programme, Youth in Action, and five international cooperation programmes (Erasmus Mundus, Tempus, Alfa, Edulink and the programme for cooperation with industrialised countries). It also includes Sport. This streamlined structure aims to increase efficiency, to simplify application rules and procedures, and to make it easier to apply for grants, also avoiding duplication and fragmentation.

Erasmus+ is based on the premise that investing in education and training is the key to unlocking people's potential, regardless of their age or background. It helps them to increase their personal development, gain new skills and boost their job prospects. The benefits for individuals also bring benefits for the EU economy as a whole as demonstrated in numerous studies and research findings. For more information on Erasmus+, please visit:
http://ec.europa.eu/education/erasmus-for-all/index_en.htm

THEMES

This publication contains a collection of European projects that were funded under the Transversal Programme, KA3 "Information and Communication Technologies (ICT) for learning". It has been conceived for quick consultation, providing a showcase of best practice projects that started between 2007 and 2012.

The brochure is divided into six sections, each addressing a specific area of interest in the field of learning through ICT with relevance to EU policy making in education as follows:

1) Innovative Learning and Teaching
2) Open Educational Resources
3) Digital Competence
4) STEM Education
5) Community of Practice
6) Social Inclusion
7) Assessment and Qualifications

Each section is introduced by an outline of the issue at stake and is followed by a description of EU-funded projects. The projects selected have succeeded in making an important contribution to the specific field, and have been successfully implemented.

1. INNOVATIVE LEARNING AND TEACHING

Education systems in Europe face unprecedented challenges: an increased demand for education, with an estimated 414 million students expected to be in higher education in the world by 2030; a skills deficit which, during a time of economic crisis, worsens unemployment rates; the emergence of new education providers; a clear cost pressure in education and training systems with several Member States reducing their public investment in education.
Solutions to such challenges need to be creative and innovative and innovation lies at the heart of the EU's educational policy both in terms of practice and systemic reform. One of the four long term objectives of ET 2020, the strategic framework for education and training at EU-level, is to "enhance creativity and innovation, including entrepreneurship, at all levels of education and training".[3]

In the new Erasmus+ programme specific actions make of innovation and creativity a fundamental pillar: Knowledge Alliances and Sector Skills Alliances aim to stimulate the development and exchange of knowledge in co-operation with enterprises and socio-economic bodies and aim at the development of new, multidisciplinary curricula; Strategic Partnerships enhance innovating practices in educational, training and youth institutions; Prospective Initiatives seek to mainstream innovation through large scale policy experimentation projects involving high level public authorities responsible for education, training, and youth , as well as keeping the door open to new approaches emerging in the field and experimented through the 'Forward Looking Cooperation Projects'.

As highlighted by the Commissioner for Education, Culture, Multilingualism and Youth, Androulla Vassiliou, "ICT provides a variety of tools that can open up new possibilities in the classroom".[4] In September 2013, The European Commission launched a new initiative through the communication 'Opening up education'. The communication sets out 'a European agenda for stimulating high-quality, innovative ways of learning and teaching through new technologies and digital content'. Among other actions it aims to stimulate the development of Open Learning Environments as opportunities to innovate for organisations, teachers and learners, with a view to reviewing business models, developing high level digital skills for teachers, adopting innovative teaching practices, and further developing digital competence of learners to support creative and critical abilities.

The projects selected for this publication show the extent to which the ICT strand of the Lifelong Learning Programme has contributed to innovating education and training. These projects are real life pilots in various learning contexts and involve the key stakeholders such as learners, teachers/trainers, educational practitioners, and policy makers. As such these projects contribute to enhancing systemic use and impact of innovations in learning and teaching with the support of new technologies. EXPLOAR focuses on science education, while VIDUCATE is a cross-curricular network on media literacy in a digital environment. MAGICAL, IVY and Web2ERC explore new pedagogical approaches such as digital storytelling, serious games, or the use of virtual environments and Second Life.

3. http://ec.europa.eu/education/policy/strategic-framework/index_en.htm; see also: http://ec.europa.eu/education/policy/strategic-framework/growth-jobs_en.htm
4. 'Key Data on Learning and Innovation through ICT at School in Europe 2011', p. 3

1.1 MAGICAL - MAking Games In CollaborAtion for Learning

Multilateral Project

Coordinator	Consiglio Nazionale delle Ricerche, Genova, Italy
Partner Countries	Belgium, Finland, United Kingdom
Duration	01/01/2012 - 01/10/2014
Finances	Project budget: 526.895 € - Grant awarded: 395.169 €
Level of education addressed	School education, higher education, vocational training

Description: MAGICAL is developing a unique kit to support learning through collaborative game-making. The core component of this kit is an online game authoring environment called Magos Lite. It has been designed specifically to allow youngsters to design, make and share their own educational digital games. Magos Lite has easy-to-use authoring functions for learners to build a game scene, incorporate elements, regulate behaviours, and integrate learning content of different kinds. This opens the way to a joint learning experience that engages students both inside and outside the classroom, providing them with an opportunity to activate their digital, creative and problem-solving skills.

Impact: MAGICAL's unique teaching and training kit supports learning through collaborative game making. The kit features an online authoring environment called MAGOS that allows youngsters to design and make their own digital games together in small teams. Authoring functions are presented as magical powers, which team members assume, swap and enact as their game takes shape. This collaboration opens the way to a joint learning experience that engages students both inside and outside the classroom, encouraging them to activate their digital, creative and problem-solving skills. The Game-making Environments Community Library, identifying and describing 50+ software solutions for game creation, is also a valuable resource for those interested in the use of games for different purposes. The project's own game-making platform continues to develop to help increase MAGICAL's potential impact and reach a significant audience, thanks also to active dissemination activities.

http://www.magical-project.net/

1.2 IVY - Interpreting in Virtual Reality

Multilateral Project

Coordinator	University of Surrey, Guildford, United Kingdom
Partner Countries	Cyprus, Germany, Israel, Poland, United Kingdom
Duration	01/01/2011 – 28/02/2013
Finances	Project budget: 621.604€ - Grant awarded: 466.203 €
Level of education addressed	Higher education, vocational training, adult education

Description: By employing state-of-the-art pedagogical approaches, the IVY project addresses the needs of trainee interpreters and users of interpreting services in higher education, vocational training, and adult learning contexts. It uses the virtual world *Second Life* to develop the first 3D virtual learning environment dedicated to interpreting practice, and populates this environment with pedagogical content for the target groups. The digital content of the 3D environment includes monologues and bilingual dialogues in 10 languages that have been created using corpora of authentic spoken language. The audio files are projected onto robots that are embedded in virtual interpreting scenarios (e.g. a meeting room, presentation area, or medical room), creating the impression that the robots are the speakers. Trainee interpreters can select relevant content through a bespoke HUD (Heads-Up-Display), access a briefing, and then participate in the scenario with their avatars in order to practise interpreting. The project provides guided tours and mentoring for trainers and institutional representatives to further support them.

Impact: IVY contributes to the development of innovative ICT-based content and pedagogies. It builds on Web2.0 applications that provide a more flexible approach to teaching and training, especially in a field where training resources are scarce. The 3D environment enables learners from different educational sectors to meet and interact, using avatars and voice chat, and to learn with customised digital content such as bilingual dialogues. IVY fosters situational and autonomous learning in a virtual setting. Moreover, it supports collaborative learning and social interaction required in the simulation of professional interpreting practice. Its follow-up project, EVIVA, complements IVY's activities by evaluating Virtual Learning Environments in relation to the professional requirements for interpreters and their clients.

http://www.virtual-interpreting.net/ivy-project/

1.3 Web2ERC - European Resource Centre for Web2.0 Education

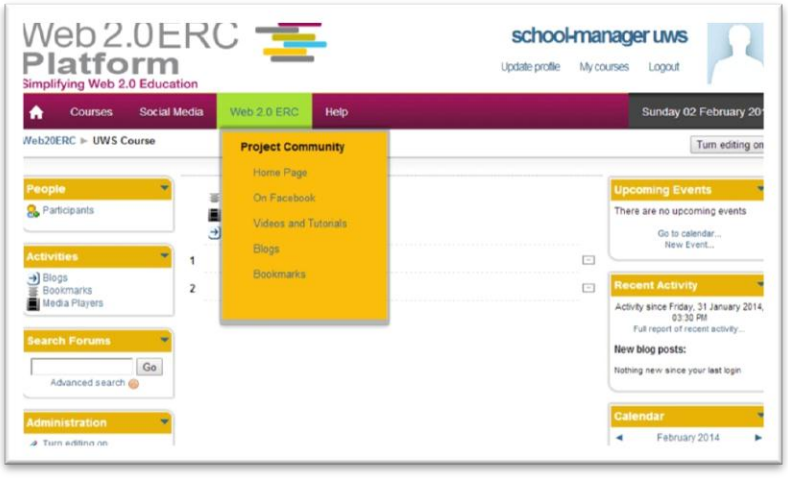
Multilateral Project

Coordinator	University of the West of Scotland, Glasgow, United Kingdom
Partner Countries	Austria, Bulgaria, Germany, Greece, Poland, Turkey
Duration	01/01/2010 - 31/12/2011
Finances	Project budget: 559.686 € - Grant awarded: 419.762 €
Level of education addressed	School education, higher education, adult education

Description: Web2ERC provides educators with a simple and secure environment for experimenting with ICT in their classrooms. Based on empirical research on the educational effectiveness of Web2.0, the development of an open source Web2.0 educational platform, and the execution of a number of pilots and case studies, the project enhances the pedagogical strategies of teachers in the use of ICT and increases the digital competency of both educators and students. The project covers different cognitive areas particularly languages, sciences, social science, technology, business, media and art. It has reached over 650 teachers, almost 1000 learners, and 45 institutions.

