Go-Lab

Global Online Science Labs for Inquiry Learning at School

Collaborative Project in European Union's Seventh Framework Programme

Grant Agreement no. 317601

Deliverable D6.5

Report on Development of the Virtual Go-Lab User Community - V1

Editor(s)	Rosa Doran (NUCLIO), Sofoklis Sotiriou (EA)
Date	31 October 2015
Dissemination Level	Public
Status	Final

The Go-Lab Consortium

Beneficiary Number	Beneficiary name	Beneficiary short name	Country
1	University Twente	UT	The Netherlands
2	Ellinogermaniki Agogi Scholi Panagea Savva AE	EA	Greece
3	École Polytechnique Fédérale de Lausanne	EPFL	Switzerland
4	EUN Partnership AISBL	EUN	Belgium
5	IMC AG	IMC	Germany
6	Reseau Menon E.E.I.G.	MENON	Belgium
7	Universidad Nacional de Educación a Distancia	UNED	Spain
8	University of Leicester	ULEIC	United Kingdom
9	University of Cyprus	UCY	Cyprus
10	Universität Duisburg-Essen	UDE	Germany
11	Centre for Research and Technology Hellas	CERTH	Greece
12	Universidad de la Iglesia de Deusto	UDEUSTO	Spain
13	Fachhochschule Kärnten – Gemeinnützige Privatstiftung	CUAS	Austria
14	Tartu Ulikool	UTE	Estonia
15	European Organization for Nuclear Research	CERN	Switzerland
16	European Space Agency	ESA	France
17	University of South Wales	USW	United Kingdom
18	Institute of Accelerating Systems and Applications	IASA	Greece
19	Núcleo Interactivo de Astronomia	NUCLIO	Portugal
20	Cardiff University	CU	United Kingdom

Contributors

Name	Institution
Rosa Doran	NUCLIO
Sofoklis Sotiriou	EA
Eleftheria Tsourlidaki	EA
Maria Jesus Rodriguez-Triana	EPFL
Diana Dikke	IMC
Yiwei Cao	IMC
Mavromanolakis Georgios	EA
Adrian Holzer	EPFL
Rob Edlin-White	ULEIC
Evita Tasiopoulou	EUN
Teodora Ioan	EUN
Siswa van Riesen	UT (internal review)
Denis Gillet	EPFL (internal review)

Legal Notices

Executive Summary

The focus of this document is to perform an analysis into the type and intensity of Go-Lab engagement, exhibited by its users, mainly teachers in the current period. The emphasis is still on measuring and interpreting the way the community of users has grown, as well as on the type and degree of involvement and experience sharing in the Go-Lab infrastructure. In the framework of Go-Lab, Community Building is considered as a professional development activity. In this framework apart from the detailed report and analysis on the user's engagement this document describes the framework of effective community building and the support mechanism that was developed in the framework of Go-Lab project in order to support the large scale implementation. As a result we are reporting the major achievements of this procedure: Overall about 18000 unique visitors are currently (end of Phase B of the large scale implementation) using the Go-Lab portal. About 5000 of them are using the authoring platform to search for ILSs, to adopt them and implemented in their lessons. Finally 1200 teachers are creating new ILSs, either developing existing ones or developing new ones. We are describing the process that we have followed in order to monitor the user's behavior by combining the data from the GRAASP platform and the Google Analytics monitoring system. Data from different countries and locations where trainings took place are presented. Actions taken to support low performers are presented and their impact is discussed. We have created optimum paths for the use of the system (e.g. the creation of an ILS requires at least 8 actions on the system) and we have tried to investigate the number of users who are really using the system in such terms. Finally, by applying a number of conditions we have identify the ILSs that are most popular for use in the classroom. This analysis is in progress as we are now moving on to the main implementation phase of the project (Phase C of the large scale implementation). The initial data indicate that there are at least 166 ILSs which have been used in the participating schools. The Go-Lab consortium will use these data as reference for monitoring the large scale implementation during the last year and at the same time will apply all the necessary tools to map the progress of the community development. The support mechanism has been developed to support users at all levels of their involvement in using the system and its outcomes. It includes face to face training (local, national and international courses), online support (including webinars and a MOOC), a tutoring platform, guides and materials.

Table of Contents

List of Figures

List of Tables

1. Introduction

The measure of success of any project is heavily dependent on how well it addresses its intended user's needs. Go-lab is offering schools the opportunity to engage in the use of new trends for science education in a very successful and meaningful way. By empowering educators to apply an effective pedagogical model and using an advanced technological structure, Go-lab is supporting the introduction of innovation in classroom and supporting the construction of solid science literacy in students. This statement is only meaningful if the project succeeds in building a large community of practice that adopts and implements the proposed scenarios in real settings, a community of users that support the piloting, apply the necessary adaptations and engage others in the use of the developed materials.

In order to achieve this vision the development of Go-lab has to encompass a strong professional development component and the support to the creation of a strong, active and collaborative community. The project approach is offering teachers the opportunity to develop their ICT skills, to engage in real research experiments and fostering the implementation of innovative methodologies in classrooms. Teachers will be able to address curriculum content by using the inquiry based learning methodology, by using online virtual and remote labs, and by motivating students to reproduce scientific discoveries and/or produce their own new experiments. These pilot teachers will afterwards be the ambassadors of the project, by engaging others and thus ensuring the sustainability of Go-lab.

A recent result from TALIS study (OCDE & Juliet, 2014) demonstrates the potential of such approaches as an alternative way of teachers' traditional professional development programs, e.g. seminars, workshops and conference (see Figure 1). The study shows that teachers trust for their professional development communities of practice where they have the opportunity to share experiences and practices with peers.

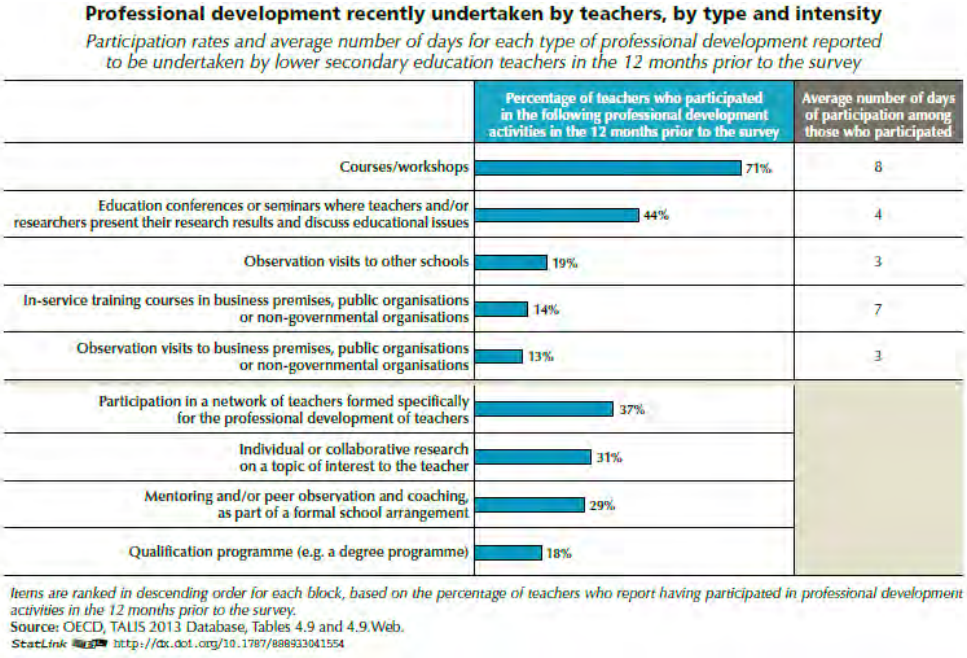
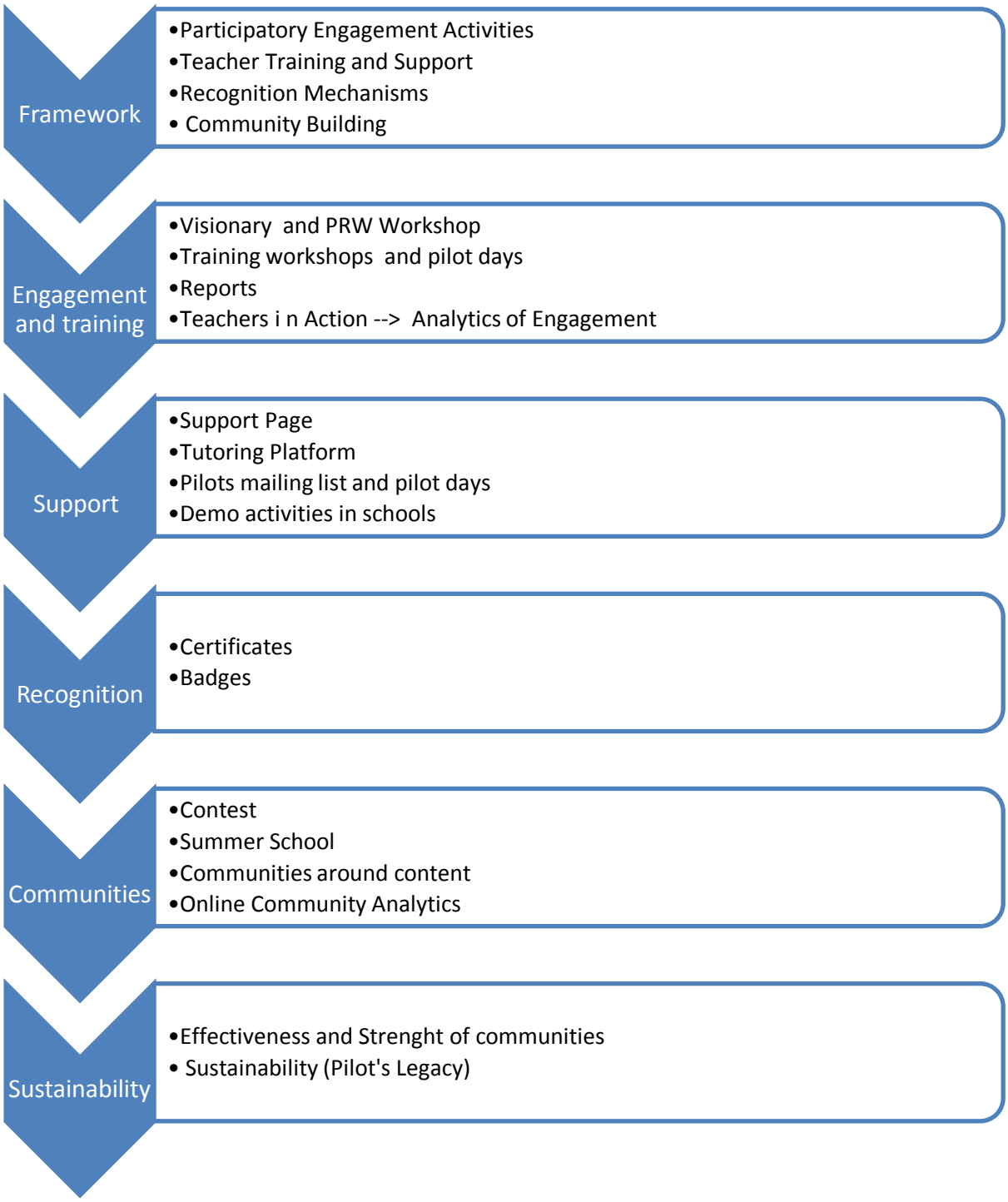


Figure 1. Participating in a network of teachers formed specifically for the professional development of teachers presents a participation rate of 37% in the last TALIS study, demonstrating the potential of this alternative PD approach. Go-Lab promotes the community development approach to facilitate the large scale implementation of the project in the upcoming years.

Having all this in mind, Go-lab has to identify current unfulfilled professional development / support needs and requests, define the target users and final beneficiaries (students) and clearly identify the main existing challenges. With this information in hand a strategy and timeline has to follow in order to achieve the proposed goals. In Go-lab this strategy takes the form of engagement and training activities, the construction of a support mechanism and a recognition system that will keep the community of users engaged and motivated.

1.1 Community building for Go-lab in a nutshell



2. Framework for Professional Development through Community Building

2.1 Methods for involving teachers – Developing communities of practice

Emergent innovations that could open up
new ways of working – are much more likely to come from
thoughtful, experienced, self-confident practitioners
trying to find new and more effective solutions to intractable problems.
Next Practice in Education, (Hannon, 2007)

Teachers have a key role to play in the implementation of the innovations in school classrooms. Teaching inquiry-based science and using online labs for example poses though unique and maybe complex challenges for the teacher (Airasian, P. W., Engemann, J. F. & Gallagher, 2007), (Krajcik, Blumenfeld, Marx, & Soloway, 2000). The teachers need to coach the students – to provide scaffolding for the inquiry and sense-making process, and reduce confusion by modelling practices, to provide feedback and help students plan and perform investigations. It is important that the teachers will successfully shift their traditional roles and become comfortable in their new roles in the classroom. Do teachers successfully shift from traditional teacher-centred practices to a more student-centred inquiry-based practice? How do teachers support the development of deep understanding of key science ideas? How do teachers establish learning environments that support inquiry-based learning?

In order for teachers to fully realize the potential of inquiry-based education, we will need to address all potential fears and negative preconceptions related to the proposed approach adequately and assist them in every step of the process ((Falik, O., Eylon, B. & Rosenfeld, 2008). Additionally we have to implement interventions which are effective in achieving this – **coaching classroom practice**, **designing effective professional development programmes**, **developing stronger teacher leaders**, and **enabling teachers to learn from each other**. In our view there are two key points where we need to focus our full attention:

- **Effective training on inquiry based methods and on the use of online labs:** Albeit very effective, inquiry-based methods in science education constitute a major paradigm shift for teachers: they need to acquire new skills, abandon long standing practices and move away from their professional "comfort zone", therefore exposing themselves to perceived, or real, risks.

- **Assisting behavioral change:** Apart from their training, in order for teachers to introduce both inquiry based methods and online labs into their everyday routine, they will have to perform a change in behavior and to adapt a new culture and philosophy. In order for the Go-lab approach to assist this change, we must introduce a solid theoretical framework and underline the main actions that need to be taken.

2.1.1 Key Features of the Go-lab Teachers Training Activities

In the framework of the project a large scale implementation of teachers training activities will be implemented in many European countries in school environments, in science and research centres as well as in teachers training centres. These activities are based in successful initiatives that have proven their effectiveness in developing practitioners of inquiry. There is no single correct way to plan and implement training and professional development that is indented to improve teaching and student learning. The planning and implementation of successful professional development efforts always occur within a particular setting that presents unique goals, strengths, resources and barriers. Effective planning and implementation of the training process require the blending of research, practitioner wisdom, passionate beliefs and a repertoire of strategies from which to choose with an emphasis always on the process of thoughtful, conscious decision making. Seeking maximum efficiency in training teachers, these training programmes resort to a blended learning delivery model. This is arguably the optimal model for professional development since it allows for flexibility without sacrificing efficiency. According to (Hofstein,

Shore, & Kipnis, 2004), accomplished teachers who are involved in an inquiry based training program should be able:

- To encourage students to interact professionally, including sharing knowledge with their peers, community members, or experts.
- To help students solve problems, ask high-level questions, and hypothesize regarding certain unsolved inquiry problems.
- To assess students continuously using a variety of alternative assessment methods.
- To customize the new activities according to their needs, and make decisions regarding the level of inquiry suitable for their students.
- To align the inquiry with the concepts taught or discussed in the classroom.

The Professional Development programs that will be implemented in the framework of the Go-lab project provide an opportunity for teachers to familiarize themselves with the new inquiry ideas and also understand the implications for themselves as teachers and for their learners in the classroom before they adopt and adapt them. As the new approach differs greatly from their previous practice, this involves them reshaping their own beliefs regarding science teaching and learning. The experiences from the implementation of these effective PD programs suggest that there are a series of key features that matter most in such an approach. These features described below are based on the premise that in order to bring a change in the teachers' practice, perceptions or views, it is advisable to treat them as adult learners and engage them in learning programs that are based on current research about teaching and learning. In fact, they mirror the methods to be used by them with their students (NRC 1999, Loucks-Horsley et al., 2003)[18].

2.1.2 Assisting behavioral change of teachers – Teachers as Change Agents

Asking teachers to follow inquiry-based methods and using online labs in their everyday teaching practice constitutes a major behavioral change and at the same a significant development opportunity for them. The task at hand is to manage this change in a uniform way, allowing teachers to realize the potential of the opportunity offered by the Go-lab project, take ownership of their contribution and maximize the output for both the project and themselves. One of the ways to attain the goals of inquiry learning is to treat teachers as equal partners in decision making. In other words, teachers have to play a greater role in providing key leadership at all levels of the educational system. Leadership in the context of science education was defined as the ability of a person to bring changes among teachers and teaching.

