

# Next-Lab

## Next Generation Stakeholders and Next Level Ecosystem for Collaborative Science Education with Online Labs

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Work package 1 – Outreach and Impact

### **D1.3 Next-Lab Year 1 dissemination and implementation activities**

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## **Executive summary**

The main aim of this deliverable is to provide an overall report of WP1 activities (with background information of WP2). The document will follow the guideline presented in D1.1 towards effective outreach and sustainable impact of the Go-Lab ecosystem within the teachers', Teacher Training Institutes' and policy makers' community.

In Section 2, 3 and 4, we look into the Next-Lab communication strategy and branding and provide information on the new website. Social media and the development of Next-Lab related dissemination material are also presented.

Section 5 focuses on the Next-Lab expertise centres (NECs). It provides a full summary of year 1 dissemination and implementation activities by the projects partners, both European and international.

Section 6 describes the ambassadors' dissemination and training activities during the first year of the Next-lab project.

In Section 7, we look into the Teacher Training Institutes framework, their contribution to the project and the materials and support activities organized aiming for the further involvement and dissemination within national training institutes.

Section 8 analyses the connection of WP1 with policy makers mainly through European Schoolnet's Ministries of Education (MoEs) STEM working group. Information on specific actions, including meeting with MoEs and policymakers targeted conferences, is also provided.

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## 1. Introduction

As described in D1.1, WP1 is meant to build strong relations between Next-Lab and teachers, organizations of teachers and policy makers. This document presents the results of the roadmap for outreach and implementation during the first year of the project (as to 4<sup>th</sup> December 2017). The report provides specific data for the communications functions and informs about the user groups for Next-Lab's affordances and facilities, while collecting requirements and ideas from these groups to enable a smooth expansion of the Go-Lab ecosystem within students, teachers, and organizations. The specific target groups featured in D1.1 were teacher training institutes (Task 1.1), teachers and their organizations (Task 1.2), and policymakers (Task 1.3). The overall impact of Next-Lab through WP1 is also assessed in this document by data analytics on different forms of usage of the Go-Lab ecosystem and social media, while describing in detail the necessary dissemination materials produced and dissemination & implementation activities are carried out.

Finally, as an annex to this report, a per country dissemination and implementation summary of the activities per consortium partner is also included, for those identified as Next-Lab expertise centres (NECs) within the Roadmap for outreach and impact.

## 2. Next-Lab dissemination materials

The Next-Lab project has been using and disseminating through social media, conferences and events, the dissemination materials developed during the first stage of the project and presented in D1.1. The materials are the following:

- Go-Lab Sharing and Authoring Platforms leaflet (see Figure 1), describing the main features of the platform and its advantages for the target group, and providing simple steps to start using the platform. The leaflet provides the link to the platform and lists the funding projects Go-Lab and Next-Lab, providing links to their websites as well.



Figure 1: Go-Lab Sharing and Authoring Platforms leaflet (front side)

- Next-Lab project flyer (see Figure 2), focusing on the Next-Lab project and providing a link to the project website.



Figure 2: Next-Lab project flyer

- Go-Lab initiative poster (see Figure 3), presenting inquiry learning with online labs and providing the link to the Go-Lab Platform (Next-Lab is referenced as funding project).



**Figure 3: Go-Lab initiative poster**

- Go-Lab initiative roll-up (see Figure 4) presenting main resources and activities and providing the link to the Go-Lab Platform (Next-Lab is referenced as funding project).



**Figure 4: Go-Lab initiative roll-up**

These dissemination materials target primarily the school teachers. However, they are also suitable and have been shared with the teacher trainers, policy makers, and other stakeholders. The dissemination materials have been made available to the participants during events in print or in digital form. The materials are also available for download at the project's website download page<sup>1</sup>.

<sup>1</sup> <http://project.golabz.eu/downloads>

During the last quarter of 2017, a new teachers' infographic has been produced within the Teacher Training Institutes framework (both digital and printable format). These materials are presented in further detail in section 7.2 of this document.

## 3. The Go-Lab Ecosystem

### 3.1 Introduction

The Go-Lab Sharing and Authoring Platforms (<http://www.golabz.eu>, <http://graasp.eu>, further in this section: Go-Lab Platform) are the main online channel allowing users to inform about the Go-Lab initiative and the Go-Lab ecosystem and to use its software and services. The Go-Lab Platform unites the Golabz Repository for Online Labs, Learning Apps, and Inquiry Learning Spaces (Sharing Platform) and the Graasp (Authoring Platform). The Next-Lab project website and the Support area providing different kinds of tutorials are integrated into the Golabz Repository. The following sections present the updates for the Next-Lab website as well as the Repository as the main dissemination and communication channels of the project.

### 3.2 Next-Lab website

The Next-Lab project website is a part of the Go-Lab Platform domain, still having its own access link: <http://nextlab.golabz.eu/>. The website presents information about the project and its aims, project consortium, deliverables, and publications. The website provides general information about the project, whereas all information relevant for teachers (such as news, events, contacts, etc.) will be collected in the Support area of the Go-Lab Platform (work in progress). The design of the website follows the design of the Go-Lab Sharing Platform as presented below and can be accessed using the “About” item in the main menu of the Sharing Platform. In order to get back to the Sharing Platform from the website, there is good visible “Go to Golabz” button on the right of most pages.

The screenshot shows the homepage of the Next-Lab project website. At the top, there is a navigation bar with the 'nextlab' logo and links for 'Consortium', 'Deliverables', 'Initiative', and 'News'. Below this is a blue banner with the text 'Next-Lab Project'. The main content area is divided into several sections: a large introductory paragraph, a 'Target groups' section, and a 'Platform and tools' section. On the right side, there is a 'News & Events' sidebar with a list of recent articles and a 'Read more...' link. The footer contains links to 'Project', 'Go-Lab', 'Next-Lab', and 'Legal Notice', along with 'Additional information' links for 'Newsletter', 'Downloads', and 'Contact'. Social media icons for Twitter, YouTube, Facebook, LinkedIn, and Google+ are also present in the footer.

Figure 5: Next-Lab project website: homepage

The current version of the website provides a homepage (including some general information about the project, its target groups and the platforms), a page presenting the project consortium, a page listing the Deliverables (later in the project, public Deliverables will be provided for download), a page presenting the Go-Lab initiative (including related projects), as well as a news blog. Later in the project, some other pages (for example, a page listing the project publications) will be added. Furthermore, it is planned to improve the navigation between the Sharing Platform and the website.

The news blog is used to publish project announcements, such as announcements of the Call for Teachers, Call for Ambassadors, Summer School, etc., and currently counts six articles. Most of the online dissemination takes place in the social media channels of the project; however, the blog articles are often linked in the social media posts in order to provide more detailed information. As the news blog targets teachers (whereas the website is thought mostly for political stakeholders, researchers, and other interested parties), it is planned to move the news blog to the Support area for teachers, after its design and implementation have been finished.

### **3.3 Golabz**

The Go-Lab Sharing Platform has been migrated to a new technology (Drupal 8), where a new user interface design and an improved navigation have been implemented. The migration of the main functionalities and interfaces has been completed and the system has been launched on October 20<sup>th</sup>, 2017, whereas the improvement of some functionalities based on the users' feedback and bug fixing are still in progress. The following list provides a brief overview of the implemented enhancements and changes compared to the previous version of the Sharing Platform, which are relevant for dissemination, communication, and user support <sup>2</sup>:

- **UI Design.** A new appealing user interface design has been implemented, bringing the look & feel of the Sharing and Authoring platforms closer to each other. This design is also used for the social media channels and print materials in order to increase the recognition of the Go-Lab brand.
- **Navigation.** Using the main menu on the top of the page, it is now possible to easily navigate between all main areas of the Go-Lab Platform (including the Sharing and Authoring Platforms, the Support area, and the Next-Lab website). Furthermore, the overall content search and content sharing workflows have been improved in order to increase the usability of the Platform.
- **Newsletter.** The Newsletter button now leads to the Go-Lab Community registration form in Graasp (so there is no separated newsletter subscription form anymore). This has been done in order to have only one registration/subscription form, where the users give their consent to be contacted by Next-Lab, and only one user database. (The users visiting the website of the Go-Lab project and those attending the Go-Lab MOOC are also redirected to the Graasp Community, if they wish to sign up to the newsletter).
- **Support.** The implementation of the Support area is in progress. It will be enhanced to provide all information teachers might be interested in one place: Call for Expert

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<sup>2</sup> This list concentrates on the features relevant for dissemination, communication, and user support. A full list of technical enhancements is provided in the Deliverable D4.2 "Releases of branded Sharing and Tutoring Platforms" (M12)

Teachers, contact information of the National Expertise Centres and Go-Lab ambassadors in the pilot countries, information about teacher training events, support materials in various formats (text tutorials, demo videos, tips & tricks with screenshots, online course, etc.), news blog, and others.

- **About.** The About menu of the Sharing Platform leads to the “Initiative” page of the Next-Lab project website, where the Go-Lab Initiative (including related projects) is presented. On the other pages of the website, the users can find information about the Next-Lab project and the consortium (as described in the [Section 3.2](#)).

Figure 6 presents the new design of the Go-Lab Sharing Platform, following the defined branding and communication strategy of Next-Lab.

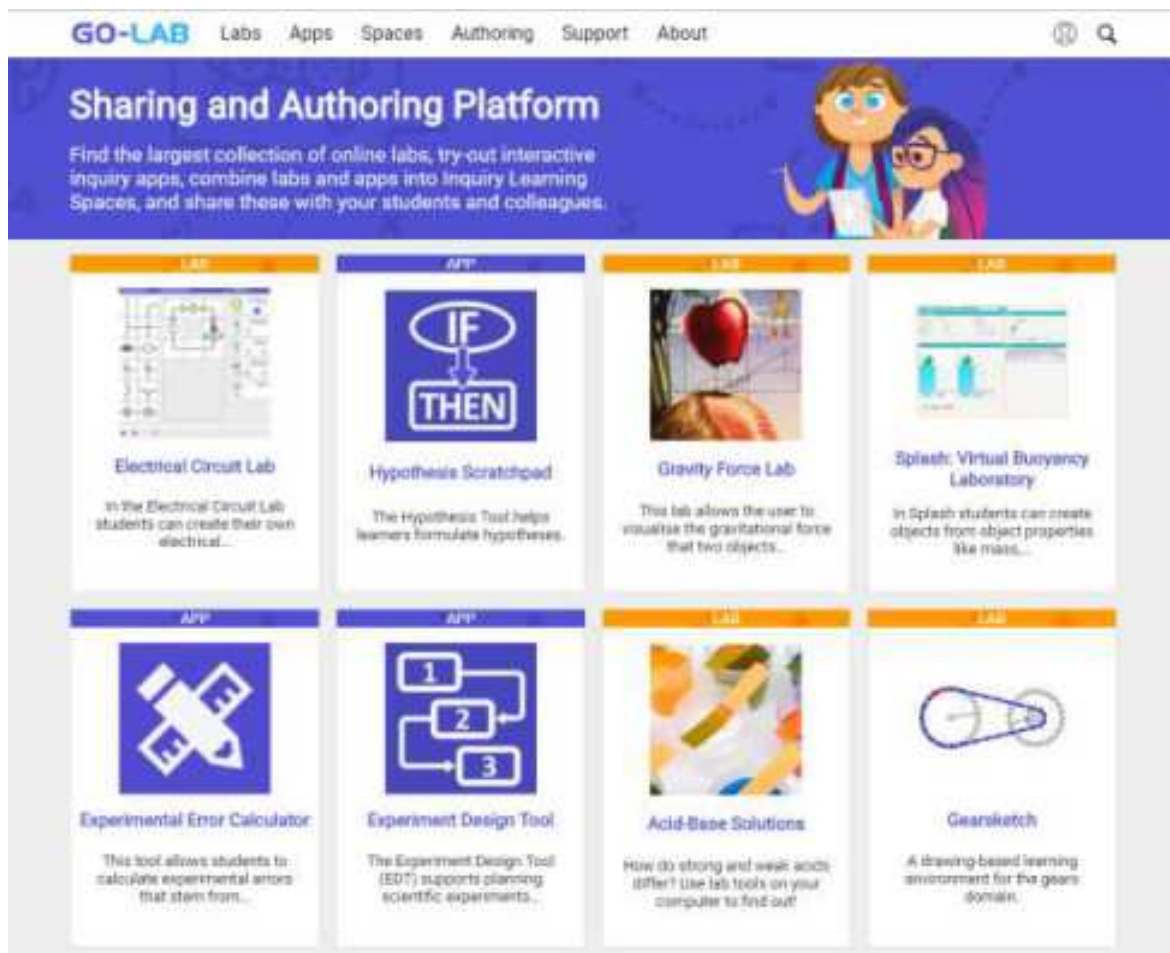


Figure 6: New design of the Go-Lab Sharing Platform



## 4. Next-Lab social media

### 4.1 Introduction

The Next-Lab project has kept on using the successful social media channels of the Go-Lab project and its audience. In order to keep the Go-Lab brand and at the same time to clearly distinguish the relation to the Next-Lab project, the social media channels were renamed (See the relevant chapter on social media channels in D1.1) Information about the Next-Lab project has been provided in the descriptions of the groups and the visual design of the social media channels has also been updated (see Figure 7). In addition, the hashtag #NextLab was set from the beginning of the project to track relevant posts.



The screenshot shows the Facebook page for the Go-Lab Initiative (@GoLabProject). The page layout includes a navigation menu on the left with options like Home, About, Posts, Photos, and Countdown. The main content area features a post from June 28th titled "Go-Lab Call for Teachers is open! Join the Go-Lab Initiative and bring inquiry learning with online labs into your classroom!" with a link to a news blog. Below it is a post from November 23rd about a "Go-Lab Teacher of the week: Sonja Janikulovska". The right sidebar displays the page's category as "Education", the number of likes (1,529) and followers (1,017), and a list of "People Also Like" including "Space Awareness Cause", "European Science Edu...", and "GTPP - Galileo Teache...". The footer contains privacy and advertising information.

Figure 7: Screenshot from the Facebook page

In order to allow the measurement of Next-Lab online dissemination activities and to clearly separate the Go-Lab project and the Next-Lab project, the number of online community members has been counted in the mid of January 2017. Table 1 provides the number of members in each social media channel, who joined during the Go-Lab project or in the phase between Go-Lab and Next-Lab projects (as of January 17th, 2017) as well as the number of members, who joined the online community after that date.

**Table 1: Number of members/likes per social media channel**

<b>Channel</b>	<b>Nr. of members/ followers at the beginning of Next- Lab (baseline)</b>	<b>Nr. of members/ followers joined after January 17<sup>th</sup>, 2017 (as of December 4<sup>th</sup> 2017)</b>	<b>Cumulative Nr. of members/ followers (as of December 4<sup>th</sup> 2017)</b>
Facebook page	1,217 (likes)	420 (likes)	1,637 (likes)
Facebook group	895 (members)	136 (members)	1,031 (members)
Twitter channel	1,158 (followers)	533 (followers)	1,691 (followers)
Google+ group	147 (members)	29 (members)	176 (members)
LinkedIn group	166 (members)	37 (members)	173 (members)
LinkedIn page (NEW!)	None	33 (followers)	33 (followers)
YouTube channel	96 (followers)	36 (followers)	132 (followers)
SlideShare channel	22 (followers)	0 (followers)	22 (followers)

## 4.2 Facebook

On Facebook, the Go-Lab initiative page<sup>3</sup> and the Go-Lab Community<sup>4</sup> public group are frequently used for updates about the project. The difference between these two Facebook entities is that the group allows the members to share news, activities, and resources from other STEM projects facilitating international and cross-project collaboration. The page is used as a more official channel. Here, for example, the information about new implementations and updates on the Go-Lab Sharing and Authoring Platform or open calls for teachers are published. This information is then shared with the public group. Subscribers receive updates and can comment the posts, but publication of material is carried out only by the administrators (IMC and EUN). Since the project started, more than 80 posts on the Go-Lab initiative page have been published. For the page, the frequency of publications is 3-4 posts per week including regular posts for “Lab of the week” and “Do you already know”.

<sup>3</sup> <https://www.facebook.com/GoLabProject/>

<sup>4</sup> <https://www.facebook.com/groups/golab.project/>

### **4.3 Twitter**

Along with Facebook, Twitter is the second most used channel, which serves as a source of information on project news and dissemination activities organized by ambassadors. As of November 30th, the posts in Twitter<sup>5</sup> earned about 3 likes and 2 retweets per day. For the last month, this channel gained 29 new followers. In total, since the project started, approximately 120 tweets were done including “Lab of the week” and “Do you already know” regular publications as well as live coverage of the ambassadors’ training and the summer school 2017.

### **4.4 Other**

The Google+ group keeps increasing the number of its members and seems to be very popular especially in Portugal. In this group, regular posts of the “Lab of the week” and “Do you already know” series, as well as project news, are published.

The LinkedIn group is being maintained as well. However, due to the policy of LinkedIn, it is not possible to make a group open for everyone (which means, one has to request membership). Also, the group is not easy to find (which cannot be influenced either), which leads to a stagnation of the user number. Thus, it is not easy for it to increase with the speed other channels may have increased. The Next-Lab consortium decided not to shut down this channel, as there are still some users (mostly researchers). So here, some major news are published, like Summer Schools and Golabz release announcements, and it is currently being discussed the possibility of adding the consortium’s scientific publications.

In order to counteract the recent developments concerning LinkedIn groups mentioned above, a Go-Lab Initiative page on LinkedIn has been created<sup>6</sup>. This page is easy to find and it is open to everyone. Here, the project news like Ambassadors announcements, Summer Schools and Golabz release announcements, as well as invitations to major project events are published.

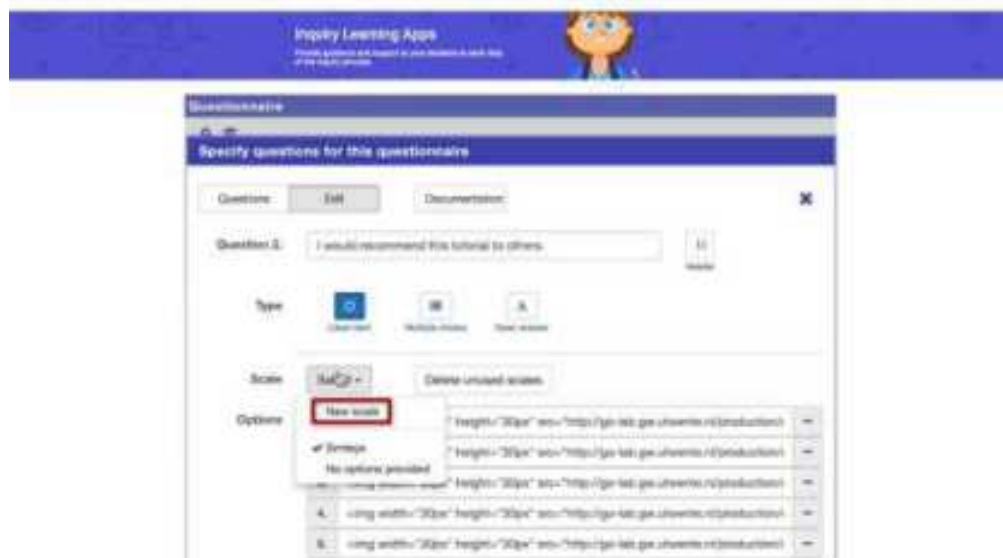
As for YouTube, the instructional-videos for the Go-Lab website will receive a makeover. The main reasons for this makeover is that the current videos differ a lot in used sounds, animations, colours, voices, shapes, call-outs etc. and all kinds of new abilities and functionalities which are now available, are not included yet. This new set of videos will be produced mostly in UHD/ 4K (3840x 2160) and will follow the eight guidelines for the design of instructional videos by van der Meij and van der Meij (2013)<sup>7</sup> to improve the effectiveness. A screenshot of one of these new instructional videos can be seen in Figure 8.

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<sup>5</sup> <https://twitter.com/GoLabProject>

<sup>6</sup> <https://www.linkedin.com/company/18144102/>

<sup>7</sup> van der Meij, H., & van der Meij, J. (2013). Eight guidelines for the design of instructional videos for software training. *Technical communication*, 60, 205-228.



**Figure 8: Screenshot of one of the new instructional videos**

The SlideShare and Flickr channels are kept online, but not maintained, as these are not widely used by the project's target audience.

## 5. Next-Lab expertise centres (NECs)

### 5.1 Introduction

Next-Lab Expertise Centres (NECs) are the consortium partners dedicated to teacher training and dissemination of the programme all over Europe. These centres have all the necessary knowledge (pedagogical, technical, practical) for implementing Go-Lab learning spaces in the classroom and the experience and necessary network for the consistent outreach of the project.

The organization of the trainings and other dissemination activities is based on a combination and collaboration of expertise centres and the Next-Lab Ambassadors. Since the Next-Lab project cannot have a project member in every member state of the EU, the network of NECs (in combination with Go-Lab ambassadors) is a comprehensive and efficient alternative approach to widely disseminate the Go-Lab ecosystem and both the national and the international level.

### 5.2 European outreach

The section below provides a summary of year 1 dissemination and implementation activities by the projects partners. Full details of the NECs activities per country for dissemination, trainings and social media may be found in the [Annex](#).

#### Dissemination events

Table 2 presents the list of online and face-to-face European activities organized during year 1 of the Next-lab project. Overall, more than 23400 teachers have been reached through presentations, conferences, seminar, newsletters and other dissemination activities.

**Table 2: Year 1 online and face-to-face European dissemination activities**

Country	City	Date	Audience Type	Nr. Att.	Title/Description
Belgium		03.05.2017			EUN calendar - Next-Lab Summer School
Belgium		06.04.2017			EUN Newsletter - Call for ambassadors
Belgium	Brussels	07.12.2017	Educational authorities		STEM High-Level Event 2017: Advancing And Scaling-Up Education - Industry Collaboration
Belgium		11.05.2017			EUN Teachers' Newsletter - Register for the Next-lab summer school
Belgium		13.06.2017			EUN - Projects Gallery
Belgium		15.02.2017			Scientix - Projects repository

Country	City	Date	Audience Type	Nr. Att.	Title/Description
<b>Belgium</b>		20.06.2017	Teacher Trainers	15	1st Teacher Training Institutes (TTIs) Meeting
<b>Belgium</b>		21.03.2017			Scientix - News - Call for Go-Lab Ambassadors
<b>Belgium</b>		22.06.2017			EUN website - News - Meet and greet Go-Lab Ambassadors campaign
<b>Belgium</b>	Brussels		Educational authorities	15	Presentation of Next-Lab at MoEs STEM WG meeting
<b>Belgium</b>	Brussels		International Secondary School Teachers	42	The Go-Lab ecosystem of Next-Lab
<b>Croatia</b>	Osijek	23-25.10.2017	Educational authorities	500	42nd Annual ATEE Conference
<b>Cyprus</b>	Nicosia	17.02.2017	Other	15	University of Cyprus conducted a seminar for a group of secondary school students and their teacher.
<b>Cyprus</b>	Limassol	27-30.04.2017	Other		Mediterranean Science Festival
<b>Cyprus</b>	Nicosia	29.09.2017	Other		Cyprus Researchers Night.
<b>Cyprus</b>	Nicosia		Other	25	University of Cyprus conducted a seminar for a group of secondary school students and their teacher.
<b>Cyprus</b>	Larnaca		Local Secondary School Teachers		Local conference for science students and teachers
<b>France</b>	Paris	20.11.2017	Educational authorities	100	Ark of Inquiry Closing event
<b>Germany</b>	Berlin	03.11.2017	International Primary School Teachers	30	International Dialogue on STEM education 2017

Country	City	Date	Audience Type	Nr. Att.	Title/Description
Germany	Saarbrücken	08.02.2017	Educational authorities	60	Award ceremony "Creating STEM-Future" ("MINT Zukunft Schaffen")
Germany	Ludwigshafen	12.06.2017	Educational authorities		Digital Summit 2017 ("IT-Gipfel 2017")
Germany	Berlin	12.12.2017	Educational authorities		STEM - Future Conference 2017 ("MINT - Zukunftskonferenz" 2017)
Germany	Saarbrücken	29.11.2017	Educational authorities		Award Ceremony "STEM/Digital School" ("MINT/ Digitale Schule")
Germany	Saarbrücken		Other	100	"Inquiry Learning with Online Labs: One Step towards Digital School"
Germany	Berlin		Educational authorities	200	Bildungspotenziale in Zeiten digitalen Wandels
Greece	Athens	14.10.2017	Local Secondary School Teachers	15	"Science Communication" supported by the Vodafone Foundation.
Italy	Rome	17.01.2017	Presentation plus hands-on activity		Workshop for teachers
Netherlands	Nijmegen		Other	100	Launch of iHub
Netherlands	Enschede		Other	700	Saxion Technology Day. Primary school students could perform online experiments with Go-Lab
Portugal	Figueira de Castelo Rogrigo	14.10.2017	Local Secondary School Teachers	20	PLATON multiplier event
Portugal	Cascais	15.09.2017	International Secondary School Teachers	590	Galileo Teacher Training Program Newsletter
Portugal	Cascais	15.09.2017	Local Secondary	300	NUCLIO newsletter

Country	City	Date	Audience Type	Nr. Att.	Title/Description
			School Teachers		
<b>Portugal</b>	Cascais	16.09.2017	Local Secondary School Teachers	16	PLATON multiplier event
<b>Portugal</b>	Cascais	21.02.2017	International Secondary School Teachers	203 6	Next-Lab Newsletter
<b>Portugal</b>	Porto	22.02.2017 & 08.03.2017	Local Secondary School Teachers	2	Space Awareness Workshop - Presentation of Go-Lab in a teacher training Workshop
<b>Portugal</b>	Cascais	28.04.2017	International Secondary School Teachers	207 5	Next-Lab Newsletter
<b>Portugal</b>	Cascais		International Secondary School Teachers	207 2	Next-Lab Newsletter
<b>Portugal</b>	Cascais		International Secondary School Teachers	300 0	Galileo Teacher Training Program Newsletter
<b>Portugal</b>	Cascais		International Secondary School Teachers	266	Newsletter for Expert Go-Lab teachers in Portugal
<b>Portugal</b>	Alqueva		Local Secondary School Teachers	15	Space Awareness Workshop - Presentation of Go-Lab in a teacher training Workshop
<b>Portugal</b>	Cascais		Local Secondary School Teachers	300 0	NUCLIO newsletter
<b>Turkey</b>	Istanbul		Academic / Reseracher	30	Keynote at conference



Country	City	Date	Audience Type	Nr. Att.	Title/Description
<b>United Kingdom</b>	Milton Keynes	13-15.09.2017	Academic / Reseracher	60	21st International Conference on Multimedia in Physics Teaching and Learning (MPTL 2017)
<b>United Kingdom</b>	Leicester		Pre-service Teachers	31	Presentation and live demo to pre-service teachers

Dissemination activities are described in further detail within the per country reports included in the [Annex](#) of this document.