Impact: Web2ERC has delivered an innovative open source educational platform appropriate for participative usage. By using a broad multi-channel dissemination approach, the project has facilitated a strong community involvement of teachers and students, establishing a large community of practice. 93% of users of the open source Web2.0 platform believe that it has been useful to support the learning process, 85% state that it has supported dialogue and networking, and 89% rate the look and feel of the platform as appealing.

http://www.web20erc.eu



Web 2.0
European Resource Centre
Simplifying Web 2.0 Education

1.4 VIDUCATE - Digital video as a support for Lifelong Learning

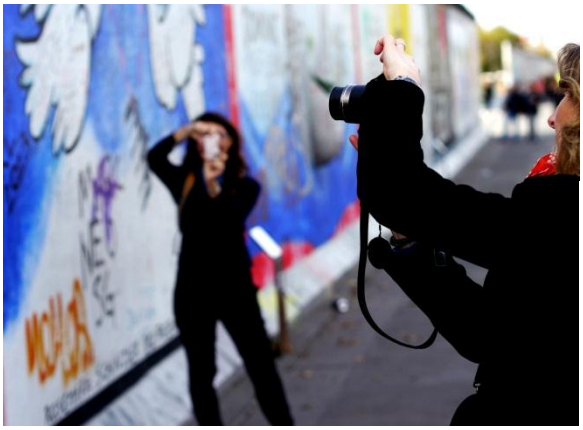
Multilateral Network

Coordinator	Kulturring in Berlin e.V., Berlin, Germany
Partner Countries	Austria, Cyprus, Germany, Lithuania, Spain, Sweden, United Kingdom
Duration	01/01/2009 - 31/12/2011
Finances	Project budget: 528.758 € - Grant awarded: 395.245 €
Level of education addressed	School education, higher education, vocational training, adult education

Description: Viducate is a European network that enhances the use of video in formal and informal education to develop creativity and active citizenship in intercultural contexts. The network has been set up with senior experts from media education, open media activists, teacher trainers, staff from media centres, web and video professionals, as well as ministries of education from seven European partner countries. It supports media literacy in the digital environment through reading, participatory activities and best practice video examples. Key activities include: Continual European teacher training courses; the yearly "European Forum for Video Education" in major European cities; the transfer of key ideas on video education to new European multilateral projects and global projects in the area of language learning and vocational training; the production of a growing repository of printed and online materials including books, hand-outs and videos; and online spaces to connect.

Impact: Viducate is a cross curricular project linking creativity, active citizenship and intercultural communication. It is an open and sustainable network for video education and benefits from a growing interest in a creative and critical use of video within cross-curriculum education. Video production as a strategy for media literacy is used to globally address multimedia reality, and helps integrate video and audiovisual language within the world of computer and information technology. The network remains active and is open to stakeholders to join and support the innovative ideas to help develop formal and informal education further. The website serves as a project material repository and the online spaces support networking.

http://www.viducate.net/



VIDUCATE.NET

1.5 EXPLOAR - Inspiring Science Learning in Science Museums and Science Centres

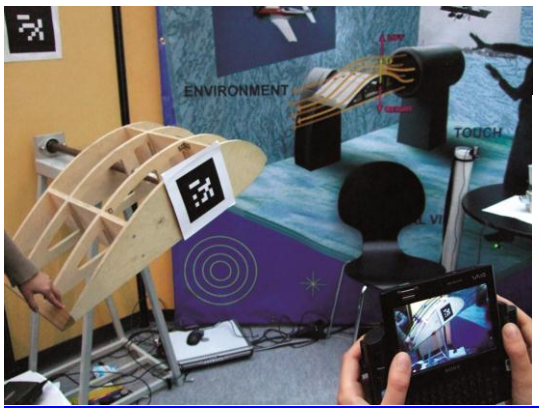
Multilateral Project

Coordinator	ICCS - Institute of Communications and Computer Systems, Athens, Greece
Partner Countries	Belgium, Finland, Germany, Greece, Luxembourg
Duration	01/11/2007 – 31/10/2009
Finances	Project budget: 665.000 € - Grant awarded: 498.750 €
Level of education addressed	School education, higher education, vocational training, adult education

Description: EXPLOAR uses innovative and technologically advanced tools to enable real or remote visitors of science museums and science centres to enter into an interactive experience. Users include the general public, as well as focus groups of teachers and students. The traditional museum visit becomes an interactive experience by means of Augmented Reality (AR) to implement the museums' educational goals, in an informal but constructive manner and to create a new learning culture for science museums and centres. The project has reached a large target audience through real visits and remote ones by using the web or satellite connections. A follow-up project has been carried out under the name "Science Center To Go" (SCeTGo).

Impact: The EXPLOAR project has achieved a broad insight into the true added value of AR technology in science education with respect to formal (e.g. as part of school lessons) as well as informal (e.g. during a museum visit) learning settings. It successfully implements and validates remote satellite visits to science centres especially from isolated and rural areas. Through a well-designed plan of mixed implementation/validation and dissemination activities in many European countries (Greece, Finland, France, Spain, Italy, Hungary), more than 700 people of different ages, cultural and educational backgrounds have used and evaluated the EXPLOAR system, while thousands of others have watched live demonstrations of its operation in science conferences, workshops, exhibitions and info days. The developed scenarios represent a significant and solid basis for the future applicability of the system. EXPLOAR offers an innovative and revolutionary approach to science learning, further exploited with the creation of the SCeTGo project.

http://www.ea.gr/ep/exploar/



2. OPEN EDUCATIONAL RESOURCES

According to the widely-used UNESCO definition, Open Educational Resources (OER) are "teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution".[5] Although there are no limitations to the type of medium used to produce and circulate OER, they are often associated with digital technology, since that enhances by definition their main characteristics of openness, flexibility, re-mixing, and (re-)distribution.

ICT-based OER have the potential to innovate teaching and learning enhancing accessibility, personalisation and customisation. In the long term, they can contribute to making educational systems more effective and of higher quality, which in turn can positively influence EU competitiveness and growth.

However, new opportunities bring new challenges.

In order to enhance the potential of OER, digital technology needs to be fully and better integrated in European educational systems. This implies the existence of a strong and efficient infrastructure, the training of teachers, a change in pedagogical strategies, and policy reforms. Moreover, despite a rapid quantitative increase in recent years, most OER have only been produced in English and for higher education, creating a new divide affecting the supply chain towards other educational sectors and diverse target groups. Mainstreaming OER also involves clear and transparent copyright policies, as well as the development of coherent institutional OER practices that support the creation, delivery, and use of such resources. Similarly, OER calls for an assessment and revision of educational business models.

The Commission has launched a single gateway for OER produced in Europe, the Open Education Europa Portal, which offers a database of resources, supplies relevant information, and serves as a hub for exchange of practices and research findings.[6] The Portal is part of the larger initiative 'Opening up Education' which has set "a European agenda for stimulating high-quality, innovative ways of learning and teaching using technology and digital content".[7]

Within the LLP a number of projects deal with OER, such as POERUP (http://www.poerup.info/), which assesses worldwide OER policy-uptake, or HOME, which brings together European institutions active in the field of MOOCs[8]. The two LLP-projects described here, OPAL and OpenEd 2.0, address different aspects of OER: the former focuses on creating a framework for OER that can lead institutions to adopt Open Educational Practices, while the latter looks at alternative models for participatory learning and teaching.