The "teacher as a leader" strategy can provide an effective mechanism for disseminating innovative instructional strategies like IBSE from central to regional locations (e.g. national teacher centers to regional centers, university-based programs to school-based programs).

In this approach the **central agents of this operation are "teacher-leaders"**, who head the transformation processes at the local level. This model has been used in networks involving national and regional teacher centers. The leader teachers undertook a variety of regional activities, such as, guiding teachers in regional centers or in schools, and providing guidance for both teams and individual teachers (Pratt, 2001). Pratt (2001) suggested that that there are four basic skills relevant to effective leaders in science education namely; (1) technical skills, (2) conceptual skills, (3) interpersonal skills, and (4) self-learning skills. Programs for teachers-leaders are designed to help acquiring these skills and help them choose and/or design models for programs they will run later with other teachers. The professional development program can also provide the teachers with a framework for the initial preparation of tools necessary for running their own activities. When teachers-leaders participate in PD programs that deal with innovation, as with other teachers they experience the innovative strategy both as learners and as teachers, but in addition acquire guiding skills in the particular area.

In all cases of these programs there is **special emphasis on building a network of the teachers that would form a community of practice**. In a review paper ((Emily Lawson and Colin Price, 2003), McKinsey management experts identify four key prerequisites for accelerating and establishing change in the school environment:

- **A purpose to believe in:** "I will change if I believe I should" The first, and most important, condition for change is identifying a purpose to believe in. In our case, we must persuade teachers of the importance of scientific literature in terms of social value, importance to their students and personal achievement through learning and teaching these important subjects. We must carefully craft a "change story" underlining the benefits that the project can offer to all the involved actors. Furthermore, we must cultivate a sense of community, making the teacher feel part of a cohesive multi-national team. This sense of belonging will prove very important for motivating teachers and asking them to take then next, possibly "painful" steps, of learning new skills.
- **Reinforcement systems:** "I will change if I have something to win". From a pure behavioristic point of view, changing is only possible if formal and informal conditioning mechanisms are in place. These mechanisms can reinforce the new behavior, penalize the old one or, preferably do both. In our case, we can use informal reinforcement patterns in order to make teachers commit more to our project. A short list of such methods could include competitions, challenges, promoting the best teacher created project or lesson plan, offering e.g. the participation to a summer school as rewards.
- **The skills required for change:** "I will change if I have the right skills". A change is only possible if all the involved actors have the right set of skills. In the case of the Go-lab project, we should make sure that our training program is designed in such a way that teachers acquire all the skills they will need, both technical and pedagogical.
- **Consistent role models:** "I will change if other people change". A number of "change leaders" will need to be established, acting as role models for the community of teachers. These very active and competent teachers will be a proof of concept for their colleagues that the change is indeed feasible, acceptable and beneficial for them. To achieve that we will have to identify the high flyers among the participating teachers and pay special attention into motivating them, supporting and encouraging them.

All four will specifically be addressed in each implementation phase of the Go-Lab project. Additionally the consortium team will collaborate closely with teachers to develop a set of support services which help teachers to implement the necessary changes, to develop the diagnostics and intervention skills necessary to best plan and then diffuse of IBSE and use of online labs in their own contexts. An effective training approach will provide the starting point for equipping teachers with the competences they need to act successfully as change agents, developing a language/terminology necessary to describe the dynamics of change processes, and making them able to recognize different forms of resistance and addressing it in their own context. At the same time it will provide a common basis/experience for "connecting" teachers across schools, within and across national boundaries – engaging them in an ongoing exchange of experiences across school, regions and countries.

2.2 Community building in Go-lab

Go-lab is bringing the opportunity to greatly contribute to the professional development of teachers. It brings cutting edge tools and resources for science education, a rich collaborative environment and a strong component of community support coming from national coordinators. However, the current situation of schools in many of the countries of the consortium is not supporting the full implementation and integration of the Go-lab services. As we will describe below there are severe constrains that are being faced by educators, and they are reflected in the numbers we will show below. Teachers have little time to explore new tools and new trends; they have in general dense and extensive curricula to follow and the continuous pressure to prepare students for final exams. So our framework is taking all these issues into account and trying to find the best compromise between the possibilities available in Go-lab and the existing constrains in school context in order to meet teacher's needs. Here we try to describe both the priorities and the strategy adopted in order to have a real contribution of Go-lab for the professional development of teachers.

Table 1 The 5 pillars for the sustainability of Go-lab

Engagement	Training	Support	Recognition	Community
Visionary Workshops	Face-2-face training	Tutoring Platform	Certification	Pilots communities
Practice Reflection Workshops	online – MOOCs , webinars	Online Support	Accreditation	Pilots Mailing list
Online Activities	Pilot's cascade	Demo activities in schools	Digital Badges	International /National schools
Pilots Days		Pilots Days		Pilots cascade

In Table 1 we present the 5 pillars sustaining the construction of the Go-lab virtual community and ensuring its continuation and sustainability:

- **Engagement Activities** – A series of opportunities to engage schools and teachers on the use of Go-lab. The main objective of this first pillar is to create awareness about the existence of the project, to reflect with users on the usability of the overall structures, support the adaptation/localization efforts and provide a sense of ownership and partnership to those piloting the first stages of the construction of this community.
- **Training** – The virtual community of users is composed by those that are making maximum use of the system. Training events are a core activity promoted and coordinated by WP7 and ensuring that teachers have the opportunity to explore the whole proposal and benefit from immediate support coming from the Go-lab team and/or from pilot teachers already proficient on the use of the project proposed methods and tools.
- **Support** – A strong help desk where teachers can find the necessary support for their immediate questions or for long term implementation efforts is the heart of the sustainability of Go-lab. To ensure that this mechanism is in place WP6 is developing a series of actions to create a support hub and a peer to peer support platform. Demo activities and pilot days are being implemented to ensure the adaptation of specific needs and the active collaboration of all stakeholders in the field.
- **Recognition**- Certification and accreditation are an integral part of teachers' professional development. With this vision in mind Go-lab is taking all necessary steps to ensure an efficient recognition mechanism that will validate the participation of all teachers and recognize their support according to the different levels of commitment.
- **Community** – This is the part that will ensure the effectiveness and sustainability of the project. The size of the community and its level of engagement will be the best indicator of the success of Go-lab. The necessary mechanisms to support the creation and continuation of this virtual community are the key aspects of this pillar.

2.2.1 Training Courses Journey – from explorers to ambassadors

The successful implementation of Go-lab and its continuation depend on the effective mechanism to prepare and support pilot teachers to embark on this journey. Teachers can have a several different levels of proficiency. Starting from simple explorers who have basic ICT skills to those that have enough digital skills to support other wishing to embark as well. In table 2 we present a schematic view of the different profiles of potential users.

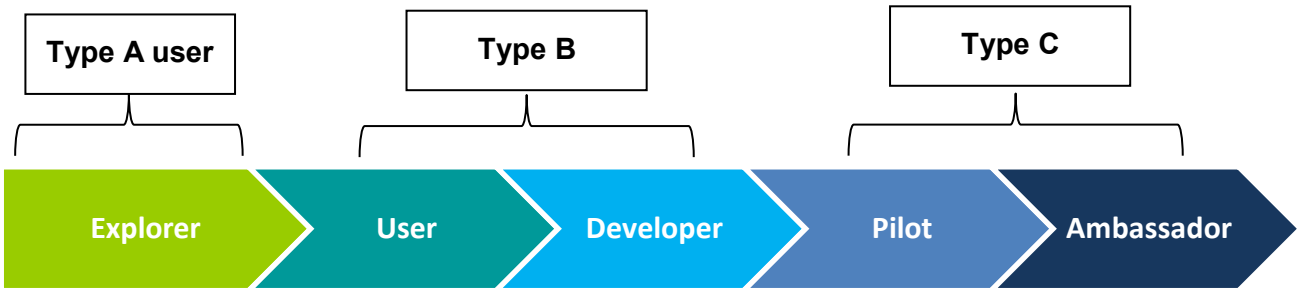


Table 2 Profiles of potential Go-lab users

Get acquainted with Go-lab portal and the ILS model	Explore and adopt some ILS	Create their own ILS	Implement ILS with their students	Train others
Basic ICT skills	Acquainted with the use of online labs and simulations	Capable of developing online lessons and create metadata	Skilled in the use of ICT, in the creation of learning scenarios, etc.	Capable of sharing their expertise with others
New to IBSE	Some experience in student centred teaching	Has experience in the IBSE model	Skilled in using the IBSE model with students	Master IBSE and is capable of introducing others to the concept
Integrate some labs in their lessons	Integrate ILS in their lessons	Develop ILS and pilot test them	Integrate the use of ILS in several lessons	Support other teachers to implement ILS in their classrooms

The Go-lab community building vision is to provide a road map for teachers for the development of their competence profile. Type A users will find opportunities in training events, in the existent support mechanism and by sharing experiences with other teachers, the Type B and C users.

Type B users can benefit from the opportunities for training and enhancing their skills and from the many pilot teachers' gathering events where they can participate, learn and exchange ideas.

Type C users are the ones who mastered in the use of the tools and methodology and are already capable of sharing their expertise with others. This is the group who will strongly support the sustainability of the project.

Enough opportunities are being designed during the phase C of the project to enhance the opportunities provided to users. Each country is promoting training events, pilots' gathering and online support using the available facilities of the tutoring platform and support page. Teachers will receive support related to the use of the tools, support related to specific labs and apps, opportunities to listen to experts in several fields of expertise (inquiry, physics, chemistry, biology, etc.). They will be invited to participate in challenges and contests and to apply for Erasmus + funding to increase the international collaboration opportunities.

In partnership with WP9 a series of actions are being implemented in order to attract more users and to keep existing pilots interested in the project. These are for instance a selection of labs and ILSs to be highlighted, sharing of best practice examples, sharing of success stories coming from other teachers.

In the training courses teachers are introduced to the Go-lab portal and invited to explore the existing labs, apps and ILSs. The menu of the training courses varies depending on the countries they are implemented. In Portugal for instance the courses start with an introduction to the inquiry methodology. The training continues with a tour to the labs, apps and ILS and the bulk of the time is devoted to support teachers create their own ILS.

The summer school presented in 6.2.5 is a very strong example of community building activity. There teachers from different countries are gathering for a very rich training event. The main components of the activity are: Introduction; Ice Break; Cultural Interchange; Thematic Talks; Tools; Resources; Hands-on activities, etc.; Cultural Programs; Reflection and Evaluation. In order to further support and to keep users in communication the follow-up activities are crucial. All participants are integrated in the internal mailing list and invited to keep updated in the social media. As a result of the 2 summer schools conducted in the framework of Go-lab several ambassadors are now active in the field, recruiting and training colleagues and disseminating the project further.

In the present phase of the project several pilot teachers participated in training events, the more advanced users have already created several ILS (see ahead in section 3.8) and some implementation runs have occurred. We are now expecting a much larger sample of creating/implementation of ILS. We are also expecting a cascade movement where pilot teachers are engaging other teachers in their own schools and maybe in the schools clusters.

3. Engagement Activities in a nutshell

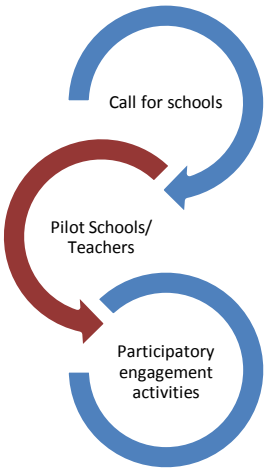
Every project has a life cycle. When it is first launched it is necessary to promote awareness about its existence, opportunities to test the designed proposal and hopefully engage in its use. This was done in Phase A (M16 – M21) when over 400 teachers were involved in Visionary Workshops promoted in all Go-lab represented countries.

From this initial wave of engagement activities the project vision was to promote training events where teachers had the opportunity to learn how to use the tools and resources and to engage/or perfect the use of the inquiry based learning model. The first wave of trained teachers are those we call the pilots, teachers who helped the technical team develop and perfect the platform and its usability/human interface. The next phase of engagement, Phase B (M25 – M33) had a more complex design. Visionary workshops continued to take place in order to attract the attention of more potential users. Additionally a series of practice reflection workshops took place where pilot teachers had the opportunity to share their views and experiences with other colleagues. There were also some training events. The "word of mouth" was also an effective mechanism to engage newcomers to the process, a very important one. During this phase over 650 teachers were involved in engagement activities (Visionary and PRW).

Go-lab is adopting several different strategies in order to reach its target population. Top down and Bottom-up strategies are taking place and are summarized below:

3.1 Reaching the Target Population

The Go-lab project has designed a strategy that describes very well the users it is willing to target. But the strategy to successfully achieve this goal changes from country to country, from school to school and very often from individual to individual. These aspects have to be taken into account when designing the strategy to reach the target audience. It is also necessary to understand and follow the different existing policies of the different countries/regions. In order to address all this diversity different approaches are being used. The top down approach where education authorities are being involved and supporting the dissemination of the information to the schools and a bottom up approach where already existing communities of individual teachers are invited to become part of the project.



Top-Down Approach – A call for schools is being launched in several phases of the project (see Annex II).Support from the Ministries of Education of member countries of the consortium is expected in terms of dissemination of the call and support/endorsement for their schools participation in the pilot phases. National coordinators have in this call a support mechanism to try and engage schools as pilot partners of Go-lab. After each phase a list of schools are selected by the national coordinators and this list is submitted to the respective ministry of education for endorsement and support. These lists are presented in D7.2 and D7.4.

Bottom-up Approach – As described above the strategy to reach our target audience is designed with several different components starting with the participatory engagement activities, continuing with the demo and pilots events, training instances and following to the construction of the virtual community of users.

When implementing this strategy there are also several other aspects that have to be taken into account: cultural and social aspects, environment where the school is embedded, specific needs of the school, what is the role of the school for the local community and finally the importance and power of "word of mouth", the influence users have on other potential users.

Another important aspect is to take into account other similar projects, a good strategy maybe in many cases to join forces in order to enrich the offer and to avoid useless competition and consequently losses to all sides.

Last but not least it is important to have a clear view of who are the teachers that can benefit and integrate in their curricula the tools and resources offered by Go-lab.

Bellow we present the scheme being followed by Go-lab in order to create a strong and sustainable community.

The flow of activities (Figure 2) starts with the Visionary Workshops where Go-lab methodology, tools and resources are presented to the participants. These events are followed by training events and continuous support. Pilot teachers are then invited to share with national coordinators their reflection on their practice, on the implementation or preparation events. This can be done face-2-face or online. Their support to the project and their own professional development is recognized. They become themselves ambassadors of the project and a living legacy of the investment.

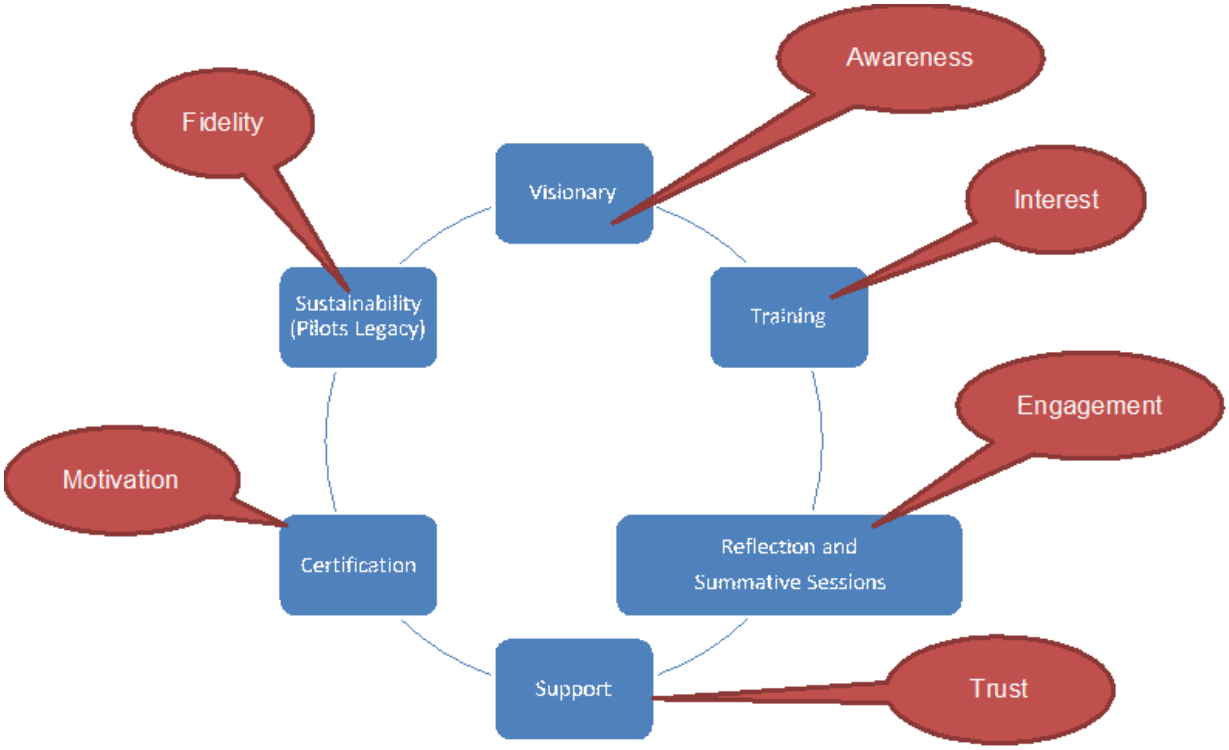


Figure 2 Flow of activities being implemented with the aim to engage, train and support Go-lab teachers

3.2 Participatory Engagement Activities

As mentioned above the participatory engagement activities are divided in two main types of events: Visionary Workshops and Practice Reflection Workshops (face-2-face and online) (fig.3). The first collection of participatory engagement activities, the Visionary Workshops, aim to engage and create awareness of Go-lab to prospective members of the community of practitioners in construction. But building a community requires continuous support to existing members, support to activities promoted by those members and promotion of new initiatives to attract new users on board. They can occur at any moment during the development of the project or afterwards as activities promoted by the community per se.