### Implementation activities

Table 3 presents the list of face-to-face European trainings organized during year 1 of the Next-lab project. Overall, more than 1200 teachers have been trained by the project partners.

**Table 3: Year 1 European implementation activities**

Country	City	Date	Audience Type	Nr. Att.	Title/Description
<b>Belgium</b>	Brussels	5-7 May 2017		62	14th Science Projects Workshop (SPW) in the Future Classroom Lab - Ambassadors' Edition
<b>Belgium</b>	Brussels	8-10 December 2017		38	18th Science Projects Workshop (SPW) in the Future Classroom Lab - co-organized by the Next-Lab and Europeana DSI-3 projects
<b>Cyprus</b>	Nicosia	6/2, 8/2, 9/2, 15/2, 16/2	Other	45	Undergraduate students participated in 3-day training workshop, as part of their course, titled "The teaching of Natural Sciences".
<b>Cyprus</b>	Nicosia		Local Secondary School Teachers	25	Workshop as part of a professional development seminar.
<b>Cyprus</b>	Nicosia	23/1/2017	Local Secondary School Teachers	11	As part of mandatory professional development, secondary teachers participate twice a year in a two-day training. University of Cyprus

Country	City	Date	Audience Type	Nr. Att.	Title/Description
					organized a Next-Lab training for eleven secondary teachers, biologists and physicists.
<b>Cyprus</b>	Nicosia	25/10/2017	Local Primary School Teachers and Local Secondary Teachers	12	Interdisciplinarity and Inquiry Based Learning in Science Education / Teachers were introduced to the Go-Lab ecosystem and learned how to create/adapt Inquiry learning spaces.
<b>Cyprus</b>	Nicosia	31/1/2017 and 7/2/2017	Other	22	Undergraduate students participated in 2 three hours training workshop, as part of their course, titled "Computer Science Applications in the Teaching of Science in Elementary School"
<b>Estonia</b>	Tartu	16/3/2017	Local Secondary School Teachers	27	Workshop for teachers
<b>Estonia</b>	Tallinn	16/09/2017	Local Secondary School Teachers	20	Workshop for teachers
<b>Estonia</b>	Tartu	17/08/2017	Pre-service Teachers	10	Beginning of the University of Tartu Master's level course SVHI.06.004 Using Innovative Technologies that Support Inquiry Cycle
<b>Estonia</b>	Tartu	24/5/2017	Local Primary School Teachers	10	Workshop for teachers
<b>Greece</b>	Marathon	02-07.07.2017	International Secondary School Teachers	15	Go-Lab Summer School 2017 in Greece
<b>Greece</b>	Marathon	09-14.07.2017	International Secondary School Teachers	25	Next-Lab Summer School 2017

Country	City	Date	Audience Type	Nr. Att.	Title/Description
<b>Greece</b>	Athens	24/5/2017	Local Secondary School Teachers	26	Certified teacher training seminar
<b>Greece</b>	Marathon	14.07.2017	International Secondary School Teachers	25	How to become an effective Multiplier [Dissemination events organization]
<b>Greece</b>	Athens	21/10/2017	International Secondary School Teachers	20	The Go-Lab Ecosystem and the Big Ideas of Science
<b>Greece</b>	Athens	22/11/2017	Local Secondary School Teachers	23	The Go-Lab Ecosystem/ IBSE / How to create an ILS
<b>Ireland</b>	Dublin	25/11/2017	Local Primary School Teachers	23	Royal Dublin Society STEM Learning for Primary Schools
<b>Lithuania</b>	Vilnius	17/07/2017	International School for Teachers and Scientists	23	Europlanet Summer School
<b>Netherlands</b>	Zeist		Local Secondary School Teachers	20	Digitaal experimenteren, een mooie aanvulling op practica in het lab, Woudschoten Chemie Conferentie
<b>Netherlands</b>	Utrecht		Academic / Reseracher	13	4TU VR onboarding day workshop for researchers and teachers; how can we use Go-Lab in MBO, HBO and universities
<b>Netherlands</b>	Enschede	07/02-04/04 2017	Pre-service Teachers	23	Course Innovative Technology-Based Learning Environments
<b>Netherlands</b>	Ede		Local Secondary School Teachers	30	Carmel docentendag, workshop for teachers with hands-on materials

Country	City	Date	Audience Type	Nr. Att.	Title/Description
<b>Netherlands</b>	Gorinchem	17/1/2017	Local Secondary School Teachers	25	Workshop as part of a local conference
<b>Netherlands</b>	Utrecht	17/5/2017	Local Primary School Teachers	4	Workshop for teachers
<b>Netherlands</b>	Nordwijk	21 to 24/11/2017	International Secondary School Teachers	25	Joint ESA (European Space Agency - GTTP training)
<b>Portugal</b>	Cascais	21/01, 11/02, 25/02, 11/03, 25/03 & 01/04/2017	Local Secondary School Teachers	20	Certified Training Event
<b>Portugal</b>	Lisbon	4/3, 22/4 & 11/5/2017	Local Secondary School Teachers	20	Certified Training Event
<b>Portugal</b>	Alqueva		Local Secondary School Teachers	15	Hands-on introduction to Go-lab
<b>Portugal</b>	Braga		Local Secondary School Teachers	25	Hands-on introduction to Go-lab
<b>Portugal</b>	Coimbra	11/10 - 12/10/2017	Academic / Reseracher	12	Go-Lab Coimbra 2017
<b>Portugal</b>	Coimbra	12/10 & 19/10/2017	Other	60	Go-Lab Coimbra 2017
<b>Portugal</b>	Coimbra	13/10 & 20/10/2017	Pre-service Teachers	100	Go-Lab Coimbra 2017
<b>Portugal</b>	Porto	22/04/2017	Local Secondary School Teachers	15	Hands-on introduction to Go-lab

Country	City	Date	Audience Type	Nr. Att.	Title/Description
Portugal	Madeira	23/02 - 01/03/2017	Local Secondary School Teachers	15	Certified Training Event
Portugal	Terceira Island	23/07/2017	Local Secondary School Teachers	15	XXI Century Classroom in Azores Island
Portugal	Terceira Island	23/07 - 28/07/2107	International Secondary School Teachers	17	XXI Century Classroom in Azores Island
Portugal	Coimbra	29/04/2017	Local Secondary School Teachers	20	Hands-on introduction to Go-lab
Spain	Tenerife	17/07- 22/07/2017	International Secondary School Teachers	40	Astronomy Adventure in Canary Island
Spain	Bilbao	Jan-March 2017	Local Secondary School Teachers	6	Training course consisting of 4 workshops. The part of training action of regional government on the professional development of the secondary school teachers.
Spain	Barcelona		Local Secondary School Teachers	30	It was one of the seminars organized by the Recerca Foundation to disseminate good practices among secondary teachers.
Spain	Bilbao		Local Secondary School Teachers	6	
Spain	Bilbao	15/07/2017	Local Secondary School Teachers	20	Certified webinar (part1)
Spain	Barcelona	10- 13/07/2017	Local Secondary	25	

Country	City	Date	Audience Type	Nr. Att.	Title/Description
			School Teachers		
Ukraine	Kyiv	20-21/04/2017	International Secondary School Teachers	25	Certified Training Event
United Kingdom	Leicester	13/6/2017	Teacher Trainers	2	Twilight session with teacher trainers
United Kingdom	Leicester	27/02/2017	Pre-service Teachers	12	Presentation, training in authoring, and PD evaluation of Modelling tool

Implementation activities are described in further detail within the per country reports included in the [Annex](#) of this document.

### 5.3 International outreach

Next-Lab's NECs have also been very active in the promotion of the programme outside the natural EU-national outreach of the consortium. Below you may find a short description of the implementation and dissemination activities conducted within the Next-Lab framework.

Our Portuguese NEC (NUCLIO) has been present in several countries/regions:

- **USA/Canada**
  - Organization of a meeting with key-stakeholders working with schools in the USA and Canada.
  - An astronomer teacher from Quebec discussed the possibility of using the Go-Lab ecosystem for constructing an online course. Its authoring platform (Graasp) could be exploited as a simple Learning Management System. Finally a course scenario aligned with the needs of the teachers can be easily added.
- **Brazil**
  - Teacher training organized on how to use the Go-Lab ecosystem.
  - Possible organization of a follow up online training.
- **Ethiopia**
  - Teacher training organized introducing teachers to the Go-Lab ecosystem.
  - There will be a meeting in Brussels to discuss European contribution of the tool to the development of African education.
  - The Go-lab Go-Africa project will be launched on January 2018.
- **Latvia**
  - Teachers who attended the summer school are actively promoting the ecosystem.
  - A presentation for representatives of teachers' associations was also organized by NUCLIO.
  - New TTIs invited to join the project (see section 7.1).

- **Iran**
  - The NEC has initiated contacts to present the Go-Lab ecosystem to the national educational authorities.

The Estonian NEC (Tartu Ulikool) has also organized several international activities:

- **Taiwan**
  - Organization of a workshop as part of the Joint Symposium on Taiwan-Estonian Research Cooperation.
  - This event targeted the national educational authorities.
- **South Africa**
  - The NEC delivered a conference presentation "Design and evaluation of a smart device science lesson to improve students' inquiry skills".
- **New Zealand**
  - Organization of three presentation/workshops, one in Auckland (TeSTEM workshop: How to link pedagogy, technology and STEM learning?) and 2 in Christchurch within the 25th International Conference on Computers in Education (ICCE 2017)<sup>8</sup>.

The Spanish NEC (Deusto) also organized the following international implementations:

- **Brazil**
  - Organization of a workshop targeting teachers and trainers.
- **Ukraine**
  - Organization of a certified training event.

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<sup>8</sup> [http://www.icce2017.canterbury.ac.nz/proceedings\\_workshop](http://www.icce2017.canterbury.ac.nz/proceedings_workshop)  
<http://www.icce2017.canterbury.ac.nz/sites/default/files/proceedings/workshops/W12/How%20to%20link%20pedagogy%20technology%20and%20STEM%20learning.pdf>

## 6. Go-Lab ambassadors

### 6.1 Introduction

In order to support the implementation of the Go-Lab Ecosystem and Next-Lab project's outreach on country level, 21 Go-Lab Ambassadors in total were selected as a national contact points in 19 EU countries, representing different educational systems and communities. Table 4 shows the complete list of countries and national representatives involved in the ambassadors' network.

**Table 4: List of ambassadors**

Country	Ambassador
Belgium (Flanders)	Fatiha Baki
Belgium (Wallonia)	Patricia Corieri
Bulgaria	Svetla Mavrodieva
Croatia	Ivana Gugić
Czech Republic	Helena Lazarová
Former Yugoslav Republic of Macedonia	Silvana Ristevska
Germany	Jörg Haas
Germany	Yonatan Berman
Hungary	Filep Doina Otilia
Israel	Stella Magid-Podolsky
Italy	Stefano Macchia
Latvia	Ilze Šmate
Lithuania	Rigonda Skorulskiene
Malta	Geraldine Fsadni
Poland	Malgorzata Maslowska
Romania	Lidia Ristea
Serbia	Nada Stojičević
Slovakia	Gabriela Krížovská
Sweden	Preeti Gahlawat
Switzerland	Philippe Kobel
Turkey	Erkan Akar



In addition to the official ambassadors' announcement which was published in the blog<sup>9</sup>, the online campaign **“Meet and greet Go-Lab Ambassadors”** took place in social media channels of the Go-Lab community – in Facebook<sup>10</sup> and Twitter<sup>11</sup>. The aim of this campaign was to introduce Go-Lab Ambassadors (supported by Next-Lab) and their work to their peers – STEM teachers in their respective countries. We collected the quotes from ambassadors about their previous experience with the Go-Lab and their expectations from the Next-Lab project. We used the Next-Lab kick-off training as an opportunity to take ambassadors' pictures. Later on, we developed personalised posters (see Figure 9) for each of them. Starting from June 2017 until early October, the posters were published once per week bringing attention to the project and its official national contact points.



**Figure 9: Personalized ambassador' posters**

Figure 9. An example of Facebook post announcing ambassadors in frame of “Meet and Greet Go-Lab ambassadors” online campaign

A dedicated mailing list for ambassadors was created for the official communication with the ambassadors and their coordination. Additionally, a closed Facebook group for the Go-Lab ambassadors was established for sharing internal communication, reminders, best practices in teaching & learning and the organization of workshops.

<sup>9</sup> <http://project.golabz.eu/news/Next-Lab-Ambassadors-announcement>

<sup>10</sup> <https://www.facebook.com/groups/golab.project/?ref=bookmarks>

<sup>11</sup> <https://twitter.com/GoLabProject>

## 6.2 Activities

The main tasks of the Go-Lab Ambassadors are the following:

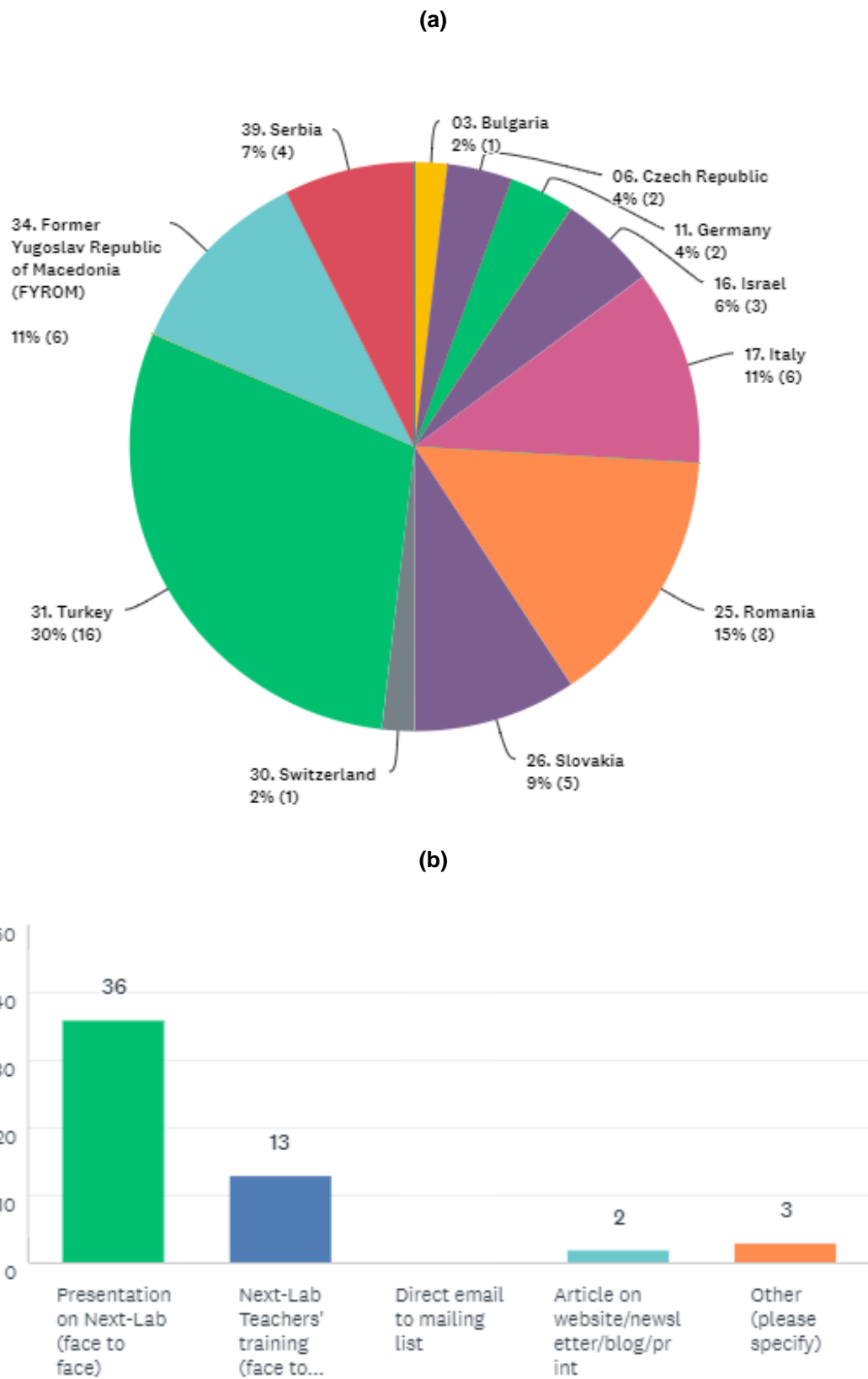
### Description of tasks: Go-Lab Ambassadors

1. **Disseminate Next-Lab at national level** (presentations, networking meetings or sharing of Next-Lab material).
2. **Present Next-Lab at, at least, one teachers' event / conference at national level** with a minimum of 20 people in the audience.
3. **Carry out at least two teacher trainings** (at least 1 face-to-face and at least 1 online teacher training).
4. **Offer operational support in terms of pedagogical quality control** (e.g., analyse resources available on the portal) **and provide feedback on the project new tools and services**
5. **Attend the Next-Lab Ambassadors trainings in Brussels (6 in total)** to gain all necessary skills in order to successfully support teachers and disseminate Next-Lab in their countries.
6. **Report on activities carried out for the project.**
7. **Provide pedagogical and practical support the Go-Lab teachers.**

As an optional task, ambassadors are encouraged to provide **translations of the new or updated Graasp tool components** (apps, labs, and ILSs) in their languages, making educational material available to teachers in their countries

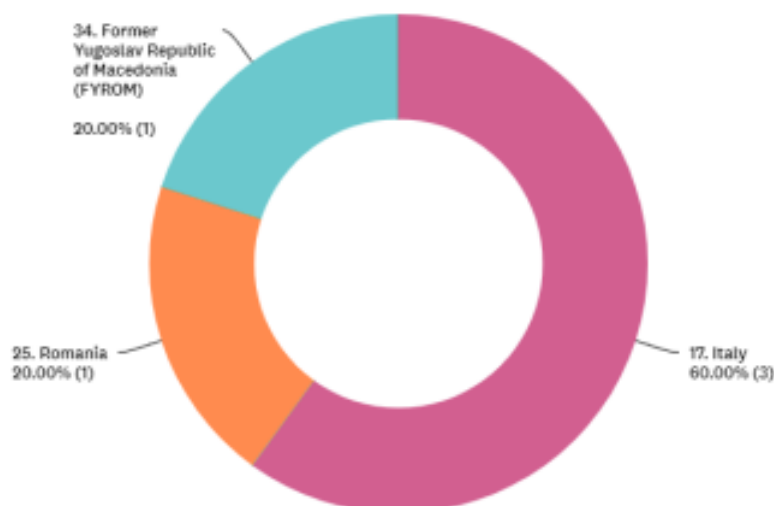
The main task for all ambassadors is the dissemination of the projects' resources and activities on the local, the national and the international level. Below you can find a summary of what has been done by ambassadors in terms of workshops and the organization of training as well as the promotion in social media during year one of the project.

In 2017, a total of 74 events with the approximated number of 3690 participants were organized by the Go-Lab Ambassadors. The majority of these events were face to face presentations and teacher trainings and the numbers presented in this document have been based on the ambassadors' end of year dissemination reporting forms. More detailed information about countries where the events took place, languages of the events, and types of participants can be found in Figure 10.



**Figure 10: (a) The distribution of events reported in 2017 per country where an activity took place. The number of events per country are indicated in round brackets. (b) The distribution of dissemination activity per type**

As for the online dissemination, 140 social media posts were reported by ambassadors.



**Figure 11: Ambassadors' dissemination report (social media) stats per country**

A total of 18 (out of 20) ambassadors have joined the 14th Science Projects Workshop and kick-off training in the Future Classroom Lab on 5-7 May 2017, in Brussels, Belgium. The second face-to-face training for ambassadors took place on 8-10 December 2017 and gathered 20 ambassadors to share new Go-Lab developments and ambassadors' experience with each other during the 18th Science Project Workshop.

In order to better coordinate the ambassadors and provide them with support, we organized a first set of online calls. The two calls took place in August, before the school year started. The third and fourth calls were organized in September and October, respectively. Led by European Schoolnet, the online calls were attended by NUCLIO and EPFL representatives who were involved in the discussion and supported ambassadors during the calls. All ambassadors participated in these online sessions and shared the updates about what had been done so far and what were the plans for the next two-three months in relation to dissemination and the organization of events. The ambassadors had the chance to address all their questions and share suggestions with the other participants and the project partners.

## 7. Next-Lab Teacher Training Institutions (TTIs)

### 7.1 Introduction

In the scope of Next-Lab, European Schoolnet is responsible for the development of the Teacher Training Institutes (TTIs) framework, aiming for the outreach and adoption of Inquiry Based Learning in digital environments such as the Go-Lab ecosystem and in general, fostering innovative approaches to initial teacher training.

The TTIs framework outreach plan includes the provision of dissemination & support materials, experts support, customization of tools, trainings and the exchange of best practices within innovative teacher training institutions all over Europe, while fostering a network of EU projects within the field of Initial Teacher Education.

Table 5 presents the list of the TTIs that have already joined the framework.

**Table 5: List of TTI representatives**

First Name	Surname	Country	Organization
Aritz	Ruiz-González	Spain	<b>Basque Country University (UPV/EHU)</b>
Eugenijus	Kurilovas	Lithuania	<b>Vilnius Gediminas Technical University</b>
Evangelia	Mavrikaki	Greece	<b>National &amp; Kapodistrian University of Athens</b>
Filomena	Teixeira	Portugal	<b>Escola Superior de Educação de Coimbra (ESEC)</b>
Miikka	Korventausta	Finland	<b>TOKL – University of Turku</b>
Loreta	Juskaite	Latvia	<b>Riga Technical University</b>
Meeli	Rannastu	Estonia	<b>UTE – Tartu Ulikool</b>
Mohammed	Oubella	France	<b>University of Lemans</b>
Piedade	Vaz-Rebelo	Portugal	<b>University of Coimbra (UC)</b>
Sencer	Corlu	Turkey	<b>BAUSTEM Center at Bahçeşehir University</b>
Stella	Magid	Israel	<b>Israel Institute of Technology</b>

Currently, we are liaising with a number of new institutions which are in the process of joining the TTIs framework. The following TTI representatives have already been introduced to the programme and attended some of our trainings (Table 6):

**Table 6: List of new TTIs (enrolment process)**

First Name	Surname	Country	Organization
Romualda	Lazauskaite	Lithuania	<b>Lithuanian University of Educational Sciences</b>
Takis	Angelopoulos	Greece	<b>GFOSS – Open Technologies Alliance</b>
Ana	Rodrigues	Portugal	<b>University of Aveiro</b>
Fernanda	Couceiro	Portugal	<b>University of Aveiro</b>
Henk	Pol	The Netherlands	<b>ELAN (Univeristy of Twente)*</b>

\* The TTI is already actively involved in Go-Lab but their activities so far have been conducted outside the TTIs framework.

