



543177-LLP-1-2013-1-ES-KA3-KA3MP:

Do It Yourself in Education: Expanding digital competence to foster student agency and collaborative learning

Exploring Creativity and ICT Across Educational Systems: Creativity and Maker Spaces Creativity in Teacher Education

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SITE, Savannah, March 21-25, 2016

**CREATION/
CREATIVE PRODUCTION
AS A COGNITIVE PROCESS**

Jan Slavík et al. (2013)

DIY in Action

- Transitions in society and a swift evolution in digital technologies (DT) are reflected in school education, and how the educational system adopts it.
- **Young people frequently publish their digital outcomes and artefacts on social networks, and visualize their ideas, procedures, and thinking through photos, videos, and animations.**
- These activities are not integrated into school assessment, and their teachers very often do not understand these learning processes. But these creative activities give evidence about learning processes and progress. This corresponds to **the concept of DIY (Do-It-Yourself)**.

*Not only for fun,
but also for learning.*

DIY in Action

LEARNING OF YOUNG PEOPLE WITH TECHNOLOGY and DIY

- In 90th, the idea of DIY penetrated into Fine Art, Arts and Crafts and into digital technology, it starts to dominate in a curriculum content , it gives educators and learners an opportunity **to create, share and learn through collaboration (in virtual space)**.
- **“Online adolescent youth have a good time and enjoy new opportunities to create, to remix and share digital contents”.**

(Lenhart, Madden, 2005, s. 1)

*Not only for fun,
but also for learning.*

DIY in Action

LEARNING OF YOUNG PEOPLE WITH TECHNOLOGY and DIY

Students' initiative of creativity (Czech Republic)

ROBOTICS:

- Ondřej Staněk

SCRATCH: Activities for pupils and teachers how to learn SCRATCH

(national songs, [storytelling](#)), [Literacy from Scratch](#)

- Hana Šaldová (ICT student teacher)

Textbook of Mathematics for his schoolmates

([Matika pro spolužáky](#), [Online problems to be solved](#))

- Marek Liška, Marek Fanderlich (age 18)

This textbook differs from whatever similar on the Czech book market. It is not scholarly textbook full of mathematical definitions, axioms or proofs. The textbook struggles in a natural student vocabulary to explain some mathematical phenomena or situations

And to show a meaning and importance of Math for life.

Mgr. Leoš Bílek, učitel G

543177-LLP-1-2013-1-ES-KA3-KA3MP:

Do It Yourself in Education: Expanding digital competence to foster student agency and collaborative learning

- The significant aspect of DIY is a **process of creation** (or **production**) which is appropriate, and obvious, and natural for students in their usage of digital technology, and which *aims to support their learning* broadly (Jocson, 2012, p. 299).
- In DIY activities in schools, pupils can apply knowledge and skills from **different subjects**, discover **inter-disciplinary** contexts (Sancho-Gil, J. M. et al., 2015) and organize their work, and **manage their own learning**.

DIYLab in Practice

543177-LLP-1-2013-1-ES-KA3-KA3MP:

Do It Yourself in Education: Expanding digital competence to foster student agency and collaborative learning

- The idea DIYLab has been implemented in school education (with pupils aged in 6-16) and in teacher education.
- EU project Do It Yourself in Education: Expanding digital competence to foster student agency and collaborative learning (2014-16)

<http://diylab.eu/>

<http://hub.diylab.eu>

- Spain, Finland, the Czech Republic
- DIY based on the idea “*Building new tools and paths to help all of us learn*” (Kamenetz et al., 2011)
- The DIY idea forms an integral part of:
 - ICT teacher education at Faculty of Education (Charles University)
 - Pedagogy at Faculty of Arts, Faculty of Pedagogy (Universitat de Barcelona)
- 217 DIYLab objects publishes on the HUB

DIYLab in Practice

Main aim:

- To contribute to *digital literacy development*
- To implement DIY philosophy into (school) teaching practice and learning
(to interconnect *after-school creativity with curriculum, to bring students ideas to school*)
- To establish and develop **DIYLAB** (hub) to support network collaboration based on a cloud technology (at schools and out of school) on experiments with various types of technology

The most important outcomes is not an artefact as such but visualisation and description of a process how the artefact was produced, how the problem was solved, how we learned to do it.

DIYLab in Practice

THROUGH
DT

PROCESS
DESCRIPTION,
„MANUAL“
HOW TO DO IT

ACTER-
SCHOOL
ACTIVITIES

IDEAS

PROBLEMS

WHAT I LIKE
TO DO

SCHOOL:

- COLLABORATION
- CURRICULUM
- INTERDISCIPLINAR
RELATIONS
- STUDENTS DISCOVER
HOW TO SOLVE
PROBLEMS

INTERESTS,
CURIOSITY

IDEAS

PROBLEMS

WHAT I
ENJOY DOING

PROCESS
HOW I LEARN TO DO IT

TASK 1: TO RESEARCH WHAT STUDENTS LIKE TO DO (OUT OF SCHOOL)?