The next cycle of workshops directed to existing members, already using Go-lab, is the promotion of Practice Reflection Workshops, where teachers have the opportunity to share with national coordinators and/or other pilot teachers their experience with the system, their concerns and obstacles faced, their success stories and most important of all, be part of the design of the road ahead. It is very important to have in mind that what we call the **Go-lab Ambassadors** (teachers that are comfortable enough with the system and are training other teachers) will be the ones ensuring the continuation and sustainability of the project, perpetuating this cycle of engagement of potential users. So having them as active participants in these events is very important.

Figure 3 Participatory Engagement activities

Visionary Workshops

The Visionary Workshops are engaging initiatives that have the main aim of promoting the project with a higher level of engagement than the simple dissemination efforts. We may consider these as tools for awareness campaigns that in many cases are opening a whole new vision to the participants related to what the projects is offering to the users. Some participants reported that only after getting to know the proposed model they understood that it was actually addressing an unrecognized need. Visionary workshops are events that create deeper awareness to the user as to what Go-lab is and how can it contribute to their daily practice. At the beginning of the project teachers are invited to test pilot the whole package and find instances where the model can be integrated in their school culture. National Coordinators are advised to reach teachers from diverse backgrounds, discipline areas, schools in different social environments and with students with different levels of achievements. Pilot teachers, already active members of the community are also engaging in such

activities by cascading the efforts in their schools/region/countries. Successful events should convince teachers to move from a stage of awareness to a stage of interest, and to invest in their own professional development moving towards the training activities.

Practice Reflection Workshops – Activities where pilot teachers and other users of the system can reflect on their experience on Go-lab and provide useful insights on how the project can be integrated in schools. These activities are crucial points to monitor and anticipate necessary changes to the process, key actions to ensure the success of the initiative. Pilots engaged in this type of event feel much more involvement in the project and somehow this initiative is supporting the continuous involvement of the users. By providing reflection and discussion opportunities, by giving feedback to the participants on the results of their suggestions and reflections is a key aspect of the sustainability of the community.

Online Activities – To ensure the maximum participation of Go-lab users in these reflective events the PRWs can also be hosted online. This opens the opportunity for a larger number of teachers to participate in such events. Very frequently the Visionary Workshops and the training events are gathering teachers from different parts of the country. It is not trivial to ensure the participation of the involved teachers in all the events. In many countries teachers can't leave their schools in regular hours and their participation in training and engagement activities have to be accommodated according to their availability. Online events are more flexible and it is easier to meet the user's needs.

These activities, if well implemented, act as the perfect mechanism to understand our target population. It can be named as research in action where we follow step by step the implementation process, its strengths and obstacles. This model allows for swift and continuous change at a macro and local level. It also involves pilot teachers (future ambassadors of the project) as active participants in the process of perfecting and localizing the Go-lab offer.

The vision of Go-lab and the reality in the daily life of a classroom can be very different. These engagement activities are reality checking points, beacons informing the consortium what works effectively and what are the necessary support mechanisms that need to be put in place, the sequence of actions to ensure adoption and continuity of the project.

Teachers participating in these events gain experience, higher levels of motivation and engagement in Go-lab. By sharing their experience, concerns and suggestion they feel as an important part of the project, they feel like partners in the journey.

To the national coordinators, technical and pedagogical team this is an excellent opportunity to reflect on the adopted strategy and redesign paths where necessary. It is also an excellent opportunity to understand the individual needs of teachers, students and schools in general. The PRW promoted in previous phases are now shaping the strategy each partner has to design/redesign the road ahead.

3.3 Face-2-face training and online events

The participation in the training events (Figure 4) is triggered by teacher's attendance to the visionary workshops or dissemination events. The training instances are being designed to present effective delivery of content and methods associated with it, as described in the deliverables of WP7, to address common needs expressed by the participants during the engaging activities. The MOOCs are being prepared to allow the participants to follow them in their own rhythm and in alignment with various activities and opportunities provided by Go-lab.

During the training they will have the opportunity to explore and make a first assessment of what Go-lab is offering and prepare themselves to be active users of the system. During these events users have the opportunity to try and reflect on the possible uses of the presented tools and resources in classroom. From there they may become users of the system, create their own tailored solutions and implement their scenarios in real school settings. Satisfied users will repeat the process many times (adapt/create and implement ILSs).

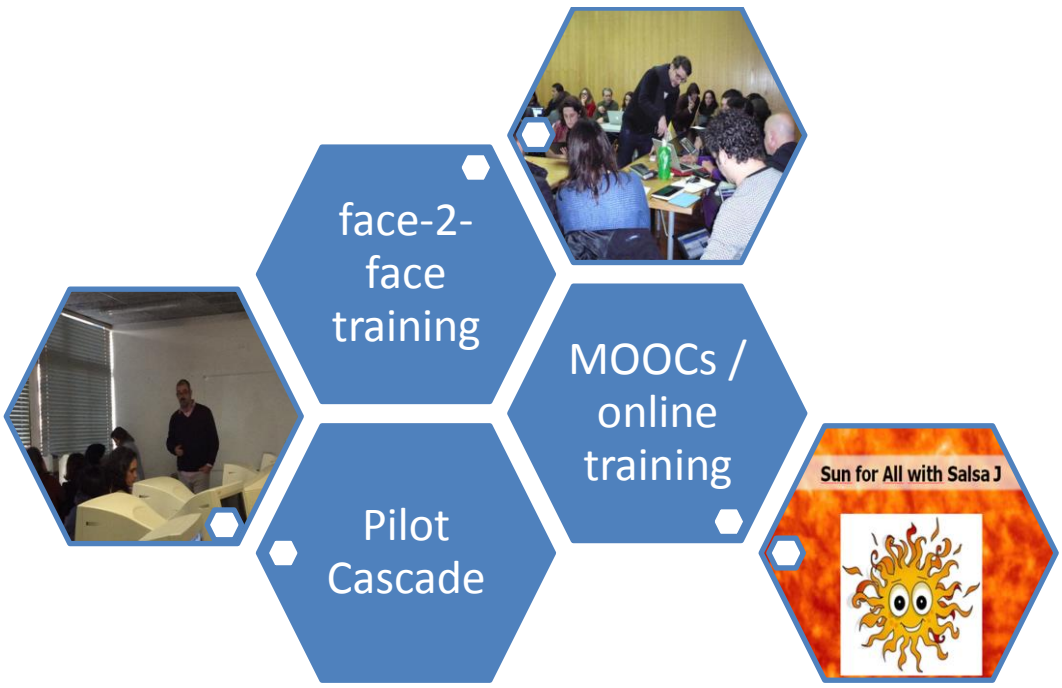


Figure 4 Training Events

Face-2-face training - The main aim of these events is to present Go-lab pedagogical model, the opportunities offered by the portal, the existing scenarios, labs and apps and the authoring tool platform. The activities can have a national or international scope. Several training sessions are implemented and further updates in the form of Pilots Days are offered periodically to the teachers. These activities are reported by WP7.

Online training / MOOCs are being developed as standalone training instances or viewed as a complementary resource for teachers willing to implement Go-lab in classroom. Once the structure to host this component of Go-lab is ready it will have the capability of hosting new modules and further enhance the opportunities being made available to the teachers.

Pilot's cascade – Events were pilot teachers are training other teachers on the use of Go-lab and its various components. These events should be accompanied by the national coordinators while this network of Go-lab ambassadors is being created. This is a key component for the sustainability of Go-lab.

3.4 Support Mechanisms

The road for a potential user of Go-lab has several steps: participation in a visionary or dissemination event, participation in training events, reflection sessions. Throughout the way the existence of a support mechanism is of the uttermost importance. It builds trust and confidence in our target audience. The support in the first stages of the project is provided by national coordinators with support of the pedagogical and technical team. Now with the tutoring platform and support page in place this task will be more solid and allowing for a continuous effort. The different activities promoted by national coordinators are further structured by the existence of this support mechanism that allows users to follow a smooth trajectory to consolidate their learning and practice. Teachers will be able to use the different support mechanisms (fig 5) to refine their practice and find live support during the implementation phase.

Figure 5 Support Activities

Tutoring platform – A space where teachers can find webinars about different topics, tutors with expertise in diverse areas, etc. This space is presented in Deliverable 4.8.

A **Support Page** was created with a rich variety of materials such as video tutorials, tips and tricks, Q&A, Community forum and online courses. The full description of the support page can be found in Deliverables 1.4 and 6.6

Demo activities in school are events where the national coordinator or selected pilot teachers are visiting schools and implementing ILSs with students and promoting Visionary Workshops to teachers in the same school or school cluster. This is a very effective tool for community building as it supports the pilot teachers, engage students and involve other members of the school community.

Pilots Days – Promotion of specific days where pilot schools are invited to participate in a demonstration or training event. Short duration events to keep pilots updated on the progress of Go-lab. These are days were national coordinators and pilots already proficient in the use of Go-lab can share their day-to-day experience while using the system and the foreseen and in some cases already witnessed effect on the pupils. In a recent study the support of peers was referred as a desirable component for professional development as already mentioned in (OCDE & Juliet, 2014) and more recently in a study developed by (Trust, 2015).

3.5 Recognition mechanisms

The recognition of teacher's actions during the different phases of the project can act as a strong motivational mechanism. In some countries the official accreditation of courses is a desirable action as it can reflect in the progress in the teacher's careers. In other instances a certification provided by the project will be enough to prove the involvement of the teacher/student and the support of the school. In order to support this vision for the importance of the recognition mechanism several instruments were developed as can be found in Section 5 and are schematized in fig. 6.

Figure 6. Recognition Mechanism Instruments

Accreditation and/or certification of pilot's participation can be used as an important recognition mechanism that endorses the investment of teachers in learning and applying Go-lab. Officially certified training courses are part of the efforts being implemented in some of the participant countries. These training courses are hubs that act as an important ingredient for the enrichment of their competence profile.

Go-lab certificates are ready to be distributed and are designed as a recognition mechanism for the various types of engagement of the teachers as described in this document. They encompass the recognition of the different stakeholders from the school community starting with the recognition of the school, going to the teachers and the students.

Digital badges will also be used as an instrument in order to motivate the participation of teachers. This strategy still needs to be designed but will follow as close as possible the Open Badge systems that are now becoming very popular.

3.6 Community building challenges x actions – communication channels

In order to build an effective community it is necessary to gain a deep understanding of it: its size, specificities, location, typology, etc. It is also necessary to adapt for diverse social environments, ICT infrastructure, authorities support, etc. Other aspects that might be equally relevant are the attitude of your target audience toward innovation and the support they find in their local/school community. In order to encompass all this challenges several different strategies are being adopted (fig.7):

Figure 7 Community Building Communication Challenges

Challenge: Lack of peer support

- **Pilots communities -** Teachers groups in social media is one of the means the project is using in order to build the community. Teachers are usually very eager to use such platforms to present initiatives, discuss obstacles and barriers and share success stories. Local communities of teachers, sharing for instance the same geographical area or teaching the same subject are crucial to ensure the success and sustainability of the project. They can jointly analyse the culture of their schools and find common strategies to address similar problems. The collaboration can include joint implementation strategies, integration of material created in the framework of the project in the school curriculum. Sharing strategies to align their practice to educational policies.

Challenge: Lack of incentive and recognition

- **Pilot's schools mailing lists** – Direct mail, if well designed and prepared can be a very powerful communication and engagement tool. It is not an alternative to other means of communication such as newsletters or social media posts, etc. Go-lab adopted the use of this model for the Phase C of the project where the coordinator of the project is directly contacting the pilot teachers. It is designed with an informal touch and addressing the individual and not the overall community.

  Direct communication by the coordinator of the project with the pilot teachers in a regular basis is an important tool to enhance and strengthen a community**.** This initiative can also take the role of providing positive feedback to teachers in the form of recognition of achievements and support thanks to the pilot's efforts.

Certification and Badges – Described in the topic 3.5 are the instruments developed by Go-lab as a mean to provide incentive and recognition to teacher's efforts.

Challenge: Lack of training

- **International / National Pilots Gathering –** National and international events like conferences, summer schools etc. are excellent instances to foster the creation of bonds between teachers. It is very frequent in these instances that collaborations start and new joint projects are designed. These collective moments of professional development are providing some evidence of a faster change in teacher's behaviour and the improvement of theirs students learning and behaviour. National coordinators are endeavouring efforts to promote as many training instances as possible in order to enlarge the population reached by project.

Challenge: Lack of trust in existing offers

- **Pilots cascade -** To ensure maximal reach of the project pilots cascade support is a good strategy to be adopted. In this model teachers are supporting and training other teachers. This is crucial to ensure the desired sustainability. Important to say that this bottom up approach is a slow but very strong and sustainable effort that is slowly supporting teachers in their mission to change the educational system and to integrate modern trends for science education in their daily settings. This collaboration among peers tends to extend over time and over projects.

- **Training events –** Described in section 3.3

Challenge: Lack of community support

- **Support Mechanism –** Described in secton 3.4
- **Social media -** Social media can be a very powerful tool to build a solid and sustainable community of users. But this only happens if a few important aspects are taken into consideration: posts have to be meaningful for the target audience, it has to be relevant to their daily needs or interests and have to be presented in a periodical non-invasive way. Groups in facebook are very popular among teachers but have to be fed very regularly and work best if we allow for users "ownership" or maybe "partnership" in the management of its content. It can have a role of spreading the word about the project, it is what some marketing people call: "digital word of mouth". In teachers professional development we don't expect a very large audience but a continuously growing audience of our main target communities. The project has its own presence in the social media (in English) and several partners are using their own social media in their national languages. More information on the strategy related to social media can be found in D 9.4

Challenge: Relevance to the school curriculum

- **Curriculum Matching** - Described in 6.4

3.7 Engagement Activities Reports (M25 – M33) – Nov/2014 - Out/2015

During the third year of the project a new series of visionary workshops (Table 3) were promoted, in countries where there is already an active community with the purpose of engaging more teachers on board. In countries were the involvement of teachers was not yet successful new strategies are being adopted in order to create the national community. The visionary's workshops in those countries were a key component of their national efforts. A round of practice reflection workshops was promoted with the objective to auscultate users of the system and implement with their support the necessary changes/adaptation of the system wherever possible. These latest events took the format of face-2-face events and online instances.

3.7.1 Visionary Workshops and PRW workshops

The methodologies of the engagement activities and their main purpose are presented in D 6.1. The complete report of activities can be found in Annex VI. Here we present only a few highlights of country's events.

In total 56 events where promoted (35 Visionary and 20 PRW) involving a total number of 733 teachers and head teachers from Go-lab pilot schools.

The topics discussed during the engagement events were a selection of the themes presented below:

Visionary: The Go-lab portal; The Big Ideas of science; The use of online labs (remote and virtual); The scenario creation tool (Graasp); The enrichment of ILS; The use of Inquiry Based Methodology (IB) in classroom.

During the Visionary Workshops the most debated topics were related to the existing ICT infrastructure in schools or the lack of it, the time needed to learn how to use the system and the use of IB in the framework of the curriculum. The need for support and training was the most common request from the participants. Many teachers claim they lack the necessary ICT skills needed to comfortably work with the authoring tool.

Practice Reflection Workshops: Integration of Go-lab in the framework of the curriculum; Go-lab implementation and ICT infrastructure and support in schools; The use of Inquiry Based methodology; Engagement of school community; Barriers and Obstacles; Success Stories; Experience exchange.

