



# DIYLAB

## D9.9 Final management report



DIYLab — Do It Yourself in Education: Expanding Digital Competence To Foster Student Agency And Collaborative Learning.

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# 1. Introduction

This document summarizes the work carried out during the project DIYLab — Do It Yourself in Education: Expanding Digital Competence To Foster Student Agency And Collaborative Learning, which run from January 2014 to December 2016, and was funded by the Lifelong Learning Programme of the European Commission. To get more information about the project, and download all the public deliverables, please visit <http://diylab.eu>.

DIYLabs main aim was to promote lifelong and life-wide learning by expanding students' digital competence, agency, and creativity, by putting into practice DIY philosophies. Also, to foster primary, secondary and higher education student engagement by proposing collaborative, meaningful and authentic learning experiences that can be sustainable and expandable after the end of the project. The project was structured into ten work packages, spanning three years. In the following pages we will give a high level overview of the activities carried out in each one of these work packages.

## 2. Foundations (first year of the project)

Two work packages were scheduled for the first year of the project. WP1, titled "Building DIYLab from participants' experience and expertise". The main aim of WP1 was to identify what participant institutions recognize as best practices in developing key competences, and especially digital competence, taking into account the purposeful learning experiences the educational institutions implement to foster lifelong and life-wide learning skills. We used complementary methods to collect data, with the purpose of fostering the process of reflection-action-reflection, while developing a culture of collaboration, discussion and purposeful inquiry. The methodology developed during WP1 represents the initial step in this cycle, while WP2 was the action, and WP5 the reflection.

WP1 included three main activities: curriculum analysis, focus groups, and meta-analysis and recommendations. A review of national curricula and local syllabi was carried out in each of the countries and the participating institutions, to learn about the context in which the project had to be carried out, and to foresee any challenges that could arise during the second year of the project, when the implementation was scheduled to take place. In order to get first-hand information from the stakeholders in each institution, focus groups with teachers (40 total), parents (33 total) and students (69 total) were carried out in each context and country. The contents of these focus groups can be found in deliverable 1.6, "Report on Digital Competence in Schools: Spain, Finland and the Czech Republic." The main conclusion of WP1 was that the biggest challenge we faced was the task of imagining the new, of trying to develop a model that responds to the needs of each context yet manages to provide a comprehensive and innovative structure. Therefore, the upcoming formation phase would struggle against the tradition of our educational culture, that tends to tell teachers what they must do and how they must do it. We challenged ourselves and all project participants to

develop a professional atmosphere of learning and cooperation that assists the development of proposals in which the three principles of the DIY philosophy are integrated: creating, sharing and learning in collaboration. We took comfort in the observation that the project had been well received by participating schools and focus group members, instilling the consortium with the sense that the project responded to what the school community wants.

WP2, titled “Formation in support of DIY Education and design of the DIY Lab”, took place during the second part of the first year, and included all the training activities necessary for the implementation of the DIYLab philosophy in schools and at the university the second year. Each country and setting organized the training activities independently, with two main objectives: to define what the do-it-yourself philosophy mean in practical terms, and to plan how to implement this philosophy in each school or university. Technological tools to implement the DIY philosophy and to develop the digital competence in the classrooms were also shared and discussed, along with the challenges and necessary changes to the curriculum that needed to be implemented in order for the project to be successful. All the results of WP2 can be found in deliverable 2.6, “Developing a DIY Lab in Primary, Secondary and Higher Education”, and in all the other country specific deliverables for this work package.

The first year of the project also involved the development of the DIYLab Hub, which had to be ready by the start of 2015 to support the implementation of the project in the schools and universities. WordPress was the chosen platform to support the functionality necessary for the DIYLab Hub (<http://hub.diylib.eu>), and a free theme was chosen (Baskerville) to minimize the costs of development.

Finally, in the first year of the project the project’s website was developed and made public (<http://diylib.eu>), and we started the search for the experts that would be part of the external quality assurance effort, included in WP10.

### **3. Bringing the DIYLab philosophy to schools and universities (second year of the project)**

The second year of the project included what we would call the heart of the project, which is WP4, titled “DIY Labs in Action at School and Higher Education”. During this work package, we implemented the DIYLab philosophy in three primary and secondary schools and two universities, in the three countries represented in the consortium (Spain, Czech Republic and Finland). The following two tables summarize the number of people involved in the implementation in both schools and universities. Please note that these are the results at the end of WP4, and that the implementation has continued beyond the project, so we now have more digital objects in the Hub than those in these tables.