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5. http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/
6. The portal was launched in September 2013 as part of the 'Opening-Up Education' initiative of the EC.Its forerunner was the elearningeuropa.info portal, active since 2002. For more information: http://openeducationeuropa.eu/en
7. See: http://ec.europa.eu/education/news/doc/openingcom_en.pdf
8. MOOC stands for Massive Open Online Course

2.1 openEd 2.0 – Designing for participatory learning in open educational environments

Multilateral Project

Coordinator	Sociedade Portuguesa de Inovação, Porto, Portugal
Partner Countries	Austria, Greece, Switzerland (associated partner), United Kingdom
Duration	01/11/2009 – 31/07/2012
Finances	Project budget: 473.834€ - Grant awarded: 355.375 €
Level of education addressed	Higher education, vocational training, adult education

Description: OpenEd contributes to open and inclusive education through the use of Web2.0 by developing a participatory educational framework for students and teachers in the academic community, autodidactic learners outside of formal education, and business managers. The methodology increases the speed of innovation in education, ensures continuous provision of up-to-date and relevant learning materials, and promotes participatory learning, including active learning, creative problem solving, learning-by-doing, critical thinking and creativity. The project has developed several experimental approaches for participatory learning and teaching within open educational environments, as well as a sustainability framework, revenue models, and a comprehensive dissemination plan.

Impact: The project brings stakeholders together and promotes participatory learning. It has developed useful insights in the area investigated, and the outcomes contain a large amount of information of value to the community. The most visible and easily accessible outcome is the openEd Platform, which also serves to sustain the project. The openEd platform includes a course with 10 modules focused on business and management competence in a Web 2.0 world including tools for collaboration; search engines for information in business and management; and project management. All the dissemination tools and outcomes are available online, reaching those who are not otherwise able to attend formal education.

http://www.open-ed.eu

openED

Designing for participatory learning in open educational environments

2.2 OPAL - Open Educational Quality Initiative

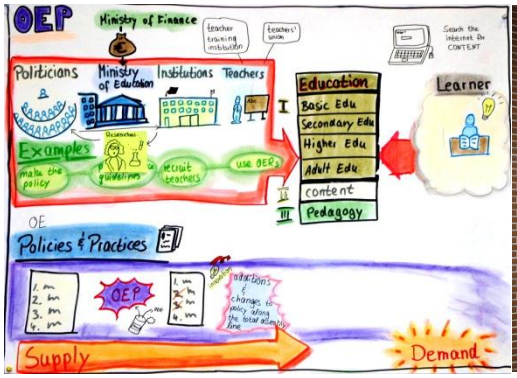
Multilateral Project

Coordinator	University of Duisburg-Essen, Information Systems for Production and Operations Management, Essen, Germany
Partner Countries	Belgium, Finland, France, Norway, Portugal, United Kingdom
Duration	01/01/2010 - 31/12/2011
Finances	Project budget: 640.952 € - Grant awarded: 480.714 €
Level of education addressed	Higher education, adult education

Description: OPAL focuses on the creation of innovative Open Educational Practices (OEP) for Open Educational Resources (OER). The project addresses the whole OER governance community: policymakers, organisational managers and administrators, and educational professionals and learners. OEP promote innovative pedagogical practices and models, including learners' empowerment as co-producers on their lifelong learning path. The project links quality approaches and methods to OEP, providing validated European Guidelines for Quality and Innovation through OEP in Higher Education and Adult Education. OPAL has developed the European Consultative Group for Quality and Innovation through OEP, the EU Open Educational Quality Clearinghouse linking peer-reviewed OER and OEP, and a European Award for Innovation and Quality through OER in Higher Education and Adult Education.

Impact: The OPAL Clearinghouse creates a space for target groups to communicate existing initiatives, form a multi-stakeholder validation environment, and liaise with existing international networks such as ICORE. It also serves as a register for organisations that wish to join the European Charter for Quality and Innovation through OEP. Through its partnership with UNESCO and ICDE, OPAL connects European organisations to the international debate, and makes the EU a lighthouse region for OEP in the world.

http://www.oer-quality.org



OPAL
OPEN EDUCATIONAL QUALITY INITIATIVE

3. DIGITAL COMPETENCE

There is a pressing need to understand and foster new skills required to make education and training better suited to the needs of the knowledge society, to better equip citizens with core competence and, as such, to put in place a 21st century lifelong learning and skills policy. Many of these skills are transversal – cutting across different subjects – and ICT can help developing these skills.

Fostering these competences and these skills requires novel learning and teaching approaches and strategies based on active learning such as collaborative learning, peer learning in communities, creative problem-solving, discovery, learning by doing, experiential learning, critical thinking and creativity.

Digital competence is one of the core skills for life and employability. Digital competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society[9]. DC is a transversal key competence which, as such, enables acquiring other key areas of competence (e.g. language, maths, learning to learn, creativity). It is amongst the so-called 21st Century skills which should be acquired by all citizens, to ensure their active socio-economic participation in society and the economy.

When it comes to education, the issue is no longer *if* technology should be used, but rather *how*, *where* and *for what* activity. Accordingly, our attention must turn to the pedagogical support, the learning opportunities and the assessment approaches that will encourage the acquisition of digital competence and other key skills.

There is an urgent need to better understand and support the acquisition of digital competence through informal and non-formal learning, linking these to the formal education opportunities within a LLL context (curricula, learning outcomes), as a contribution towards a lifelong learning and skills policy.

Under Erasmus+, The European Commission is developing an EU digital competence reference framework[10] enabling learners to assess their use of ICT and digital content for learning purposes. The framework consists of 21 areas of competence according to the 8 European Qualifications Framework levels in order to describe how digitally competent a person is. A self-assessment tool will be embedded in EUROPASS and will become part of a European Self-Assessment for Citizens tool.

Within the LLP-KA3 action, the following projects address the learning and teaching of digital competence in formal, informal and non-formal learning settings.

9. 2006 European Recommendation on Key Competences (Official Journal L 394 of 30.12.2006)
10. http://is.jrc.ec.europa.eu/pages/EAP/DIGCOMP.html Initial work done by DG JRC–IPTS on behalf of DG EAC.

3.1 PROACTIVE: Fostering Teachers' Creativity through Game-Based Learning'

Multilateral Project

Coordinator	Universitat de Barcelona, Spain
Partner Countries	Italy, Romania, Spain, United Kingdom
Duration	01/01/2010 – 31/12/2011
Finances	Project budget: 609.241 € - Grant awarded: 456.930 €
Level of education addressed	School education, higher education, vocational training

Description: ProActive promotes an innovative pedagogical approach where practitioners at various educational levels (i.e. schools, universities and vocational training) become engaged in creative teaching practices by designing their own Game-Based Learning (GBL) scenarios using digital tools. Within 13 co-design workshops, 80 teachers and trainers have used two game editors for designing their learning games taking into account the different teaching parameters and learning contexts. The GBL scenarios were tested in real settings with students involved in hands on sessions. In total, 60 GBL scenarios were created by the users. They are related to a wide range of learning subjects (e.g. History, Physics, Computer Sciences, Language Learning) and address different educational levels (primary-secondary education, universities and professional training). Through innovative ICT tools, the project stimulates novel learning and teaching strategies embedding active learning approaches, such as creative problem solving, discovery, learning by doing, experiential learning, and critical thinking, with teachers co-designing 2D or 3D learning games.

Impact: ProActive has produced several valuable outcomes available on the project website: a psycho-pedagogical framework for fostering teachers'creativity; a collection of templates and libraries (including a a collection of graphical 2D and 3D elements that were integrated in the game editors); a Handbook for Production of Creative GBL Scenarios; the Guidelines for creative GBL practices; the online repository of GBL scenarios containing 60 GBL scenarios, and a community of teachers and trainers interested in GBL in four EU countries (Italy, Romania, Spain and UK). The project approach was validated through a rigorous evaluation methodology involving a wide range of data collection tools used with 80 teachers, 367 students, and 20 experts.

http://www.proactive-project.eu

ProActive
Fostering Teachers' Creativity through Game-Based Learning

3.2 T3 - 'Teaching to Teach with Technology'

Multilateral Project

Coordinator	Istituto di Scienze e Tecnologie della Cognizione – CNR, Rome, Italy
Partner Countries	Italy, Spain, United Kingdom
Duration	01/12/2009 – 30/11/2011
Finances	Project budget: 666.402 € - Grant awarded: 499.799 €
Level of Education addressed	School education, higher education, vocational training

Description: The T3 project develops and validates an innovative teaching program to introduce university teaching staff, secondary school teachers and professional trainers to innovative technologies (e.g. "serious games", simulation, commercial video games, virtual environments, web 2.0 technologies), and encourage them to experiment with the technologies in the classroom. Key features of the program include: (i) theoretical classes discussing the features and advantages of the new technologies; (ii) practical workshops, in which learners simulate learning sessions and familiarize with technologies (iii) project work, in which learners prepare learning projects for use in their own classes, implement the project, and evaluate the results; (iv) joint assessment of the results by participants in the program. The program has been validated in a 9 month trial. In this way, T3 has contributed to support the development of innovative ICT-based content, services, pedagogies and practices for Lifelong Learning as well as encourage the best use of results, innovative products and processes.