During the Practice Reflection workshops teachers debated a lot the impact of IB in their professional development and that many are starting to try this method with students. The reaction of students was largely discussed and very fruitful discussions emerged from this exchange of ideas. The time necessary to invest in learning how to use Graasp, to create their own ILS, to find and choose the labs and apps to be integrated in their lessons was also a hot topic of debate. Teachers felt the need of more variety of labs and in general manifested the need of more time to better prepare their scenarios and themselves in order to feel comfortable to use their ILSs with students. Many teachers were very reluctant to make their scenarios available to others, in particular before testing it. Sample of simple, short duration ILS were asked in several sessions.

The portal was regarded as a rich environment with great capacity to grow and act as a one stop shop for science teachers looking for designing experimental lessons.

Students being exposed to Go-lab are manifesting greater enthusiasm towards engagement in science activities and claim that they understand better the topics being addressed when they have the opportunity to explore the different experiments on their own. Teachers reported that the attitude of the students while engaging in the use of Go-lab was totally different that in general while using other models. Several reported that students got very confused when first introduced to IB model.

The fact that Go-lab can be used in mobile devices was also a much appreciated aspect. The interdisciplinary use of Go-lab is an aspect that needs further support and engagement of the pilot teachers in general. Curriculum matching of existing ILS was requested and pointed out as a key aspect for them.

Teachers and headmasters from many countries manifested concerns related to the necessary changes in their educational system in order to have the proper support to integrate Go-lab in classroom. A common raised issue was related to the assessment of students engaged in using Go-lab and the existing national/regional assessment adopted.

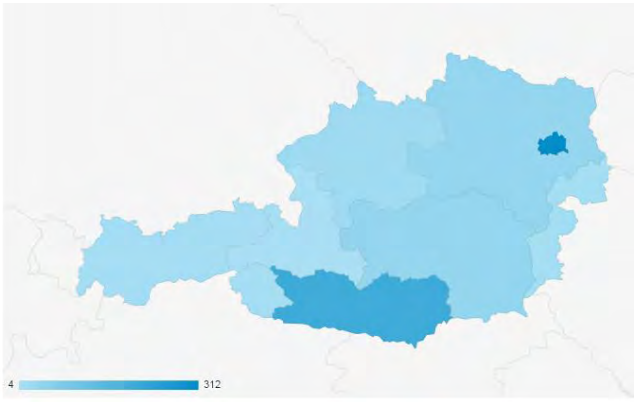
Ideas on how to implement the ILSs outside classroom hours were discussed and its use as homework assignment was the most popular idea as well as implementation in the framework of school clubs.

Language was referred in many occasions and the need for adaptation and localization of existing tools and resources highly recommended.

Table 3 List of engagement activities per country

Country	Vis / PRW	Teachers
Austria	3	5
Belgium	2	39
Bulgaria	1	16
Cyprus	3	32
Estonia	5	66
Germany	3	16
Greece	2	23
Italy	1	23
Netherlands	3	42
Poland	1	03
Portugal	21	291
Romania	2	68
Spain	3	87
UK	6	22
TOTAL	**56**	**733**

3.7.1.1 Austria



Austria's participatory engagement activities (fig.8) were more focused in implementation sessions with students and collecting their input on the use of Go-lab. The major interests of the students were on the

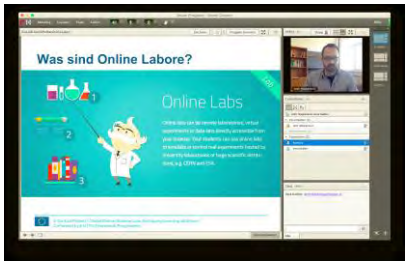


Figure 8 Engagement Activities in Austria

possibility of using online and remote labs in schools and use them as means to self-assess activities.

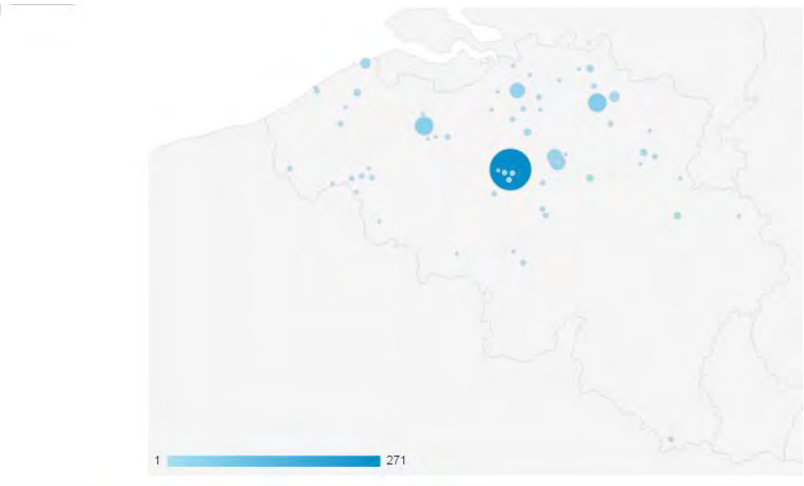
National Coordinator also promoted one online PRW and one face-2-face event with the participation of 2 and 3 teachers respectively. Participants were positive about the implementation of Go-lab and related activities but presented some concerns on the possibility of implementing it in the framework of the curriculum. They recommended the inclusion of Go-lab as additional e-learning activity. Another suggestion was the translation of some ILS to their language.

For this school year (2015/2016) the following strategy has been designed in order to attract more teachers: At the eLearning 2015 conference in Eisenstadt (Austria) there were a number of teachers who promised to invite us to other events to present GOLAB and conduct workshops with new teachers. We will follow up on that and in general. More workshops will be planned and registered teachers will be contacted and asked to spread the good idea about GOLAB.

The following visionary and training events are planned:

- 2015: November: 2 days with 2 time slots; December: 1 day with 2 time slots and Award ceremony in Vienna (Young Citizen Science Award)
- 2016: February: 2 days with 2 time slots; March: 1 day with 2 time slots CUAS Open Day; Speed Dating at CUAS.

3.7.1.2 Belgium



In Belgium 2 PRW were promoted, one online and one face-to-face event with a total reach of 46 participants. This online workshop had a group of teachers from Belgium, Italy and Poland as the NC is responsible for running activities in these 3 countries. Several important issues were discussed during the event and fruitful exchange of ideas occurred. All participants have started the creation of ILS **but are reluctant to publish them**. **Translation** was an important issue raised by the teachers. Teachers seem to be engaged to continue exploring Graasp and its applications. Training is underlined as an absolute need.

Figure 9 Engagement Activities in Belgium

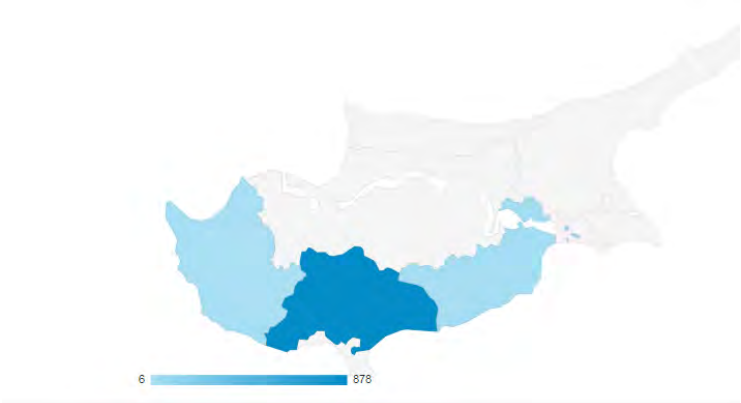
The face-to-face event had a mixture of newcomers and teachers already using Go-lab. Participants referred Go-lab as **very useful for their professional development.** Teachers also debated the possibility of using Go-lab for multidisciplinary activities and as a tool to promote collaboration among teachers. The l**ack of knowledge regarding the use of inquiry by students** was also noted. The greater student engagement in the learning process and the higher motivation they manifested was stated by the majority of the participants that tested Go-lab. The possibility to use remote labs and/or simulations was highlighted as a very positive aspect of the project as it can give them the **possibility to carry out experiments with dangerous substances**. Training was again a common request. The face-to-face event used an innovative model for PRW: **"Angels & Demons" ice breaking** activity (fig. 9) has been used during the Go-Lab Practice Reflection workshop. Teachers have been asked to stand in two lines facing each other. One line has taken the role of Angels (= Go-Lab supporters) and the other one the role of Demons (=Go-Lab haters). Using the inspiration list of topics that has been provided to them including i.e. usability, accessibility, variety of subjects etc., and teachers where ready to start their debate. To launch the activity, one teacher provided an argument which the teacher in front of him had to respond to and eventually debate on, in an attempt to convert each other. After 30"-40" the bell rang giving Angels & Demons the sign to make a step to the right, change partner and relaunch the debate. The activity was a huge success with Angels & Demons taking their roles very seriously and continuing their discussions throughout the weekend!

3.7.1.3 Bulgaria

In Bulgaria a workshop devoted to the use of Big Ideas of Science (fig.10) in classroom was presented in a face-to-face workshop with the participation of 16 teachers. This event worked as a Visionary workshop where participants were invited to participate in the next phase of the project.

Figure 10 Engagement Activities in Bulgaria

3.7.1.4 Cyprus

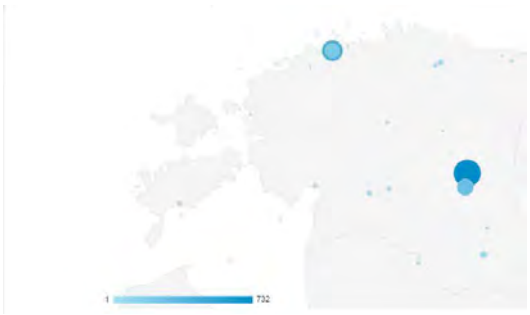


Cyprus promoted 2 PRW and one Visionary Workshop. The visionary workshop engaged 17 teachers. Go-lab was presented to teachers and one lab used in the workshop (fig.11). Teachers provided several suggestions related to the existing apps. Training was again stressed as needed in order to support the use of the system. One of the PRW targeted teachers that were already using the system and aimed to collect their input related to the usability of the system. The main outcome was the **need to align Go-lab with school curricula** and the need for **translation** was also a main request.

Figure 11 Engagement Activities in Cyprus

The second event was a Visionary with some reflection on the usability of the system. Go-lab was introduced to the participants and they had the opportunity to explore the portal and build an ILS. During the workshop, teachers reflected on activities done and at the end of the workshop, they exchanged their thoughts, concerns and ideas about Go-Lab and its use in schools. Again **alignment with the curricula** was a major topic for discussion. Labs and apps were referred as very useful and motivating tools.

3.7.1.5 Estonia



In Estonia a series of 5 Visionary Workshops (fig. 12) were promoted in order to create the national community of practitioners. The workshops were arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). The NC used an ILS in Estonian language in order to introduce the teachers to the whole system and this was marked as a key component of the success of the events. One concern that was commonly met was the time required for students to complete one ILS in classroom. The alignment with the curriculum was a frequent request. Teachers also appreciated the fact that the environment was translated to Estonian. Another common concern was the possibility to have enough **access to the computer classroom**. Some teachers were worried with the level of student's competence in ICT.

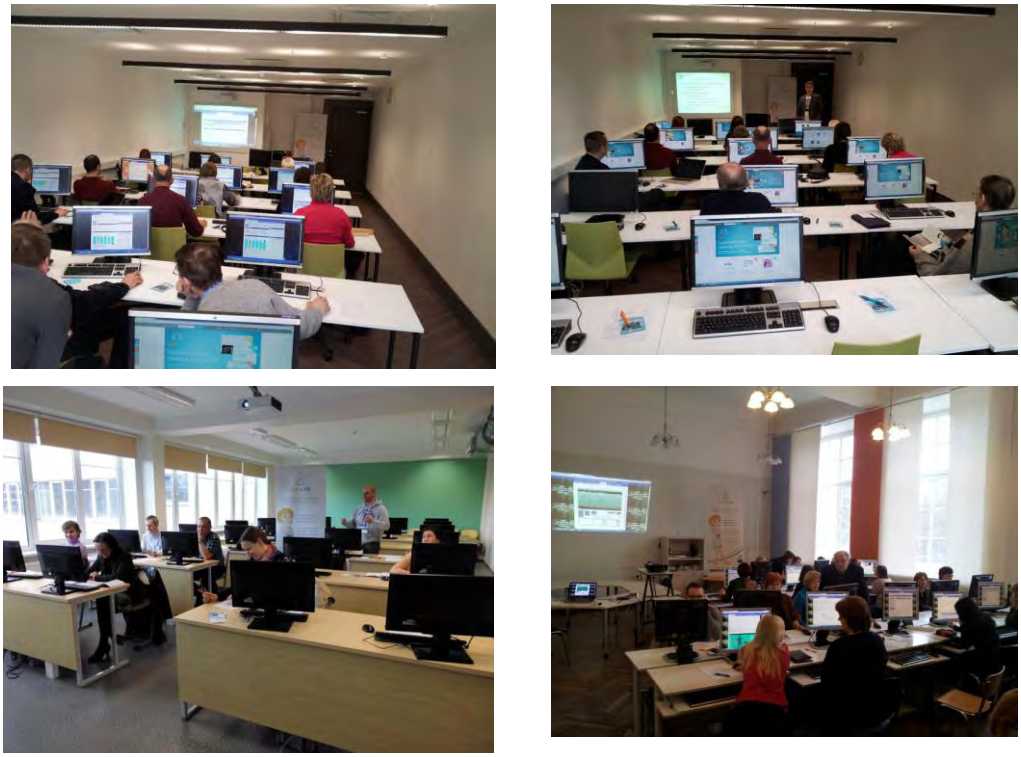
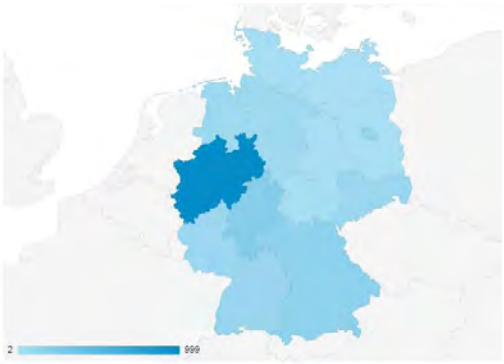


Figure 12 Engagement Activities in Estonia

3.7.1.6 Germany



In Germany 3 workshops were implemented (fig. 13) using a mix format of Visionary/Training event. Several online labs were presented and how to build an ILS. Teachers were invited to further explore the system and to become pilots of the project.

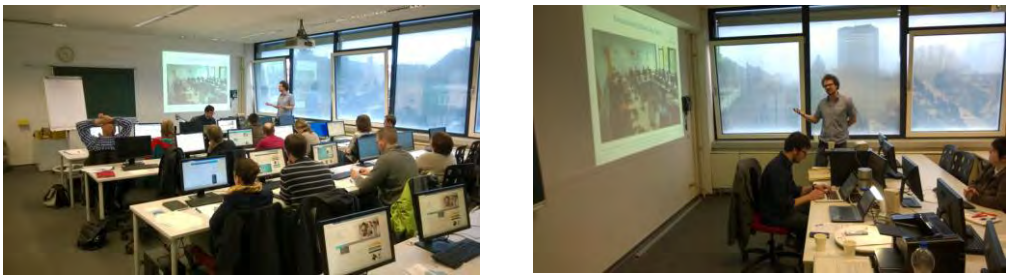


Figure 13 Engagement Activities in Germany

For this school year (2015/2016) the following strategy has been designed in order to attract more teachers:

The national coordinator will keep contacting schools and teachers, trying to gain one by one, and conducting events around Germany. We are also in contact with several MINT supporters like the MINT Forum Germany, Science on Stage Germany, and so on, that advertise the project for us and try to spark teachers' interest.

The following visionary and training events are planned:

On November, 18th there will be the MINT Tag at the university in Essen where we will hold a workshop. Other workshops (especially online) will be held whenever I can gather a few teachers that are interested in joining Go-Lab, so I cannot provide the dates yet.