Primary and secondary school	No. of pupils	No. of teachers	No. of subjects	No. of activities	No. of digital objects published on the Hub
Spain	95	15	9	2	32
Finland	114	14	18	9	56
Czech Republic	269	7	13	20	20
<b>Total</b>	<b>478</b>	<b>36</b>	<b>40</b>	<b>31</b>	<b>108</b>

*Table 1. DIYLab activities in schools.*

University	Faculty	Field of study	No. of students	No. of teachers	No. of courses or activities	No. of digital objects
UB (Spain)	Education	Pedagogy	228	11	5	51
		Social Education	79	4	3	3
		Early childhood and Primary Education	12	2	1	4
	Fine Arts	Fine Arts	152	3	2	18
CUNI (Czech Republic)	Education	ICT Education	196	6	13	24
		Biology Education	23	1	3	3
		Fine Arts	23	1	1	6
<b>Total</b>		<b>7</b>	<b>713</b>	<b>28</b>	<b>28</b>	<b>109</b>

*Table 2. DIYLab activities in universities.*

The details of how the project was implemented in each setting can be found in deliverable

4.6, "General Report: The DIY Labs in Action", which includes an accurate description of the methodology used in each case.

The whole process of implementation of DIYLab was influenced by both the preparation phase of DIYLab activities in WP2 and implementing the activities into lectures. It was essential that teachers understood the DIY philosophy and how to incorporate it into their daily work, so we could ensure the sustainability of the innovation beyond the three years of the project. In this regard, it raises the issue of fixed time slots: even if they were designed to facilitate the implementation of these types of proposals, it would still be necessary to develop a new long-term organizational plan, certainly more interdisciplinary in nature, to enable the curriculum to carry out complex projects such as DIYLab. The implementation of DIYLab in education introduced teachers to new ideas and new ways of teaching, and offered learners new ways to learn and understand what they learn. It was a great opportunity for teachers to re-evaluate the existing approaches to teaching and the use of digital technologies to create digital objects, and more importantly, to document the process of learning and the work of students. Thanks to DIYLab activities, students discovered what they are able to do, and that they had the ability to work in teams. They also learned that there is a point in learning new things in a different way from what they experienced so far. Students were more motivated and in general learned to self-regulate themselves and in a more meaningful manner.

WP3 run parallel to WP4, and provided continuous improvement, support and maintenance for the DIYLab Hub. A template was developed that included the main information needed to add digital objects (the results of the implementation) to the Hub. This template included the object (video, image, PDF or any other embeddable digital file), a summary in English (so we could share it with the world), and answers to three questions: what did we do, how did we do it, and why did we do it that way. These three questions were designed to provide an avenue for self-reflection on the process followed by the students themselves, during the implementation of the DIY Lab experience in each school and university. Not all digital objects produced during the implementation were made public, since some of them were deemed not appropriate, on the grounds of quality or inadequacy to the standards upheld by each teacher and subject. All published digital objects can be found in the DIYLab Hub (<http://hub.diylib.eu>).

## **4. Reflecting on the experience and reaching out to the community (third year of the project)**

Although WP4 was scheduled to finish at the end of 2015, the implementation continued for the institutions and subjects that didn't have a natural break point at year's end. Also, some institutions decided to continue with the implementation during 2016, and that provided us with more experiences and new digital objects in the Hub, thus proving the sustainability of the innovation.

After WP4, only two main implementation work packages remained: WP5, “Building on experience: making improvements to the DIY Lab”, and WP6, “Socio-economic evaluation”.

WP5 was designed as an opportunity to reflect on the results of the implementation and to improve our approach to solve, or diminish, the low points detected during WP4. The main activity planned in WP5 was the development of another set of focus groups (like the ones carried out in WP1), to gather direct feedback on the experience by the stakeholders involved in the implementation. 96 students, 42 teachers, and 26 parents or relatives participated in these focus groups. A detailed account of the results of these focus groups can be found in deliverable 5.6, “Final evaluation report: Implementing a DIY Lab in the primary and secondary school and in higher education”. One big outcome was that, despite difficulties, all focus groups had very positive and forward looking attitude towards DIYLab. Much enthusiasm and development oriented attitude can be read from the comments. Deliverable 5.6 also includes an evaluation of the pedagogical, technological and organizational specifications for the implementation of DIY Labs developed prior to the implementation. Even if the initial specifications were developed with the direct input of stakeholders, actual implementation with pupils and students required a good amount of adaptation, localization and understanding about the pedagogical and philosophical basis. Every school, class and teacher did DIYLab in their own way but were still consistent with the DIYLab philosophy.

The last part of WP5 entailed the development of proposals for improvement of the implementation. Again, you can find a detailed account of these proposals in deliverable 5.6. The main pedagogical improvements proposed were:

- To better introduce the students to the DIYLab philosophy.
- To encourage the teachers to set limits to what a DIY project should be, negotiated with students.
- To make sure the training for the teachers allows them to understand their role in the implementation of a DIYLabHub.
- To reduce the number of students in each group and increase the number of teachers, so students can receive more attention by the teachers.
- To encourage students to collaborate with others in different age groups.
- To loosen the connections between the project and the curriculum.

As for the technical implementation:

- To have access to one computer per student.
- To have access to a reasonable Internet connection and good WiFi coverage.

Finally, for the organizational improvements, the results centered around having more teachers per class available, have smaller groups of students, and to increase the time devoted to the project.