### ***Year 1 activities and materials for TTIs***

As a result of the first meeting with the TTIs which took place in Brussels, Belgium on 20<sup>th</sup> June 2017, a number of needs and resources (please see D1.1) were suggested by the TTIs for their further involvement within the project and the implementation of the Go-Lab ecosystem within their educational programmes. The main activities and resources prepared during the first year of the Next-lab project are the following:

#### **IBL infographic**

TTIs agreed in the need of an Inquiry Based Learning (IBL) infographic describing the key reasons for the use of IBL approaches, the advantages of using digital teaching environments and the results of the Go-Lab Ecosystem so far. In order to reinforce teacher engagement, the document has been translated into all TTIs languages and it is aiming to spread the programme besides the teachers and students attending the trainings organized by the TTIs. The document has been recently released (December 2017) and all organizations have received both the digital print version and a separate scroll down design for digital purposes. Figure 12 shows a screenshot of the print version.

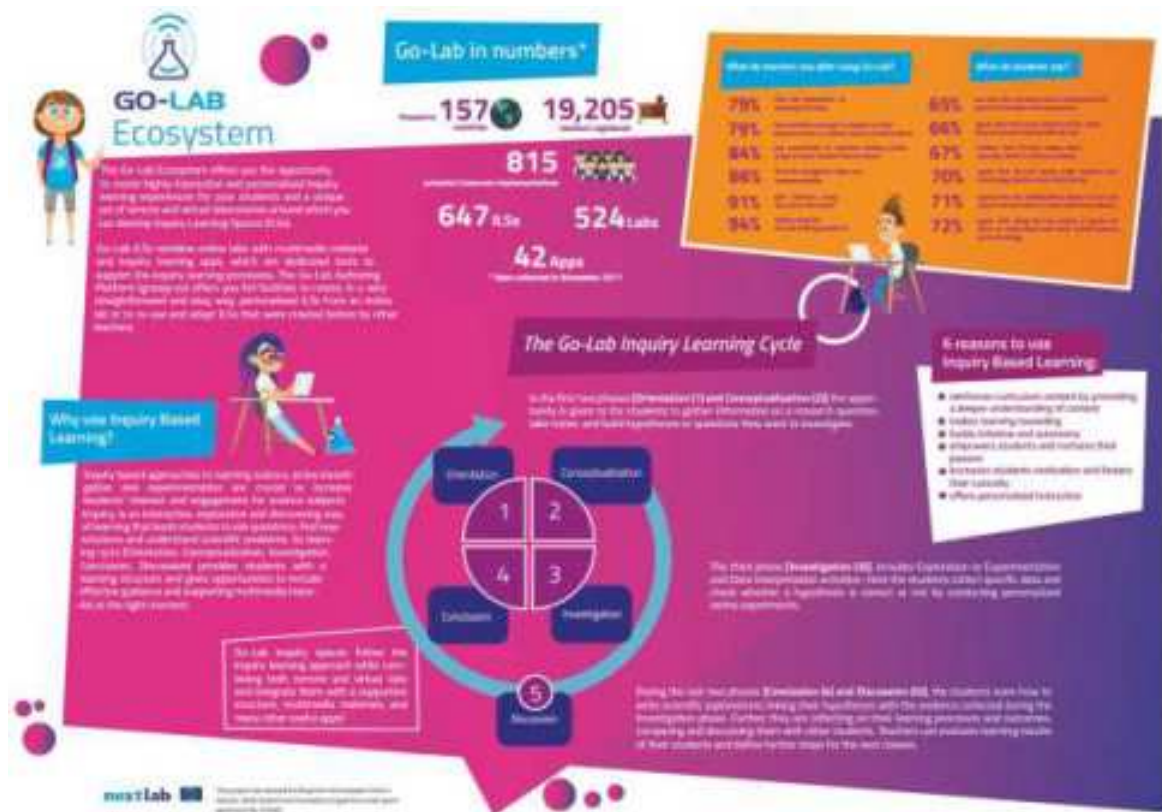


Figure 12: Go-Lab IBL infographic

**Online trainings**

A number of online trainings has been organized according to the TTIs needs during the months of October and November 2017. The list of trainings may be found below:

- 31st October 2017 – Graasp Events & Communities by EPFL

The first training served as a presentation of the characteristics of Graasp spaces (in general) and communities in particular. These meeting was also an excellent opportunity to foster networking and resolve any questions TTIs had in relation to the Go-Lab ecosystem and its use.

- 9th November 2017 – Adv. Go-Lab I: Go-Lab scenarios by EA

This session introduced participants to the different possibilities of Go-Lab scenarios (which can be considered as variations of the Inquiry Learning Cycle), while opening the discussion for a number of possibilities concerning from the variety of scenarios in teaching.

- 23rd November 2017 – Adv. Go-Lab II: New features and services by EPFL

The third training provide a general overview of the Ecosystem while presenting TTIs with a detailed explanation of the new features, tools and services develop by the Next-lab project for the Ecosystem. Figure 13 shows a screenshot taken during the online presentation.



- 29th November 2017 – IBL in science education (Go-Lab’s perspective) by NUCLIO

During this session participants were presented with the Go-Lab inquiry cycle and how the Go-Lab ecosystem could help teachers in creating their own scenarios. It was also discussed each of the inquiry components and the most common difficulties teachers usually encounter when attempting these kind of approaches. A number of good practices examples were also presented.

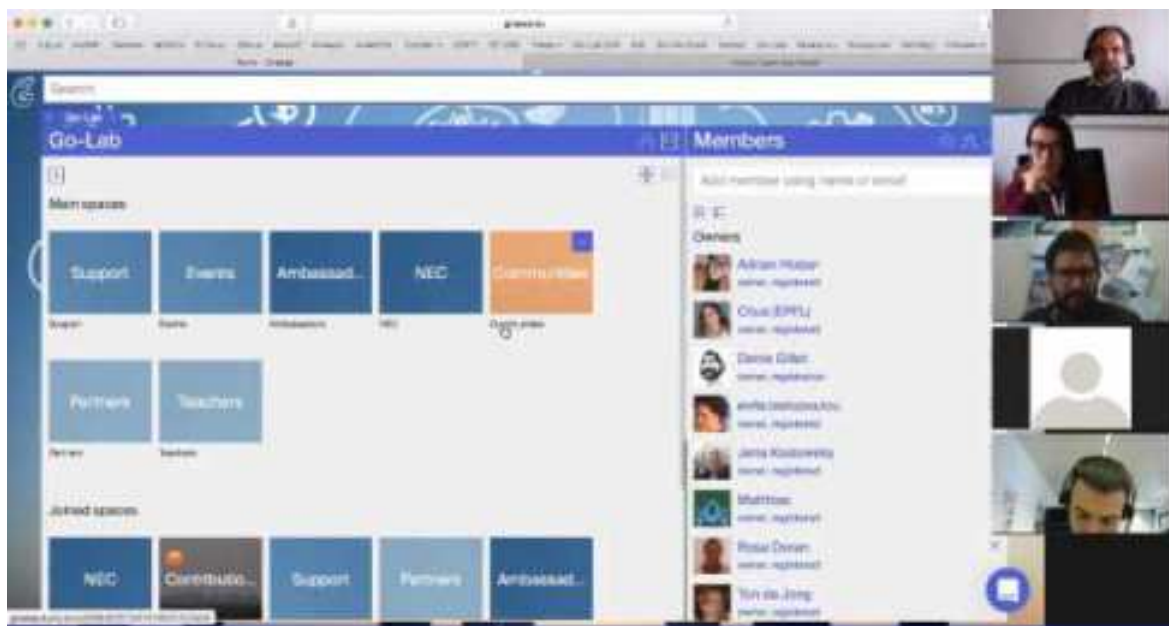


Figure 13: Screenshot taken during the online session “New features and services”

### Training Materials

Specific training materials for the TTIs are currently being prepared under WP2. A questionnaire was shared with the TTIs and ambassadors for them to express their needs in this regard. These resources will target the topic “how to teach with Go-Lab” and will be made available in 2018.

### Single sign-on (SSO)

Graasp SSO is currently being implemented by the Next-Lab technical team for two of our TTIs: University of Turku (TOKL) and Tartu Ülikool (UTE). SSO access allows students to use Go-Lab with their university system log in (without having to register to the Go-Lab Ecosystem). In the case of Turku, this system applies to all universities in Finland and thus, Go-Lab will be accessible to all students throughout Finland, using their student log in and accessing Graasp through the external authentication service as shown in Figure 14.





Figure 14: External authentication screenshot

### Official recognition

A google form has been created for all TTIs to submit their organizations details and logo. As soon as the information of all representatives has been collected, a webpage within the project website will be created. This will allow for TTIs to be recognised as “official” Next-Lab collaborators and ease national stakeholders to learn about this new framework of national dissemination & training centres.

### Evaluation questionnaires

All TTIs have been invited to share a questionnaire with their pre-service and in-service teacher through SurveyMonkey. SurveyMonkey is an online survey tool that simplifies considerable the survey and results’ analysis process. The tool offers more than 15 formats for asking questions (multiple choice, true false, open-ended, etc.) which ensures the accurate capture of information. On the aesthetic front it also offers a diverse colour palette for changing the appearance of the survey and possibilities of customizing its design to match the project’s visual identity (see Figure 15). On the implementation side, SurveyMonkey has the ability to track respondents so its administrators can re-contact non-respondents only and avoid disturbing those who have already participated.

The validation activities carried out will focus on the collection of quantitative and qualitative feedback from the teachers. Questionnaires will become available online throughout the lifespan of the project and will be accessed via dedicated URLs. The pre and post evaluation English version of the questionnaires can be accessed via the following URLs:

- Teachers’ pre questionnaire (English version):  
[https://www.surveymonkey.com/r/TTIs\\_teachers\\_pre\\_en](https://www.surveymonkey.com/r/TTIs_teachers_pre_en)
- Teachers’ post questionnaire (English version):  
[https://www.surveymonkey.com/r/TTIs\\_teachers\\_post\\_en](https://www.surveymonkey.com/r/TTIs_teachers_post_en)

The results of the evaluation will be also shared with the TTIs aiming to the improvement of their trainings and research activities.

**Next-Lab-TTIs\_Teachers\_pre-questionnaire\_en\_fi**

Dear teacher,

Please take a few minutes to answer to the following questionnaire. This form is designed in order to collect valuable background information before you start using the Go-Lab ecosystem. Focus is given on various aspects of teaching and learning in your school: knowledge of teaching science, knowledge of instructional approaches and technologies i.e. your pedagogical experience related to computer supported inquiry learning, general technical skills.

The questionnaire filled in by a particular participant will be connected in a single portfolio using the code.

Thank you.

Note:  
ILSs is the abbreviation for inquiry learning spaces  
LMS is the abbreviation for Learning Management Systems

**\* 1. Teacher code**  
(to fill in the form please create the code in the following form: XXsurname, where XX is the country, e.g. BE = Belgium) i.e BEAnderson

**\* 2. Are you a pre-service or an in-service teacher?**

A. Pre-service

B. In-service

**\* 3. Do you teach (or plan to teach) to primary or secondary students?**

A. Primary

B. Secondary

**\* 4. Your training in teaching science.**  
To what extent do you agree with the following statements?

	1: Strongly Disagree	2: Disagree	3: Neither Agree or Disagree	4: Agree	5: Strongly Agree
4.1. I have experience in using ICTs when teaching science in my class, e.g. for registration to different platforms, finding resources/learning materials, performing online scientific experiments with students, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.2. I have sufficient knowledge about science to teach in my classes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Figure 15: Online pre-questionnaire screenshot**

### Subtitling of video tutorials

As described in section 4.4 of this document, the instructional-videos for the Go-Lab website are undergoing a complete makeover. The main reason for this is that the current videos differ a lot in used sounds, animations, colours, voices, shapes, call-outs etc. and all kinds of new abilities and functionalities which are now available, are not included yet. Our main goal is to make the new videos even more accessible to teachers and students. In this regard, specific budget has been allocated for the translation of three key video tutorials that will be selected by our TTIs according to their needs.

## 7.2 TTIs results and plans per country

The programme has already recruited 11 institutions coming from 10 different countries across Europe and registration will be available throughout the whole project. Below you may find a summary of the results of the current TTIs framework per country including the activities of one of our newcomers in The Netherlands.

### Spain

The Spanish TTI (UPV/EHU) has been working in close collaboration with our Spanish NEC (UD). So far, the TTI has two ongoing trainings that have already been included within the university programme. The first one targets STEM university professors training pre-service primary teachers. The training includes several departments of the University of the Basque Country but also other campuses. The second training, focuses on primary education pre-service students and has been merged into the university programme under the subject of “didactics of science”. The course is being attended by around 140 students and it is divided into 3 phases: the trainings for students, their experimentation during the practicum period and the final reporting of their direct experiences with students.

Besides the trainings offered by the TTI, the UPV/EHU is also very interested in the evaluation and research possibilities offered by the Next-Lab project. In this regard, the TTI will be conducting pre & post evaluation with students and a small group of students intends to conduct a research thesis about curriculum analysis within Go-lab implementation.

### Greece

The TTI has been very active in involving Master degree students in developing their research thesis in relation to the Go-Lab ecosystem and the results of its implementations. Three students are currently writing their thesis in this regard, with topics such as “Go-Lab ILSs and teaching evaluation” or “Teachers’ attitude towards the Go-Lab Ecosystem”. Students come from the fields of ICT education, biology education and general biology..

The Greek TTI is also planning a number of trainings for pre-service students during the spring semester and will be also making use of the Go-lab questionnaire.

### Portugal

In the case of Portugal we have two different institutions involved: “*Escola Superior de Educação de Coimbra (ESEC)*” and the “*University of Coimbra (UC)*”. Together, the TTIs have presented a common action plan including the following differentiated phases:

- First phase – Started in October 2017 in collaboration with NUCLIO. Participants included professors of ESEC, UC and the University of Aveiro and were all introduced to the Next-Lab Platform and the IBL approach.
- Second phase – Starting in 2018, participants involved in the first phase, will develop and implement tasks with their students in their classes. These students belong to Master’s Degree Courses (Pre-School, Primary, Secondary and Superior).
- Third phase – Participants will design and implement a training workshop (25hours + 25hours) directed to the teachers of schools that cooperate with each TTI in supervising the master students of the Institutions involved.

Apart from the shared activities, the UC has also included a training within the university programme for elementary and secondary students (~80 students attending) supported by NUCLIO, and one more general training for other education related students (~70 students).

Both ESEC and UC are implementing the Go-Lab questionnaires.

**Finland**

Our Finish TTIs is belongs to the University of Turku which are part of the consortium of the Next-Lab project and a Next-Lab Expertise Centre (NEC). As part of the consortium, the TTI is implementing a single sign on (SSO) service within the university, in order for all students to be able to access the Ecosystem with their own university credentials. Furthermore, of all Finish universities may be registered using the same system.

The TTI has already implemented 1 training as part of the curriculum within the department of Teacher Education (attended by ~40 pre-service teachers) and is planning other trainings, (for pre-service teachers and students of the International Master Program LLEES) during the next semester.

Finland will also make use of the Go-Lab questionnaire.

**Latvia**

The TTI has attended all of our online meetings and most of the related trainings. Unfortunately, the online call for the reporting of the activities had to be postponed to 2018. The work development by our Latvia TTI will be thus reported within the next deliverable (D1.4)

**Estonia**

The Estonian TTI (UTE) has also been leading in the organization of dissemination events with other universities and trainings. Together with Turku, they are the two tester implementers for the students' SSO.

Being one of the only two teacher trainings institutes in the country, outreach activities have been extremely successful. Since the launch of the TTIs framework, they have hosted a conference for STEM teachers, a training for 20 in-service teachers (November 2017) conference for STEM teachers, trainings at Tallinn University within the programme for Teacher Education (in-service teacher trainers) and finally their own institution sessions within the Natural Sciences Curricula for IBL training.

The TTI is also responsible for the implementation of changes within the Estonian National testing System for it to include Go-Lab Labs and other ecosystem related tools.

**France**

The French TTI representative, has changed the institution he was previously involved (Institut Français de l'Éducation) and is currently working for the University of Lemans. The TTI has developed a Moodle course that could be extended to over 50 universities across the country and has also being in touch with the TTI of Alençon (University of Caen) to organize a presentation of the project for primary teachers.

The French TTI representative has also liaised with the national education inspector of STEM in Nantes Academy for the official promotion of the Go-Lab Ecosystem and the Next-Lab programme. The project has already been disseminated through their official website<sup>12</sup>.

The TTI is also making use of the Go-Lab questionnaire.

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<sup>12</sup> <http://www.pedagogie.ac-nantes.fr/education-artistique-et-action-culturelle/pratiques/conduire-des-projets-scientix-et-golab-1074476.kjsp?RH=CULT>

**Turkey**

BAUSTEM Center has allocated its efforts within a professional development online programme targeting ~1200 teachers in the area of “STEM integrated lessons plans”. The course includes 92 hours trainings during 8 months, lesson plan preparation and classroom implementations.

The TTI has also been networking with a number of Turkish universities and is planning to launch pre-service teacher trainings next semester. The Go-Lab questionnaire has also been provided to the TTI.

**Israel**

Our representative in Israel has already provided several trainings not only within their institutions’ programme but within a variety of frameworks: Go-Lab Ecosystem has been introduced to a group of ~25 students through the “Educational tools and methods in STEM” course; a parallel programme for experienced teachers (~20 participants) linked to the *Academic Class project* (November 2017); and a college for teacher trainers (December 2017).

The TTI has also been liaising with other related national institutions and stakeholders and is searching the possibility of combining activities with other science education projects.

The TTI is also making use of the Go-Lab questionnaire.

**The Netherlands**

In the ELAN (University of Twente) curriculum there is a new course that is called “Design studio”. Here students (prospective science teachers) work together in teams to make an instructional design. In doing so they follow a design cycle. The first three lectures are general lectures on this design cycle and then students go into small groups to make an actual design on a transdisciplinary topic. The idea is to have a few of these groups to make an ILS as final design. They are also planning to create assignments and instructions for these students to work with Go-Lab and three introductory lessons will be adapted to an ILS design. All the course structure and materials will be made available for the rest of TTIs to use, translate, and adapt.

## 8. Policy makers

As it has already been presented in D5.3, the role of policy-makers in the establishment and mainstreaming of the Go-Lab eco-system, is of great importance. In this context, European Schoolnet (EUN) as a network of 31 ministries of education has used all available opportunities in order to inform policy-makers on the progress and evolution of the system and to provide them with an insight on the implementations and uptake of the eco-system in their countries. Ministries of Education that are members of EUN, have been on the receiving end of a number of actions:

- a. From a **communication and dissemination** point of view, EUN has used its channels (e.g. social media, Policy newsletter<sup>13</sup>, meetings with Ministries and annual Eminent conference) in order to provide policy makers with tailored information that will facilitate the entrance of Go-Lab on country level.
- b. **Synergies with other projects** than can benefit from the use of the Go-Lab eco-system and/or help to improve the adoption of the Go-Lab eco-system, have also been pursued, including:
  - Scientix<sup>14</sup>, the community for science education in Europe, has contributed to the further **dissemination and training** of the Go-Lab developments for teachers interested to engage with Go-Lab.
  - eTwinning<sup>15</sup> and ITELab<sup>16</sup> through their **Teacher Training Institutions initiatives (TTIs)**. Next-Lab is also collaborating with TTIs in order to add the Go-Lab eco-system in their programmes. This common target has the potential to lead to a common approach between the two projects that can facilitate and enrich their respective relationships with the TTIs.
- c. Finally, during their last meeting, on October 4th 2017, the **Ministries of Education STEM representatives working group** has been informed about Next-Lab latest developments and particularly the work of Go-Lab Ambassadors and the Teacher Training Institutions (TTIs) scheme. The Ministries of Education STEM representatives working group is composed by 20 MoE representatives (20 countries). The overall objective of this working group is to help lay the foundations for medium and long-term strategies and activities between Ministries of Education and European Schoolnet in the field of STEM education, following an agenda that addresses the ministries priorities and main interests.

During this meeting, a number of MoEs representatives have requested to get in touch with the Go-Lab Ambassadors in their respective countries, which are managed and supported by EUN. The reason for that is that MoEs want to support the Ambassadors for the organization of their country activities (dissemination and teachers' trainings) but they also welcome the possibility to attend schools' implementations in order to experience themselves the impact of the Go-Lab eco-

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<sup>13</sup> <https://us6.campaign-archive.com/?%20u=fcaa73d53911340a72d92d73f&id=37aaa3db60>

<https://us6.campaign-archive.com/?%20u=fcaa73d53911340a72d92d73f&id=d33d7dc331>

<sup>14</sup> <http://www.scientix.eu/>

<sup>15</sup> <https://www.etwinning.net/>

<sup>16</sup> ITELab (Initial Teachers Education Lab) is a Knowledge Alliance project between higher education institutions and industry to foster innovation and knowledge exchange in initial/preservice teacher education (ITE) <http://itelab.eun.org>

system. As a result, contacts have been established between the MoEs and the Go-Lab Ambassadors of the following countries: Belgium, France, Israel, Romania, Turkey, Slovakia, and Malta. Moreover, the MoEs STEM representatives have received all information regarding the TTIs scheme, its aim and status, in order to disseminate it and facilitate the recruitment of more TTIs.

## 9. Conclusions

This report provides a summary of all the dissemination and dissemination related activities carried out in 2017 by the Next-Lab consortium while it serves as a base for the activities' reporting as it will be taking place throughout the project.

As described in D1.1, WP1 has the challenging role of building relations between Next-Lab and project's main stakeholders: teachers, organisations of teachers, and policy makers. The available data across the different dissemination platforms (as demonstrated in Section 4), shows that not only Next-Lab has kept the momentum from Go-Lab, but in most countries it built on it, as it is demonstrated by the rising success of its outreach activities. Based on results presented in this report (Section 5 "NECs", Section 6 "Ambassadors", Section 7 "TTIs" and Section 8 "Policy makers"), we propose no major adjustments to the related items coming from the Next-Lab roadmap for outreach and impact (D1.1) presented in month 6 of the project. However, all activities carried out in 2017 have been closely monitored by WP1 (in collaboration with WP2) to ensure that the increasing trend from the last quarter of 2016 has been sustained. This crossed WP1-WP2 monitoring will continue throughout the whole project, based on the organization of biweekly meetings that bring together all consortium members involved in the task. The partial results of the evaluation undergoing for TTIs will be presented in D1.4 and D1.5 and the final overview of the uptake of Next-Lab by teacher training organizations and policy makers (including MoEs) within D1.6 in year 3 of the project.



## 10. Annex 1: National dissemination and implementation report Greece

### 10.1 National dissemination strategy

The dissemination strategy in Greece is based on the general communication aims and objectives of the project but at the same time it is continuously adjusted to address the special circumstances of the educational, social and geographical needs and characteristics of the country. There are two main particularities of Greece that need to be taken under consideration:

- Firstly, the geographical characteristics of the country, such as the unbalanced distribution of the population and its insularity results to schools that are not easily accessible.
- Secondly, the demographics of the teaching personnel in Greece. The majority of teachers is of ages 50+ (also due to a hiring freeze in the public sector) and teachers not generally either not familiar or not always open-minded to the use of new technologies in the classroom.

To cope with two specific challenges, EA has organized and merged its dissemination efforts with other existing initiatives that target teachers in borderland and inaccessible regions (e.g. STEM powering Youth) as well as promoted and introduced the use of the Go-Lab Ecosystem and methodology through the presentation of attractive ILS and projects, linked to the specific curricula of specific subject domains, such as in the fields of environmental issues, astrophysics, etc.

This way, we hope to achieve and accomplish to satisfy the main goal, to maximize the outreach and increase the number of teachers and stakeholders that are aware of Go-Lab and are considering using it in their educational activities and to attend training and workshops offered by EA and/or the project. At the same time we hope to achieve a well-balanced audience as far as the social, economic and geographical conditions of the schools they represent.

Several dissemination channels and approaches are being used to reach and link to the Greek educational community. The main channels of communication are:

- i. Individualized, personalized email to known, registered and active teachers who have the potential to act as multipliers of the project;
- ii. Newsletters to schools in Greece, using the network and archive of Ellinogermaniki Agogi;
- iii. Publication of invitations and announcement of events, workshops and Next-Lab training at the websites of 3<sup>rd</sup> parties;
- iv. Publication of invitations and announcement of events, workshops and training at relevant groups of the social media (e.g. Facebook, Twitter, etc.)

Up to date we have accomplished 5 multiplier events in which around 350 teachers, educators and undergraduate students participated from all over the country and abroad. Until the end of the year 2017, there are other planned dissemination events to take place, both in Attika as well as in the Peloponnese (Kalamata).