METHODS: focus groups with pupils, parents, teachers, student teachers

RESULTS:

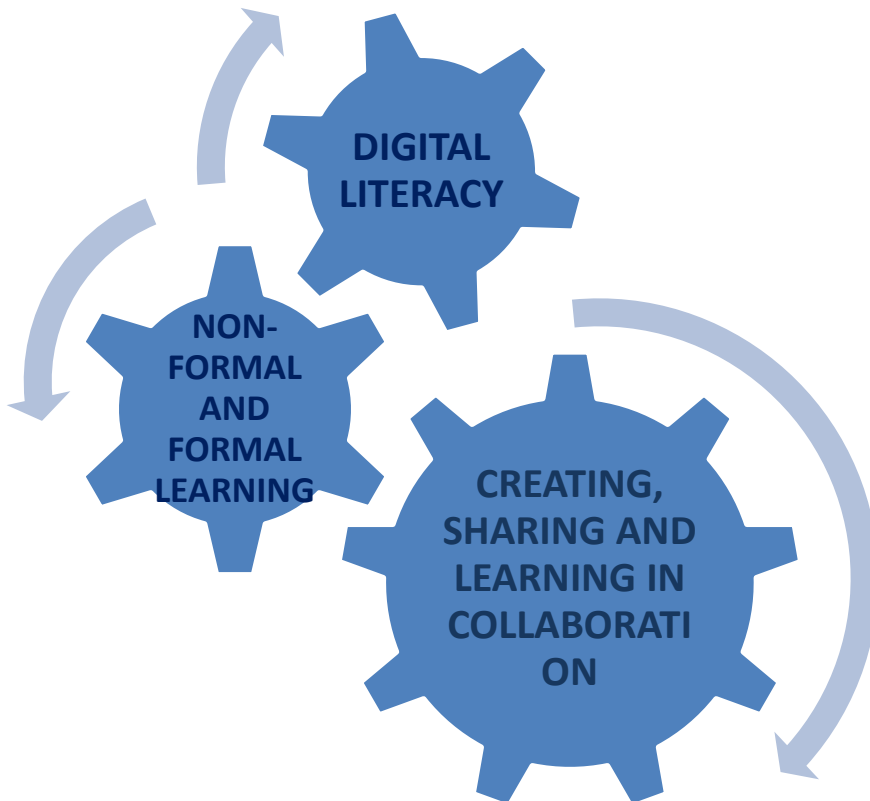
- *Ideas for activities to be implemented to school education*
- *Young people – digital natives (teachers not yet)*
- *Connectivity, life style, DT as a commonplace part of life and learning*
- *A virtual environment offers a space for unlimited differences and ways how to differ from others.*
- *ICT student teachers focus primarily on technology, how technology works, what technology allow and permit, not on content, on details, on design a new product, ...*

DIYLab in Practice

TASK 2: TO DESIGN DIYLAB ACTIVITIES

6 requirements:

- (1) Cooperation and collaboration of all who is involved into DIY activity (including teachers)
- (2) Inquiry Based Learning
- (3) Cross-curricular dimensions
- (4) Digital Literacy improvement
- (5) Curriculum
- (6) Autonomous/ Self-regulated learning



DIYLab in Practice with Student Teachers

TASK 3: TO IMPLEMENT DIYLAB ACTIVITIES

DIY activity	Departments
How I am becoming a teacher	IT + Art
Collection of examples of problems which human cannot solve without using computer (tomography , ...)	IT
Bird house	Biology + IT
Little Dances in Scratch	IT
Animated stories	IT
Digital objects for IWB	IT
Tablets in classroom teaching	IT
Wiki of teaching activities	IT
Digital teaching objects	IT
Robot project	IT

DIYLab in Practice with Student Teachers

HOW I AM BECOMING A TEACHER

Aim:

To understand factors and effects which contribute and participate in a process of how I am becoming a teacher (city, people, environment, ...)

Target group:

Teacher students of Primary Education (Year 4)
ICT Student teachers (MA, 1 Year)

Problem:

To create animation based on a set of photos which show a process of my changes how I am becoming a teacher.

Procedure:

2 Weeks collect photos (about 100 photos)
4 weeks of photo analysis; mindmaps; tags; main ideas; storytelling; scenarios; auto-reflection
1 week – learning to use SW for animation
2 weeks – animation development
1 week – English subtitles, music

Typology of outcome:

Animation (GIF Animator, WeVideo) + self-reflection



DIYLab in Practice with Student Teachers

COLLECTION OF EXAMPLES WHICH HUMAN CANNOT SOLVE WITHOUT COMPUTERS

Aim:

To understand importance of computer technology for life, practice, science, art etc. and progress in society development

Target group:

ICT students (MA, 1Year)

Problem:

To elaborate an example of problems which human cannot solve without using computer.

Procedure:

To find an example and describe it, explain it.

DIYLab in Practice with Student Teachers

COLLECTION OF EXAMPLES
WHICH HUMAN CANNOT SOLVE WITHOUT COMPUTERS

Branch/ Field/ Domain	Specialization/Example
CS and Telecommunication	GPS Internet Video-conferencing
Transport	GPS
Physics	Astronomy Meteorology Distributed calculations/computing Simulations
Medicine	Robotics in surgery Tomography Sequestrotomy for DNA Hearing defect Cybernetic Leksell gamma knife
Technology	Technology Motion Capture
Manufacture	Bar code



DIYLab in Practice with Student Teachers

ANIMATED STORIES

- Milan Žemlička: [O chytrém Jeníkovi](#)
- Miloslav Khas: [Story about a little car](#)

WELCOME ON

<http://diylab.eu/>

<http://hub.diylab.eu/>

RESOURCES

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