3.7.1.7 Greece

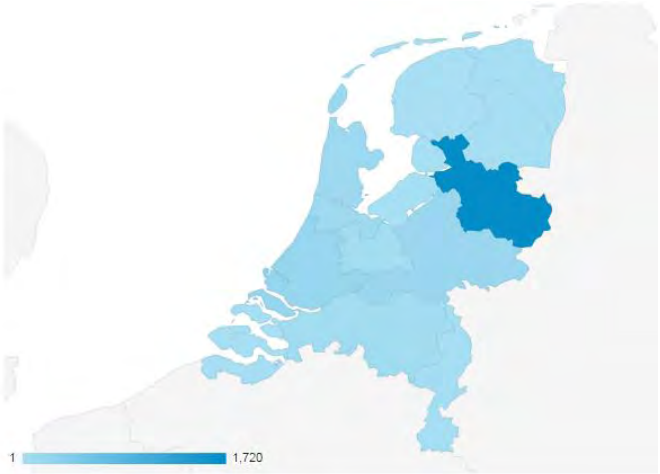
In general teachers have a positive view of the project but they find it difficult to implement in real school environment due to time and curriculum constrains and the availability of technical infrastructure. The pedagogical model is very engaging for the students. Improvements suggested were the availability of materials in Greek language and to have an official accreditation from the schools authorities. Teachers referred that lots of **time investment is necessary** in order to get confident on the use of the platform and to gain enough trust to implement an activity in classroom. They would like to have more **flexibility within the curriculum to organize their teaching.** During the sessions teachers had the opportunity to discuss among themselves their preferences and major difficulties in using the system. Suggestions appeared to have students work on the ILS at home. In one instance students were invited to create their own ILS and that was seen as very motivating and engaging strategy.

Figure 14 Engagement Activities in Greece

3.7.1.8 Italy

One PRW workshop was promoted online for the Italian participants. One of the pilot teachers supported the event and run the workshop in Italian following the proposed agenda. There was a high level of interaction among the participants. Fruitful discussions related to language, internet connectivity and students motivation were addressed during the session. The teachers discussed the following themes with the whole group while they have been sharing their experience with Go-Lab: the usefulness of Go-Lab in their teaching, the impact of Go-Lab in their teaching, the students reactions, the cross curricula activities, the challenges for the Go-Lab system, the recommendations, necessary pedagogical changes and improvements for Go-Lab to be more advantageous in the teaching practice. All teachers are building ILS but **are reluctant to publish them**. Teachers have reported that students find the use of ILSs very engaging and interesting. All teachers agreed that they need more **training and support.**

3.7.1.9 The Netherlands



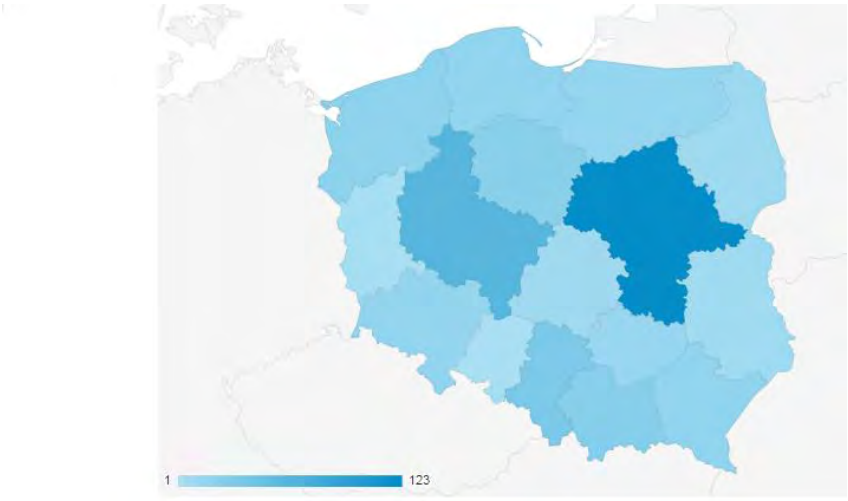
In the Netherlands 2 Visionary workshops were implemented where Go-lab and Graasp was introduced. Participants had the opportunity to explore an ILS and make suggestions for further improvement. They liked the idea that experiments that are difficult to perform at school can be performed using Go-lab. Difficult content can be practiced at home. The compatibility with tablets and smartphones was also appreciated. **Lack of time was an issue raised**.

Figure 15 Engagement Activities in The Netherlands

Another event was promoted with chemistry teachers (fig. 15) that are part of a teacher development team. These are teachers that meet regularly to work on their professional development. In this particular workshop the training was centred on a Go-lab lab. There were a series of meetings where teachers explored the whole process from exploring Golabz to creating their own ILS. The support provided by the Go-lab team in the Netherland was key to success of this effort. The biggest challenge raised by teachers is the **time necessary to learn and to create an ILS.** Some of the teachers felt they needed more ICT competences in order to embrace the challenge. They also manifested a wish that Go-lab could be **integrated with the ICT environment they use at school**. One of the participants implemented the ILS in classroom and reported that students had some difficulty with the Inquiry Based methodology (IB). Teachers mentioned that Go-lab can increase the level of autonomy of the pupils and can be a very motivating tools.

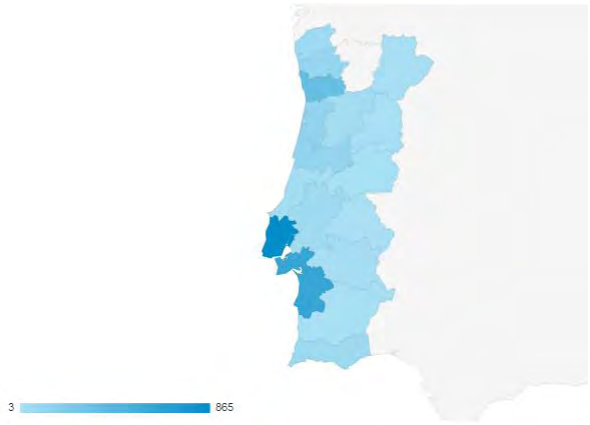
In this school year we will focus on teachers who are at the end of their teacher training program at the university. Most of them do an internship but also follow courses. We focus on the teacher training programs of the technical universities (especially in Enschede and Eindhoven) and on the program for physics teachers in Utrecht. Further engagement activities are planned. Plans already established to run a workshop in February/March involving 30 participants.

3.7.1.10 Poland



In the case of Poland, there are 18 schools which are participating in the Go-Lab Phase C, 13 of which have been included only this year. This shows a clear increase in numbers and reflects the dissemination and cultivation efforts that took place in the last 2 project years. Two important means of action have been adopted to increase this number, specifically: continuous online and remote support (regular update emails sent to teachers, online meetings, etc.) and one on one follow up with teachers who have been using Go-Lab but who have not officially register to the Pilot activities. Efforts are being done also by the teachers themselves: Malgorzata Zajaczkowska, a Polish Go-Lab teacher who is also a Scientix ambassador is repeatedly combining Go-Lab with Scientix dissemination efforts and activities and also Krzysztof Rochowic, another Go-Lab teacher, held a Go-Lab presentation to teachers participating at the Scientix National Conference in Poland.

3.7.1.11 Portugal



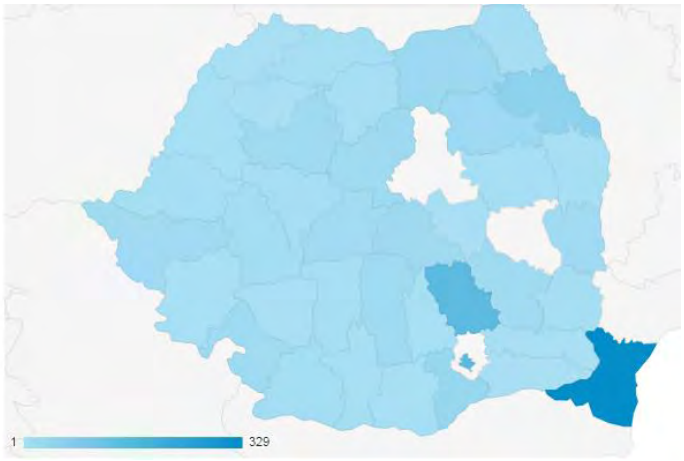
In Portugal a strategy to reach teachers at a national level was implemented (NUCLIO on the road). Visionary workshops were promoted in 14 school clusters involving over 168 teachers (fig. 16). Practice reflections workshops were promoted involving teachers that participated in training events, in total 7 workshops were conducted with a total 123 participants. During the visionary workshops Go-lab portal was presented and Graasp introduced. Teachers were invited to clone an ILS and explore it during the session. Those are teachers that are now being invited to participate in the training events that are going to be promoted in the country at a national level.

Portugal also promoted a series of training events were the teachers had the opportunity to build their own ILS. Several teachers are already using them in real classroom environment and other are in the process of finalizing their ILS for implementation during this school year.

Figure 16 Engagement Activities in Portugal

Go-lab was met with a lot of enthusiasm for the teachers and the reports coming from teachers are presenting good cases for implementation in the framework of the curriculum. In general they need lots of **support to implement IB lessons,** they are worried about the **time necessary to implement the ILS in classroom**. The idea of alignment of ILS with the Portuguese curriculum is greatly appreciated.

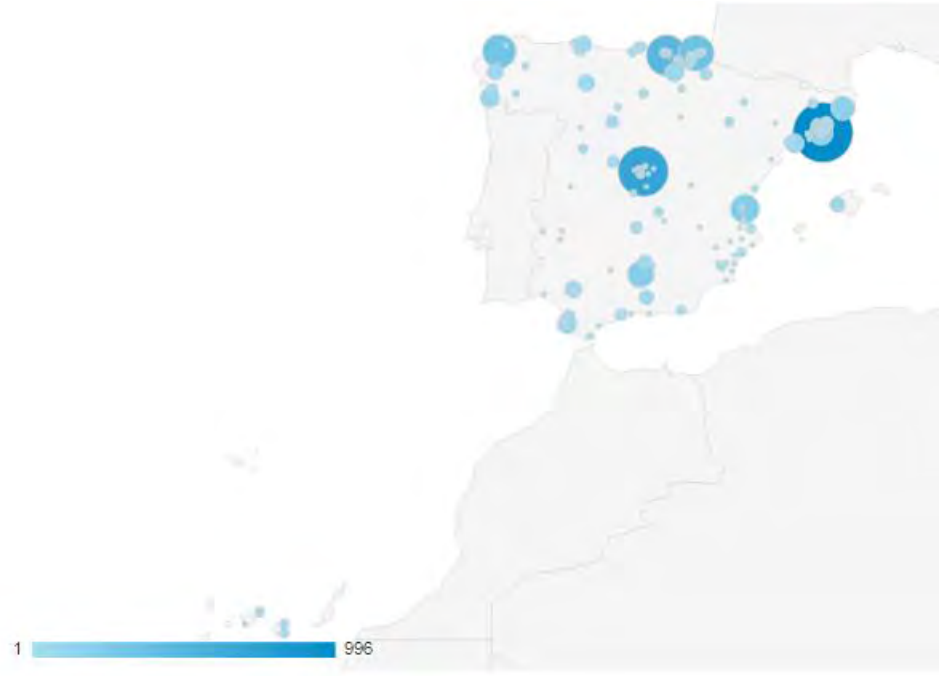
3.7.1.12 Romania



Over 200 schools manifested interest to become Go-lab pilots. The first face-to-face meeting took place in Bucharest where 50 teachers and 6 school advisors where involved in a Go-lab presentation session. The second one took place in the framework of the conference "Lights of the world" .The first training session is being organized with local stakeholders and will take place at the beginning of 2016. The importance of accreditation through the national education authorities was highlighted and issues related to language also stressed during the meetings.

Teachers are very enthusiastic for the opportunity of using Go-lab and expect high impact on their students. They are confident that with the possibility of using mobile devices the lack of ICT infrastructure can be overcome. The final message was that they are looking forward to have Go-lab spread all across the country.

3.7.1.13 Spain



A total of 87 teachers were engaged in practice reflection workshop (fig. 17)s. A series of 3 workshops were promoted in cooperation with the Education Department of the Basque Country. In these events teachers were introduced to the authoring tool and presented to the support pages and tutoring platform, supported to construct their own ILS and reflect on their experience. All participants are eager to implement the proposed innovative approach in class. Not all the participants participated to the end of the activity. To this selection of teachers the best aspects of Go-lab is that it is easy to use, has a clear design but they suggested a better organization of labs, more variety of domains. Translation is seen as a priority.

Figure 17 Engagement Activities in Spain

One online workshop was conducted with the main objective of updating pilot teachers on changes at Graasp and to discuss their experience with Go-lab portal. The workshop was a good moment to support the creation of ILS and to support their future steps in integrating it in classroom environment.

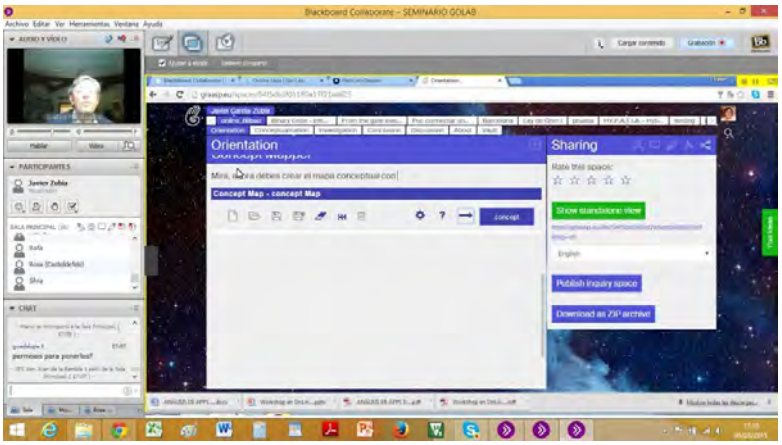
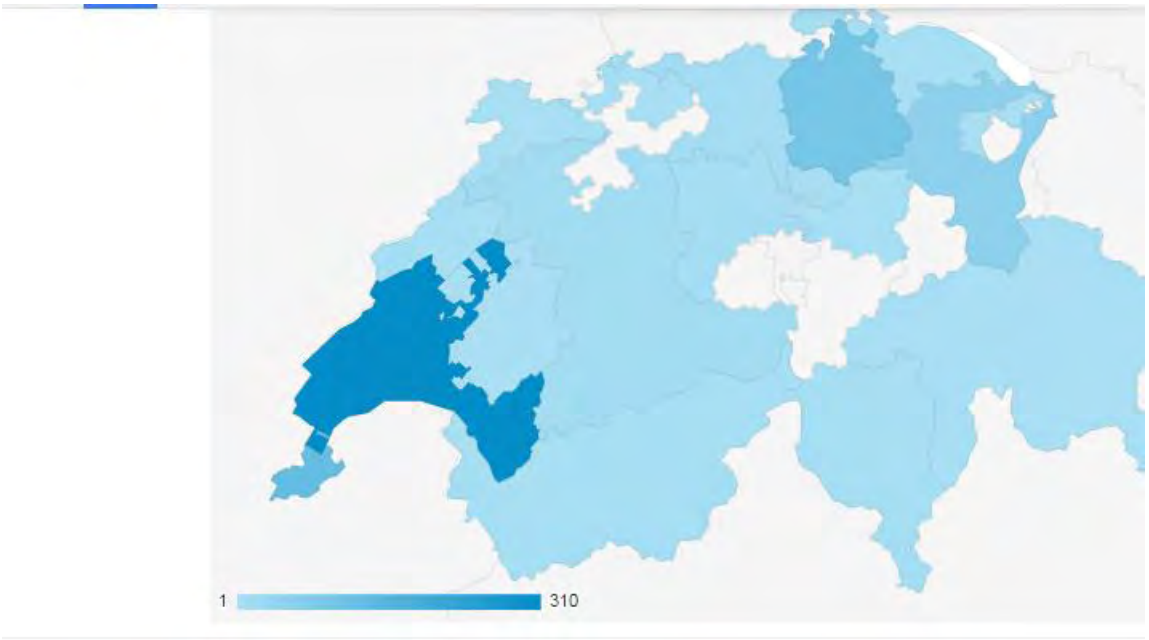


Figure 18 Online Workshop in Spain

In Spain a dedicated webpage (fig. 19) was created where regular information is provided to users

Figure 19 Go-lab blog in Spain

3.7.1.14 Switzerland



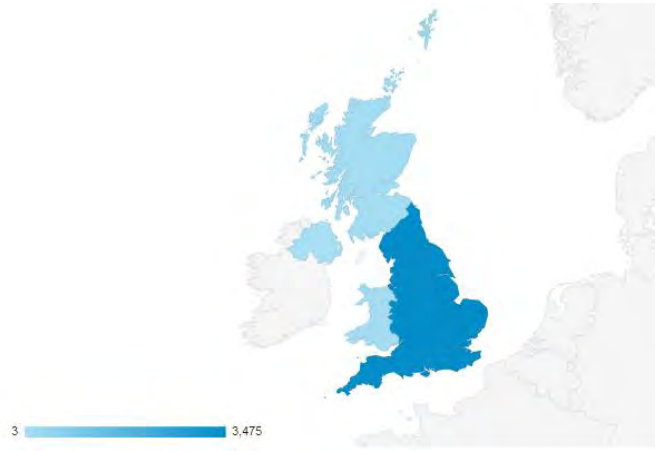
During Phase B efforts were concentrated in gathering contacts from teachers in the countries and the resulting number of schools involved in dissemination actions is around 400 teachers from over 150 schools. The national coordinator of Switzerland is also supporting teachers from Slovakia and Czeck Republic. From Slovakia the efforts reached nearly 140 teachers from 100 schools. Several science societies and international schools are being contacted in order to support Go-lab in the country.