WP6, “Socio-economic evaluation”, comprised the last six months of the project, and it was developed as an evaluation of the costs, both social and economical, of implementing DIY Labs in schools. The results of this WP can be found in deliverable 6.1, “Socio-economic evaluation of the DIY Lab”. Assessing the overall socio-economic costs of an innovation like DIYLab is really difficult, since we adapted the implementation of the DIY philosophy to each one of the different contexts (educational level, school, country) we encountered. Nonetheless, the conclusions of this process was that the benefits (the impact of the innovation in the day to day activities of the teachers involved, the willingness of the students to work in a more collaborative and open manner, their increase in agency and enthusiasm) outweigh the costs (organizational changes in the schools, subversion of the curriculum, availability of computers and internet connections).

Parallel to WP6, the last months of the project also saw the implementation of WP8, “Exploitation”. This work package included the development of 8 workshops (primary, secondary and university) to disseminate the results of the project among the teachers outside the consortium, reaching out to other schools and universities. It also included 5 knowledge transfer seminars, to reach out to the wider educational communities in the three countries, and a final international symposium, that took place in Barcelona on November 4<sup>th</sup> 2016. You can find videos of all these activities in our website, and deliverable 8.16, “Impact report”, summarizes their impact. 201 teachers participated on the workshops, and 189 participated on the knowledge transfer seminars. The final symposium, that took place in the Meier Auditorium of the Contemporary Art Museum of Barcelona (MACBA), gathered 113 participants, and included presentations from other projects connected to the DIY philosophy.

## **5. Dissemination, Quality Assurance and Management**

Three work packages run during the whole duration of the project: WP7, “Dissemination”, WP9, “Management”, and WP10, “Quality assurance”.

The dissemination activities started with the development of the project’s website (<http://diylab.eu>), and of the project’s identity (logo, intro video). Our main concern when trying to communicate the activities philosophy and activities of the project was to create a website and identity that was perceived as approachable, and close to primary and secondary education. We tried to avoid presenting the project as an academic endeavor, even though three of the partners were researchers coming from well known universities. Hence, we created a modern, one-page responsive website, that can be browsed with all kinds of devices (smartphones, tables, computers...). This website includes a presentation video, a simple summary of the main beats of the project, the list of participants, all the public deliverables, and a contact form. The website has been always kept up-to-date during the three years of the project. To supplement the website, we created social media accounts (Facebook, Twitter), that were used as a more direct means of disseminating the day to day activities of the consortium. Below you’ll find a table summarizing the impact of each medium.

<b>DIYLab Hub statistics (from November 2015 to January 2017, 15 months)</b>		
Sessions	2,857	avg. per month: 190
Users	1,869	avg. per month: 124
Pageviews	10,594	avg. per month: 706
<b>DIYLab website statistics (from June 2014 to January 2017, 32 months)</b>		
Sessions	7,817	avg. per month: 244
Users	5,655	avg. per month: 176
Pageviews	10,667	avg. per month: 333
<b>Twitter (<a href="https://twitter.com/DIY_Lab">https://twitter.com/DIY_Lab</a>)</b>		
Tweets	11	
Following	5	
Followers	43	
Photos & videos	6	
<b>Facebook (<a href="https://www.facebook.com/diylabcommunity">https://www.facebook.com/diylabcommunity</a>)</b>		
Posts	60	
Likes	115	
Timeline photos	96	

*Table 3. Internet dissemination impact*

At the point of writing this, the project has been presented in 28 occasions in different public events (conferences, seminars...), and 4 articles were published in international journals. Also, a book has been published by Octaedro, titled "La perspectiva DIY en la universidad: ¡hazlo tú mismo y en colaboración!" (<http://bit.ly/2lHT7>). You can find the documents used in the public presentations and more details on the articles and book in the project's website.

The main activities included in WP9, "Management", were the organization of four project meetings (in Barcelona, Oulu, Prague and, finally, Barcelona again), and the organization of monthly video-conferences (Google Hangouts) to keep up with the implementation of the project. The three meetings were carried out as planned, and served as the main points in the project to agree on how to carry out the activities of each year. The video-conferences were also successful in keeping everyone updated on what was happening in each country, and

coordinating the writing of the different reports included in the project. Google Hangouts provided us with a way to get all the partners in a single conversation, and to record all the meetings for further reference.

Finally, WP10, "Quality assurance", provided us with very valuable out of the project assessment of the activities that were carried out. The quality assurance and its conclusions are summarized in deliverable 10.7, and they include the indicators used to assess the project. After having examined and studied all available materials, including those on the DIYLab Hub, the evaluators felt that the work in hand had many positive and innovative features. They concluded that the teams in the three countries had worked hard to create a dynamic learning environment for students in a normally locked, disciplines-centered and controlled context.

## **6. Conclusion**

It has been three years full of challenges and hard work. The project we designed has proven successful, but not without issues that need to be taken into account for the sustainability of the innovation we proposed and implemented. Schools and universities face uncertain times, in an ever changing modern society that asks us for answers to very difficult questions. The DIY philosophy may be a guiding light, but we have to keep in mind that things can't change overnight, and that we are not the only ones proposing changes. We have to strive to work with others in making education, at all levels, better, and more suited to the students of today. May this project be a first step of many.