## 10.2 Dissemination Events

### 10.2.1 Summary of dissemination events

Up to date (15/11/2017) five public events to promote the use of Go-Lab have been implemented in Greece. The target groups addressed were teachers and educators working on public and private schools of Greece of primary and secondary level. The estimated total number of participants is about 350 teachers and educators.

**Table 7: Next-Lab Dissemination Events**

Title	Location	Date	Description
Our wonderful Universe: interdisciplinary activities for students	Model High School Evangelical School of Smyrna, Nea Smirni, Greece	24/05/2017	The event had two main sessions. In the first one, the Go-Lab approach and the main principles of the inquiry based learning were introduced. Subsequently, topic with the title "Our wonderful Universe through digital activities" was presented under the framework of the Go-lab ecosystem. 30 participants
Go-Lab: Global Online Science Labs for inquiry Learning at School Summer School 2017	Golden Coast Hotel, Marathon, Greece	02/07/2017	As part of the ISE Summer Academy 2017 and as part of the Greek Go-Lab Summer School, a special plenum session was used to demonstrate Go-Lab to approximately 80 science teachers from all over Europe. ca. 80 participants
Following the steps of Galileo through Go-Lab and Stellarium	EA, Pallini, Greece	14/10/2017	The event was part of the program of "STEMpowering Youth". An educational program to support teachers and students from isolated border areas. In this event through the educational story "following the steps of Galilei" we introduced the Go-Lab ecosystem and let the teacher to execute an already made ILS relevant to craters formation and finally they made their own ILS for the aforementioned topic. 15 participants
The Go-Lab Ecosystem and the Big Ideas of Science	EA, Pallini, Greece	21/10/2017	During the international OSOS conference, Go-Lab was presented and introduced during the plenum session to more than 120 teachers. Later a dedicated workshop took place for teachers to explore and practice creating ILSs. ca.120 teachers

Greek Scientix Ambassador meeting	Athens, Greece	04/11/2017	During a meeting of the Greek Scientix ambassadors, Go-Lab was presented and promoted. It is planned to co-organize with Greek Scientix ambassadors several workshops for Go-Lab all over Greece. ca. 30 teachers
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### 10.2.2 Target audience and impact

The main target audience were teachers and educators. However, a presence of participants were also undergraduate students at schools with relevant disciplines. As we refer in the introduction it has been achieved a large coverage of the geographical areas of Greece where numerous teachers from places that are not easily accessible (e.g. distant islands) have been participated in the dissemination events. The total number of teachers is ca. 275, while another 75 stakeholders were present. In total our physical dissemination events have reached about 350 persons.

### 10.2.3 Related materials

- **Our wonderful Universe: interdisciplinary activities for students**

Photos:



E. Tsourlidaki is presenting the Go-Lab Ecosystem at the Evangelical School (24/05/2017).

- **GO-LAB: Global Online Science Labs for inquiry Learning at School Summer School 2017**

Website: <http://golab.ea.gr/>

Program: [http://golab.ea.gr/sites/default/files/GoLab\\_programme\\_2017.pdf](http://golab.ea.gr/sites/default/files/GoLab_programme_2017.pdf)

- **Following the steps of Galileo through Go-Lab and Stellarium**

Material of the event: <http://portal.opendiscoveryspace.eu/en/node/848908>

Photos:



A. Chiotellis is presenting examples of ILSs at the STEMpowering Youth event (14/10/2017)

- **The Go-Lab Ecosystem and the Big Ideas of Science**

Program: <http://openschool2017.ea.gr/?q=node/135>

Photos:

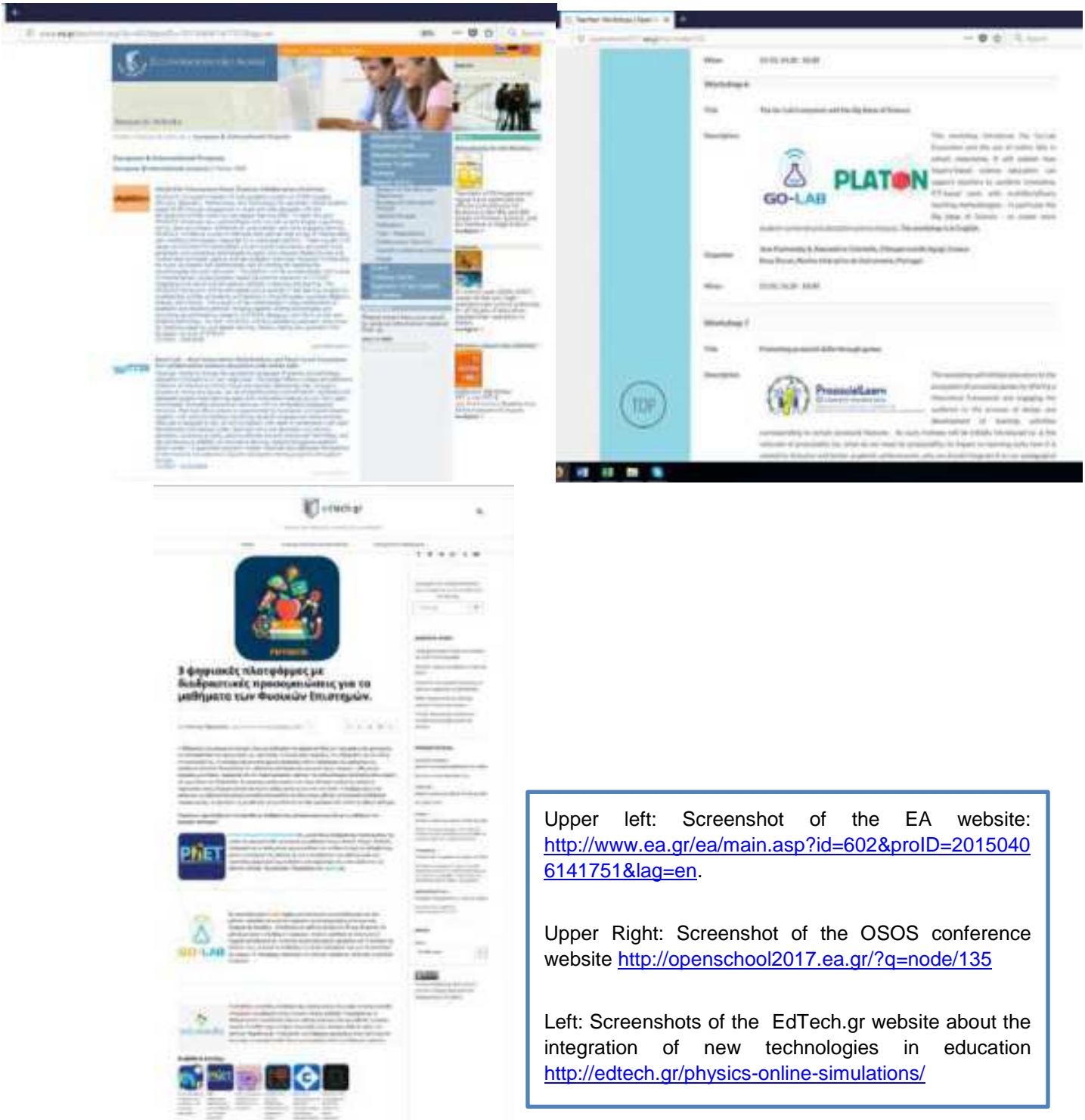


J. Koslowsky is introducing at the OSOS conference participants the Go-Lab project (21/10/2017)

## 10.3 Website, Newsletter and Social Media

### 10.3.1 Website

The Next-Lab project is summarized and being presented at the main website of EA as well as the specific website of the OSOS conference 2017.



Upper left: Screenshot of the EA website: <http://www.ea.gr/ea/main.asp?id=602&proID=20150406141751&lag=en>.

Upper Right: Screenshot of the OSOS conference website <http://openschool2017.ea.gr/?q=node/135>

Left: Screenshots of the EdTech.gr website about the integration of new technologies in education <http://edtech.gr/physics-online-simulations/>

### 10.3.2 Newsletter

Go-Lab has been promoted and relevant training events announced in several newsletters as part of EA's efforts of a European Science Education Academy. The newsletter has been distributed to more than 8.000 teachers that are registered from all over Europe.



### 10.3.3 Dissemination Channels Figures

Twitter followers	Facebook fans	YouTube channels view	LinkedIn group members	Newsletter	Website unique visitors	Instagram
-	-	-	-	More than 8.000	-	-



## **11. Annex 2: National dissemination and implementation report Germany**

### ***11.1 National dissemination strategy***

As the leader of Next-Lab sustainability and exploitation activities, IMC concentrates its dissemination efforts on promoting the Go-Lab approach and Ecosystem among potential customers (e.g., German Ministry of Education, Ministries of Federal States) and partners (e.g., potential technology and content partners, as well as relevant networks and initiatives). Thus, the dissemination strategy in Germany unites dissemination and exploitation activities with the aim to increase awareness of key target groups of Inquiry-Based Science Education (IBSE), the use of online laboratories in school education, the Go-Lab Ecosystem, and Go-Lab training opportunities. Furthermore, the dissemination and exploitation activities aim to prepare for future public tenders (e.g., German public tender for procurement of virtual learning environments and digital content for schools, which we expect to be published in 2018/2019).

In order to achieve these goals, IMC promotes Go-Lab by means of: (1) presenting Go-Lab at relevant conferences and events, e.g. those devoted to STEM-education, organized by the Ministries; (2) networking with relevant stakeholders in scope of such events; (3) publishing papers and interviews in relevant editions; and (4) publishing updates on the project in the own newsletter and blog. As IMC is a global provider of digital learning solutions, its online dissemination targets mostly an international audience; however, some posts are published in German only for German stakeholders. On the other hand, the presence activities mostly take place in Germany, in order to reach local target groups. In addition to national dissemination activities and dissemination through own online channels, IMC supports general online dissemination activities of Next-Lab, by administration of the Next-Lab blog and publishing in Go-Lab social media channels.

### ***11.2 Dissemination Events***

#### **11.2.1 Summary of dissemination events**

In the project year 1, IMC participated in several events targeting political and educational stakeholders, in order to get in touch with potential customers and partners, get informed about their aims and views, collaborate on the topics related to school digitalization and STEM-education, and establish contacts for future collaboration and cooperation. Most of the events were organized by the initiative “Creating STEM-Future” (“MINT Zukunft Schaffen”), which is a German initiative aiming to inform political and educational stakeholders and facilitate the innovations in STEM-education in Germany. Furthermore, Prof. Dr. h.c. mult. Scheer (the founder of IMC) and Dr Nils Faltin (the Head of Innovation team) participate in the “Digitization in education and science”-platform (“Plattform Digitalisierung in Bildung und Wissenschaft”) on a regular basis, collaborating with political stakeholders and contributing to Germany’s strategy for digitalization of school education.

**Table 8: Next-Lab Dissemination Events**

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Award ceremony "Creating STEM-Future" ("MINT Zukunft Schaffen")	Saarbruecken, Germany	08.02.2017	Minister President of the Saarland and the CEO of the initiative "Creating STEM-Future" ("MINT Zukunft Schaffen") awarded 45 committed citizens of the State of Saarland as "STEM Ambassadors". Dr Tobias Blickle, Christian Wachter, and Dr Nils Faltin from IMC were awarded for their engagement in STEM education.
Digital Summit 2017 ("IT-Gipfel 2017")	Ludwigshafen, Germany	12.06.2017	At the Digital Summit 2017, the working groups of the "Digitization in education and science"-platform ("Plattform Digitalisierung in Bildung und Wissenschaft", initiated and managed by the Federal Ministry for Education and Research) discussed the central questions of the digital transformation in education, science and research. Prof. Dr. h.c. mult. Scheer participated in the Summit representing IMC.
IMC IMPULSE. Presentation "Inquiry Learning with Online Labs: One Step towards Digital School"	Saarbruecken, Germany	12.09.2017	Go-Lab/Next-Lab presentation for IMC employees from Germany, Romania, and other subsidiaries with the aim to facilitate collaboration within IMC on the topics related to STEM and school education.
Award Ceremony "STEM/ Digital School" ("MINT/ Digitale Schule")	Saarbruecken, Germany	29.11.2017	Some schools from the State of Saarland will be awarded by the initiative "Creating STEM-Future" ("MINT Zukunft Schaffen") for their engagement in STEM education and school digitalization efforts. IMC will participate in order to establish contact with those schools and facilitate the implementation of Go-Lab.
STEM High-Level Event 2017: Advancing And Scaling-Up Education - Industry Collaboration	Brussels, Belgium	07.12.2017	This event, organized by EUN, targets EU policy makers, Business CEOs & representatives, Ministries of Education, and teachers from innovative schools. IMC will participate in order to collaborate on sustainability- and exploitation-related topics and establish relevant contacts.
STEM-Future Conference 2017 ("MINT-Zukunftskonferenz" 2017)	Berlin, Germany	12.12.2017	This conference sets the focus on the potential of cross-disciplinary approaches for STEM education. The conference is organized by the Ministry of Economics and Energy and targets political stakeholders, representatives of



			universities and schools, as well as German educational initiatives and networks. IMC will participate in order to collaborate on sustainability- and exploitation-related topics and establish relevant contacts.
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### 11.2.2 Target audience and impact

The events IMC participated in targeted political stakeholders (e.g., representatives of Ministries), educational stakeholders (e.g., representatives of schools and universities), as well as representatives of networks and foundations, active in educational area in general and, particularly, in the areas of school digitalization and innovations in STEM-education. By means of these activities IMC gets informed about the developments and future strategies in relevant domains and promotes Go-Lab among the stakeholders.

### 11.2.3 Outcomes

Already during the Go-Lab project, IMC participated in the IT-Summit 2016 and presented the Go-Lab approach and Ecosystem to the representatives of the German Ministries. As a continuation of this activity, in 2017, IMC informed the initiatives “Creating STEM-Future” (“MINT Zukunft Schaffen”) and „Digitization in education and science”-platform (“Plattform Digitalisierung in Bildung und Wissenschaft”) about the recent developments in Go-Lab and collaborated with political stakeholders on the strategy for digitalisation of schools in Germany. IMC continues this collaboration in order to increase awareness of the Ministries of the Go-Lab Ecosystem and to promote its centralised implementation in German schools.

### 11.2.4 Related materials



**Figure 16: Award ceremony “Creating STEM-Future” (“MINT Zukunft Schaffen”), 08.02.2017**

**From left to right: Minister President Kramp-Karrenbauer, Christian Wachter (IMC, CEO), Dr Nils Faltin (IMC, Head of Innovation team), Dr Tobias Blickle (IMC, CEO), Thomas Sattelberger (“Creating STEM-Future” initiative, CEO)**



Figure 17: Presentation “Inquiry Learning with Online Labs: One Step towards Digital School”, at IMC IMPULSE event, 12.09.2017

## 11.3 Implementation Activities

### 11.3.1 Summary of implementation activities

In the project year 1, no implementation activities have been conducted. It is planned to approach schools in the State of Saarland in the project year 2, in order to create several showcases, which can be demonstrated to the Ministries as examples of successful implementation of the Go-Lab Ecosystem in Germany, highlighting its advantages and potential.

## 11.4 Website, Newsletter and Social Media

### 11.4.1 Website

The Next-Lab project is presented on the IMC website<sup>17</sup> in the “Current projects”<sup>18</sup> area. A description of the project, as well as a link to the Next-Lab website (accessible if clicking on the logo) are available.

<sup>17</sup> In 2017 (as of November 20<sup>th</sup>, 2017), the IMC website was visited by about 56,000 visitors from German-speaking countries (Germany, Austria, Switzerland) and about 26,000 visitors worldwide.

<sup>18</sup> <https://www.im-c.com/company/innovation-labs/current-projects>



**Figure 18: Next-Lab project on the website of IMC**

Furthermore, IMC published several articles about Go-Lab and Next-Lab in the news blog on the company website:

- "Auszeichnung der IMC im Rahmen der Initiative „MINT Zukunft schaffen“ (an article about IMC winning the "Creating STEM-Future" award); 09.02.2017; in German;<sup>19</sup>
- "Next-Lab schließt an Erfolgsprojekt Go-Lab für experimentbasiertes Lernen in Schulen an" (an article to the Next-Lab project start); 16.02.2017; in German;<sup>20</sup>
- "Next-Lab project: the continuation of the Go-Lab success story"; 16.02.2017; in English;<sup>21</sup>



**Figure 19: Next-Lab project start announcement in the IMC company blog**

<sup>19</sup> <https://www.im-c.com/nc/de/news/article/auszeichnung-der-imc-im-rahmen-der-initiative-mint-zukunft-schaffen/>

<sup>20</sup> <https://www.im-c.com/nc/de/news/article/next-lab-schliesst-an-erfolgsprojekt-go-lab-fuer-experimentbasiertes-lernen-in-schulen-an/>

<sup>21</sup> <https://www.im-c.com/nc/uk/news/article/next-lab-project-the-continuation-of-the-go-lab-success-story/>

Finally, IMC published a white paper devoted to the digitalisation of schools, presenting Go-Lab as a platform for STEM-learning in schools ("Schule 3.0: Die Digitalisierung des Lernens"; 20.04.2017; in German;<sup>22</sup>).



Figure 20: White paper "Schule 3.0: Die Digitalisierung des Lernens"

#### 11.4.2 Newsletter

The press releases published in the company blog, have also been shared via IMC-press-distributor (targeting journalists, about 700 recipients worldwide) and IMC internal newsletter (about 200 recipients in IMC headquarters and subsidiaries). The Next-Lab project start announcement in English and German (16.02.2017), as well as the article about the "Creating STEM-Future" award (09.02.2017) have been shared.



Figure 21: Next-Lab announcements in the IMC newsletter

<sup>22</sup> [https://www.im-c.com/demo/user\\_upload/IMC-Familie\\_und\\_Schule-Digitalpakt-DE.pdf](https://www.im-c.com/demo/user_upload/IMC-Familie_und_Schule-Digitalpakt-DE.pdf)

### 11.4.3 Social Media Channels

IMC shared several posts about Next-Lab in the company's Facebook channel (2,427 followers):

- IMC winning the “Creating STEM-Future” award (10.02.2017)
- Go-Lab presentation at IMC IMPULLSE event “Inquiry Learning with Online Labs: One Step towards Digital School” (12.09.2017)
- Christian Wachter (CEO) about Go-Lab and Faulkes Telescope Project for Saarbruecken Newspaper (Saarbrücker Zeitung) (06.10.2017)



Figure 22: Posts about Next-Lab in IMC Facebook-channel

### 11.4.4 External Channels

Besides using own channels, IMC has also published two articles in CheckPoint-eLearning and Saarbruecken Newspaper (Saarbrücker Zeitung):

- "The Continuation of the Go-Lab Success Story" (Next-Lab project start announcement): CheckPoint-eLearning, 01.02.2017, in English;
- "Wie sich der Weg zur Digital School klug gestalten lässt" (an interview with Diana Dikke, IMC, on how a digital school can look like, focusing on Go-Lab and Next-Lab): CheckPoint-eLearning, 04.09.2017, in German;<sup>23</sup>
- “Chiles Sternenhimmel im Klassenzimmer” (“The sky of Chile in the classroom”, Christian Wachter, IMC CEO, talks about Go-Lab and Faulkes Telescope as an example of a remote lab): Saarbrücker Zeitung, 05.10.2017, in German.<sup>24</sup>

<sup>23</sup> <https://www.checkpoint-elearning.de/schule/wie-sich-der-weg-zur-digital-school-klug-gestalten-laesst>

<sup>24</sup> [https://www.saarbruecker-zeitung.de/wirtschaft/sz-wirtschaft/lernen-mit-computer-und-smartphone\\_aid-5365928](https://www.saarbruecker-zeitung.de/wirtschaft/sz-wirtschaft/lernen-mit-computer-und-smartphone_aid-5365928)



Figure 23: "Wie sich der Weg zur Digital School klug gestalten lässt" (CheckPoint-eLearning)

### 11.4.5 Dissemination Channels Figures

Here I include some figures, but actually, I mentioned in the text above, so this section can be removed.

Twitter followers	Facebook fans	YouTube channels view	LinkedIn group members	Newsletter	Website unique visitors	Instagram
	2,476 (likes) 2,427 (followers)			About 700 journalists (press-distributor) and 200 IMC-employees (internal newsletter)	German-speaking audience: 56,000 visitors in 2017; international audience 26,000 visitors in 2017	



## 12. Annex 3: National dissemination and implementation report Switzerland

### 12.1 National dissemination strategy

- Despite the role of EPFL in Next-Lab does not have a prominent focus on dissemination, along this year several activities have been organized in different countries, especially targeting Switzerland and Estonia
- Targeting teacher training institutes
  - Event organized in Tallinn University, thanks to the double affiliation of one of the EPFL senior scientist
- Targeting secondary schools
  - Collaboration with physics teachers in the gymnasium of Morges (VD)
  - Collaboration with Gymnasium in Lausanne (VD) in cooperation with the Swiss Go-Lab ambassador
  - Collaboration with the Private Moser School in Geneva

### 12.2 Dissemination Events

#### 12.2.1 Summary of dissemination events

**Table 9: Next-Lab Dissemination Events**

Title	Location	Date	Description
The Multimodal Study of Blended Learning Using Mixed Sources: Dataset and Challenges of the SpeakUp Case	Vancouver, Canada	March 14 <sup>th</sup> , 2017	Presentation provided to the TEL research community about the affordances of SpeakUp for multimodal learning analytics
Standardization Layers for Remote Laboratories as Services and Open Educational Resources  Enabling the Automatic Generation of User Interfaces for Remote Laboratories	New York, USA	March 15-16, 2017	Two papers presented at the REV conference <sup>25</sup> (14th International Conference on Remote Engineering and Virtual Instrumentation) and discussion of the P1876 IEEE standard committee on remote labs
Investigating joint research opportunities on online and remote engineering	Gainesville, Florida, USA	March 17, 2017	Presentation of the Go-Lab initiative to the Department of Chemical Engineering, University of Florida

<sup>25</sup> <http://www.rev-conference.org/REV2017/index.php>

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Concertation meeting at the European Commission	Luxembourg	March 27, 2017	Meeting with other coordinators of digital education EU projects
Developing 21st century skills and entrepreneurship in higher and continuing education	Shanghai, China	April 6, 2017	Meeting between international leaders and experts in digital education from Australia, China, Germany, and Switzerland
Ambassador Training	Brussels, Belgium	May 5-7, 2017	Providing an introduction and training on Graasp features to projects partners and Go-Lab ambassadors
Meeting with physics teachers	Morges, Switzerland	May 12, 2017	Discussing the consolidation of their Mach-Zehnder-Interferometer remote lab
Haketon for French-speaking teachers	Lyon, France	May 15-16, 2017	Providing an introduction and training to French-speaking partners and teachers at ENS-Lyon
Interview at the Swiss Radio	Lausanne, Switzerland	May 27, 2017	Discussion outreach of digital and STEM education through the Swiss EdTech Collider
Cloud Ecosystem for Supporting Inquiry Learning with Online Labs Creation, Personalization, and Exploitation	Faro, Portugal	June 8, 2017	Paper presented at the exp.at conference <sup>26</sup>
A tour around Go-Lab	Kõrvemaa, Estonia	June 22, 2017	Introduction about Golabz and Graasp oriented to teacher trainers.
Social Media Platforms Supporting Digital Education and Agile Knowledge Management	St Louis, USA	June 23, 2017	Talk at the Talk Washington University
Inquiry Learning and 21st Century Skills for STEM Education at School	Columbus, Ohio	June 28, 2017	Keynote at the International Forum of the ASEE annual conference (American Society for Engineering Education) as well as meeting of the IEEE P1876 standard committee on remote labs

<sup>26</sup> <http://expat.org.pt/expat17>



<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Grasp Graasp	Lausanne, Switzerland	July 4, 2017	Online hands on session on grasp for WP1 and WP2 partners
Grasp the Go-Lab ecosystem and learning analytics	Marathon, Greece	July 9-14, 2017	Various workshops and PD session for the participants of the Next-ab summer school
THE SMART DEVICE SPECIFICATIONS FOR REMOTE LABS	Boca Raton, Florida, USA	July 19, 2017	Invited talk at the LACCEI conference <sup>27</sup> (International Multi-Conference for Engineering, Education, and Technology)
A Teacher Survey on Educational Data Management Practices	Tallinn, Estonia	September 7 <sup>th</sup> , 2017	Presentation about teacher data management practices devoted to TEL research community
SCOPES meeting	Belgrade, Serbia	September 10-11	Meeting with lab owners from the linked projects on remote labs supported by the Swiss National Science Foundation in cooperation with selected central European countries
Biology Cloud Labs / Interactive Biology for (Online) Education	Lausanne, Switzerland	September 27, 2017	Invited talk by a lab owner from Stanford University
Standardizing Lab as a Service (LaaS) using the Smart Device specifications defined in Go-Lab	Montreal, Canada	September 15-17, 2017	Meeting of the editorial board of the P1876 standard committee on remote lab
Welcome to Next-Lab	Tallinn University, Tallinn, Estonia	October 16 <sup>th</sup> , 2017	Introduction about Golabz and Graasp oriented to teacher trainers.
Welcome to Next-Lab	Tallinn University, Tallinn, Estonia	October 20 <sup>th</sup> , 2017	Introduction to preservice and in service teachers
Progresses in WP2, WP3 and WP4	Larnaca, Cyprus	October 23-24	Next-Lab General Assembly

<sup>27</sup> <https://wp.eng.fau.edu/laccei/>

Title	Location	Date	Description
Beyond ePortfolios: Creating, Exploiting, and Archiving Activity Traces, Learning Outcomes, and Learning Analytics as Personal Shareable Online Spaces	Kuala Lumpur, Malesia	November 14, 2017	Paper at the World Engineering Education Forum (WEEF) <sup>28</sup> and meeting with a colleague from the University of Kumamoto in Japan to disseminate the Go-Lab ecosystem there
Capacity building	Singapore	November 15, 2017	Keynote at the P166 executive training of the UNCTAD (digital education and 21 <sup>st</sup> century skill development using SpeakUp and Graasp)
Next lab presentation	Lausanne	November 30	Presentation and hands on at a Workshop with Teachers organized by the Swiss Go-Lab ambassador
Ambassador training to publish ILSs	Lausanne	October 18	Hands on with the Swiss Go-Lab ambassador to show new features and polish his ILSs for publication on the platform
Next lab presentation	Geneva	November 1 <sup>st</sup>	Presentation and hands on with go-lab at the Moser school with primary teachers and school directors

### 12.2.2 Target audience and impact

While most of the events targeted the technology-enhanced learning (TEL) research community or policy makers (e.g., UNCTAD) via conferences, and workshops ...