For this school year (2015/2016) the following strategy has been designed in order to attract more teachers

The strategy is to get better connection with Swiss society of mathematics and physics teachers and Swiss centre of continued education of high school teachers in order to influence the programs which are officially recommended to Swiss teachers every year; and connection with International Baccalaureate Organisation so that Go-Lab would be included among the extra-curriculum activities of International Schools in Switzerland and maybe also abroad.

- The following visionary and training events are planned:
- The CERN national teachers program for Swiss teachers should take place in Spring next year and Go-lab teachers will be involved in that.
- Specific events are going to be organized with support from EPFL

3.7.1.15 UK



For this school year (2015/2016) the following strategy has been designed in order to attract more teachers

We recently sent out a 'Survey Monkey' survey (https://www.surveymonkey.com/r/Z7S59QS) to our 60 Pilot Schools. We so far (9th October) have 27 replies and are examining these to see what the best approach for training in the UK is.

In this survey, we have asked teachers to tell us whether they prefer the face-to-face (f2f) or online (e.g. Google Hangout), how much time they can spend on training, how far they can travel, what times of day and what months are best.

We are collating these data and will look to identify areas of the country where schools are clustered. We also intend running some online sessions (which Rosa Doran has kindly offered to co-host) for those unable to travel or attend face-to-face training.

The following visionary and training events are planned

- 10 teachers are available for online training only – a further 15 have indicated that they are happy for either online or f2f format training.
- 17 teachers have indicated their availability for f2f training. We aim to demonstrate Go-Lab in person with each of these in coming months. This will require co-ordination, both in terms of training location and at times and durations suitable to both teachers and FT team members. Initial responses suggest that twilight sessions (i.e. 4 pm – 7pm) are favoured by teachers.
- We also hope to run an event in conjunction with our UK Go-Lab partner ULEIC to be held at the National Space Centre (NSC) in Leicester.
- For each event, we will invite all 60 Go-Lab Pilot teachers, along with our Faulkes Telescope Project users (around 400 on our mailing list) and further, publicise them through our Facebook and Twitter accounts. We will ask ULEIC to publicise these events (particularly at the NSC) to their own teacher contacts.
- It is also envisaged that we will repeat in mid-2016 (at Cardiff University) the Hands on Astronomy conference (http://blogs.cardiff.ac.uk/physicsoutreach/inspiring-science-education/hands-on-astronomy-teacher-conference/) which was held in April 2015.

3.7.2 Online Survey - Questionnaires

The online questionnaire (fig.20) was a joint collaboration between WP3 and WP6 with the main objective of inquiring the user on their use of Go-lab Portal. The main outcomes are very important for the improvement of the portal, its usability but also important to better understand where support and follow-up are necessary.

The form was created using Google form services:

https://docs.google.com/forms/d/126le87hVI0kF2rZ-UAAApkm7aHmsJij6JQ7VRN6DImk/viewform

Until September 30th we had in total 189 responses to the questionnaire (Table 4) coming from teachers that participated in the PRW workshops and/or had the opportunity to implement Go-lab in real settings.

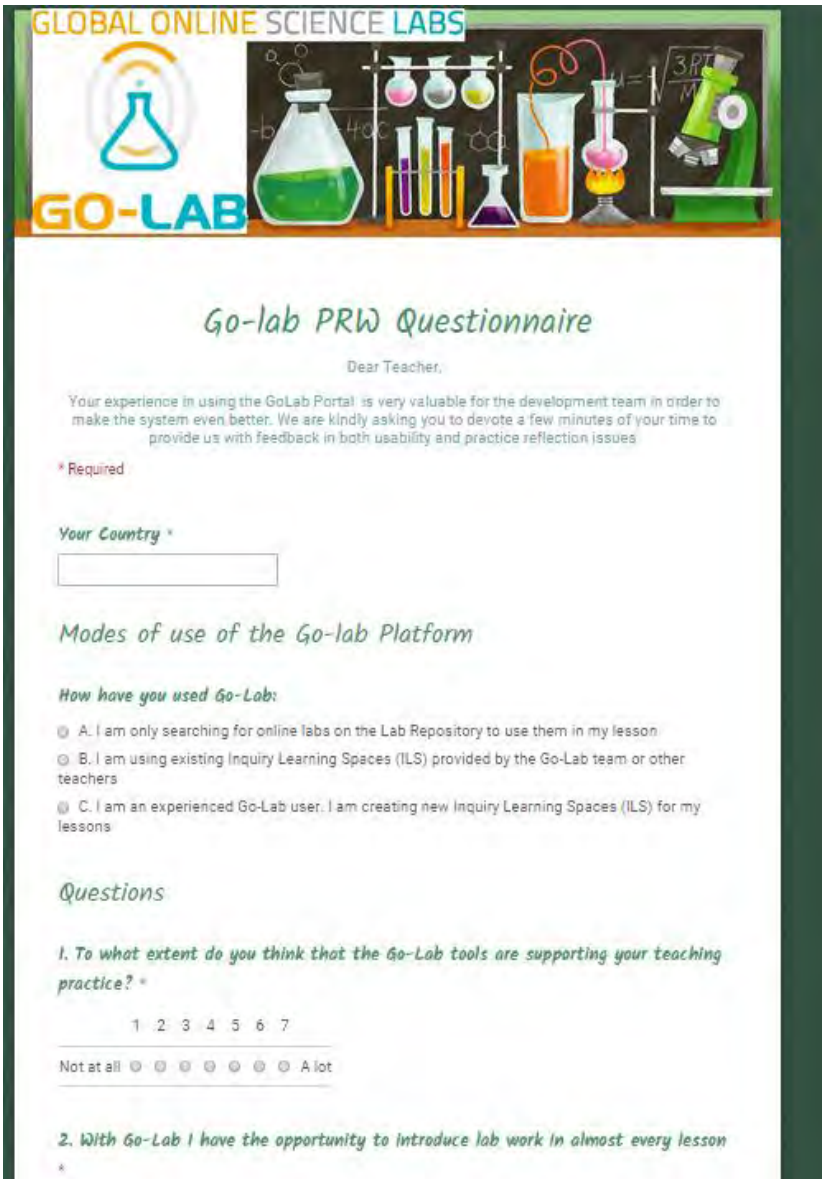


Figure 20. The online survey on Google forms

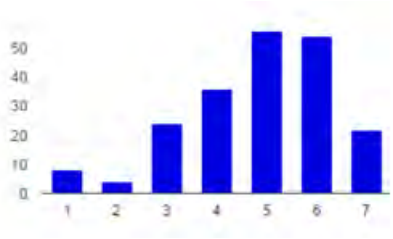
Table 4 Number of responses per country

Country	Number of valid answers
Belgium	40
Cyprus	25
Estonia	50
Germany	10
Greece	14
Israel	1
FYROM	2
Netherlands	5
Portugal	19
Russia	1
Spain	22
TOTAL	**189**

Below we draw some conclusions by combining reports from Practice Reflection Workshops and the answers to the questionnaires (The full results can be found in Annex III):

Modes of use of the Go-lab Platform

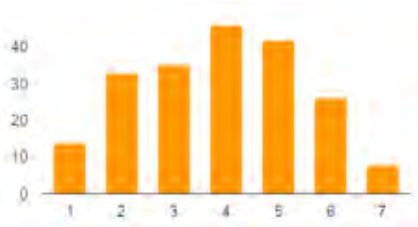
To what extent Go-lab tools are supporting the teaching practice ?



1
Not at all

7
a Lot

With Go-lab I have the opportunity to introduce lab work in almost every lesson



1
Strongly disagree

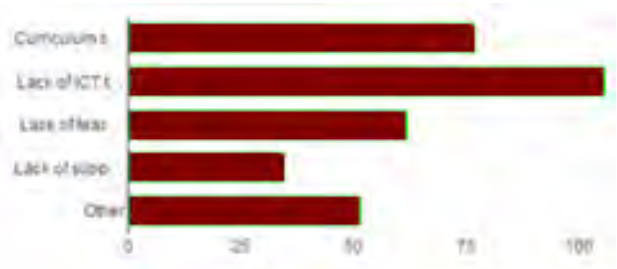
7
Strongly agree

Main Conclusions

Nearly **43%** of the users of the portal are using existing ILS, copying and/or modifying them for their own personal use in classroom or as examples to the construction of their own. We can also see that around **27%** of the users are already creating their own ILS for their lessons. From the analytics of the use of the existing ILS we can foresee that the number of implementations in real classroom settings will grow this school year. We can see a clear cycle in the experience of users from explorer to creator. The vast majority of the teachers consider Go-lab tools useful for their teaching practice but not everyone think it is possible to introduce them in every lesson. There are an array of reasons for this attitude: time constrain, curriculum constrain, lack of equipment and/or ICT support, among other reasons that are clearly manifested in the conclusions of the PRW.

The report related to users view on the quality of the Go-Lab portal will be presented in D3.3

Main Barriers



Main Conclusions

The choices of the responders of the questionnaires as to the main barriers encountered for the use of Go-lab in classroom are, as expected, lack of ICT tools in classroom and the difficulty to use the existing material in the framework of the curriculum. These are issues that appeared frequently in diverse activities and that are being taken into account by the consortium.

Types of use of Go-lab

Main Conclusions

The majority of users, by the time they answered the questionnaire, where not yet using the tutoring platform but consider the possibility of sharing experiences very appealing and a source of improvement for their teaching practice.

Teachers are willing to share their ILSs, the resilient ones are the ones that are not confident on the quality of their ILS and reluctant to share for this reason. The ILSs created by Go-lab team are a source of appreciation by teachers.

Users that overcame the resistance barrier to new models and tools **are really considering using ILS systematically in their teaching**.

practice.

Free Considerations

Main Conclusions

When asked about the more challenging aspects for creating their own ILS the most common comments were related to finding the adequate tools and the lack of stability of the platform.

The highlight of the activities pilot teachers implemented was the motivation of the students with the use of labs and apps inbuilt in the ILS. The appealing look of the student view was highly scored when users were asked what they liked he most. The dislike was centred in the labs and ILS with too much text and the prevalence of English language in most ILS, labs, platform etc. The request for support was a common request found in teacher's free comments. Major difficulties encountered during the implementation runs were related to the ICT infrastructure. From the student's point of view the major need was to understand the IB methodology

3.8 User Profiling

As in any human activity the engagement is proportional to the interest raised by a certain "product" and how this solution is addressing the personal needs of the individual or the community for that matter. In teacher's professional development it is not different. We will find users that feel only curious about what the project is, those that explore the portal and eventually get to use some of the existing labs and apps, those that immediately engage in using already existing scenarios, those that feel confident enough to adapt their findings to their own needs and those that master the use of the system and start creating their own scenarios.

Some studies are showing that there in social groups, as in other human activities, the majority of users are looking for information, tools, resources, etc. The distribution categorizes users according to their actions. This is called the 90-9-1 Principle (Figure 21) : 90% are classified as audience (observe but don't actively contributed), 9% editors (modifying content but rarely creating something new) and 1% creators (responsible for new contents) (McKee, 2009).

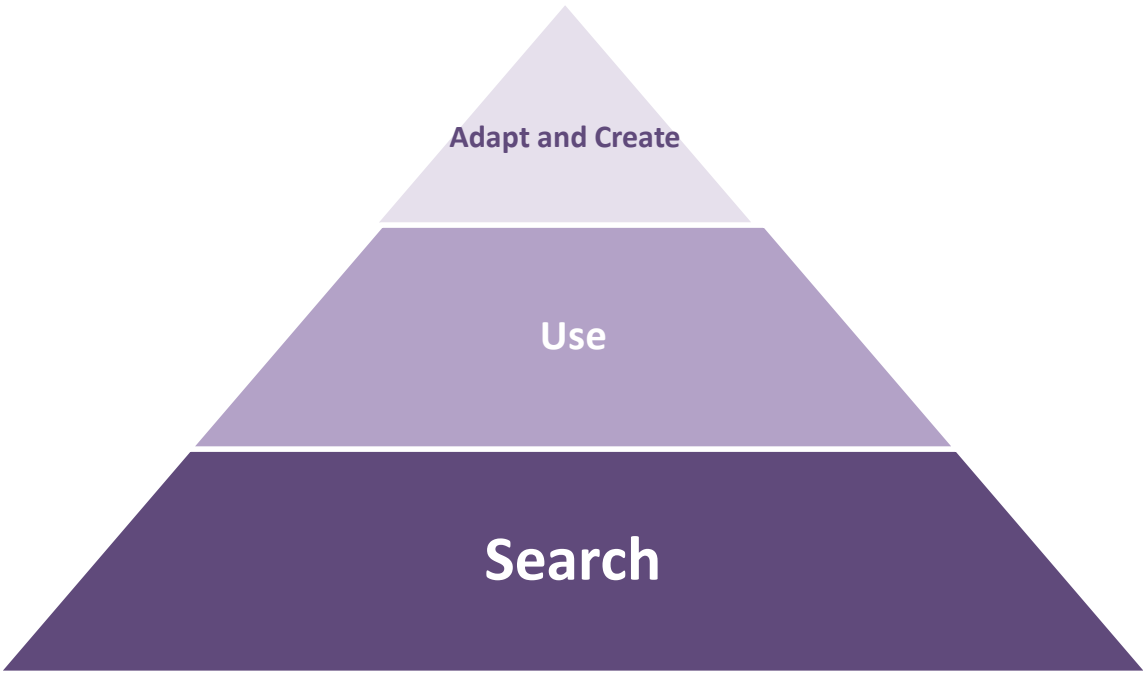


Figure 21 Users of the system according to the 90-9-1 principle

The analysis of users of Go-lab portal and Graasp (authoring tool) shows us that teachers and other interested stakeholders are performing better than what is predicted by this model as shown below.

In this chapter we are making an attempt to map the behaviour of Go-lab users. Our aim in this chapter is to track the activities of pilot teacher and create possible scenarios for the system use. Table I presents and overview of the main indicators that have been used in our analysis. The numbers presented are coming mainly from two sources, the weblogs of the system (Graasp) and the Google Analytics (a more detailed view of the analytics can be found in Annex I) monitoring mechanism that tracks the use of the different components of the Go-lab system (Golabz portal, Graasp platform and Tutoring platform).

Table 5 The key indicators for the Go-lab system use during the second phase of implementation (Nov 2014 – Sept 2015).

Schools	689	
Platform	**Golabz**	**Graasp**
Unique Users (google analytics – bounce rate removed)	18.000	5.000
Registered users (system web logs)	n/a	2461
Page Views	4.7/session	2.58/session
Average Time	05:09	06:21
Bounce Rate	38.1%	61.50%
ILS cloned and created		2459
New ILS with some activity (views of standalone view)		786

Based on the numbers of the users of the Graasp platform we will make an estimation of the users who are making optimum use of the system. According to the data that are coming from the platform there are about 5000 active accounts. These users have created an account but not all of them have proceeded in the creation of an ILS.

To do so they will need to perform at least 6 more actions on the platform (create the ILS and add at least the 5 phases of the inquiry process). We will make here the assumption that our sample consist only from users who have performed either 1 action (create their account) and users that have created 5 steps ILSs. these are the most common ILSs. In this case if x, is the percentage of users performing one action and y the percentage of users that are performing 6 actions we can say that:

$$x + y=1 \quad (1)$$

According to the Google Analytics data the average number of pages visited on Graasp is 2,6 for all Graasp users. In such a case we can say that:

$$1*x + 8*y=2,6 \quad (2)$$

as the x of the users visited one page per visit while y of the users visited 8 pages per visit.

From (1) and (2) we can get that y=23% of the users who hold an account on Graasp. Namely this represents about 1140 users.

According to the Graasp data the users who have performed more than 8 actions on the platform are 1200. In such a case we can say that the estimation that was done above is in quite good agreement with the data that we are receiving from the system.

Go-lab Users	
Using the portal (Google Analytics) (User Type A)	18.000 (100%)
Using the Graasp (User Type B)	5.000 (28%)
Creating ILSs with Graasp (User Type C)	1.200 (7%)

Following the same approach we are applying different filters (cut-offs) to the number of actions performed on each ILS and we can make an estimation of the implementations that have been realised. Our assumptions are the following:

- create an ILS – 8 actions
- Implement an ILS – 5 actions
- 20 students access 5 pages = 100 actions
- Implemented ILS in a classroom with 20 → 8 + 100 = 108 minimum actions for classroom implementation

By applying the 108 actions filter we are getting 166 ILSs that meet this criterion. In most of the Go-lab schools the school labs include less than 20 terminals, In most of the cases there are 10-15 terminals available for the project implementation. In such a case we can assume that the number of terminals is 10. By applying this filter we get 450 pilot implementations. It has to be noted that currently (September 2015) there are 150 public ILSs. Taking into account that about 700 schools were involved in the second phase we can conclude that at least 50% of them (teachers working in the Go-lab schools) have implemented ILSs in their classrooms lessons.