Impact: T3 has provided participants with the conceptual background they need to use technology effectively, while putting emphasis on hands on learning. The theoretical framework, created on purpose by the T3 consortium, drove people in discovering technologies from a pedagogical point of view and not viceversa and helped trainers and teachers to "re-invent" their curricula with the use of technology, creating new way of proposing them and interacting with students / trainees. The results of this experimentation have been incorporated into a book ("Teaching with Technology"), and an accompanying CD/DVD targeting other potential users of new educational technology. The book describes practical applications of the new technology, free software, and a web site providing access to required technologies and technical support and a set of paper and electronic learning materials. An extensive dissemination campaign has been carried out during and after the project's lifetime.

http://www.t3.unina.it/

TEACHING TEACH TECHNOLOGY

3.3 DigEm - Digital Empowerment

Multilateral Project

Coordinator	"ΔΗΜΗΤΡΑ" Κέντρο Ενημέρωσης και Επιμόρφωσης Α.Ε., Larissa, Greece
Partner Countries	Cyprus, Czech Republic, Greece, Lithuania, Poland, Spain, United Kingdom
Duration	01/11/2009 - 30/04/2012
Finances	Project budget: 489.004 € - Grant awarded: 366.702 €
Level of education addressed	Vocational training, adult education

Description: DigEm is an innovative digital empowering project that uses a creative methodology for teaching ICT skills. It addresses learners unfamiliar with new technologies, in particular those with no/few formal qualifications, socially excluded groups, senior learners, and minority ethnic groups to motivate them to increase their employability. The project fosters creativity and communication skills through narration, photography, music and video editing to develop basic ICT skills, learning to learn, as well as social and civic competences. It places the learner at the centre of the teaching method, and draws upon personal experiences to engage them. The project has developed a methodology guide and trainers' toolkit for digital storytelling, and has created an e-learning platform to facilitate trainers and end users to showcase their products, as well as create social networks and learning communities.

Impact: The project runs training seminars for trainers coming from NGOs directly linked to the target groups from the seven partner countries, thus reaching a wide number of end users. The e-learning platform of the project facilitates communication between people from other countries that share the same interests. The Methodology Guide and the Trainers' Toolkit provide an overview of the methodology and the ingredients required to create successful digital storytelling projects. The former sets the general framework for the trainers on how to use the contents and tools. The latter provides a collection of tools and approaches (following the concept of one-stop shops) that each trainer and organisation can adapt and use according to the learners' needs and the training aims. All products are creative and multilingual, available in six languages (English, Greek, Spanish, Czech, Lithuanian and Polish) and may be downloaded from the DigEm website.

http://www.digem.eu/

DIGITAL EMPOWERMENT

4. STEM EDUCATION

STEM stands for science, technology, engineering and mathematics, and is considered a priority area for education. As highlighted in the communication Re-thinking Education, "The demand for a qualified workforce in technology and research intensive sectors is and will remain at a high level, with an impact on the demand for science, technology, engineering and mathematics related skills"[11]. Effort must be made in the direction of making these subjects more attractive, especially for women, for example by mapping the career pathways followed by graduates in these subjects.

Science and mathematics, together with literacy and numeracy, are also considered basic skills, "key foundations for further learning… and a gateway to employment and social inclusion". The Education and Training 2020 benchmark on basic skills states that by 2020, the share of 15 year-olds with low achievement in reading, mathematics and science should be lower than 15%.[12] The latest PISA tests results in 2012[13] show that the EU average for pupils failing to reach the minimum levels was 17,8% for reading, 22,1% for mathematics, and 16.6 % for science. Low achievement in these disciplines does not only affect pupils in schools; the proportion of the adult population with low achievement levels in basic skills reaches 19.9% in reading and 23.6% in numeracy.[14]

Digital technologies reshape the way STEM and skills in general are conceived both in terms of learning and teaching. They offer new possibilities to reach students in attractive, relevant, and pedagogically innovative ways. Projects under the LLP-KA3 action have particularly contributed to this area.

The LA@CERN project, for example, has sought to strengthen partnerships between science centres and education: they use the ATLAS experiments carried out at CERN (http://home.web.cern.ch/) for an inquiry-based approach to science teaching. SCeTGo links science centres and school curricula, specifically through the implementation of Augmented Reality technology.

Motivation is key to increasing the number of students in STEM subjects. One way to tackle this is to look at the way teaching is done. The MALog project focusses on mathematical learning resources which are made available through an online learning environment. NTSE is directed towards nanotechnology and implements a virtual lab platform on which teachers and students alike can get engaged.

11. Rethinking Education: Investing in skills for better socio-economic outcomes /* COM/2012/0669 final */, p4
12. http://ec.europa.eu/education/policy/school/math_en.htm
13. http://www.oecd.org/pisa/keyfindings/pisa-2012-results.htm
14. Education and Training Monitor 2013, p. 62-63

4.1 NTSE - NanoTech Science Education

Multilateral Project

Coordinator	Ozel Doga Egitim Kurumlari Tarim ve Hayvancilik Isletmeleri Sanayi ve Ticaret A.S., Turkey
Partner Countries	Bulgaria, Greece, Italy, Romania
Duration	01/01/2011 - 31/12/2013
Finances	Project budget: 518.517 € - Grant awarded: 388.883 €
Level of education addressed	School education, higher education, vocational training

Description: NTSE uses ICT to make learning science more attractive and accessible, and to raise interest in science and nanotechnologies. The target groups are secondary school students, teachers, and prospective teachers in science subjects. The project has developed an appealing multilingual Virtual Laboratory that serves as a platform for science lessons, a database of teaching materials, and a hub for science learning-related experiments on Nanotech. The virtual lab comprises an Experiments' room, a Podcasting room, a repository, a blog and a glossary. The new model integrates knowledge about nanotech into the mainstream science curriculum by updating learners/teachers' knowledge on nanotechnologies and inspiring students to take part in science projects. The Virtual Lab has led to the development of nano kits (including innovative products and materials for nine experiments on nanotechnology) and webinars (providing basic information on how to effectively use the virtual lab in the classroom).

Impact: The developed Virtual Laboratory on nanotechnology for students, teachers and prospective teachers serves as a platform for sharing ideas, lesson plans and information. NTSE has produced several outcomes: the Virtual Laboratory, the Nanotech Guidelines for teachers on the Virtual Lab, the Nanotech Annual reports on the project, the Nano Science Camp for teachers and students, and the Nanotechnology Competition for students. The "Nanotech Annual" records, highlights and illustrates the main results of the project, including relevant facts, statistics and graphics and is widely circulated on a yearly basis.

http://www.ntse-nanotech.eu

4.2 MALog – Mathematical and Applied Logic

Multilateral Project

Coordinator	Pirkanmaan Ammattikorkeakoulu Oy, Tampere, Finland
Partner Countries	Finland, Romania, United Kingdom
Duration	01/12/2009 – 30/11/2012
Finances	Project budget: 468.282 € - Grant awarded: 351.211 €
Level of education addressed	Higher education, vocational training, adult education

Description: The goal of MALog is to increase mathematical skills by improving the quality of mathematical educational resources available to secondary school pupils, university students and professionals. Based on an analysis of mathematical logic education in schools, universities and the workplace in Europe, the project has developed a series of learning resources with multiple functionalities and a broad range of applications for many educational environments. The materials converge into ontology of mathematical logic that serves as the semantic foundation for acquiring mathematical skills.

Impact The partners have identified opportunities to extend and enhance learning materials by compiling experiments in an online learning environment. The information gathered by the project ensures that the materials are appropriate and at a suitable level of difficulty for students. Users are able to refer back to the materials as they move from schools and universities into the workplace. All products are delivered for public access and are freely available.

www.malog.org

MALog
Mathematical and Applied Logic

4.3 SCeTGo - Science Center To Go

Multilateral Project

Coordinator	Tiedekeskussäätiö, Vantaa, Finland
Partner Countries	Finland, Germany, Greece, Romania, Spain, Sweden, United Kingdom
Duration	01/01/2010 - 31/12/2011
Finances	Project budget: 666.660 € - Grant awarded: 499.995 €
Level of education addressed	School education, higher education, adult education

Description: SceTGo developed an innovative learning system using the principle of making the invisible observable by Augmented Reality (AR) technology to improve science education. The system, brought from science centres to schools, can be implemented in a variety of learning environments by science teachers to facilitate lifelong learning for students. It merges hands-on miniature exhibits with advanced AR technology to demonstrate new ways of interacting with science. The learning activities are based on inquiry and problem-based approaches, increasing scientific literacy and critical thinking skills for learners. The project has polled feedback from science teachers, as key players in the use and acceptance of new educational technologies.