### 12.2.3 Related materials

Publications:

Rodríguez-Triana, M.J.; Prieto, L.P.; Holzer, A.; Gillet, D. *The Multimodal Study of Blended Learning Using Mixed Sources: Dataset and Challenges of the SpeakUp Case*. Joint Proceedings of the 6th Multimodal Learning Analytics (MMLA) Workshop and the 2<sup>nd</sup> Cross-LAK Workshop at 7<sup>th</sup> International Learning Analytics and Knowledge conference, LAK 2017. 68-73. Vancouver, Canada. March 2017.

Farah, J.C.; Vozniuk, A.; Rodríguez-Triana, M.J.; Gillet, D. *A Teacher Survey on Educational Data Management Practices*. Proceedings of the 10th Workshop on Ethics & Privacy in Learning Analytics (EPLA 2017) at 12<sup>th</sup> European Conference on Technology Enhanced Learning, ECTEL 2017. Tallinn, Estonia. September 2017.

<sup>28</sup> <https://www.google.ch/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjTr-Siu93XAhUmCMAKHeNLAEQFggyMAA&url=http%3A%2F%2Fwww.weef2017.org%2F&usq=AOvVaw2LxMh9N30RzGJU04GuGHny>

## 12.3 Implementation Activities

### 12.3.1 Summary of implementation activities

As part of its activities to promote educational innovation among local schools, the Tallinn University Center for Innovation in Education, with which EPFL collaborates, organizes a series of 'project days', learning experiences for students at different levels of primary/secondary education, that are inter-disciplinary and project-oriented. These activities are usually designed and enacted by TLU didactics teachers, and offered to classes of local schools multiple times throughout the academic course. So far, EPFL has contributed to the co-design and implementation of the events listed in Table 2.

**Table 10: Next-Lab implementations**

Title	Location	Date	Description
Project Day. The senses	Tallinn University, Tallinn (Estonia)	October 18 <sup>th</sup> , 2017	University project day with a visiting primary school. Participants: 6 didactics, 4 researchers, and 22 students. This 4-hour activity combines on-line and face-to-face activities with several experiments located in the learning space.
Project Day. Discovering the body	Tallinn University, Tallinn (Estonia)	November 8 <sup>th</sup> , 2017	University project day with a visiting primary school. Participants: 6 didactics, 4 researchers, and 20-30 students. This 4-hour activity combines on-line and face-to-face activities with several experiments located in the learning space.
Project Day. Discovering the city	Tallinn University, Tallinn (Estonia)	November 22 <sup>nd</sup> , 2017	University project day with a visiting secondary school. Participants: 6 didactics, 3 researchers, and 20-30 students. This 4-hour activity combines learning inside and outside the classroom.
Project Day. The mysterious island	Tallinn University, Tallinn (Estonia)	December 6 <sup>th</sup> , 2017	University project day with a visiting primary school. Participants: 6 didactics, 3 researchers, and 20-30 students. This 4-hour activity combines on-line and face-to-face activities with several experiments located in the learning space.
Project Day. The mysterious island	Tallinn University, Tallinn (Estonia)	December 13 <sup>th</sup> , 2017	University project day with a visiting primary school. Participants: 6 didactics, 3 researchers, and 20-30 students. This 4-hour activity combines on-line and face-to-face activities with several experiments located in the learning space.

### **12.3.2 Target audience and impact**

Through these events EPFL has involved the University Center for Innovation in Education of Tallinn University, which has adopted the Next-Lab ecosystem to carry out its 'project days' for the course 2017-2018. So far, 5 Estonian primary/secondary schools have participated, reaching more than 120 students.

### **12.3.3 Outcomes**

Four ILSs were co-designed and implemented with more than 120 students.

## **13. Annex 4: National dissemination and implementation report France**

### ***13.1 National dissemination strategy***

The educational context in France introduces some special constraints on dissemination activities for a project considered as external by the institution. We need also to take into account the fact that teaching programs are built on a disciplinary and national basis with few autonomy for the institutions on that particular point. The visibility of resources and tools in French language is important as teachers are usually not fluent in English and sometimes even consider that providing French version of all materials is a prerequisite. To reach a large scale successful dissemination it is not sufficient to train teachers and teacher's teachers or coaches; we have also to convince inspectors that can prescribe or unfortunately also prevent the introduction of new tools and new pedagogical strategies. The French dissemination strategy is organized on three axis:

- Training teachers and lifelong learning teachers' teachers to the "standard use" of graasp and Next-Lab resources
- Approaching education inspectors and TTI colleagues in charge of pedagogy
- Convincing ministry representatives and national training institutions to introduce Go-Lab tools and resources in their communication and suggestions or prescriptions.

The first axis yields visible traces and immediate effects can be measured the two other actions need more time and are tackled in long run strategy. To finish up this presentation special actions towards non-formal education have been started in 2017.

A project tracking site has been built to gather trained teachers and active members of Next-Lab in a place to raise and discuss questions, problems and common projects for Next-Lab

### ***13.2 Dissemination Events***

#### **13.2.1 Summary of dissemination events**

It has been difficult to schedule events in the IFÉ program due to the starting dates of the project that happen after the program was out. ENS de Lyon was not partner in the Go-Lab project and Next-Lab needs internal communication at ENS de Lyon to set up advertised and sustained actions. Four dissemination events have been organized by taking advantage of an open event called digital week of IFÉ which was opened.

**Table 11: Next-Lab Dissemination Events**

Title	Location	Date	Description
Hackaton	Lyon	2017/05/15-16	training and discussion event on the theme "Hack the Next-Lab"
Digital week of IFÉ	Lyon	2017/05/15-16	Training event for teacher's trainers that ca
publication in IFÉ journal	France	July 2017 issue	Article on Next-Lab project and Next-Lab resources. Publication on Lyon University website, diffusion to 5000 contacts
Presentation to the President of ENS de Lyon	Lyon	2017/07/05	Presentation to the President of Next-Lab Project
Training session with non-formal education coaches and teachers	Toulouse	2017/11/14	Presentation of Next-Lab Resources and training session with Graasp to discover a weather station using an ILS in a gaming perspective.

### 13.2.2 Target audience and impact

The hackathon was targeting two different groups:

- teachers involved in the project that have acquired some experience on the tools along with colleagues from Next-Lab, and pedagogical engineers
- newbies teachers participating in the digital week of IFÉ and more widely interested teachers

Impact has been much lower than foreseen maybe because Next-Lab is not known enough in France and the event arrived too early in the project. The event revealed some important discrepancies between the hypothetic-deductive method used in France and the inquiry based learning in Next-Lab (see outcomes).

The IFÉ digital week is an event organized by IFÉ ENS de Lyon opened to teacher's trainers from TTI or long-life learning programs for teachers. A population of 50 from all parts of France has registered and there were trained with a dedicated space on Graasp and pieces of ILS selected to bridge with other sessions built around other tools. The impact had been strong and positive and during discussions.

The opportunity of the publication in IFÉ journal which is largely distributed (paper and digital) among the secondary teachers community was granted with the participation in IFÉ digital week, it is a broad band push tool whose true impact is difficult to measure but it guarantees the fact that the articles on Next-Lab are at least "visible" in teacher's room inside secondary schools.

The aim of the presentation to the President was internal communication to present Next-Lab through some of our productions and teacher's productions. The president was very curious of the tool and asked about the possible links with MOOC initiatives.

Last event has been organized to get in touch with a population of educators out of ministry of education, all the trainers and coaches who are providing, knowledge, competences and resources out of the formal educational universe. Twenty people were present and have been presented with the labs that could be used for training sessions without any link with

national disciplinary programs. The impact was positive even if for some of the participants the lack of computer or network connection could be a major problem.

### 13.2.3 Outcomes

During this first year of activity we faced some of the questions that may explain the French use of Next-Lab behind the other partners. Go-Lab has had no representative in France and the initiative is not as known as other proposals made by the French ministry like Magistère. The major outcome of all the session has been to identify some points that prevent Next-Lab dissemination and require special actions that may not be necessary in other countries.

- French teachers are not used with inquiry based learning and moreover they trained to apply hypothetic-deductive model which is sometimes misled due to external constraints like limited time to teach a concept or inadequacy between the target and the available tools. This situation makes it difficult to convince teachers to change their activities
- French educational system is very vertical and even if inspectors or responsible do not mean it there is a strong prescription effect of tools that had been funded or supported by the institution. In such a situation the benefits of new tools cannot overcome in teachers' mind the drawback of stepping out of the track

Many positive outcomes have also been registered from discussions and contributions during the training sessions:

- Formal discussions on the need of another scenario closer to French practices
- Examples of activities that would fit into French practices
- Comments on proposed activities that will enable the production of examples that will respect the Next-Lab principles and fit the French requirements

Those training session enabled to locate teachers that are ready to test future material from the project and provided a framework for the examples

### 13.2.4 Related materials

Materials have been aggregated on the discussion site for contributions:

- <https://nextlab-ife.climatetmeteo.fr/>

and on the event space of the French community for ILSs and proposition of actions:

- *Hackathon* <http://graasp.eu/spaces/590afcdded8e791222f0718f5>
- *IFÉ digital week* <http://graasp.eu/spaces/591c567d6d8617804dd2e130>
- *non formal trainers* <http://graasp.eu/spaces/59ee04490542b241bdffc714>

## 13.3 Implementation Activities

### 13.3.1 Summary of implementation activities

Implementation activities are hindered by the low use of Inquiry Based learning in France. In this first year our implementation activities were dedicated to understand how users would imagine to use Graasp and to collect proposals. Three of the dissemination events were coupled with practical work targeted to the discovery and usage of ILS. The French

discussion site has also been used to accompany individual productions of teachers as a "long run initiative"

**Table 12: Next-Lab implementations**

Title	Location	Date	Description
Hackathon	Lyon	2017/05/15-16	training and discussion event on the theme "Hack the Next-Lab"
Digital week f IFÉ	Lyon	2017/05/15-16	Training event for teacher's trainers that ca
Training session with non-formal education coaches and teachers	Toulouse	2017/11/14	Presentation of Next-Lab Resources and training session with Graasp to discover a weather station using an ILS in a gaming perspective.

### 13.3.2 Target audience and impact

Trainees and close collaborators were the only audience targeted to progress on implementation. We receive a quite positive answer to our requests to contribute but few of the contributions have been truly used in "ordinary teaching situations" except from close collaborators to the project.

### 13.3.3 Outcomes

A dozen of reusable ILS have been produced but due to the reasons stated upper many of them are not IBL compatible and probably none of them will survive a sound check of the IBL method validity. Those ILS are a strong base for discussions and investigations on how to increase the use and dissemination of Next-Lab in French classes

### 13.3.4 Related materials

Here is a list of unpublished ILSs that have been proposed and discussed:

<http://graasp.eu/spaces/5a16bb59049e1b81bf89f34d>

<http://graasp.eu/spaces/59fd7eb4c81a8e440fb2c163>

<http://graasp.eu/spaces/59fb11f749789002f4a49419>

<http://graasp.eu/spaces/589dcfd02b20a2e5445678c2>

<http://graasp.eu/spaces/58e897947da7234d35edd985>

<http://graasp.eu/spaces/5919cdfd2236958093c95993>

<http://graasp.eu/spaces/5919dbe72236958093c95c2c>

<http://graasp.eu/spaces/58e2a07a276b79b83d2bba2c>

<http://graasp.eu/spaces/591ad16e73c5c61231a90f0d>

<http://graasp.eu/spaces/58c3ce6fe7e4480f09419f0a>



## 14. Annex 5: National dissemination and implementation report The Netherlands

### 14.1 National dissemination strategy

The Dutch dissemination strategy focuses on reaching new groups of users by means of workshops in combination with a first training in using Graasp on teacher conferences and other events where teachers meet. A second focus is on keeping teachers who are already knowledgeable about the portal and Graasp updated with new functionalities and other developments.

### 14.2 Dissemination Events

#### 14.2.1 Summary of dissemination events

In Table 11 provides an overview of the dissemination events in the Netherlands.

**Table 13: Next-Lab Dissemination Events**

Title	Location		Date	Description
CVO-AV Educational conference 2017 "Examples of Innovation"	Gorinchem		17/1/2017	Presentation and hands on workshop for secondary education teachers
Workshop 21st Century skills: een online laboratorium maken met Go-lab	Utrecht		17/5/2017	Presentation and hands on workshop for primary education teachers
Launch of iHub	Nijmegen		01/10/2017	Presentation
4TU VR onboarding day workshop for researchers and teachers; how can we use Go-Lab in MBO, HBO and universities	Utrecht		05/10/2017	Presentation and hands on workshop for higher education teachers
Saxion Technology Day 2017	Enschede		07/10/2017	Interactive market for primary school students and teachers
Carmel docentendag	Ede		10/10/2017	Presentation and hands on workshop for secondary education teachers
Digitaal experimenteren, een mooie aanvulling op practica in het lab, Woudschoten Chemie Conferentie	Zeist		04/11/2017	Presentation and hands on workshop for secondary education chemistry teachers

Furthermore there were some additional activities aiming at dissemination in other countries like Germany, the UK, the United States and Turkey.

### 14.2.2 Target audience and impact

The main target audience were secondary teachers in STEM subjects, especially chemistry, physics and NLT (Nature, Life and Technology), primary school teachers and pre-service teachers.

A second target group was students and teachers in primary education. They were addressed in the “Weekend of Science” on a technology day which was organized by the Saxion Institute of higher education.

A third target group was researchers and teachers in higher education.

### 14.2.3 Outcomes

At the end of the first year there are about 1000 users of the Golabz.eu portal. Furthermore there are more than 2000 new users (teachers and pupils) of Graasp.eu of which 500 are registered. The number of people who actually created something in Graasp has gone up with 100 since the beginning of 2017 and is now about 400.



Figure 24: Users of the Golabz.eu site

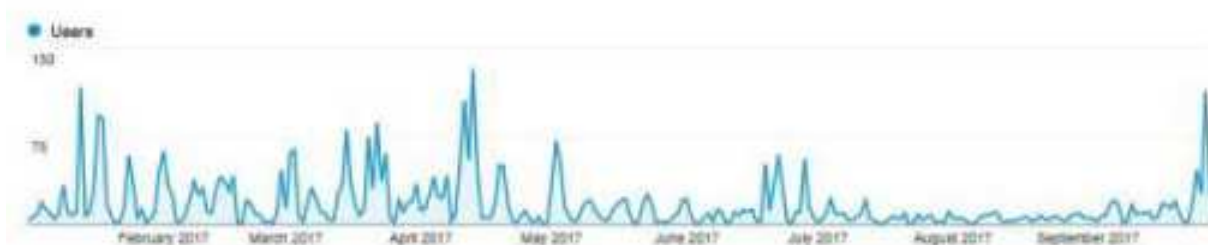


Figure 25: Users of Graasp.eu (teachers and students)

## 14.3 Implementation Activities

### 14.3.1 Summary of implementation activities

There were several implementation activities during the year as can be seen in Figure 2. The peaks in this Figure are related to implementation activities. Main places where implementation activities took place are: Duiven, Hengelo, Enschede, Almelo, Doetinchem, Apeldoorn, Amsterdam, Harderwijk, Zwolle and Gorinchem. Each with 70 or more new users that were involved (see Table 12).

**Table 14: Main places where implementation activities took place, the number of users and the number of new users**

City	Users	New Users
	2,415 % of Total: 6.67% (26,195)	2,343 % of Total: 6.62% (25,343)
1. Duiven	392 (14.49%)	390 (16.65%)
2. Hengelo	299 (11.89%)	270 (11.52%)
3. Enschede	283 (18.46%)	219 (9.32%)
4. Almelo	220 (8.13%)	192 (8.19%)
5. Doetinchem	147 (5.43%)	143 (6.10%)
6. Apeldoorn	121 (4.47%)	113 (4.82%)
7. Amsterdam	114 (4.21%)	96 (4.10%)
8. Harderwijk	99 (3.66%)	91 (3.88%)
9. Zwolle	95 (3.51%)	87 (3.71%)
10. Raalte	80 (2.96%)	37 (1.58%)
11. Gorinchem	71 (2.62%)	69 (2.94%)
12. Purmerend	56 (2.07%)	54 (2.30%)

### 14.3.2 Target audience and impact

Main audience was secondary education, except for the implementation in Purmerend which was focused on primary education.

## 14.4 Website, Newsletter and Social Media

### 14.4.1 Website

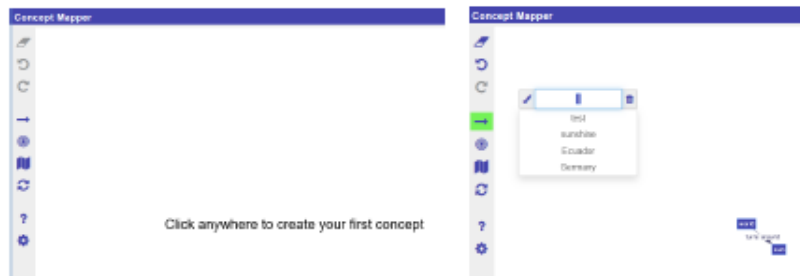
The University of Twente (UT) does not have a specific website aiming at Dutch users.

### 14.4.2 Newsletter

There were two newsletters for the Dutch users. One in the beginning of the year and one in the beginning of November. Below are some elements of the second newsletter.



Een aantal apps worden op het ogenblik vernieuwd waardoor ze sneller zullen laden en in sommige gevallen nieuwe functionaliteit krijgen. Ze zullen nog deze maand beschikbaar komen. Hieronder een "preview van de nieuwe concept Mapper"



Nieuwe functionaliteit is dat het nu mogelijk is een geaggregeerde conceptmap te krijgen van alle leerlingen. Daarbij kun je zien hoeveel leerlingen een bepaald concept gebruikt hebben (plaatje links), maar kun je ook de individuele conceptmap van een leerling zien (rechts).



### Community

Binnen Graasp is er nu ook een "Community", een plek waar gebruikers materialen met elkaar kunnen delen en ervaringen uitwisselen. Er is ook een Nederlandse community. Gebruik deze link: <http://graasp.eu/communities/5841a65260bb68357bb1c384>. We willen je vragen of je het registratieformulier wilt invullen om lid te worden van deze community. Als je dat gedaan hebt, is de link naar de community te vinden door in Graasp op het gebruikersmenu rechtsboven in het beeld te klikken.

Figure 26: Parts of the second newsletter

### 14.4.3 Social Media Channels

The University of Twente (UT) does not use specific social media aiming at the Dutch audience.

### 14.4.4 Dissemination Channels Figures

Twitter followers	Facebook fans	YouTube channels view	LinkedIn group members	Newsletter	Website unique visitors	Instagram
				70		

## 15. Annex 6: National dissemination and implementation report Portugal

### 15.1 National dissemination strategy

The Next-Lab project is disseminated in all events where NUCLIO is invited to be present or whenever NUCLIO organizes exhibits and activities. These include conferences, workshops (national and international), teacher training events, visits to schools and other type of events. Disseminating Next-Lab is part of NUCLIO's presentation of itself and its projects.

With the beginning of the school year, NUCLIO has developed a campaign to highlight through social media an ILS/Lab every week, trying to match the curriculum progression along the year. This should help teachers that are preparing their classes with resources adequate to what they are teaching at the moment. With this strategy, NUCLIO is targeting teachers that may be willing to implement in the classroom ready-to-use ILSs or Labs.

In a broader view, NUCLIO is preparing to take advantage of changes in the Portuguese education system to establish Next-Lab/Go-Lab as a major help for teachers. Portugal is going through a very deep reform in the educational system and for this school year, 2018-2019, the Ministry of Education published new guidelines, particularly identifying the desirable profile of the 21<sup>st</sup> Century Student:

[https://dge.mec.pt/sites/default/files/Noticias\\_Imagens/perfil\\_do\\_aluno.pdf](https://dge.mec.pt/sites/default/files/Noticias_Imagens/perfil_do_aluno.pdf)

Additionally an important pilot for school curricula flexibility started encompassing 230 schools. They will have 25% freedom of curricula to apply accordingly to the school pedagogical plan:

[http://www.dge.mec.pt/sites/default/files/Curriculo/Projeto\\_Autonomia\\_e\\_Flexibilidade/despacho\\_5908\\_2017.pdf](http://www.dge.mec.pt/sites/default/files/Curriculo/Projeto_Autonomia_e_Flexibilidade/despacho_5908_2017.pdf)

The country is also investing a lot in the creation of Future Classroom Labs distributed all over the country. <http://erte.dge.mec.pt/ambientes-educativos-inovadores>

All this innovation measures need to be accompanied by supporting actions. The need for a more student centred approach, the shift towards project based learning require a new form of organization of classrooms and as such a new way to deliver the curriculum content. With this vision in mind NUCLIO is preparing a series of actions to provide support for schools in particular the ones piloting the curriculum flexibility process. NUCLIO has already an official certified teacher training course (meaning that it is a course that contributes towards the progression of the teachers career) based in the use of Go-Lab and its methodology and will implement it during the school year.

## 15.2 Dissemination Events

### 15.2.1 Summary of dissemination events

**Table 15: Next-Lab Dissemination Events**

Title	Location	Date	Description
Space Awareness Workshop - Presentation of Go-Lab in a teacher training Workshop	Alqueva (Portugal)	10/01/2017	Presentation of the project during a training workshop
Space Awareness Workshop - Presentation of Go-Lab in a teacher training Workshop	Porto (Portugal)	22/02 & 8/03/2017	Presentation of the project during a training workshop
EDMUSE	Rome (Italy)	17/1/2017	Presentation during a project meeting and training workshop
MEARIM - Middle East and Africa Regional IAU meeting	Adis Abeba (Ethiopia)	22/05/2017	Presentation during a meeting of scientists and educators interested in education and science outreach
Global Hands-on Universe 2017	Kentuchy (USA)	17/08/2017	Presentation during the early meeting of the astrophysics working on education and research in classroom
PLATON multiplier event	Cascais (Portugal)	16/09/2017	Presentation of the project during a training workshop
PLATON multiplier event	Figueira de Castelo Rogrigo (Portugal)	14/10/2017	Presentation of the project during a training workshop
SAAB meeting (Brazilian Astronomical Society Meeting)	São Paulo (Brazil)	03/08/2017	Presentation during the yearly meeting of the Brazilian Astronomical Society

### 15.2.2 Target audience and impact

Most events where NUCLIO disseminated the project targeted teachers and educators. Events like Global Hands-on Universe and the SAAB meeting also targeted researchers developing resources for the integration of activities and experiments in the classroom.