These teachers have participated in engagement activities, participated in training sessions, interacted with tutors and have received support from their national coordinators in order to achieve the present stage. These results are telling us that the approach proposed is effective. With their support the systems were tested, suggestions implemented and adaptations to the support and training mechanisms carried on. This strategy prepared the project for the last stage where we are aiming to a larger number of schools and communities involved.

As described in this document, teachers are being trained in the use of tools and resources available in the portal, on the adopted pedagogical methodology (IB) and to use of the authoring tool (Graasp) to copy and create their own ILS. Many teachers have been involved in this process to different levels of commitment.

Taking into consideration the time necessary for teachers to reflect on the use of their ILS, to perfect them and make it relevant for the curriculum we expect to reach this numbers, in fact surpass it, in the Phase C of the project. It is necessary to take into account that our baseline is the users searching the portal. The ones using the system are expected to do so soon after they explore the portal and get acquainted with the authoring tool. The 3rd level, the knowledge deepening, depends on the necessary time to build their own ILSs and to find the opening in the curriculum to implement it. It is thus a fair consideration to expect the results of actions in Phase B to be more relevant in Phase C. Actually if we consider that users of the system in Phase A are the ones implementing in Phase B we would have a much higher percentage than the usual expected one.

In a nutshell we can represent the strategy (Table 6) versus the achieved results (fig.22) as follows:

Engagement	Training	Support	Recognition	Community

Table 6 Adopted strategy to support Go-lab community

Visionary Workshops	Face-2-face training	Tutoring Platform	Certification	Pilots communities
Practice Reflection Workshops	online – MOOCs , webinars	Support Page	Accreditation	Pilots Mailing list
Online Activities	Pilot's cascade	Demo activities in schools	Digital Badges	International /National schools
Pilots Days		Pilots Days		Pilots cascade

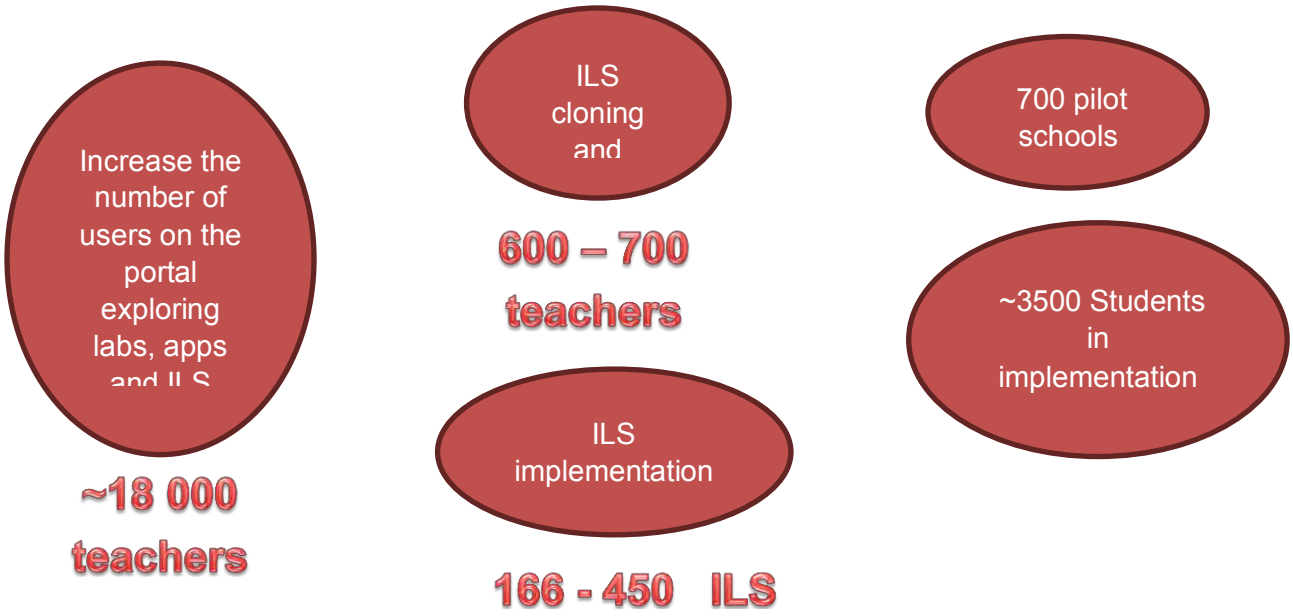


Figure 22 Achieved results by the members of the Go-lab community

The factors contributing to the different usage of Go-lab come from a variety of different sources but we We can draw the conclusion, from the analysis presented above, by matching the different engagement activities with the behaviour of the users: dissemination events for sure were trigger events for visits to Go-lab portal, the visionary workshops motivated the first level of engagement (users exploring the portal) and in many occasions the motion of the engaged user to the next level (users using existing resources); training events were the most effective mean to promote users to the next level (Adopter/adapter of the resources); the continuous support provided by national coordinators and by the pedagogical and technical team were the key aspect for the emergence of the higher level of engagement, the creators of new ILSs. A large population of teachers engaged to different levels of interaction and use of the system.

Taking into account that the new Graasp is available since February 2015, that training teachers on the use of the system requires a hibernation time for practicing, reflecting and adaptation to the curricula, we consider that this number is a great success. We will certainly witness a large growth of this number as this school year (2015/2016) progresses.

4. Establishing the Go-Lab Support Mechanism

As already mentioned before in this document the number of projects being offered to schools, very often in competition with each other, is immense. They can be national initiatives, European or global initiatives. As in other areas of our lives we tend to select the best solution for our needs and those products and services that provide better support. In the world of education this is even a more crucial aspect. When trying to bring innovation to classroom we are asking teachers, very often, to step out of their comfort zone. This is translated into effective actions only if we can provide a continuous support to the users and the certainty that their investment will be worthwhile. Thus, a strong and flexible support community is key for the success of any project and in particular to project offering cutting edge solutions as Go-lab is. In many occasions the existence of a strong support system can dictate the decision of the prospect user for the adoption of a project.

A virtual community is a community of people sharing common interests, ideas, exchanging their practices and jointly finding ways to solve common problems. We hope that Go-lab virtual community will be an effective hub of individuals from different countries, cultures and social environments. We expect that this virtual hub will have the potential to support teachers entering the Go-lab family and means to support this vision have been implemented. In order to fulfil this vision a strong support hub is being designed, as presented below:

4.1 Go-lab support page

An important aspect of the sustainability of the communities is the existence of a strong support system. As mentioned above there are diverse forms of assistance being provided to the system users, among them a support page (fig 23). In this page users will find: Video tutorials, Tips & Tricks, Questions & Answers, Community forum, Online courses and the link to the Tutoring Platform.
The resources to populate all this areas are continuously in production.

Figure 23 Print screen of the Go-lab support page

4.2 Tutoring Platform

The Go-Lab Tutoring Platform represents a support and community area for teachers working with the Go-Lab Portal, Inquiry Learning Spaces and resources of the Go-Lab Project. On the platform, professional help by consortium partners and teachers experienced in using Go-Lab is provided to offer Go-Lab users the right assistance if any questions or problems occur.

At the homepage of the platform, a large list of Go-Lab tutors with short profiles is displayed. Each tutor can offer support on different topics based on her knowledge, skills and experience. The search bar serves for a more selective search. By entering key words or names of persons, experts with appropriate support services can be found.

Importantly, any user of the Tutoring Platform can become a tutor. For example, an experienced teacher wanting to share her expertise and best practices with other community members can offer scheduled tutoring sessions and thus become a tutor.

The tutors' performance can be assessed (Figure 24) based on social ranking and commenting by other users. The members, who are currently online, are also displayed on the homepage so that quick responses are guaranteed.

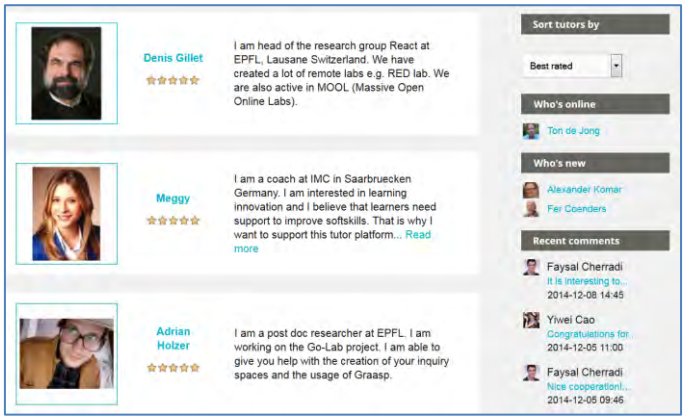


Figure 24 Example of a tutor's page with the respective assessment

The tutoring activities are provided in form of video sessions between the expert and the respective teacher, discussing all information needed to solve the problem or to share an idea. These video tutoring sessions are scheduled so that a structured planning of the support services as well as participation in several sessions is ensured. The dates of tutoring sessions provided by the experts can be found in their profiles (Figure 25).

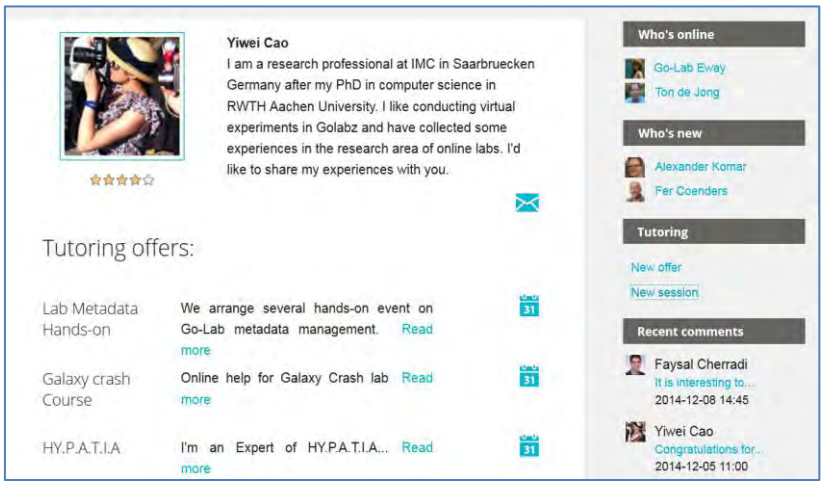


Figure 25 Example of a tutor profile

The interactive character of the Go-Lab Tutoring Platform aims to encourage the exchange of know-how, expertise and ideas among users. It should strengthen the Go-Lab community by assisting each other. There is also a discussion forum (http://tutoring.golabz.eu/forum), where specific topics and questions can be addressed.

Further resources to receive fast assistance are provided on the Support Page of the Go-Lab Portal (http://www.golabz.eu/support). There, multiple guidelines, video-tutorials, FAQs and a lot of other supportive means are available.

Further information related to the overall vision and structure of the support mechanism is being presented in D6.6

5. Recognition and award mechanism

5.1 Certificates

As mentioned in several parts of this document, certification and accreditation are important aspects for the recognition of pilot schools, teachers and students support. A series of certificates were developed in order to fulfil this vision. The certificates have a general design and can be adapted and localized for their specific needs. Below a sample of the Portuguese certificates is presented.

Teachers participating in different events are entitled to receive a participation certificate. Teachers who introduce the Go-lab tools and methodology in classroom are entitled to receive a Go-lab teachers' certificate (Figure 26).

Figure 26 Example of a teacher's certificate

Students involved in the research experiences are also entitled to receive a certificate and the support of the

Figure 27 Go-lab student's and school's certificates

pilot schools to their teachers and students is also recognized (Figure 27).

Finally those teachers that master in the use of the authoring tool and train other teachers who involve other colleagues from his or other school community have their efforts recognized in the form of a Go-lab ambassador certificate (Figure 28).

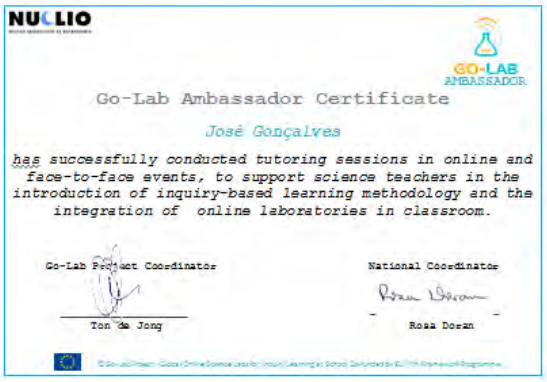


Figure 28 Go-lab Ambassadors Certificate

5.2 Badges

Open badges are a new trend to virtually recognize the professional development or teacher's contribution to a specific proposal. We don't have the necessary resources to implement a fully automatic process to assign badges for the different users, according to their level of commitment but we are reflecting on a simpler system that will officially recognize the different categories of teachers. The same vision is being discussed to be implemented in the tutoring platform (fig. 29)in order to reward the most active tutors.

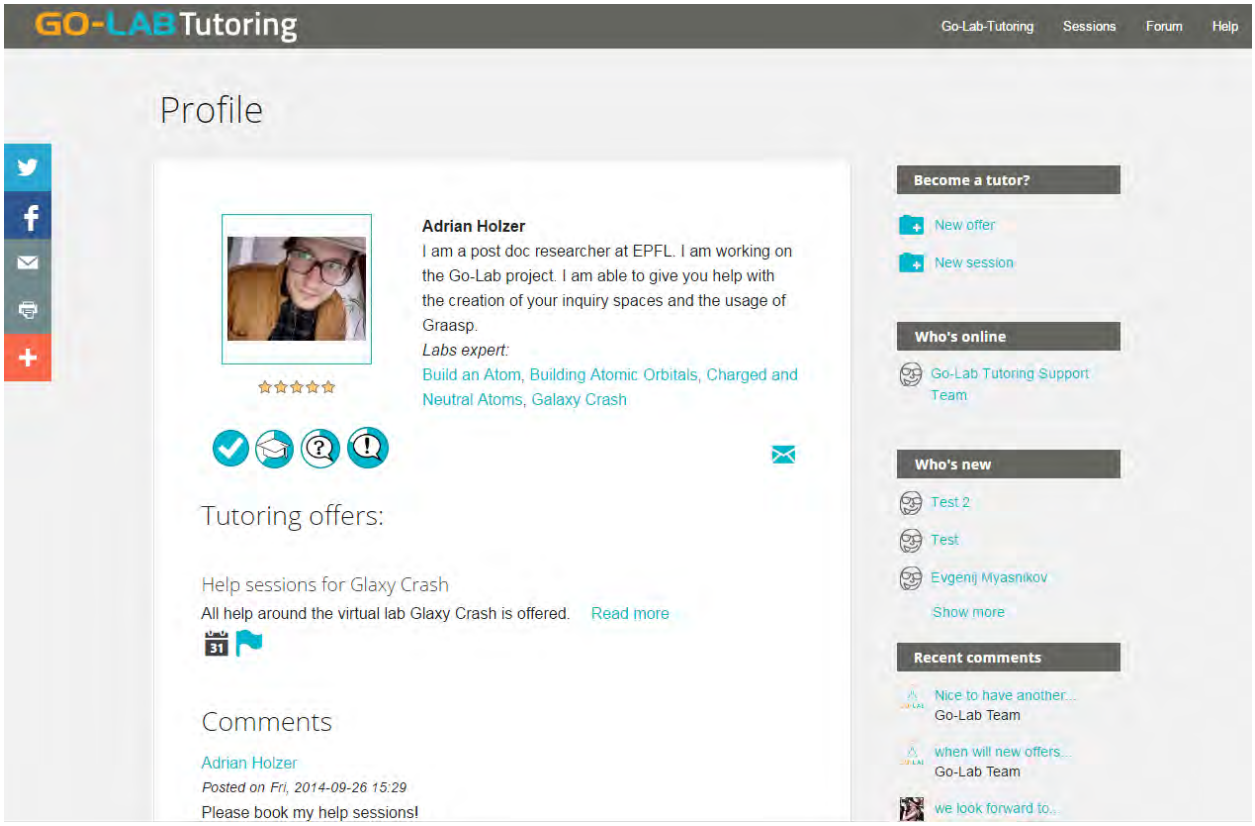


Figure 29 Example of badges assigned to tutors of the platform

6. Sample of Community Building Initiatives

During the phase B of the project a series of community building events were promoted. We selected the two most important ones in terms of impact on the project

6.1 Go-lab Contest

6.1.1 Overview

G O - L A B Event Code	[GR02-011215]
Title	"Teaching Science through Inquiry" contest
Country City/Region	On the web
Working language	English
Start/End Date	01/12/2015 – 05/06/2015
Organizing Institute	Ellinogermaniki Agogi
Coordinator name and email	Tsourlidaki Eleftheria *eleftheria@ea.gr* Mavromanolakis Georgios *gmavroma@ea.gr* Sofoklis Sotiriou *sotiriou@ea.gr*
Go-Lab Partners that were also Involved	Go-Lab National Coordinators
Activity Form	Contest
Activity Type	International
Total number of teachers/schools	47
Implemented online labs	Fishbowl Population Genetics, Splash, The Calculated Sky, Electrical circuit lab, Sexual Selection in Guppies, Logistic Growth, Crater Impact, The Faulkes telescopes project, Our acidifying ocean, Density and buoyancy, Radioactivity, Gears, Drosophila
Brief description	Contest for raising the interest of teachers in the Go-Lab activities
Learning outcomes	Familiarization with the Go-Lab project Acquaintance with the IBSE approach. Acquaintance with the Go-Lab online labs
Website	http://golab.ea.gr/contest2015/

Photos or other relevant material	N/A
Event agenda	December 1st, 2014: Launch of the contest December 10th, 2014: Start of submission period May 15th, 2015: End of submission period June 6th, 2015: Announcement of winners per country July 12th - 17th, 2014: Summer School Dates

6.1.2 Introduction

The Go-Lab contest "Teaching Science Through Inquiry" was launched in order to further disseminate the Go-Lab project and to increase teachers participation in the Go-Lab activities. The contest was launched on December 1st 2014 and the submission period ended on May 15th 2015. Teachers were asked to demonstrate who they used Go-Lab in their classroom. More specifically, the entries that were going to be submitted by the contestants had to follow three simple rules:

a) Implement a Go-Lab activity (using an existing Inquiry Learning Space, or create their own) with a class of students between 10 and 18 years old.

b) Record the implementation process as well as students' results and present them in the form of a report, or by making a video, a presentation or a poster.

c) Submit their presentation to the contest.