Impact: SceTGo innovatively relates AR technology to applied science education. The selected learning scenarios have been used by hundreds of teachers, students, and science centre educators. The project's challenging small-scale exhibits enable teachers and students to experience hands-on science by actively manipulating the experiments, thus delivering natural ways of dynamic playful learning. As outlined in several surveys and evaluation reports, the project has identified key elements within the curricula in different countries in order to teach about the scientific research process using learning to make observations. The results of the project indicate and encourage further development of Augmented Reality educational solutions, made possible through strong dissemination and validation activities.

http://www.sctg.eu

Science Center To Go

4.4 LA@CERN - Learning with ATLAS@CERN

Multilateral Project

Coordinator	National and Kapodistrian University of Athens, Greece
Partner Countries	Austria, Finland, France, Germany, Greece, Sweden, Switzerland, United Kingdom
Duration	01/12/2008 - 30/11/2010
Finances	Project budget: 603.533 € - Grant awarded: 452.641 €
Level of education addressed	School education, higher education, adult education

Description: Focussing on the ATLAS experiments at CERN, the LA@CERN project offers an inquiry-based approach to science teaching, both in real and virtual settings. The results contribute to increasing the interest in the subject of big science for school pupils, higher education students and the general public visiting science centres. The Educational and Outreach online portal offers a pedagogical framework to create an effective dialogue between scientific and educational research and user communities. The scheme also offers tailor-made courses, advanced and interactive visualisation technologies, personalised learning paradigms, resources for teachers, and materials and activities for students. In addition, the LA@CERN Guide of Good Practice emphasises a new way of learning about science, based on inquiry as a way of acquiring knowledge and understanding.

Impact: LA@CERN proposes guidelines and recommendations on effective collaboration between researchers and the educational sector (formal and informal) to create valuable and meaningful learning experiences for all, fostering exploration, discovery, curiosity and collaboration. The project's main outcome is the Educational and Outreach portal, containing some four hundred educational lesson plans using the inquiry model of learning. These scenarios have been designed based on the users' requirements and classified by age group, language, difficulty etc. for easy navigation. The portal also contains a mobile phone application (moCERN) as well as a toolbox, containing the main interactive tools for the analysis of the data collected by the ATLAS experiment. The users can analyse real events from the highest energy collisions in the world and search for the building blocks of matter.

http://www.learningwithatlas.eu/

5. COMMUNITY OF PRACTICE

Communities of Practice play a key role in engaging stakeholders in a process of connected and collaborative learning. They facilitate the creation of partnerships, where members can engage in joint activities and discussions, share information, knowledge, resources, ideas, experiences and tools. ICTs have extended the reach of Communities of Practices by providing innovative solutions and services, and most of all, overcoming geographical barriers, thus connecting people from different countries, contexts and perspectives. Connections and relationships across different countries, sectors and organisations help creating synergies; they stimulate collaboration and critical reflection, and they help establishing a common ground between stakeholders to find shared solutions. By promoting engagement, joint ownership and mutual benefit, working in collaboration can lead to long-term, positive and sustainable change.

Communities of practitioners at EU level have proven to be solid solutions for exchanging good practices and for peer support, as shown by the significant engagement of teachers in the e-Twinning platform[15], with more than 200.000 registered users and over 5000 projects between two or more schools across Europe. The recent launch of the Open Education Europa portal[16,] which sustains the European Commission's initiative 'Opening up Education', gathers practitioners and stakeholders in the field of innovating learning through ICT and Open Educational Resources, and provides an optimum environment for exchange of knowledge, know-how and resources at European level. Other successful examples of Communities of Practice are SCIENTIX[17], the community for science education in Europe, and Open Discovery Space[18] focusing on the use of Open Educational Resources (OER).

In order to ensure that large communities of practice benefit from professional development through online resources and peer learning, the European Commission will continue supporting the existing networks and will create new ones such as the future EPALE (Electronic Platform for Adult Learning in Europe), offering virtual collaboration spaces, databases of opportunities, thematic Communities of Practice and other online services for teachers, trainers and practitioners in the field of adult education. Moreover, programmes such as Horizon 2020 and Erasmus+[19] will further contribute to fostering trans-national cooperation and exchange of good practices.

Within the LLP-KA3 action, several Communities of Practice have been set up with the aim of connecting stakeholders and exchanging ideas and experience on ICT as applied to education, addressing common challenges and finding shared solutions.

15. http://www.etwinning.net/
16. http://openeducationeuropa.eu/
17. http://www.scientix.eu
18. www.opendiscoveryspace.eu
19. More information about Erasmus+ is available at http://ec.europa.eu/programmes/erasmus-plus/index_en.htm

5.1 eLene2learn - exploring and promoting the contribution of ICT and digital media to the development of learning to learn competencies in lifelong learning transitions

Multilateral Project

Coordinator	Politecnico di Milano, Italy
Partner Countries	Finland, France, Germany, Greece, Poland, Spain, United Kingdom
Duration	01/12/2011 – 30/11/2014
Finances	Project budget: 593.446 € - Grant awarded: 444.787 €
Level of education addressed	Higher education, school education

Description: eLene2learn is a multi-stakeholder network, established to explore and promote the contribution of ICT and digital media in supporting the development of learning to learn competencies in lifelong learning transitions. The project focuses on secondary school leavers who are about to start higher education, students in first year of higher education and adults returning to higher education after a period of work, as well as the teachers and tutors who support them during such a transition. Through focus group activities and research, a "how To" guide identifies existing practises, tools and methodologies. Members of the network have implemented a variety of different approaches in case studies, and the results of the studies are available in a public report. An evaluation of all the implementations made inside and outside the project is being carried out through a European survey and interviews.

Impact: The network identifies, collects and shares good practices in the use of ICT and digital media to support the development of learning to learn competencies. The activities and outputs help to establish what kind of approaches and tools could be used in secondary education (SE) and higher education (HE) to ensure their value for lifelong learning transitions. The project's implementation report contains all data from the training actions, information exchange events, webinars and the Synergy Workshop. It also incorporates the case-studies, which include the views of the students, pupils and teachers. The individual cases can be explored and accessed online by keyword search and the use of a tag cloud. The "How To" guide and other resources are also publicly accessible online. A "lessons learnt" report will summarise all the findings and outcomes of the project gathering input and evidences from the European survey and the interviews.

http://www.elene2learn.eu/

5.2 ELFE2 - European eLearning Forum for Education 2

Multilateral Project

Coordinator	ETUCE-CSEE FOUNDATION, Brussels, Belgium
Partner Countries	Denmark, Latvia, Poland, Slovenia, United Kingdom
Duration	01/01/2008 – 31/12/2009
Finances	Project budget: 358.961 € - Grant awarded: 267.426 €
Level of education addressed	Higher education, school education

Description: ELFE2 investigates the strengths and weaknesses of using ICT in education from a pedagogical standpoint. Building on the findings of the 2003 project ELFE1, ELFE2 looks at ICT as a catalyst for educational innovation and change in both primary and secondary education as well as in teacher training. The advisory group has carried out study visits to two secondary schools and one teacher training institution for each participating country and analysed the organisational and pedagogical use of ICT, with a view to identifying the prerequisites to gain added value through the use of ICT in education. Two regional seminars and a Final Conference have been organised to present and discuss methodologies on the use of ICT. Based on its findings, a number of policy recommendations have been produced on ICT in teacher education, ICT and strategic use of available financial means, the promotion of the pedagogical use of ICT in schools, and the teaching of 21st century skills.