## 15.3 Implementation Activities

### 15.3.1 Summary of implementation activities

**Table 16: Next-Lab implementations**

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Certified Training Event	Cascais (Portugal)	21/1, 11/2, 25/2, 11/3, 25/3 & 1/4/2017	Certified Training Event
Certified Training Event	Cascais (Portugal)	4/3, 22/4 & 11/5/2017	Certified Training Event
Certified Training Event	Madeira (Portugal)	23/02 - 01/03/2017	Certified Training Event
Hands-on introduction to Go-lab	Alqueva (Portugal)	08/04/2017	Hands-on introduction to Go-lab
Hands-on introduction to Go-lab	Porto (Portugal)	22/04/2017	Hands-on introduction to Go-lab
Hands-on introduction to Go-lab	Braga (Portugal)	01/04/2017	Hands-on introduction to Go-lab
Hands-on introduction to Go-lab	Coimbra (Portugal)	29/04/2017	Hands-on introduction to Go-lab
Astronomy Adventure in Canary Island	Tenerife (Spain)	17-22/2017	Hands-on introduction to Go-lab
Europlanet Summer School	Vilnius (Lithuania)	17/07/2017	Hands-on introduction to Go-lab
XXI Century Classroom in Azores Island	Terceira Island (Portugal)	23/07/2017	Hands-on introduction to Go-lab
MEARIM - Middle East and Africa Regional IAU meeting	Adis Abeba (Ethiopia)	25/05/2017	Hands-on introduction to Go-lab
XXI Century Classroom in Azores Island	Terceira Island (Portugal)	23/07 – 28/07/2107	Hands-on introduction to Go-lab
GTTP International 2017	Kentuchy (USA)	15/08 – 18/08/2017	Hands-on introduction to Go-lab
GTTP Porto Alegre 2017	Porto Alegre (Brazil)	24/08 – 26/08/2017	Hands-on introduction to Go-lab
GTTP Pelotas 2017	Pelotas (Brazil)	28/08 - 31/08/2017	Hands-on introduction to Go-lab



Title	Location	Date	Description
GTTP São Paulo 2017	São Paulo (Brazil)	06/09 – 07/09/2017	Hands-on introduction to Go-lab
Go-Lab Coimbra 2017	Coimbra (Portugal)	12/10 & 19/10/2017	Hands-on introduction to Go-lab
Go-Lab Coimbra 2017	Coimbra (Portugal)	13/10 & 20/10/2017	Hands-on introduction to Go-lab
Go-Lab Coimbra 2017	Coimbra (Portugal)	11/10 & 12/10/2017	Hands-on introduction to Go-lab

### 15.3.2 Target audience and impact

The implementation activities were teacher training workshops for: middle and secondary school teachers, with the vast majority being science teachers; pre-service teachers from all subjects; educators. The

### 15.3.3 Outcomes

All participants explored the Go-Lab portal. Most participants successfully created accounts in Graasp and started exploring the possibilities of the platform. The certified training events had teachers creating ILSs, individually or in groups of 2 or 3.

### 15.3.4 Related materials







## ***15.4 Website, Newsletter and Social Media***

### **15.4.1 Website**

The projects Next-Lab/Go-Lab appear in our website <http://nuclio.org> in the section of ongoing projects. We also announce the teacher training courses in our website.



NUCLIO  
NÚCLEO INTERATIVO DE ASTRONOMIA



INÍCIO
QUEM SOMOS
MEDIA
PROJETOS
CURSOS E ATIVIDADES
GALERIA DE IMAGENS
CONTACTOS
A SUA OPINIÃO

## Laboratórios on-line para a Astronomia: Go-Lab I (S. Pedro Estoril: Jan-Abril 2017)

20 de novembro, 2016 | Galeria Cursos CCPC

**AÇÃO ACREDITADA PELO CCPCF** Registo: CCPCF/ACC-78925/14 (válido até 30/07/2017) Área de Formação: A Formação Contínua, Curso de Formação Nº total de horas: 25 Créditos: 1 Código Área: A06 – Astronomia Código Destinatária: Professores dos Grupos 500, 510 e 520 do 3º ciclo e secundário e para professores do Grupo 230 do 2º ciclo. Propina de participação: 10 EUR (este preço é especial por estarmos a oferecer o curso no âmbito do projeto NEXT-LAB) Entidade Formadora: NUCLIO - Núcleo Interativo de Astronomia (CCPCF/ENT-AP-0402/16 – válido até 27/06/2019) Local: Centro de Interpretação Ambiental da Pedra do Sal, S. Pedro do Estoril **Calendarie da curso:**

- 21 de janeiro 2017 (sábado) 10h às 13h e 14h30 às 17h30
- 11 de fevereiro 2017 (sábado) 10h às 13h
- 25 de fevereiro 2017 (sábado) 10h às 13h
- 11 de março 2017 (sábado) 10h às 13h30
- 25 de março 2017 (sábado) 10h às 13h30
- 1 de abril 2017 (sábado) 10h às 13h e 14,30h às 17,30h



### OBJETIVOS A ATINGIR

Com este curso pretende-se que os professores:

- sedimentem alguns conhecimentos de astronomia;
- aprendam a usar alguns recursos do projeto de laboratórios on-line "Global Online Science Labs for Inquiry Learning at School" (GO-LAB), nomeadamente: telescópios remotos (Faulkes Telescope), software de análise de dados astronómicos (Salsa) e Astrometrica), base de dados de observações reais (imagens do Sol do Sun4AT);
- compreendam a metodologia Inquiry Based Science Education (IBSE) e fiquem aptos a utilizá-la;
- conheçam plataformas de e-Learning e saibam como tirar o melhor proveito destas.

### PROGRAMA PRELIMINAR

O projeto "Global Online Science Labs for Inquiry Learning at School" (GO-LAB). Plataformas e

#### NUCLIO no Facebook



**NUCLIO - Núcleo Interativo de Astronomia**  
10.1K likes

Será que se reacendeu a questão da água em Marte? Não. Um artigo recente coloca de facto em causa a presença de água em Marte – mas apenas no que diz respeito ao papel que ela pode desempenhar na origem das RSLs. Há poucos anos, alguns autores consideraram quase certo que estas linhas escuras se deviam ao escoamento superficial de água com uma forte carga de sais. Mas, entretanto, um exame mais cuidadoso e a exploração de mecanismos alternativos para a sua origem levou outros autores a sugerir que elas se devem a avalanches secas de material granular <http://portaldoastronomo.org/2017/11/mar>



The screenshot shows the NUCLIO website with the 'Next-Lab Project' article. The header includes the NUCLIO logo and navigation menu. The article text describes the project's continuation and expansion.

**NUCLIO**  
NÚCLEO INTERATIVO DE ASTRONOMIA

**Next-Lab Project**

O projeto Next-Lab é o herdeiro e continuador do projeto Go-Lab.

Após quatro anos de duração, o projeto do Go-Lab terminou oficialmente em outubro de 2016. Mas a iniciativa Go-Lab não acabou! O novo projeto Next-Lab, que começou em janeiro de 2017, levará a Portal Go-Lab para um nível superior em termos de impacto e inovação!

O Next-Lab aumentará o número de professores e alunos envolvidos, expandirá seu grupo-alvo para incluir os alunos mais jovens no ensino primário e fará esforços para alinhar o projeto com programas de formação de professores, visando também professores em formação. Desta forma – através dos professores do futuro – o consórcio Next-Lab poderá inspirar mais jovens para a ciência e a tecnologia.

**next lab**

**NUCLIO no Facebook**

NUCLIO - Núcleo Interact...  
100.000 likes

NUCLIO - Núcleo Interativo de Astronomia  
10.000 likes

Será que se recomendou a questão da água em Marte? Não. Um artigo recente coloca de facto em causa a presença de água em Marte – mas apenas no que diz respeito ao papel que ela pode desempenhar na origem das RSLs. Há poucos anos, alguns autores consideraram quase certo que estas linhas escuras se devam ao escoamento superficial de água com uma forte carga de sais. Mas, entretanto, um exame mais cuidadoso e a exploração de mecanismos alternativos para a sua origem levou outros autores a sugerir que elas se devam a avalanches secas de material granular!  
<http://portaldoastronomo.org/2017/11/na-e-a-agua-em-marte/>

The screenshot shows the NUCLIO website with the 'Go-Lab Project' article. The header includes the NUCLIO logo and navigation menu. The article text describes the project's goals and objectives.

**NUCLIO**  
NÚCLEO INTERATIVO DE ASTRONOMIA

**Go-Lab Project**

O "Go-Lab" (Global Online Science Labs for Inquiry Learning at School) é um projeto europeu co-financiado pela Comissão Europeia no âmbito do Seventh Framework Programme e uma 19 organizações de doze países, entre as quais o NUCLIO – Núcleo Interativo de Astronomia.

O "Go-Lab" pretende fornecer acesso a laboratórios on-line, de forma a enriquecer a experiência de sala de aula nas escolas, bem como em actividades de aprendizagem fora da sala de aula. O objetivo geral do Projeto Go-Lab é proporcionar aos alunos uma oportunidade de ganhar experiência prática na ciência através da realização de experiências usando equipamento moderno de laboratório, e assim aprofundar os seus conhecimentos em ciências fundamentais, e motivá-los para uma carreira científica no futuro.

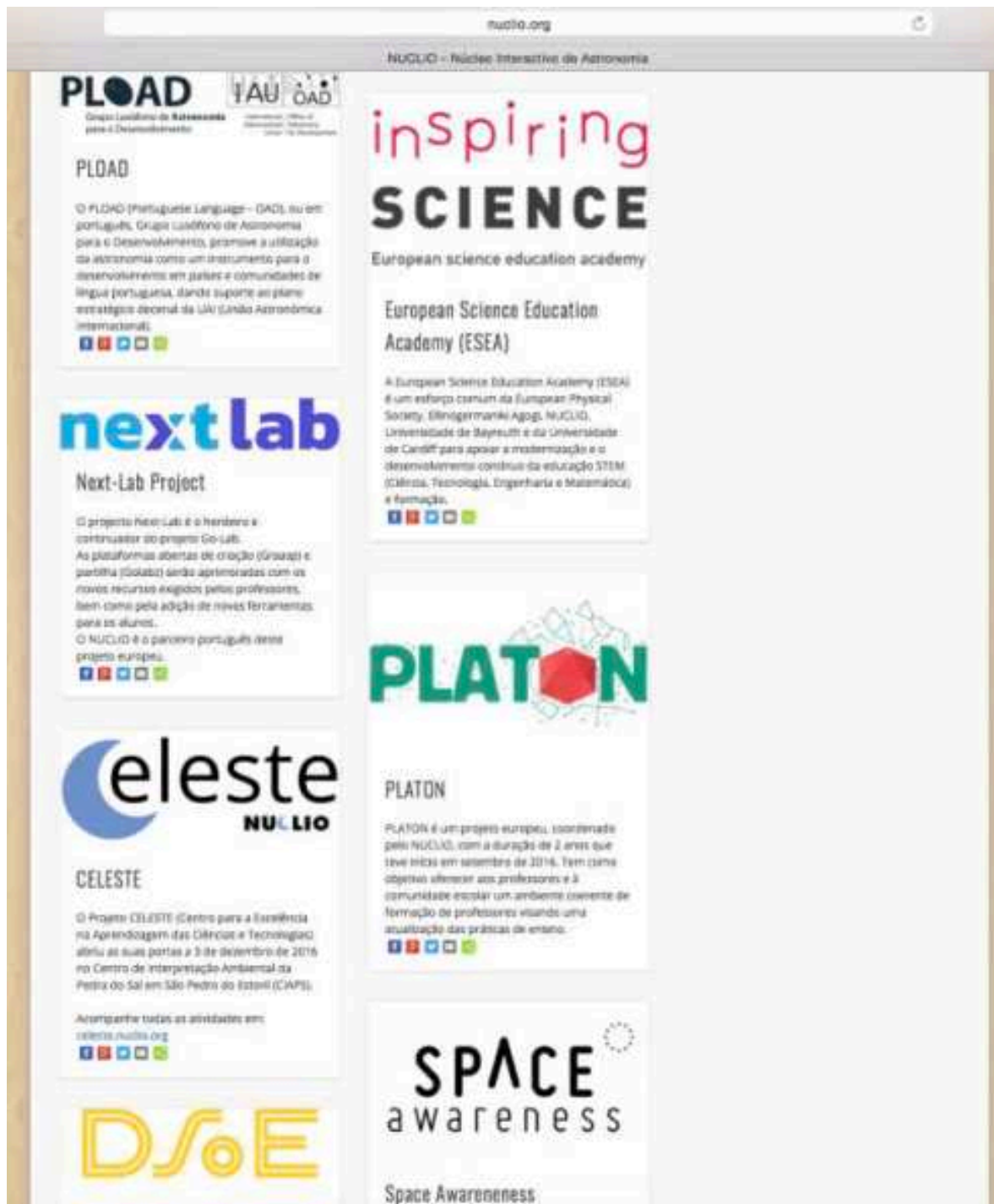
**GO-LAB**  
GLOBAL ONLINE SCIENCE LABS  
FOR INQUIRY LEARNING AT SCHOOL

**NUCLIO no Facebook**

NUCLIO - Núcleo Interact...  
100.000 likes

NUCLIO - Núcleo Interativo de Astronomia  
10.000 likes

Será que se recomendou a questão da água em Marte? Não. Um artigo recente coloca de facto em causa a presença de água em Marte – mas apenas no que diz respeito ao papel que ela pode desempenhar na origem das RSLs. Há poucos anos, alguns autores consideraram quase certo que estas linhas escuras se devam ao escoamento superficial de água com uma forte carga de sais. Mas, entretanto, um exame mais cuidadoso e a exploração de mecanismos alternativos para a sua origem levou outros autores a sugerir que elas se devam a avalanches secas de material granular!  
<http://portaldoastronomo.org/2017/11/na-e-a-agua-em-marte/>



### 15.4.2 Newsletter

NUCLIO has disseminated the Next-Lab project through its own newsletter, which is written in Portuguese and has 3000 subscribers from not only Portugal but also other Portuguese speaking countries.

NUCLIO has also disseminated the Next-Lab project through the Galileo Teacher Training Program newsletter, written in English and with almost 6000 subscribers from all over the world.

### 15.4.3 Social Media Channels

NUCLIO uses Facebook to disseminate the Next-Lab project, including workshops and teacher training courses.

Since the beginning of the school year, NUCLIO is posting each school week a resource from Go-Lab (ILS or Lab) that relates to the curriculum that teachers should be teaching at that time of the school year. Teachers that are looking for materials for their upcoming classes will have the right resource from Go-Lab to use the following week(s).



Resource about galaxies and types of galaxies

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1927242423959429/?type=3&theater>



Resource about Gravitational Force

<https://www.facebook.com/nuclio/posts/1935254039824934>





## Resource about Newton's Laws

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1943449725672032/?type=3&theater>



## Resource about Build an Atom

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1953180984698906/?type=3&theater>



Resource about Parachute

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1959848504032154/?type=3&theater>



Resource about Craters:

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1966827463334258/?type=3&theater>



Resource about Periodic Table:

<https://www.facebook.com/nuclio/photos/a.130734983610191.23410.130639500286406/1974815529202118/?type=3&theater>



#### 15.4.4 Dissemination Channels Figures

Twitter followers	Facebook fans	YouTube channels view	LinkedIn group members	Newsletter	Website unique visitors	Instagram
	3535			9000		

## **16. Annex 7: National dissemination and implementation report Finland**

### ***16.1 National dissemination strategy***

The national dissemination strategy in Finland is organized around three main components. The first component focusses on in-service teachers, the second on pre-service teachers, and the third on co-creation of ILSs.

As the project is new to Finland, during the first year the focus in the first component has been on creating visibility through presence on the main annual conferences of the different stakeholder organizations; the national conference on ICT in schools, the national conference for natural science teachers, and the national conference for mathematics teachers. In the second year the aim is to move from mere visibility to more active engagement. The aim for the second year is to organize focused workshops on the national conferences and to engage in-service teachers through specific follow up calls on their social media channels.

With respect to the second component, the in-service teachers, the focus in the first year has been on seeking means and opportunities to integrate the Go-Lab ecosystem into the curriculum of the Department of Teacher Education (DTE) at the University of Turku. Within the DTE there are two main target populations: the pre-service class teachers that will be teaching in elementary schools after their graduation and pre-service subject teachers that will be teaching in secondary schools after their graduation. For both populations we have now established places in the curriculum where the Go-Lab ecosystem will be used during this academic year. In addition, the Go-Lab ecosystem will also be integrated in the curriculum for the international master program on education. During the next phase of the project we aim to design linked network of places in the curriculum that makes Go-Lab both more clearly visible, but also makes it clear to the students what the possibilities to use Go-Lab in relation to different aspects of their education (e.g. learning experiences, design of learning environments, implementation in the classroom).

With respect to the third component we aim at a hybrid approach in which will try to engage both in and pre-service teachers in the process of co-creating learning environments. For the in-service teachers the channels will be trainings and the national conferences (e.g. through specific follow up calls on their social media channels), for the in-service teachers it will be in relation to the courses and their school practices.

### ***16.2 Dissemination Events***

#### **16.2.1 Summary of dissemination events**

Although the format of two events that we attended for disseminating Next-Lab and the Go-Lab ecosystem was the same, the events were quite diverse in terms of the audiences. Both events lasted several days (The future of teacher education in the Baltic region 2 days, and ITK 3 days).

The aim of the future of teacher education in the Baltic region conference was to share views on the current state of teacher education in the Baltic region countries and to discuss and share ideas on important directions for education and (their implications) for teacher education. On both days there was a session around the posters; the first day to present the posters and the second day to get into more detailed conversations and discussions.

The ITK conference is Finland's largest educational technology conference and is attended by around 2000 teachers, school principals, ICT tutors, researchers, and policy makers. Traditionally the first day of the conference is reserved for organizing workshops while the second and third day are following a conference format. On this second and third day there were two sessions around the posters on each day where the attendants of the conference could interact with the poster presenters. The posters were up during the whole conference, so people had the opportunity to come to see the posters during the whole duration of the conference.

**Table 17: Next-Lab Dissemination Events**

Title	Location	Date	Description
The future of teacher education in the Baltic region: Towards research based teacher education	Helsinki	30-31 03 2017	Poster presentation on an event organized by the national science academies of the Baltic region countries
Interaktiivinen Tekniikka Koulutuksessa (ICT in Schools)	Hämeenlinna	5-7 4 2017	Poster presentation on the national conference on ICT in Schools

### 16.2.2 Target audience and impact

The target audience in first event (The future of teacher education in the Baltic region) that we attended for disseminating were high level representatives of teacher education institutes and the presidents of the national academies of sciences from the Baltic region (Finland, Lithuania, Estonia, Latvia, and Sweden). Though given the nature of the event and the target audience, it is difficult to identify direct measureable impact, the event gave the opportunity present and discuss the project and its aims, to emphasize the importance of integrating technology enhanced inquiry learning in science domains in the school curriculum, to show how this supports new curriculum goals like the 21<sup>st</sup> century skills that are being added to the agenda in all these countries, but also (important given the target audience) to argue that a prerequisite for achieving this is that education around these topics becomes an explicit part of the teacher education.

The target audience for the second event (the national conference in ICT in education) is teachers, school principals, ICT tutors, researchers, and policy makers. The relatively large size of the event and wide range of the audience makes it both an attractive event in terms of potential impact but at the same time also a difficult event in terms of focus. As it was the first presence of the project on the event we decided to focus on the presenting the general structure and aims of the project and elaborate these with more specific information based on the background of the people during the poster sessions. The impact in terms of people attending the poster sessions was smaller than we had expected given the size of the event, but being present this year has generated awareness of the project that we will try to capitalize upon in next year's event when we plan to have a more focused presence by organizing a workshop.

### **16.2.3 Outcomes**

As Finland is new in the project and these events took place in the first part of the year and the chosen focus was mainly on dissemination the project aims and ideas and raising awareness.

In the future of teacher education in the Baltic region event there was the opportunity to present the project to the whole audience of the conference, and there was ample time to discuss at other times during the program. Given the relatively small nature of the two-day event this gave the opportunity to have personal conversations with most of the attendants. In these conversations the people showed interest in the Next-Lab project and welcomed the projects effort to bring these kinds of learning materials to schools in Europe. In relation to the conference theme (the future of teacher education) we could also convey the need for more emphasis on technology enhanced inquiry learning in teacher training and hopefully also how Next-Lab and the Go-Lab ecosystem could play a role in that. Given the nature of the audience we hope that we have managed to influence their position to the extent that they will also put these ideas forward in discussions around these themes in policymaking committees in the respective countries.

As mentioned above the poster session on the ITK recurred twice a day during the conference days, while the posters themselves posters available during the whole event. Though it focuses on a rather different audience, the experiences on ITK were similar to those in the future of teacher education in the Baltic region event in the direct interactions with participants. People overall liked the project and its ideas, but for the teachers in the conference it may have lacked concreteness at that point in time in order to achieve tangible outcomes in terms of teachers signing up and starting to use the Go-Lab ecosystem. As mentioned above, it did however create exposure that will be helpful for the training workshop that we plan for the next ITK conference.

### **16.2.4 Related materials**

The links below give access to the programs of both dissemination events and provide the opportunity to get a more elaborate impression on the nature of these events and also presents an overview of the breadth and width in their scope and topics.

The future of teacher education in the Baltic region: Towards research based teacher education programme:

<http://www.acadsci.fi/balticconference/index.php/programme/>

ITK Conference programme:

<http://2017.itk.fi>

## **16.3 Implementation Activities**

### **16.3.1 Summary of implementation activities**

UTU has been organizing three training events during this period.

The first training event took place during the LUMA days, the largest national event for teachers in the STEN domains in Finland. As a result of contacts between project partner EUN and Finish National Agency for Education we were invited to organize a workshop at the International LUMAT Symposium: Research and Practice in Math, Science and Technology Education that is held in parallel with the Finnish Luma days. The training that

we organized there was one of the workshops in the program and introduced the Go-Lab ecosystem to the participants in a hands-on session.

The second training took place during the MAOL Syyskoulutuspäivät (Fall education days for math teachers) organized by the union for math teachers. This one and a half day event combines presentations, workshops and exhibitions. The training that we organized there was one of the workshops in the program and introduced the Go-Lab ecosystem to the participants in a hands-on session.

The third training was a full day event organized by the “Tampere Region education development support centre”. The training was divided into four different parts. The topic of the first part was “Theoretical rationale for inquiry learning and interactive ICT in education. Inquiry learning and interactive ICT in the new national curriculum”, the topic of the second “Research evidence on the benefits of IL and interactive ICT in teaching and learning” the topic of the third “Hands-on with simulations( Go-Lab ecosystem)” and the last topic was “Lesson planning based on the principles of inquiry learning and integration of interactive ICT into lessons”.

The fourth training was a 3 hour workshop as part teaching in the Department of Teacher Education. The workshop started with a short introduction on inquiry learning introducing the theoretical background behind the project. After this introduction students were given an experience with an ILS from the perspective of a student which was followed by a short discussion. The next part first had the students registering in Graasp, and then copying the ILS that they had just been using as a student to their own space. This ILS was used to show how this ILS was built up, how elements can be modified and how new elements can be added. After this there was some time for exploration and hands-on experiences and the session ended with a short discussion.

**Table 18: Next-Lab implementations**

Title	Location	Date	Description
LUMAT Symposium: Research and Practice in Math, Science and Technology Education	Helsinki	22-24 05 2017	2 hour workshop on the Go-Lab ecosystem
MAOL Syyskoulutuspäivät (fall education days for math teachers)	Turku	6-7 10 2017	2 hour workshop on the Go-Lab ecosystem
Tutkiva oppiminen ja interaktiivinen tietotekniikka opetuksessa (inquiry learning and interactive ICT in education)	Tampere	12 9 2017	7 our workshop on inquiry learning and interactive ICT in education including a section on the Go-Lab ecosystem
Introduction to the Go-Lab ecosystem to pre-service class and subject teachers as part of a course	Turku	28 11 2017	3 hour workshop including a short introduction on inquiry learning, a hands-on learner experience with an ILS, an introduction to the Go-Lab ecosystem, and hands-on experience with Graasp

### 16.3.2 Target audience and impact

The target audience for the LUMAT symposium is math, science and technology teachers from all educational levels, prospective teachers, teacher educators and researchers in math, science and technology education. The workshop in the LUMAT symposium had been fully booked, but in the end only around half of those that registered in advance attended the workshop. Because most of these had not followed the bring your own device (BYOD) guidelines from the conference, the plan for a hands-on workshop had to be transferred into a demo session. As the link for registration to the event itself also proved to be a bottleneck, only few people signed up directly during the event.

The target audience for the *Matemaattisten Aineiden Opettajien Liitto* (MAOL, association for mathematics teachers) is in principle mathematics teachers, but given the wider range of topics in the conference program it also reaches teachers from other STEM domains. During the MAOL workshop the participants preferred to look at ILSs in demo mode, searching for ILSs on specific topics that they were interested in for their current classroom, rather than signing up and exploring the authoring process.