Impact: ELFE 2 identifies the methodologies used in schools and teacher education institutions to optimise the benefits of ICT in education. The project has transposed its research findings into clear policy recommendations on how to implement ICT in schools and higher (teacher) education institutions to make an impact on policy making. These recommendations are addressed to the European Commission, national and local policy-makers, teacher unions, teacher education institutions, school leaders and teachers. The follow-up project, ELFE-ESL, builds on this research to help reduce early school leavers in upper secondary schools in Europe and support students at risk of exclusion from formal education through the pedagogical use of ICT, ICT-based tools and innovative teaching.

http://www.elfe-eu.net/

5.3 COMBLE - Community of integrated Blended Learning in Europe

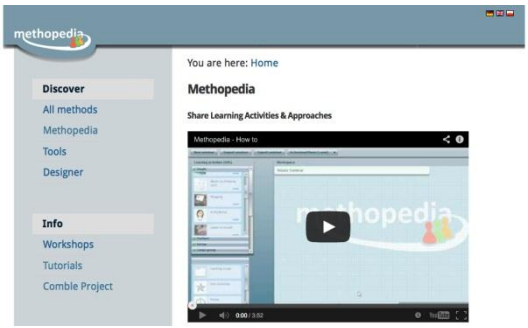
Multilateral Project

Coordinator	Technische Fachhochschule Wildau, Wildau, Germany
Partner Countries	Denmark, Estonia, Poland
Duration	01/01/2008 – 31/12/2009
Finances	Project budget: 393.053 € - Grant awarded: 294.590 €
Level of education addressed	Higher education, vocational training

Description: COMBLE seeks to improve the quality of Blended Learning (BL) in higher, further and business education. It provides learning managers, educators and learners with training and consultancy on blended learning solutions. The outcomes of the project have a holistic approach that integrates the institutional, instructional and learner levels: 1) Methopedia supports pedagogical innovations for developing active learning designs by combining learning technologies and collaborative activities; 2) The Reference Model of Blended Learning Readiness supports the strategic planning of Blended Learning scenarios at institutional level; 3) finally, the European Blended Learning Drivers Licence is a modular online course providing knowledge of blended learning tools, methods, and ICT skills to educators, trainers and learners for interactive and collaborative blended learning.

Impact: COMBLE contributes to a growing body of knowledge about pitfalls and solutions for blended learning challenges in different contexts. The project has developed practical and situated Blended Learning solutions for a broad target group. Methopedia offers more than 100 different active learning designs and an interactive seminar planner to implement suitable methodologies and learning cultures in institutions. The material has been developed in English, German and Polish. All products are available on the website for use and adaptation under the creative commons licence agreement.

www.comble-project.eu



comble

6. SOCIAL INCLUSION

Social inclusion is a core value of the European Union and a key priority of the Europe 2020 strategy. As stated by the President of the European Commission, José Manuel Barroso: "In a changing world, we want the EU to become a smart, sustainable and inclusive economy. These three mutually reinforcing priorities should help the EU and the Member States deliver high levels of employment, productivity and social cohesion."[20]

The reasons that lead to social exclusion are diverse and at times combined, calling for articulated, flexible and tailored solutions, approaches and strategies. Socio-economic background, disabilities, level of education, age, digital access, geographical barriers, or ethnic and migrant background, are some of the most common reasons that lead to exclusion.

Education is in many cases part of the solution. However, in order to enhance its potential education systems around Europe need to be inclusive and equitable. ICT can contribute by, inter alia, bringing personalised learning paths, enhancing accessibility, and adapting education to specific needs. At the same time however, an increasingly ICT-based society, with more and more services delivered exclusively over the web, can lead to new forms of exclusion, grounded in various types of digital divide. Access to infrastructure and equipment, active use of ICT, increased confidence among users by transforming them into co-creators, and tailored hard and software solutions are all fundamental steps for ensuring that ICT plays an enabling role, rather than creating a barrier.

The projects selected for this chapter showcase how ICT in education can concretely contribute to tackling social exclusion. The project REVIT looks at geographical inclusion and the feasibility of ICT-based distance education. Links-up is directed towards a wide range of disadvantaged groups and takes stock of relevant Web2.0-technology. W2ID specifically addresses intellectually disabled people and their employability, active citizenship and community participation. eScouts focuses on intergenerational learning by linking the digital competence of senior adults with life and job guidance for youth. Finally, BiBiKit provides multi-lingual and multi-modal educational resources for Sign Language Users.

20. http://ec.europa.eu/europe2020/index_en.htm. See also the Commission's Communication on Europe 2020: COM(2010) 2020 (http://ec.europa.eu/research/era/docs/en/ec-understanding-era-13.pdf)

6.1 BiBiKit: A Bilingual and Bimodal Reading and Writing Tool for Sign Language Users

Multilateral Project

Coordinator	Pragma – Equal Access, Netherlands
Partner Countries	Germany, Iceland, Italy, Norway, United Kingdom
Duration	01/01/2011 – 30/06/2013
Finances	Project budget: 561.682 € - Grant awarded: 408.590 €
Level of education addressed	School education, higher education, adult education, vocational training

Description: BiBiKit has developed a web-based service for the production of multi-lingual and multi-modal educational resources and personal projects using interactive slides with text, pictures and video. The tool is accessible to parents and teachers of deaf children; deaf children themselves; sign language teachers, users, and interpreters; as well as sign language poets and authors. The software enables its users to write and read bilingual bimodal texts and produce 'linked' presentations: text and pictures linked to sign language video. It has provided 175 free user accounts for BiBiKit Online and initiated a total of 550 test-projects, including 90 presentations published in the online BiBiKit Catalogue.

Impact: The project represents a strong contribution to the use of ICT for the inclusion of learners with special needs in Europe and elsewhere. The BiBiKit tool allows its users to convert linear videos into professional looking and easy-to-use interactive presentations. It is also flexible, as teachers can add their own pictures, texts, videos and personal touch to the slides. As BiBiKit is an open and online system, users can collaborate on presentations and share content and formats. The open approach ensures that all deaf sign language users, their educators, their families and social networks can benefit from the enhanced communication that can be achieved by integrating sign languages with other European languages in a constructive way.

www.bibikit.eu

6.2 W2ID - Web 2.0 for People with Intellectual Disabilities

Multilateral Project

Coordinator	The Rix Centre, University of East London, United Kingdom
Partner Countries	Austria, Belgium, Finland, Latvia, Portugal
Duration	01/01/2011 – 31/12/2012
Finances	Project budget: 481.568 € - Grant awarded: 361.176 €
Level of education addressed	School education, adult education

Description: The W2ID project contributes to improving employability, active citizenship and community participation of intellectually disabled people in Europe through the use of ICT. Following a major review of the preferred activities of the target group, the project has launched a fully participatory Web.2.0 peer-learning system called "Klikin" that features an easy-build website software as well as learning and support resources. Over 370 young learners and adults with intellectual disabilities in 5 European countries have piloted the system, producing more than 140 "wiki websites" of multimedia content about themselves, their jobs and activities. The system inspires the target group to use the Web in creative, safe and social ways, and celebrates the lives of Europeans with intellectual disabilities. A "European Support Hub" has also been developed to help with the recruitment and dissemination process.

Impact: This project contributes to the quest for an inclusive Web for all citizens in Europe. The innovative teaching and learning methods that have been applied have resulted in the development of a rich and complex Klikin package. The key result of the W2ID project has been the benefit reported by the 370 learners that used Klikin to tell their stories, share their lives and wishes, and showcase their skills and abilities in over 4,000 pages of multimedia Web content. Teachers and supporters have observed that the project improved participants' IT skills (90%), their communication (88%) and their self-confidence (92%). Over 80% of the learners made significant changes to their ability to speak up for themselves and more than 70% became more active citizens as a result of taking part in the project. The project has produced a set of websites with training materials and resources, which are supported by a network to ensure sustainability and further exploitation.

www.klikin.eu/w2id

W2id
Building Knowledge Together

6.3 eScouts – Intergenerational Learning Circle for Community Service

Multilateral Project

Coordinator	Dynamic Organisation Thinking, Barcelona, Spain
Partner Countries	Bulgaria, Germany, Italy, Poland, Spain, United Kingdom
Duration	01/01/2011 – 31/12/2012
Finances	Project budget: 655.252 € - Grant awarded: 491.439 €
Level of education addressed	Adult education, vocational training

Description: eScouts enables an exchange of innovative intergenerational learning experiences between senior adults and youth volunteers, centred on the development of the digital competences of the eldest and on life and job guidance to the youngest. 124 young people have trained 355 seniors in digital competences, and in return a group of trained senior citizens have provided young people with advice on access to the labour market and the challenges of adult life, completing in this way a circle of learning, exchange and conviviality. The Intergenerational Learning in Blended Environments and Spaces for Social Inclusion (ILBES) methodology is used in online community centres, public libraries, and civic centres to provide intergenerational training and learning. The project has participated in many conferences including an EC conference on Active Ageing and Online Educa Berlin. Papers about its methodology have also been published in the peer-review European Journal of Research on Education and Teaching and the proceedings of ECER annual conference and EDEN annual conference.