The audience for the Tampere training event was pedagogical ICT tutors and ambassadors of all municipalities of the Tampere region and both elementary and secondary school teachers. The participants of the workshop represented the whole range of and in terms of representing many of the municipalities in the Tampere region. During this event the event registration form was not used, but compared the other two events a larger amount of the participants also signed up to the Go-Lab ecosystem.

There were two target audiences for the training in Turku. Both pre-service subject teachers (secondary) and pre-service class (elementary) took part in the training. It is part of the general use of ICT in education trainings, and meant to provide students with views on possibilities to include ICT in education. Most of the students registered to the event during the session, and generally were interested to see both an example of an ILS, and how they could in principle modify or start creating one themselves.

### 16.3.3 Outcomes

The participants that did sign up during the LUMAT symposium and explored the environment generally were positive and saw opportunities for integrating it in their classroom. One of them explicitly mentioned that it was amazing that the Go-Lab ecosystem includes Learning Analytics apps because all Learning Analytics options that they had been exploring so far had been fairly costly.

As mentioned above, on the MAOL conference some participants preferred to explore ILSs in demo mode. This triggered an interesting discussion illustrating a divide between teachers that want ready materials (and preferably inside the LMS that they are using in their school) and those that are willing to create materials and are always on the lookout for tools that meet their needs and requirements. The first category looked at Go-Lab as another 'system' that needed to prove why it would be needed in addition to the ones they already have, the second looked at what kind of tools that they want to anyway use (from different sources) are available and how it can help them to achieve their goals more efficiently.

Tampere lessons learned: teachers are generally interested in simulations and virtual labs. However, similar to the discussion at the MAOL conference participants expressed a clear need to be able to integrate the content into the LMSs that are used in schools (e.g. O365). One important reason for this that came up during the conversations is that the teachers



have had to change LMSs so many times during their careers that they seek stability. As a result they do not easily see enough value in external services and do not want to administer their pupils there. Since the latter is not a necessity in the Go-Lab ecosystem (students do not need to register per se), it may be important to develop a strategy to communicate clearly and convincingly about these issues to teachers from or especially at the beginning. More generally, it might be valuable if Next-Lab could seek ways that schools could authenticate to the Go-Lab ecosystem via their own LMSs, and in this context it is good to see that the work around single sign on being done in the project is going in that direction.

Most of the students in the Turku training registered to the event. Though some of the elementary school pre-service teachers expressed concern about the level of domain knowledge that would need in order to be able to use simulations in the classroom, general interest was high and some students were searching and exploring other simulations looking for materials that they could possibly utilize, while others started modifying the ILS that was used in the training in order to get acquainted with authoring. As a general result some students may already use an ILS during their training in schools.

#### **16.3.4 Related materials**

The links below give access to the programs of the program of LUMAT (the English track within the LUMA conference) and the full program of the MAOL conference (in Finnish). They provide the opportunity to get a more elaborate impression on the nature of these events and present an overview of the breadth and width in their scope and topics.

LUMAT programme:

<http://www.luma.fi/en/files/2017/05/lumat-symposium-2017-program.pdf>

MAOL programme (only in Finnish)

<http://luma.utu.fi/wp-content/uploads/2017/10/Turku-2017.pdf>

### **16.4 Website, Newsletter and Social Media**

#### **16.4.1 Website**

The aim of the Next-Lab webpage on the University of Turku website is not to replicate all information that is available through the Go-Lab ecosystem webpages, but to provide a short introduction to the project, links to important pages within the Go-Lab ecosystem.

At the moment the Finnish version Next-Lab webpage is unavailable because of a redesign of the general structure of the Finnish information pages. This redesign process is scheduled for completion in the near future, and as soon as it is completed the Finnish version of the University of Turku Next-Lab information will be added. If this process takes longer than expected we will add a temporary version on the English side of the information pages.

In the future we intend to amend the current information with information on different pathways for the target audiences in the dissemination (pre-service teachers, in-service teachers, and potential co-creators of Inquiry Learning Spaces).

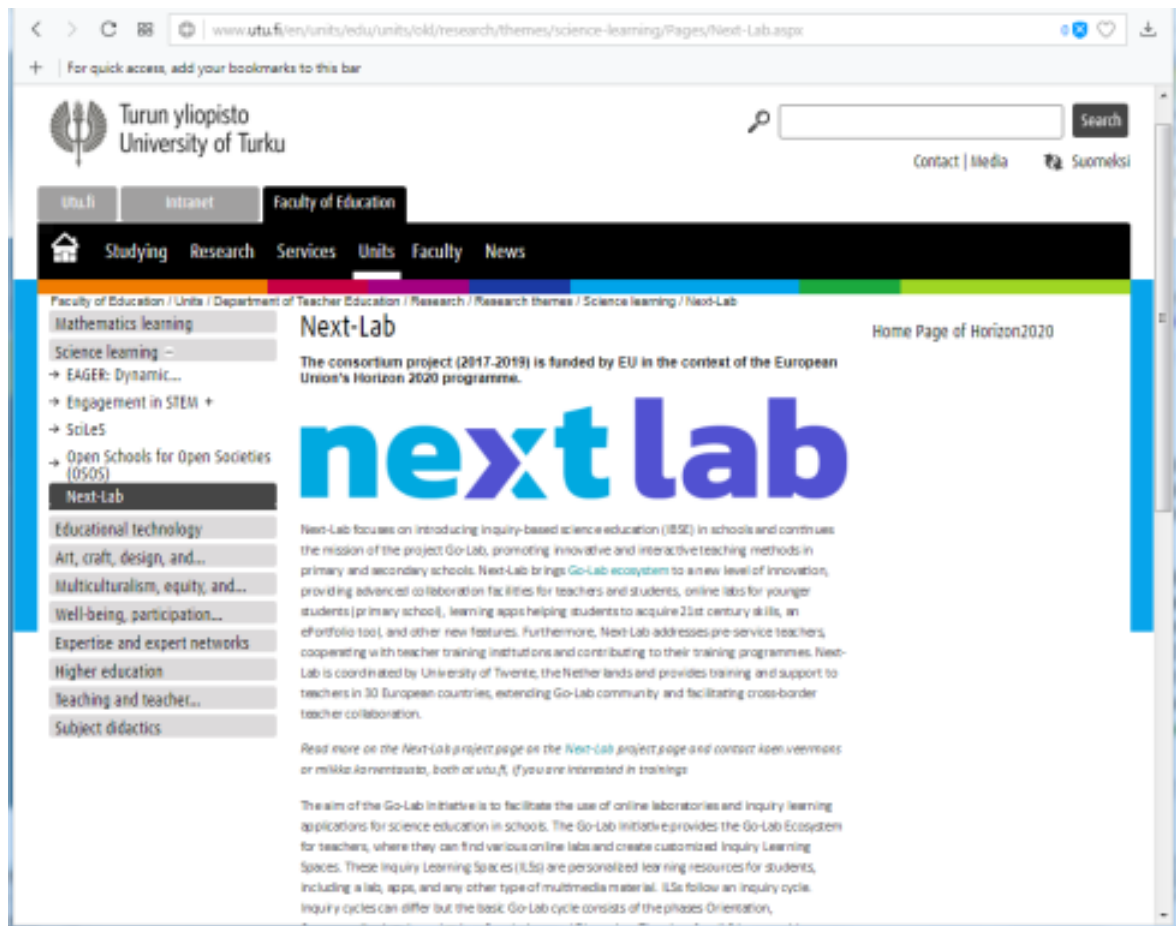


Figure 27: screenshot from the information page on the University of Turku website

### 16.4.2 Social Media Channels

At this point we do not have Next-Lab/Go-Lab specific social media accounts. Instead we plan to address existing (social media) channels (e.g. <http://www.alakoulunaarraitia.fi/>) that already have an established base of followers from the target audiences for specific calls (e.g for co-creation of Inquiry Learning Spaces).

## **17. Annex 8: National dissemination and implementation report United Kingdom**

### ***17.1 National dissemination strategy***

The UK dissemination strategy is closely linked to the main task of the University of Leicester team in the Next-Lab project: Participatory Design. Consequently, events performed by ULEIC consist of dissemination activities (providing information on the Next-Lab project and Go-Lab resources) as well as PD activities (collecting input and feedback).

Teachers are approached via different communication channels, which include: phone calls and emails to existing Go-Lab contacts, event offers on our website, workshops with the School of Education of the University of Leicester, etc. To cater for the needs of teachers, an event can be organized on school premises or on the university campus.

If teachers express interest, a tailored event is organized and run by the ULEIC team, based on the specific requirements of the participants (e.g. on which part of the Go-Lab system they would like to focus) but also considering the project's necessities (e.g. artefacts for which PD input is required).

To foster subsequent dissemination activities, events include the offer to further support the attending participants as well as their colleagues in getting to know the system better, creating their own ILSs, and implement them in their classroom.

### ***17.2 Dissemination Events***

#### **17.2.1 Summary of dissemination events**

Usually a (PD) workshop starts with a general overview of the educational vision and main ideas of the Next-Lab project (e.g. on how to apply inquiry-based learning and how to include online laboratories in science lessons). This is followed by a presentation of, and if time permits, hands-on activities with the Go-Lab sharing platform and the Graasp authoring environment.

**Table 19: Next-Lab Dissemination Events**

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
LEIC-23022017	University of Leicester	23/02/2017	Presentation of Next-Lab project and Go-Lab resources in general to pre-service teachers.
LEIC-13062017	University of Leicester	13/06/2017	Presentation and hands-on activities of Next-Lab project and Go-Lab resources in general, scenario integration, and ILS publishing process with teacher trainers.
HMC / Ogden trust Head of Physics event.	Fulneck School, Fulneck, Pudsey, Leeds LS28 8DS	10/11/2017	Presentation of Next-Lab project and Go-Lab resources, with hands-on activities, for teachers, in a two-hour session as part of the HMC / Ogden trust Head of Physics event.
Twilight event at Brookvale Groby Learning Campus.	Brookvale Groby Learning Campus, Ratby Road, Groby, Leicester, LE6 0FP	20/11/2017	Presentation of Next-Lab project and Go-Lab resources, with hands-on activities, for teachers in a one-hour twilight event.

### **17.2.2 Target audience and impact**

The target audience of our dissemination activities are mostly pre- and in-service teachers with no or little prior knowledge of Next-Lab and the Go-Lab resources.

The ULEIC dissemination activities resulted in more than 60 newly created Graasp users.

### **17.2.3 Outcomes**

Based on the positive resonance to a Go-Lab workshop, we have been invited to a physics teacher event to present Next-Lab and the Go-Lab resources.

Additionally, we have scheduled a follow-up session with the participants from Brookvale Groby Learning Campus regarding the uptake of online laboratories in their science lessons, which will happen next year.

### **17.2.4 Related materials**

The related materials (e.g. slides) can be found in the respective events in the Go-Lab community in Graasp.

## **17.3 Website, Newsletter and Social Media**

### **17.3.1 Website**

Offer for school activities on the Informatics department website, available at:

<https://www2.le.ac.uk/departments/informatics/outreach>

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### Outreach

#### Lectures for Schools and Colleges

The Department of Informatics provides a set of free lectures to groups of school or college students. The lecture notes are delivered at the school/college premises on-line and also appear below on the Department website subject if you would like to arrange a visit. Please contact Dr. Neill - [neill@le.ac.uk](mailto:neill@le.ac.uk)

#### Lecture Programme

- Computer Science: Introduction to Computer Science (1st Year)
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- How the computer can solve this but how long will it take? Professor Bob Thomas
- Mobile Computing - Security in the Digital Age - Professor Thomas Eklund
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- Searching the Web - How Google Works - Professor Thomas Eklund
- Mobile Cloud Computing: Technology for World of Mobile Devices - Dr. Stephen Staff-Burgess
- Using Online Business Tools for Quality Learning at School Dr. Elin Lonn
- Software Engineering for Sustainability Dr. Neill - [neill@le.ac.uk](mailto:neill@le.ac.uk)
- "What We Do at Computer Science @ Leicester: From algorithms and Data structures, Logic, Discrete Mathematics, Sets, Induction and Recursion Taylor
- Engineering, Innovation and Creativity Lead Student Ambassador: Catherine Taylor
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### Global Online Science Labs for Inquiry Learning at School

Go-Lab (<http://www.go-lab-project.eu/>) is an EU project developing a portal for online labs in science. A prototype of this portal can be found at [www.golabz.eu](http://www.golabz.eu). Besides online labs the portal offers scaffolds (apps) for learning, for example a tool for learners to create hypotheses. Teachers can create learning environments (so-called Inquiry Learning Spaces or ILSs) by combining labs, scaffolds and other resources. Ready-made ILSs are also offered at the portal.

The Go-Lab project is searching for schools and/or individual teachers who are willing to give feedback on the portal and its elements, or are willing to let their students work with Go-Lab software (labs and/or ILSs). All activities will be carefully guided by members of the Go-Lab project. The Leicester Go-Lab team are responsible for coordinating these activities as workshops at schools across the UK.

Here is a brief outline of the workshops we plan to conduct. Please note that the activities described below are based on the assumption that more than one science teacher in the school will take part in the workshop. However, if it is not the case, we can do a one-to-one session with individual teachers/students. We are very open to modifying the workshop to take practicalities into account.

#### Session with Teachers (~ 2 hours)

1. Presentation by Go-Lab researchers: Introduction to the goal of the workshop (why we need feedback and how we will make use of it) (10 minutes)
2. Demonstration by Go-Lab researchers: How to use the Go-Lab portal (<http://www.golabz.eu>) and a feedback tool called PDot (15 mins)
3. Hands-on activities by teachers: Work through an online lab based lesson on a selected lab (NB: We have a list of ILSs on physics, biology and chemistry; you are much welcome to identify one that suits your students) (60 minutes)
4. Group discussions and/or questionnaires or possibly other more creative and collaborative feedback activities (25 minutes)

#### Session with Students (~ 1.5 hours or a double lesson)

(In the presence of the teacher and Go-Lab researchers) Repeat Steps 1 - 4 of Session with Teachers with some time and content modifications.

The two sessions will be conducted on different days or with at least a lunch break between them.

Should you have any queries, please feel free to contact the Leicester Go-Lab team <[ULEIC-GO-LAB@leicester.ac.uk](mailto:ULEIC-GO-LAB@leicester.ac.uk)> or contact me directly: **Effie Law** [elaw@mcs.le.ac.uk](mailto:elaw@mcs.le.ac.uk)

We are looking forward to collaborating with you in this exciting project.

Best regards,

Effie Law

## **18. Annex 9: National dissemination and implementation report Spain**

### ***18.1 National dissemination strategy***

The main objective of the Spanish Next-Lab Expertise Centres represented by University of Deusto is to broad the circle of primary and secondary teachers who will use the Go-Lab system in their day-to-day lesson instruction. The action is limited with STEM teachers – the Next-Lab primary target group. The team believes that with this strategy they can reach the second project major target audience – school students.

To reach the target audience, the NEC of Spain use common dissemination tools such as printing a paper in National Education journal EDUCAR broadly disseminated between school teachers (I. **Menchaca Sierra**, O. **Dziabenko**, J. **García Zubía**, “*Spanish Experience in Go-Lab Project*”, EDUCAR (Spanish) (in print)); circulating project news over the mailing list created at the beginning of the project and constantly increasing; disseminating the leaflets and presenting the project to the professional community in broad. Besides this we offer to Spanish and international teachers the dissemination and implementation events. Mostly, the events are elaborated and offered in a format of a workshop. The duration of which depends on the volume of the provided training materials, and experience of the participants in the Go-Lab ecosystem.

### ***18.2 Dissemination Events***

#### **18.2.1 Summary of dissemination events**

**Table 20: Next-Lab Dissemination Events**

Title	Location	Date	Description
IBSP in school education	Barcelona, Spain	09 Febr. 2017	The seminar was organized by the Recerca Foundation to disseminate good practices among secondary teachers. The event offered a presentation with brief hands-on practice of the design simple ILS ( around 30 teachers)
Go-Lab ecosystem	Webinar	15 June 2017	Introducing the project and Go-Lab ecosystem (10 participants)
Go-Lab ecosystem in support of the IBL approach	Webinar	15 July 2017	Introducing the project and Go-Lab ecosystem (12 participants)
IBL in NextLab Project	San Sebastián	03-05 July 2017	The session was included as part of the Summer School UPV entitled “¡Aprender hoy para resolver mañana! Las competencias STEM” coordinated by Elvira González. In the session the NextLab project: objectives, tools was presented (55 teachers).
Dissemination of NextLab labs and ILS	Bilbao	27 Sept. 2017	The dissemination workshop was held in frame of the Trastea teachers’ club, The primary and secondary school teachers of Basque region participated in this event. (19 participants)

### 18.2.2 Target audience and impact

The main audience of the dissemination events is secondary school teachers in Spain, although the primary sector is also laying in the great interest of the team as well. The international dissemination to the audience articulated in the project objectives such as representatives of Teacher Training institutions, school sector and education policy makers was performed during first year as well. The main impact is the expanding awareness on the Go-Lab ecosystem and increasing willingness to incorporate it in the school lessons. Overall more than 120 teachers took part in these events

### 18.2.3 Related materials

Link to webinar

<https://eu.bbcollab.com/collab/ui/session/playback/load/630644FBF9712CBF42F76479C198F71F>

Link to session in San Sebastian: <https://www.uik.eus/es/aprender-hoy-para-resolver-manana-las-competencias-stem-ciencia-tecnologia-ingenieria-matematica>



## 18.3 Implementation Activities

### 18.3.1 Summary of implementation activities

**Table 21: Next-Lab implementations**

Title	Location	Date	Description
ILS for STEM education	Bilbao	Jan-March 2017	Training course consists of 4 workshops. It is the part of training action of regional government on the professional development of the secondary school teachers. UD Next-Lab team was selected during the open call to train STEM teachers. At least 2 ILS were built each attended teacher. 6 Participants
IBSP in school education	Kyiv, Ukraine	20-21 Apr.2017	Introducing the project and Go-Lab ecosystem; hands-on work on the implementation of the ILS 22 Participants
IBSP in the secondary school STEM lesson	Barcelona, Spain	10-13 July 2017	Get familiar with IBSE, create at least one ILS using chosen online laboratory. The workshop was organized with support of the Recerca Foundation. 25 participants
How Go-Lab ecosystem can help you in your class instruction	Webinar	29 Sept., 11 Oct, 24 Oct, 2017	The set of the Webinar devoted to intro to Go-Lab portal and services, IBSP approach and merging the got knowledge and skills in the ILS. 22 Participants
Design of the STEM inquiry-based activity: ILS	Ivano-Frankivsk, Ukraine	08-09 Nov.2017	During the 2 day workshop the Go-Lab ecosystem was introduced. Participants built at least one ILS in national language. After the Next-Lab expert's review the ILSs will be published on the Go-Lab ILS collection. 33 Participants

### 18.3.2 Target audience and impact

The target audience is secondary school teachers, and students and professors of teacher training institution on national and international level. More than 100 participants were embraced within the implementation activities.

### 18.3.3 Related materials

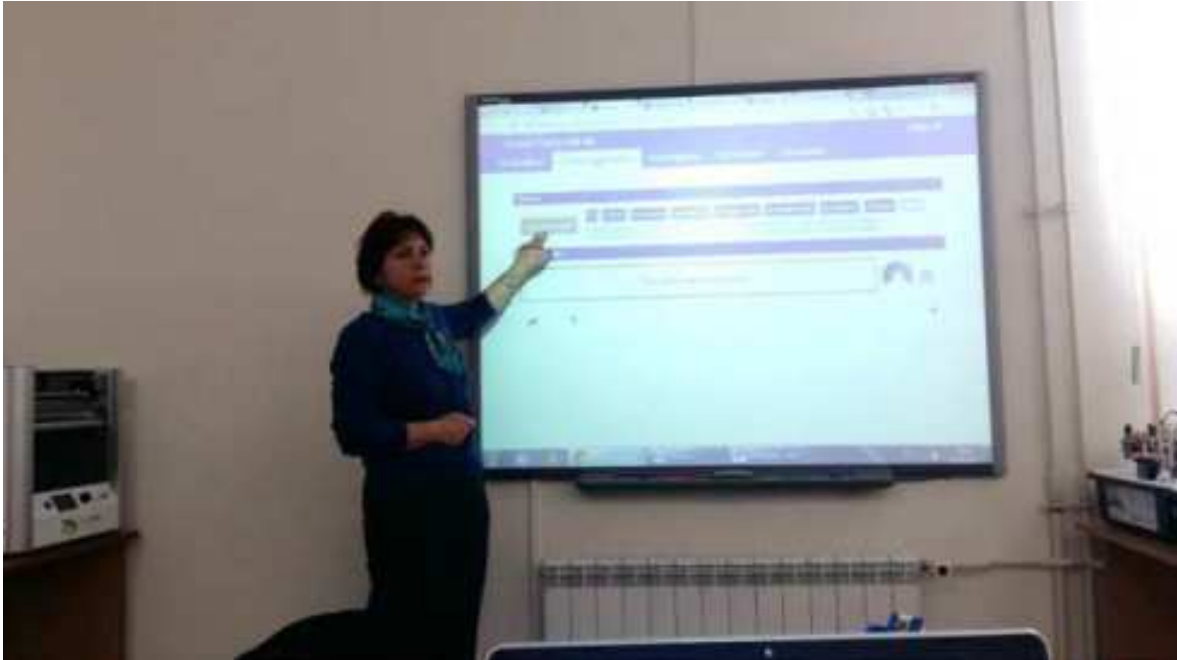


*IBSP in the secondary school STEM lesson, Barcelona, Spain*

	
<b>Open access strategy</b> Mestratge i certificació en ITSEM i en matemàtiques aplicades a les empreses del Departament d'Enginyeria Informàtica i Matemàtiques, 2017-2018 (2017-18)	
Departament d'Enginyeria Informàtica i Matemàtiques, Universitat de Deusto	
<b>1. Objectius</b>	- Definir i descriure les competències i habilitats necessàries per a l'ocupació. - Identificar les competències i habilitats necessàries per a l'ocupació. - Definir i descriure les competències i habilitats necessàries per a l'ocupació. - Definir i descriure les competències i habilitats necessàries per a l'ocupació.
<b>2. Contingut</b>	- Anàlisi de les competències i habilitats necessàries per a l'ocupació. - Anàlisi de les competències i habilitats necessàries per a l'ocupació. - Anàlisi de les competències i habilitats necessàries per a l'ocupació.
<b>3. Metodologia</b>	- Anàlisi de les competències i habilitats necessàries per a l'ocupació. - Anàlisi de les competències i habilitats necessàries per a l'ocupació.
<b>4. Avaluació</b>	- Anàlisi de les competències i habilitats necessàries per a l'ocupació. - Anàlisi de les competències i habilitats necessàries per a l'ocupació.

*Agenda, IBSP in school education, Kyiv, Ukraine*





## ***18.4 Website, Newsletter and Social Media***

### **18.4.1 Website**

N/A

### **18.4.2 Newsletter**

The Spanish community mailing list uses for dissemination the new Go-Lab ecosystem approaches, tool, and scenarios, as well as all activities foreseeing and organizing on local, regional, national and international levels.

## 19. Annex 10: National dissemination and implementation report Estonia

### 19.1 National dissemination strategy

In the first year we have focused on integrating the Go-Lab ecosystem into the pre-service teacher curriculum at the University of Tartu. Two courses -- SVHI.06.004 Using Innovative Technologies that Support Inquiry Cycle (a Master's level course taught in English) and SVHI.06.003 Uurimuslik õpe (a Bachelor's level course taught in Estonian) -- began in the 2017/18 academic year and are teaching pre-service teachers to create ILSs using the Graasp authoring platform for coursework. These assignments focus on creating digital learning resources to support inquiry-based science education. At the same time, we are continuing to introduce Go-Lab to in-service teachers and other relevant stakeholders in Estonia through in-service training courses or workshops at national conferences. Internationally we have presented the Go-Lab ecosystem at a seminar for educational policymakers in Taiwan and to educational researchers at a conference in South Africa. In the future we hope to impact more teachers through better social media dissemination and offering more Estonian language resources in the Go-Lab ecosystem, thus fostering a more active Estonian Graasp community.

### 19.2 Dissemination Events

#### 19.2.1 Summary of dissemination events

Two global dissemination events have introduced the Go-Lab ecosystem to a worldwide audience. The first occurred in Taiwan as part of a joint symposium on Taiwan-Estonian research cooperation where the project was introduced as a potential avenue for collaboration. The second event occurred in South Africa to an audience of educational researchers who were presented with the design and evaluation of an ILS.