Impact: eScouts addresses a number of social, civic, employment, and educational interrelated issues. The project demonstrates that the ILBES approach and use of ICT can deliver training, support and facilitation for inter-generational learning, lifelong learning and community empowering. The project involves the entire cycle of intergenerational learning (youth-to-elderly and elderly-to-youth) making active use of ICT both as skill and as medium. Two main outcomes of this project are available for local stakeholder organisations: a handbook for facilitators willing to implement the ILBES methodology, and the eScouts final publication that explains how the methodology has been applied by piloting organisations.

www.escouts.eu

6.4 Links-Up - Learning 2.0 for an Inclusive Knowledge Society – Understanding the Picture

Multilateral Project

Coordinator	Institut für Lern-Innovation (FIM-Neues Lernen), Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany
Partner Countries	Austria, Italy, Netherlands, United Kingdom
Duration	01/11/2009 - 31/10/2011
Finances	Project budget: 492.600 € - Grant awarded: 369.450 €
Level of education addressed	Adult education, vocational training

Description: Links-up analyses how 'Web 2.0' technologies are changing the face of Education and Training (E&T) for disadvantaged people. Based on 24 intensive case studies, the project has established an 'Innovation Laboratory', able to provide policy-makers, practitioners, and researchers with a wide range of resources to support policy-making and practice. Through a series of 'action research' experiments, the project has evaluated the added contribution of Web 2.0 to enable social inclusion for people currently 'Not in Education, Employment, or Training' (NEETs); with low educational attainment and/or behavioural problems; immigrants; senior, socially isolated citizens; hard-to-reach adult learners; and young people with 'Special Educational Needs' (SEN). Evaluation and dissemination activities enable external stakeholders and the public to share their own experiences, comment on the work of Links-up and take part in online discussions.

Impact: Links-up investigates and uses advanced knowledge in the field of inclusion through the use of the latest technology and tools, with a cutting-edge scientific and methodological background. It brings together expertise from different fields and contributes to promoting the discussion in the adequate arenas. The project has learned some key lessons and developed subsequent recommendations: projects that suggest Web 2.0 based collaboration and learning practices often face resistance from organisational cultures. To overcome this resistance, the project coordinators must motivate and drive participation of target groups. The choice and usage of technologies must be reflected for using appropriate methods and tools. It is also important to demonstrate achievement and impact, and to systematically involve relevant third parties and multipliers such as cultural centres, businesses and local media. The results are of high interest for all stakeholders in the field.

www.links-up.eu

6.5 REVIT - Revitalizing Small Remote Schools for Lifelong Distance e-Learning

Multilateral Project

Coordinator	Computer Technology Institute and Press "Diophantus" (CTI), Patras, Greece
Partner Countries	Bulgaria, Cyprus, Finland, Italy, Poland
Duration	01/01/2009 - 31/12/2010
Finances	Project budget: 625.629 € - Grant awarded: 469.221 €
Level of education addressed	School education, adult education

Description: REVIT examines the educational challenges and economic feasibility of remote access to learning opportunities through ICT-based distance education for residents of remote regions in the EU. It addresses the needs of children, adults, teachers, and professionals and exploits the opportunities for complementing mainstream education and receiving further professional training with regular use of ICT. The project uses existing infrastructure in declining schools and transforms them in multi-purpose local learning centres accessible to all. REVIT has developed a series of e-courses using synchronous and asynchronous tools and Web2.0 services, and a Distance Learning framework that serves as a multimodal learning and communication platform, and enables the creation of user generated content which enriches the e-course initial content.

Impact: REVIT shows the potential of current distance learning and Web 2.0 technologies to help revitalise remote schools, offering new possibilities for local communities. The project's main outcome is the Web-based Distance Learning Services Framework: exploiting second generation web developments for e-Learning, supporting synchronous and asynchronous Open and Distance Learning (ODL) modes, including e-Learning 2.0 features and tools, and adhering to a suitable pedagogical approach. The Distance Learning framework enables learners in remote areas to play a proactive role in generating learning opportunities according to their specific needs. Local communities have been mobilised and shown to be positively affected. The REVIT Framework is publicly accessible through the project portal where all project outputs are available, such as course material, tools, studies and methodology reports describing the methodologies developed and the experimental applications in 5 European "remote" application areas (Greece, Finland, Poland, Bulgaria, Cyprus).

http://revit.cti.gr

ASSESSMENT AND QUALIFICATIONS

European co-operation and mobility require academic and professional recognition, achieved through transparent qualification frameworks and quality assurance procedures, recognised and accepted by all partners and stakeholders. In this context, a number of European instruments[21] such as the European Qualifications Framework (EQF), Europass, European credit transfer systems (ECTS and ECVET), the multilingual classification of European Skills/Competences, Qualifications and Occupations (ESCO) and quality assurance frameworks have been implemented in the last decade to support the mobility of learners and workers. These tools are improving transparency, for instance making qualifications comparable across countries (EQF) and credit points transferable (ECTS)[22].

However, despite the remarkable results achieved, qualifications and validation systems do not always keep pace with the evolution of knowledge, skills and competence required in the labour market. Across sectors, transversal skills such as problem-solving and analytical skills, communication and the ability to work in a team, flexibility, linguistic and digital competence have acquired increased value in the labour market. Similarly, the learning taking place outside classrooms, in non-formal and informal settings, has become of great importance to the individual, employers and society at large.

Assessment is one of the most powerful influences on teaching and learning. However, current assessment strategies tend to put too much emphasis on subject knowledge, less on skills and attitudes and neglect altogether the increasingly important cross-curricular competence. Although teaching and learning has evolved in recent decades, the assessment, evaluation and recognition of student outcomes has not[23]. Progress has to be made on assessment approaches to take into account all areas of competence for the 21st century.

Ensuring an overall coherence of tools and policies for the recognition of skills and qualifications, the assessment of competence and further strengthening of the links between education/training, mobility and the labour market are at the top of the European Commission's agenda, as revealed in the recent online public consultation on the "European Area of Skills and Qualifications[24]" and the launch of the Erasmus+ programme. Transparency and recognition of qualifications across borders, validation of non-formal and informal learning will lead to the creation of a European Area of Skills and Qualifications, where a person's knowledge, skills and competence can be clearly understood and quickly recognised.

In this context, the potential of new technologies to help find ways of assessing competence needs to be fully explored. Technology has the power to go beyond the traditional assessment systems, by gathering and processing data focused on the individual

21. For more information please consult http://ec.europa.eu/education/policy/strategic-framework/skills-qualifications_en.htm
22. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Rethinking Education: Investing in skills for better socio-economic outcomes /* COM/2012/0669 final */
23. See Communication Rethinking Education
24. http://ec.europa.eu/dgs/education_culture/more_info/consultations/index_en.htm

assessment of skills, particularly in the areas of problem-solving, critical thinking, collaboration and entrepreneurial initiative. Moreover, they can broaden the scope of assessment, from evaluating only end state knowledge to evaluating learning processes, increasing the evidence-base for recognition of new competence and alignment of skills to employment needs.

Some interesting results in this field have been achieved by several LLP-KA3 projects. The Done-IT project introduces new peer learning assessment solutions through verification or elaborative learning processes using open mobile technologies, providing immediate feedback after tests and/or exams. The OpenInn project produced an online ideation tool and interactive textual and multimedia resources to support open innovation, assessment and creativity. The EUCert project focused more on cross-recognition of qualifications and skills sets, by using an online training campus to enable EU-wide certification of training courses, while the S.T.E.P. project developed a scientific framework for assessing and comparing online European preparatory transitional programmes.

7.1 OpenInn: a knowledge generating house and e-Assessment model

Multilateral Project

Coordinator	Technical University of Kosice, Slovakia
Partner Countries	Bulgaria, Denmark, Germany, Hungary, Italy, Portugal, Spain
Duration	01/11/2010 – 30/04/2013
Finances	Project budget: 639.836 € - Grant awarded: 479.873 €
Level of education addressed	School education, higher education, adult education, vocational training

Description: OpenInn provides a new pedagogical and organisational model to communities and individuals through the use of an online ideation tool. This model enhances learning in formal and informal education, and supports innovative assessment. The project is geared towards students, teachers and managers, and builds on a person's own interests to strengthen their creativity and self-confidence. OpenInn has developed a web 2.0 prototype tool (Knowledge Generating House) and a pedagogical guide (the e-Assessment model) to involve schools in real-life innovation processes for lifelong learning.

Impact: OpenInn offers a new perspective linking education with the corporate world of "open innovation". The project has produced quality textual and multimedia resources that support the independent learner/trainer and enhance open innovation, assessment and creativity. The Knowledge Generating House (KGH) is an online ideation tool based on the principle of crowdsourcing that supports the development of new ideas, whether in an educational or a business context. The tool implements an online "brainstorming", offering the opportunity to comment and vote on the ideas by the community. The challenges can be published as public or private. The KGH software is available in nine languages: Bulgarian, Danish, English, German, Hungarian, Italian, Portuguese, Slovak and Spanish. The approach is to be integrated into the partners' own educational interventions.

http://openinn.eu/

7.2 Done-IT – Develop open operative system services for Smartphones that facilitate new evaluation methods, and enhance the use of immediate feedback on evaluation results obtained in tests as a creative learning tool

Multilateral Project

Coordinator	Sør-Trøndelag University College "HiST", Trondheim, Norway
Partner Countries	Hungary, Romania, Slovenia, Sweden
Duration	01/01/2011 – 31/03/2013
Finances	Project budget: 686.653 € - Grant awarded: 498.995 €
Level of education addressed	School education, higher education, adult education, vocational training

Description: Done-IT introduces a peer learning assessment solution (PeLe) to reduce the time between examination and feedback. The project offers teachers a tool for handheld devices to provide verification or elaborative feedback to students or trainees immediately after a test or exam. By speeding up the process, students are prompted to learn from their mistakes more effectively and improve their skills through active communication and interaction. Teachers can also better identify issues experienced during the test or exam, and focus their teaching resources on these problems. Through 68 online videos, software tools, assessment methodologies, guided manuals, videos and tutorials, Done-IT illustrates the application of the PeLe method and online services, and how the two may be merged into a new evaluation method. PeLe is used in many countries including Romania, Russia, Norway, Sweden, Poland, and Greece.

Impact: Done-IT's open mobile technology-based evaluation service helps improve certification processes, due to the automatic mark-up system. The outputs are applicable across European sectors for training and certification of training skills, and are relevant to all enterprises as a sustainable m-learning provision. HiST has continued to develop the tools, services and systems by releasing the online portal one2act.no for effective usage of immediate feedback in learning and training settings for higher education, high schools and secondary education. The one2act portal is multilingual and contains three tools: a Student Response System (SRS) to enhance communication and interaction in class; a Peer Learning Assessment System (PeLe) to turn assignments and exams into a creative learning process; and "Eval", a tool for teachers and instructors to run quick evaluation surveys. The online portal is designed to handle thousands of end-users and allow teachers and instructors to set up their own mobile service tools automatically, and start using them immediately.

http://histproject.no/node/167

ONE2ACT

7.3 S.T.E.P. - Studies on Transitional Electronic Programmes

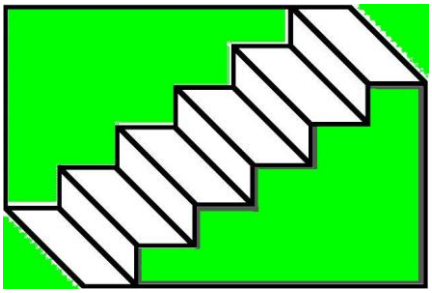
Multilateral Project

Coordinator	Universiteit Maastricht, Maastricht, Netherlands
Partner Countries	Belgium, Lithuania, Netherlands, Poland
Duration	01/01/2008 - 31/12/2009
Finances	Project budget: 383.941 € - Grant awarded: 287.955 €
Level of education addressed	Higher education, vocational training

Description: S.T.E.P. develops a scientific framework for assessing and comparing online European preparatory transitional programmes. These courses are offered by higher education institutes to learners in transition between educational systems and curricula. The project studies both the short and long-term learning effects of these programmes and assesses the impact of ICT on learning. By collecting data and experiences from previous and running projects, it has developed a comparative database, the European Framework of Transitional Preparatory Courses (EFTPC), to make the research results accessible and identifiable. Teachers, practitioners and policy makers across Europe can search for effective courses within a certain discipline, tool or pedagogy in order to start implementing their own remedial education programme.

Impact: S.T.E.P. focuses on the added value of using ICT in the transition from one educational programme to another. This project has established a useful and accessible database of online descriptions to help design, develop and implement effective preparatory programmes to tackle transitional problems along the route of the lifelong learning process. The project has disseminated its results at both national and international level through presentations, publications, interviews and additional activities, reaching an estimated 10.000 people. The framework and final report comparing 118 course descriptions in 22 countries of preparatory transitional programmes are published in Interactive Learning Environments

http://www.transitionalstep.eu/



7.4 EUCert - European Certificates Innovative Online Training Campus

Multilateral Project

Coordinator	IMC University of Applied Sciences, Krem, Austria
Partner Countries	Austria, Bulgaria, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Romania, Slovenia, Spain
Duration	01/01/2008 – 31/12/2009
Finances	Project budget: 665.203 € - Grant awarded: 498.902 €
Level of education addressed	School education, higher education

Description: EUCert supports skills assessment, online training, certification and a trainer pool through the development of an online training campus. The project's online learning system has been set up for training institutions in 14 European countries, as part of the European Certification and Qualification Association (ECQA: a set of quality criteria and certification rules for the IT and services sector created by the 2005 Leonardo-supported network EQN). It enables the certification of training courses for specific professions, and involves users of all levels. The project has integrated results from Educational Participation through ICT (EPI, a selective online learning platform system funded from 2003-2005) using the ECQA quality criteria.

Impact: EUCert promotes European cooperation and an open European market by fostering the integration of modern professions through an EU-wide certification model for users. The project has developed standardised courses and updated online training for 4 additional professions, as well as increased its trainer base to 142 trainers Europe wide. The various outcomes are available to the public, making the results of this project sustainable. ECQA continues to develop and currently holds 68 members (worldwide and from 24 different European countries). The knowledge gained and the setup of ECQA can be transferred from Europe to the world, and there are agreements to create an alliance with Japan, China and Europe, helping European citizens and companies to start up in Japan and China, as well as to help China and Japan to gain partnerships in Europe.

www.eu-certificates.org

USEFUL LINKS

Websites / Portals

- **DG EAC – Directorate General for Education and Culture**
  http://ec.europa.eu/dgs/education_culture/index_en.htm

- **EACEA – Education, Audiovisual and Culture Executive Agency**
  http://eacea.ec.europa.eu/index_en.php

- **Erasmus+, 2014-2020**
  http://ec.europa.eu/programmes/erasmus-plus/index_en.htm

- **Lifelong Learning Programme – Information and Communication Technologies – ICT (KA3)**
  http://eacea.ec.europa.eu/llp/ka3/information_communication_technologies_en.php

- **Open Education Europa Portal**
  http://openeducationeuropa.eu

Publications

- **Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training (ET 2020)**
  http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52009XG0528(01)

- **Study on Indicators on ICT in Primary and Secondary Education, 2009**
  http://eacea.ec.europa.eu/llp/studies/documents/study_on_indicators_on_ict_education/final_report_eacea_2007_17.pdf

- **EUROPE 2020 - A strategy for smart, sustainable and inclusive growth, 2010**
  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52010DC2020

- **ICT and digital media for key competences: EU Projects at Work, 2010**
  http://eacea.ec.europa.eu/llp/results_projects/documents/publi/eden_brochure_2010.pdf

- **ICT for seniors' and intergenerational learning: Projects funded through the Lifelong Learning Programme from 2008 to 2011**
  http://eacea.ec.europa.eu/llp/results_projects/documents/publi/ict_intergenerational_learning.pdf

- **Key Data on Learning and Innovation through ICT at School in Europe 2011**
  http://eacea.ec.europa.eu/education/eurydice/documents/key_data_series/129EN.pdf

- **Mathematics Education in Europe: Common Challenges and National Policies, 2011**
  http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/132EN.pdf

- **Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions:**

Mid-term review of the Lifelong Learning Programme, 2011
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0413:FIN:EN:PDF

- **Science Education in Europe: National Policies, Practices and Research, 2011**
  http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/133EN.pdf

- **Education and Training Monitor, 2012**
  http://ec.europa.eu/education/library/publications/monitor12_en.pdf

- **Education and Training Monitor, 2013**
  http://ec.europa.eu/education/library/publications/monitor13_en.pdf

- **Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources, 2013**
  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52013DC0654

- **Education and Training in Europe 2020. Responses from the EU Member States, 2013**
  http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/163EN.pdf

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Education, Audiovisual & Culture Executive Agency
LLP: KA3 ICT for Learning

Write to us:
Avenue du Bourget, 1 (BOU2 02/168)
1049 Brussels
Belgium

Visit us:
Rue Colonel Bourg, 115
1140 Brussels
Belgium

Website:
http://eacea.ec.europa.eu

e-mail:
EACEA-ICT-LLP@ec.europa.eu

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