**Table 22: Next-Lab Dissemination Events**

Title	Location	Date	Description
Workshop as part of the Joint Symposium on Taiwan-Estonian Research Cooperation	Taiwan, Taipei	7/3/2017	Dissemination presentation for 50 educational authorities.
Conference presentation "Design and evaluation of a smart device science lesson to improve students' inquiry skills"	South Africa, Cape Town	21/09/2017	Dissemination presentation for 15 academics and researchers.
TeSTEM workshop: How to link pedagogy,	Auckland	29.11.2017	Introduction to Go-Lab ecosystem (apps, labs, learning analytics tools). Sharing experiences about linking pedagogy, technology and STEM

Title	Location	Date	Description
technology and STEM learning?			learning with the example of the Go-Lab and other projects
The 25th International Conference on Computers in Education (ICCE 2017)	Christchurch	04-08.12.2017	<a href="http://www.icce2017.canterbury.ac.nz/proceedings_workshop">http://www.icce2017.canterbury.ac.nz/proceedings_workshop</a>
How to link pedagogy, technology and STEM learning?	Christchurch	04.12.2017	Workshop Proceedings of the 25th International Conference on Computers in Education

### 19.2.2 Target audience and impact

The target audience for the Taiwan dissemination event was high level education policymakers in Taiwan. The result was the beginning of discussions for including a Taiwan team as a partner in the Next-Lab project, but currently the Taiwan team has not succeeded in receiving co-financing from their national agency.

The target audience for the South Africa conference event was educational researchers. The result was a presentation of the design and evaluation of an ILS to about 15 listeners and scientific discussions about using the Go-Lab ecosystem to support improvement of students' inquiry skills.

### 19.2.3 Outcomes

Related to the South Africa conference event a publication is available:

Siiman, L. A., Pedaste, M., Mäeots, M., Leijen, Ä., Rannikmäe, M., Zacharia, Z. C., & de Jong, T. (2017, September). Design and evaluation of a smart device science lesson to improve students' inquiry skills. In H. Xie, E. Popescu, G. Hancke, & B. F. Manjón (Eds.), *Advances in Web-Based Learning – ICWL 2017*. Paper presented at the 16th International Conference on Web-Based Learning, ICWL 2017, Cape Town, South Africa (pp. 23-32). Springer International Publishing. [https://doi.org/10.1007/978-3-319-66733-1\\_3](https://doi.org/10.1007/978-3-319-66733-1_3)

## 19.3 Implementation Activities

### 19.3.1 Summary of implementation activities

In the first year of Next-Lab we have implemented four teacher training activities. Two were workshops that were part of in-service teacher training, one was a course for in-service teachers and the final one was workshop at a national conference.

**Table 23: Next-Lab implementations**

Title	Location	Date	Description
Workshop for teachers	Tartu	16/3/2017	1 day workshop for 27 Local Primary and Secondary School Teachers. Training and feedback on teacher created ILSs
Workshop for teachers	Tartu	24/5/2017	1 day workshop for 10 Local Primary and Secondary School Teachers. Training and feedback on teacher created ILSs
Beginning of the University of Tartu Master's level course SVHI.06.004 Using Innovative Technologies that Support Inquiry Cycle	Tartu	17/08/2017	More than 3 days training for 10 Pre-service Teachers Getting familiar with the inquiry cycle framework and learning to create digital learning materials in the Graasp Authoring Platform. Assigned a homework problem to create an inquiry activity (e.g., an ILS).
Workshop for teachers	Tallinn	16/09/2017	1 day workshop for 20 Local Primary and Secondary School Teachers. Getting familiar with the inquiry cycle framework and learning to create digital learning materials in the Graasp Authoring Platform.
Workshop for teachers	Tallinn	16.10.2017	Teacher workshop at Tallinn University <a href="http://graasp.eu/spaces/59e3d7220b79a46b924ccac9">http://graasp.eu/spaces/59e3d7220b79a46b924ccac9</a>

### 19.3.2 Target audience and impact

For the in-service training workshops, the target audience was Estonian primary and secondary school teachers who teach science subjects. The target audience for training of in-service teachers in the course SVHI.06.004 Using Innovative Technologies that Support Inquiry Cycle was international working educators who began a one-year blended online Masters programme at the University of Tartu. The target audience for the conference workshop was Estonian primary and secondary school teachers.

### 19.3.3 Outcomes

In total, the four teacher training events involved 67 participants. Among them were 57 in-service teachers. All the participants became familiar with the Go-Lab ecosystem and used the Graasp platform to create new inquiry learning materials.



### 19.3.4 Related materials



**Figure 28: Picture from the conference workshop for STEM teachers on September 16, 2017. Teachers were introduced to the inquiry cycle framework and learned to create digital learning materials in the Graasp Authoring Platform**

## 19.4 Website, Newsletter and Social Media

### 19.4.1 Website

Our Centre for Educational Technology website (<https://www.ht.ut.ee/en/haridustehnoloogia-keskus>) includes description of the Next-Lab project, people involved with this project and a link to the Go-Lab Portal for further information. In addition, we offer to bachelors and masters level students the topic of conducting a study using the Go-Lab ecosystem as a possible topic for their thesis project work from our institute's website.

Often we direct participants in our dissemination events to visit the English language Go-Lab website for further information.



## **20. Annex 11: National dissemination and implementation report Cyprus**

### ***20.1 National dissemination strategy***

The University of Cyprus and specifically the Research in Science and Technology Education Group (ReSciTEG), as the NEC in Cyprus, offers training workshops for secondary and primary teachers as well as university students and participates in several national academic and social events. Our main goal is to increase the awareness about the Go-Lab Ecosystem and invite teachers and schools to benefit from the potentials of the Go-Lab ecosystem and integrate it into their teaching practice. The overall strategy that we want to follow is not only to train in-service teachers but also graduate and undergraduate students of the University of Cyprus, who will be part of the educational system in the future. Besides, undergraduate students have two School-Experience courses where they design and implement their lessons. We expect that after an extensive use of the Go-Lab ecosystem they will use it with their students and mentors during their school experience. This, of course, can serve as an extra dissemination plan to increase awareness about Go-Lab into schools.

In addition, we have a close collaboration with the Cyprus Ministry of Education, the Cyprus Pedagogical Institute and several teachers' communities, such as the Cyprus Physicists Society, the Cyprus Biology Teachers Society and the Cyprus Chemistry Teachers Society. Through these networks we receive invitations to participate in training workshops and professional development programs, where we present the Go-Lab ecosystem as a powerful and innovative tool for IBSE. Since IBSE is currently promoted in Cyprus schools as the mainstream teaching approach across K-12 science education, we expect that our intention to train teachers in using Go-Lab addresses a widely recognized need. Given that there are many problems, which pertain until today and which endanger the smooth implementation of IBSE (e.g., lack of tools and IBSE teaching materials across the sciences), any IBSE related support coming from our side is more than welcome.

Meanwhile, as a research group we participate in several national and international events, like science festivals and conferences, and our plan is to disseminate the Next-Lab project and Go-Lab ecosystem among students, teachers, parents, policy makers and researchers. Finally, through our website and Facebook page we share several events, news, good practices and materials to promote the Go-Lab ecosystem and Go-Lab user community.

### ***20.2 Dissemination Events***

#### **20.2.1 Summary of dissemination events**

During the first year of the Next-Lab project, five dissemination events were carried out in Cyprus, as shown in the Table 24 below. The first two events targeted students who have visited the University of Cyprus with their science teachers and who participated in inquiry activities through Go-Lab. At the beginning of these meetings, a brief introduction about the Go-Lab portal was made and after that, students completed the activities in an ILS for approximately one hour. In addition to this type of events, we have been invited to participate in a local conference which involved both students and their teachers. During this conference, students presented the results of their research studies in several science-oriented fields. In our session, we presented the Go-Lab portal and how it had been integrated in school practice so far. This event was an opportunity for us to invite teachers

to follow-up the Next-Lab project and receive information about upcoming teacher training on how to use Go-Lab into the classroom. Finally, we joined two social events about science and research in general, namely the Mediterranean Science Festival and the Researchers' Night, where the visitors had the opportunity to get to know about the Go-Lab portal, try some online labs and complete small activities of some ILSs.

**Table 24: Next-Lab Dissemination Events**

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Inquiry activities in Go-Lab	Nicosia	07/01/2017	Twenty-seven secondary students and their science teacher were informed about the Go-Lab and the repository of the Inquiry Learning Spaces (ILSs). In addition, students have completed the activities of an ILS about craters on earth.
Inquiry activities in Go-Lab	Nicosia	17/02/2017	Like the above event, fifteen secondary students and their teacher were introduced to the Go-Lab Inquiry Learning Spaces (ILSs) repository and they carried out the activities of an ILS about the craters on earth.
Go-Lab: An innovative tool for Science Education and its use in Cypriot schools	Larnaca	11/03/2017	During a local conference about sciences for both teachers and students (6 <sup>th</sup> Pancyprian Students' and Teachers' Conference for Natural Sciences), a presentation of Go-Lab was made. The focus of the presentation was on the potentials of the Go-Lab platform and how it had been used in Cyprus so far. At the end, teachers were provided with contact information to join us in the Go-Lab community.
Mediterranean science festival	Limassol	27 – 30/04/2017	The science festival lasted for four days. During the first two days of the festival, elementary and secondary students with their teachers visited the festival and participated in small activities. Among other activities, they tried some online labs and ILSs. During the last two days, families attended the interactive exhibition and participated in similar activities.
Cyprus Researchers' Night	Nicosia	29/09/2017	During the Researchers' Night in Cyprus, our group participated with several science activities. Among other activities, the visitors (of a wide range of ages) were informed about the Go-Lab portal and tried some online labs and ILSs.

### **20.2.2 Target audience and impact**

The dissemination events in Cyprus targeted primarily in-service teachers and their students. The focus of our events was to let students try out an ILS and discuss at the end about their experiences and how they think that Go-Lab can be part of their learning. At the same time, as a research group we participated in two events which targeted the broader public. Our intention in these events was to make the Go-Lab well known among not only among teachers and students, but also among parents and policy makers. Lastly, we maintain a close collaboration with teachers' communities, such as the Cyprus Physicists Society, Cyprus Biology Teachers Society and Cyprus Chemistry Teachers Society, who often invite us in several conferences and other events, such as the Pancyprrian Students' and Teachers' Conference for Natural Sciences.

### **20.2.3 Outcomes**

Overall, the impression about Go-Lab during the dissemination events was very positive. Most of the participants who have interacted with us during the events expressed their positive comments about the high quality of the Go-Lab portal and the importance of including inquiry activities into the classroom. Students were very excited and expressed their great readiness on working with online activities. However, during the discussion with teachers regarding the integration of the Go-Lab into their classroom, we received mixed opinions. Some teachers expressed their willingness to receive training on how to use it because it is very helpful for their everyday school practice, while others were rather concerned about the lack of the appropriate infrastructure in their schools and that the science curriculum is very demanding and they do not have time to include any addition into their teaching practice. Another important outcome that came out from the dissemination events was the enthusiasm of the parents, who visited the events (Mediterranean science festival and researchers' night) with their kids. Most of the parents acknowledged the effort of combining innovative technologies with learning and in some cases, they asked for more information in order to use the Go-Lab portal with their kids at home.

### **20.2.4 Related materials**

During the first two events of the Table 1, we did not use a presentation. Instead, we made a brief demonstration of the Go-Lab portal and then the students worked in groups (2-3 members) to complete the activities of an ILSs about the craters on earth. The ILSs was organized according to the basic inquiry cycle scenario and the aim of the lesson was the study of the variables that might affect the size of a crater formed when an asteroid crashes to the earth (see <http://www.golabz.eu/ils/η-εξαφάνιση-των-δεινοσαύρων>).

During the Pancyprrian Students' and Teachers' Conference for Natural Sciences in Larnaca, we presented some slides about the Go-Lab and Next-Lab projects, the Go-Lab portal with emphasis on the repositories of labs, apps and inquiry spaces, and how the Go-Lab ecosystem have been used in Cypriot schools until that moment. In Figure 1 below, some slides from the presentation are depicted.



Figure 29: Slides from the presentation done in the event in Larnaca

During the Mediterranean Science Festival and the Researchers' Night, we represented our research group in the interactive exhibition of the two events and among other activities the visitors were using laptops to complete activities in Go-Lab. Below, some photos of the two events are presented.



Figure 30: Snapshots from the Mediterranean Science Festival (on the left) and the Researchers' Night (on the right)

## 20.3 Implementation Activities

### 20.3.1 Summary of implementation activities

Since the beginning of the Next-Lab project and until October 2017, 5 training workshops took place in Cyprus. Two of them have been organized in collaboration with the Cyprus Ministry of Education in the context of the in-service teachers' professional development. The duration of the events was approximately 4 hours and the participants were informed about the Go-Lab portal and the Graasp authoring environment. Furthermore, two training workshops were included in the curriculum of two courses of the Department of Education of the University of Cyprus and lasted more than 6 hours each. The participants explored the Go-Lab portal in depth, learned how to use the Graasp authoring tool and created their own ILs, both in groups and individually. Moreover, they received feedback for their ILs from instructors and many of these ILs have been published in the Go-Lab portal. Finally,

the most recent training workshop we have made, was in collaboration with the PLATON project (<http://platon-project.eu>), which is an Erasmus+ co-funded program. In the context of this event, Go-Lab was presented as a powerful tool for designing and implementing interdisciplinary inquiry activities into the classroom.

**Table 25: Next-Lab implementations**

<b>Title</b>	<b>Location</b>	<b>Date</b>	<b>Description</b>
Go-Lab Ecosystem (Graasp / Golabz)	Nicosia	23/01/2017	The training workshop was included in the context of a mandatory professional development program for secondary in-service teachers, which is offered by the Cyprus Ministry of Education. During the training, the Go-Lab portal and the Graasp authoring environment were demonstrated, and then teachers had the opportunity to search for labs, apps and inquiry spaces in the Go-Lab portal and explore the Graasp.
Go-Lab Ecosystem (Graasp / Golabz)	Nicosia	31/01/2017 and 07/02/2017	In this event, undergraduate students in the Department of Education at the University of Cyprus participated in 2 three-hour training workshops, as part of their course titled "Computer Science Applications in the Teaching of Science in Elementary School". The participants explored the Go-Lab portal, created ILSs in Graasp and published their ILSs in the Go-Lab portal.
Go-Lab Ecosystem (Graasp / Golabz)	Nicosia	06/02, 08/02, 09/02, 15/02 and 16/02/2017	Undergraduate students in the Department of Education at the University of Cyprus participated in 3-day training workshops, as part of their course titled "The teaching of Natural Sciences". During the workshops the participants explored the Go-Lab portal, created ILSs in Graasp and published their ILSs in the Go-Lab portal.
Go-Lab Ecosystem (Graasp / Golabz)	Nicosia	07/04/2017	The training workshop was part of a mandatory professional development program for secondary teachers, organized by the Ministry of Education in collaboration with the University of Cyprus. During the training, the participants explored the Go-Lab portal and tried the potentials of the Grassp authoring environment.
Interdisciplinarity and Inquiry Based	Nicosia	25/10/2017	This event was organized in the context of the PLATON and Next-Lab

Title	Location	Date	Description
Learning in Science Education – Go-Lab Ecosystem (Graasp / Golabz)			projects. Teachers were introduced to the Go-Lab ecosystem and learned how to create/adapt inquiry learning spaces. The Go-Lab portal and the Graasp authoring environment were suggested as a powerful tool for implementing interdisciplinary activities into the classroom. In addition, emphasis was given to the importance of the Go-Lab community and how the users/teachers can benefit from it.

### 20.3.2 Target audience and impact

The training workshops that have been held so far in Cyprus, have involved both in-service and pre-service (undergraduate students) teachers. Our aim is to provide opportunities for in-service teachers to integrate the Go-Lab ecosystem into their daily teaching practice and to prepare future teachers to make use of such innovative technologies and pedagogies. The close collaboration between the University of Cyprus and the Ministry of Education and the Cyprus Pedagogical Institute, in the context of the teacher professional development programs, aims to increase the teachers' Go-Lab community in Cyprus and to create a network for support and collaboration for fostering the use of Go-Lab into the classroom.

### 20.3.3 Outcomes

Overall, the participants in each training workshop learned how to explore the Go-Lab portal and search for online labs, apps and inquiry spaces. However, the most important task was the familiarization with the Graasp authoring environment, meaning that all the participants created an account and that they tried almost all functions of the authoring environment. In addition, the Go-Lab portal has been enriched with high quality ILSs, which were created by the undergraduate students, such as the exemplary ILSs listed below (in Greek):

Static electricity - <http://graasp.eu/ils/58fc9ece16d1ef2147d019f4/?lang=el>

Photosynthesis - <http://graasp.eu/ils/583fddf24df584dad5986b60/?lang=el>

Transcription and translation of DNA - <http://graasp.eu/ils/585d40cf4df584dad598a47a/?lang=el>

### 20.3.4 Related materials

The implementation activities (i.e. training workshops) were intended to introduce the Go-Lab ecosystem (Go-Lab portal and Graasp) and to train the participants how to effectively use it. Thus, after a brief introduction, the participants were performing hands-on activities. An example of a presentation that was used for the introduction can be found in the event space in Graasp (<http://graasp.eu/resources/59f19d6a591d1c41be4b1cab>). In Figure 31, participants are exploring the Go-Lab platform.



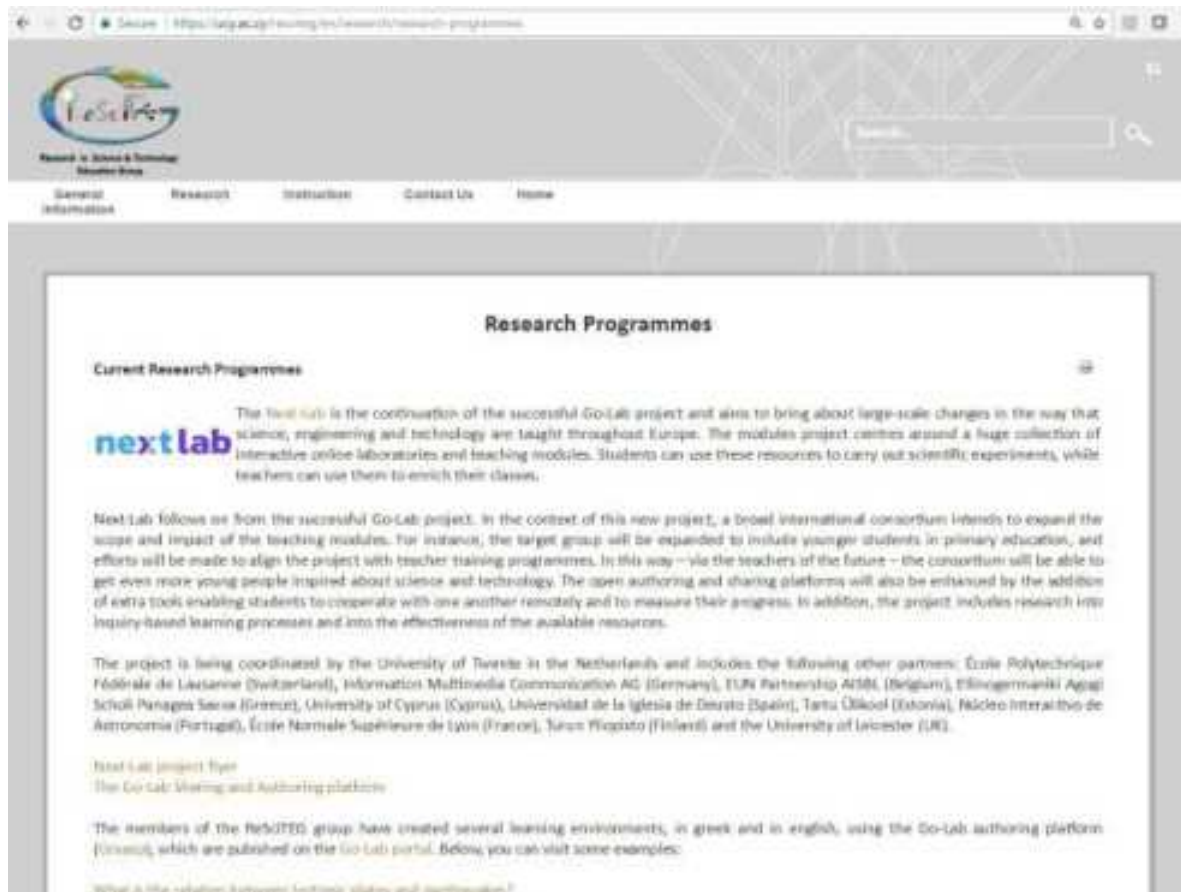


**Figure 31: Secondary teachers explore the Go-Lab portal**

## ***20.4 Website, Newsletter and Social Media***

### **20.4.1 Website**

The NEC in Cyprus is the Research in Science and Technology Education Group (ReSciTEG) at the University of Cyprus. In our website, we included information about the Next-Lab project accompanied by the project flyers and some examples of Inquiry Learning Spaces, in both Greek and English (<https://ucy.ac.cy/resciteg/en/research/research-programmes>).



**Figure 32: Screenshot from the ReSciTEG website**

Moreover, we announced the call for Go-Lab teachers and we provide contact information (<https://ucy.ac.cy/resciteg/en/announcements>).



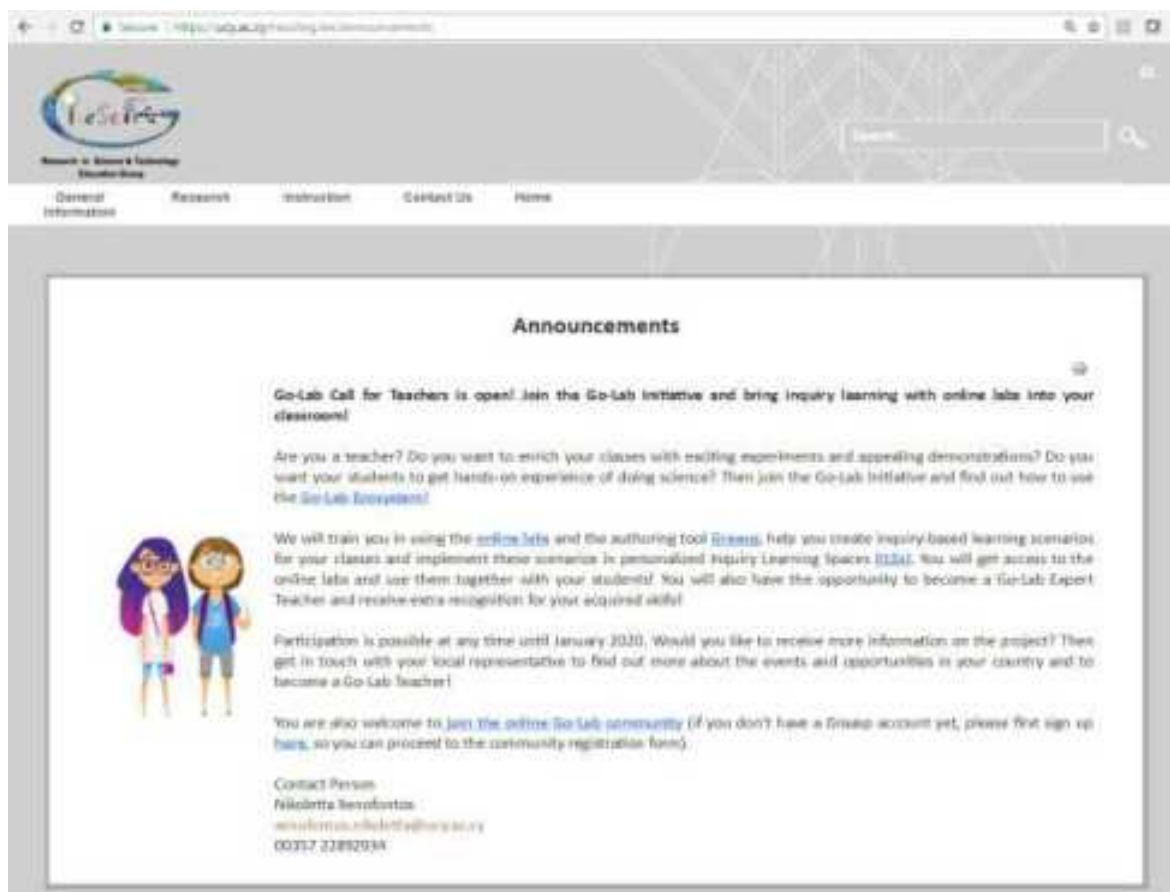


Figure 33: screenshot of the website announcement

#### 20.4.2 Social media channels

ReSciTEG has its own Facebook page (<https://www.facebook.com/ReSciTEG/>) in which we share several posts from the Go-Lab Initiative Facebook page, such as “Lab of the week” and our national events related to the Go-Lab and Next-Lab project (see for example Figure 4.). Until now, we shared 10 related posts.



Figure 34: Posts in ReSciTEG Facebook page

20.4.3 Dissemination Channel Figures

Twitter followers	Facebook fans	YouTube channels view	LinkedIn group members	Newsletter	Website unique visitors	Instagram
-	329	-	-	-	4579	-