The contest targeted teachers from all countries participating in the Go-Lab pilot phases. The teachers with the two winning entries from each country would be invited to attend the Go-Lab summer School in Marathon, Greece between the 12th and 17th of July 2015.

The timetable of the contest was as follows:

December 1st, 2014: Launch of the contest

December 10th, 2014: Start of submission period

May 15th, 2015: End of submission period

June 6th, 2015: Announcement of winners per country

July 12th - 17th, 2015: Summer School Dates

6.1.3 Contest set–up

The organization of the contest was made by Ellinogermaniki Agogi (EA). EA was responsible for setting-up the contest, producing all the necessary materials, gather the contestant's entries and announce the results of the contest. It also acted as the main hub of communication for the contestants throughout the duration of the contest. The National Coordinators had the responsibility to evaluate the entries of their own country and report back to EA their results. All project partners were asked to disseminate the contest through all means possible.

6.1.4 Website

In order to better organize the contest, a separate website was created which aimed to provide all interested teachers with the necessary information as well as to keep them posted on all news related to the contest.

Figure 30. The website of the Go-Lab contest

Through the website, teachers had access to the following information:

- General Information http://golab.ea.gr/contest2015/content/general-information
- Rules and Conditions http://golab.ea.gr/contest2015/content/rules-and-conditions
- The prize http://golab.ea.gr/contest2015/content/prize
- Contest Organizers http://golab.ea.gr/contest2015/content/contest-organizers
- National Coordinators http://golab.ea.gr/contest2015/content/national-coordinators
- List of labs available http://golab.ea.gr/contest2015/content/list-labs
- List of ILSs available http://golab.ea.gr/contest2015/content/inquiry-learning-spaces
- Info about building an entry http://golab.ea.gr/contest2015/content/how-build-your-entry
- Useful Tips http://golab.ea.gr/contest2015/content/useful-tips
- Useful Resources http://golab.ea.gr/contest2015/content/useful-resources

- Evaluation criteria http://golab.ea.gr/contest2015/content/evaluation-criteria
- News http://golab.ea.gr/contest2015/articles
- Contest Dissemination Materials http://golab.ea.gr/contest2015/content/contest-dissemination-materials
- Calendar http://golab.ea.gr/contest2015/calendar/month
- Contact persons http://golab.ea.gr/contest2015/content/contact
- Frequently Asked Questions http://golab.ea.gr/contest2015/content/frequently-asked-questions

6.1.5 Dissemination

In addition to the website, a set of dissemination materials (Annex IV) were produced to further disseminate the contest. These materials were used by project partners in the project's events so as to further disseminate the contest. The project's National Coordinators were the main hub of dissemination for each country. Aside from repeated e-mails to teachers, the contest was also communicated repeatedly through Facebook (fig. 31) and Twitter and other websites (fig.32).

Figure 31. Dissemination of the contest through Facebook.

Figure 32. Dissemination of the contest through the Galileo Teachers Training Website

During the contest, the project partners also organized two supporting sessions (one on February 26, 2015 and one on April 13, 2015) through the Go-Lab tutoring platform(fig.33) so as to support the contestants in creating their own ILSs and building their entries. Both sessions were recorded and uploaded in the Go-Lab YouTube channel.

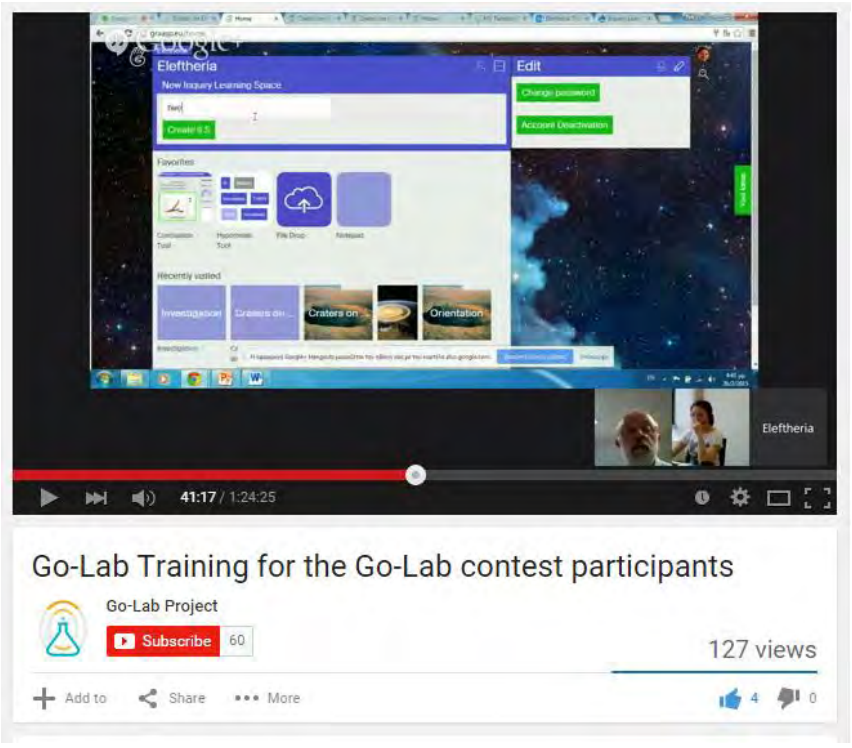


Figure 33. Screenshot from the first supporting session

6.1.6 Rules and Conditions

Within the framework of the preparation, a set of rules and conditions was also developed so as to ensure the smooth running of the contest. The rules and conditions can be found here: http://golab.ea.gr/contest2015/content/rules-and-conditions

6.1.7 Evaluation

National Coordinators were responsible for evaluating the entries coming from their own country. All National Coordinators followed the same evaluation criteria which are listed below:

1. Quality of the entry (10 points)
This criterion involves the evaluation of the quality of the entry in terms of results presented. Your entry can be in the form of a report, a presentation, a video or a poster.

- Implementation process and students' results - **4 points**
- Overall assessment of students' performance - **3 points**
- Overall assessment of the Inquiry Learning Space's impact on students' cognitive skills. - **3 points**

2. Practical Implementation in class (10 points)
This criterion involves the evaluation of the actual in-class implementation.

- Class organization - **2 points**
- Encouraging students creativity - **4 points**
- Quality of students' results - **4 points**

3. Creativity and Originality (10 points)
This criterion involves the evaluation of the entry in terms of creativity and originality. This includes the degree to which the entry presents the results of the implementation in a clear, creative and attractive way.

- Creative presentation - **4 points**
- Originality of the work - **3 points**
- Clarity of the overall entry - **3 points**

4. Use of Go-Lab tools (5 points)
Contestants can use an existing Inquiry Learning Space as is. Alternatively they may adapt one or create a new one. Hence for every entry only one of the following options will be applicable.

- Use of an existing Go-Lab Inquiry Learning Space as is. - **1 point**
- Use of an existing Go-Lab Inquiry Learning Space after being adapted by the contestant. **- 3 points**
- Use of a Go-Lab Inquiry Learning Space created from the contestant from scratch. **- 5 points**

6.1.8 Contest Entries and Results

Evaluation

Overall, 79 teachers registered to the contest. Out of these teachers, 47 submitted an entry by the end of the submission period. National Coordinators were asked to evaluate the entries of their country. The number of participants per country and their average scores respectively are as follows (table 7):

Table 7 Participants and average scores per country

Country	Number of Participants	Average Score (out of 35 points)
Belgium	1	30.00
Bulgaria	1	32.00
Cyprus	3	25.00
Estonia	2	29.50
Germany	2	26.00
Greece	4	25.25
Italy	2	26.00
Other Countries	5	26.25
Poland	2	29.00
Portugal	9	22.83
Romania	2	21.5
Spain	13	28.35
The Netherlands	1	23.00
Total	47	26.51

Compared to last year's contest (table 8) the participation rate increased from 49% to 59%. The detailed comparison is presented in the table below.

Table 8. Comparison between 2015 and 2014 contest

Country	Number of Participants 2014	Number of Registrations 2014	Participation Rate 2014	Number of Participants 2015	Number of Registrations 2015	Participation Rate 2015
Austria	2	2	100%	0	1	0%
Belgium	1	1	100%	1	1	100%
Bulgaria	1	1	100%	1	2	50%
Cyprus	2	3	67%	3	3	100%
Estonia	1	2	50%	2	2	100%
Germany	2	4	50%	2	2	100%
Greece	5	11	45%	4	9	44%
Italy	1	4	25%	2	7	29%
Other Countries	0	0	-	5	7	71%
Poland	1	2	50%	2	2	100%
Portugal	5	15	33%	9	18	50%
Romania	3	8	38%	2	5	40%
Spain	10	14	71%	13	16	81%
Switzerland	1	2	50%	0	0	-
The Netherlands	0	1	0%	1	1	100%
United Kingdom	0	1	0%	0	3	0%
Total	35	71	49%	47	79	59%

6.1.9 Entries

As mentioned above, this year's contest objective was to present how teachers used Go-Lab into their classroom. It is worth noticing that many participants decided to create their own Inquiry Learning Spaces. In particular, 27 contestants created their own ILSs and 8 of them modified an existing one. Many of the participants also chose to include hands-on activities. Some examples form the participants work are presented below (fig.34, 35, 36, 37):

Figure 34 Screenshot from Krzysztof Rochowicz's PowerPoint presentation entry

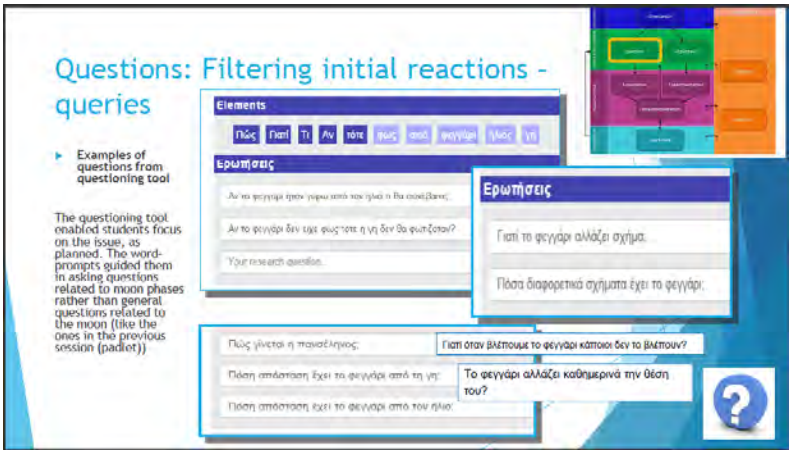


Figure 35. Screenshot from Chrystalla Lymbouridou's PowerPoint presentation entry

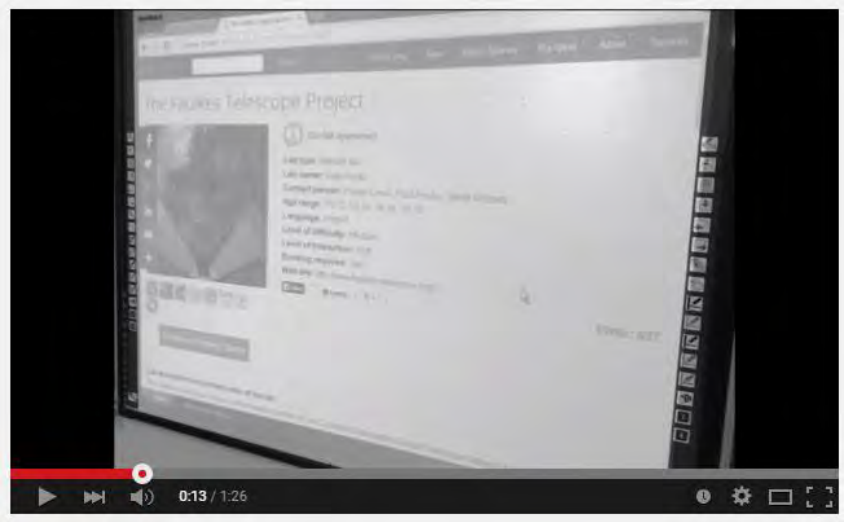


Figure 36. Screenshot form Suzana Delic's video entry

Figure 37 Screenshot from Nikolaos Nerantzis' poster entry

6.2 Go-lab Summer School 2015

6.2.1 Introduction

GO - L A B Event Code	[GR02-120715]
Title	International Science Teachers Training Course
Country City/Region	Marathon, Greece
Working language	English
Start/End Date	12/07/2015 – 17/07/2015
Organizing Institute	Ellinogermaniki Agogi
Coordinator name and email	Tsourlidaki Eleftheria *eleftheria@ea.gr* Mavromanolakis Georgios *gmavroma@ea.gr*
Go-Lab Partners that were also Involved	Ton De Jong (UT) Adrian Holzer (EPFL) Maria Jesus Rodriguez Triana (EPFL)
Activity Form	Summer School
Activity Type	International
Total number of teachers/schools	28/28
Implemented online labs	Sun4All, Phet labs, SOHO, Geogebra, Star in a box
Brief description	Summer School for working with teachers on: - the IBSE teaching approaches - the use of on-line labs - the Go-Lab authoring environment - the Go-Lab supportive application - creating activities through collaboration between teachers
Learning outcomes	Acquaintance with the IBSE approach and the Go-Lab scenarios. Training on the use of the Go-Lab Inquiry Learning Spaces
Website	http://golab.ea.gr/
Photos or other relevant material	Included below.
Event agenda	Presented below.

The "GO-LAB: Global Online Science Labs for Inquiry Learning at School Summer School 2015" that took place in Marathon, Greece between the 12th and 17th of July 2015 was organized in the framework of the "Go-Lab: Global Online Science Labs for Inquiry Learning at School" project (http://www.Go-lab-project.eu/).

Its main objective was to train teachers in using the Go-Lab tools and services while working collaboratively on creating ILSs. The course included lectures and workshops focusing on:

a) Presentation and use of the Go-Lab inquiry learning scenarios.
b) Hands-on sessions working with the Graasp authoring environment with Go-Lab on-line labs and other external resources.
c) Presentation and use of the Go-Lab supportive applications.
d) Presentation and use of the Big Ideas of Science.
e) Presentation on tackling students' misconceptions.
f) Preparing, uploading and sharing digital learning resources and scenarios using the Go-Lab tools.

6.2.2 Go-Lab contest

At the beginning of December 2014, the Go-Lab project launched the "Teaching Science Through Inquiry" contest (http://golab.ea.gr/contest2015/) aiming to engage European teacher in the Go-Lab project. Teachers were asked prepare an entry that would demonstrate how they used Go-Lab in their classroom. Participating teachers were asked to select or create their own ILS, implement it in class and prepare a presentation of the activity they did. The prize for the winning contestants was their participation in the Go-Lab summer school 2015 with all their expenses covered.

Figure 38. The website of the Go-Lab contest

By the end of the submission period (April 30th) 47 teachers in total submitted an entry to the contest. The two teachers who achieved the highest scores from each country were invited to attend the summer school. As a result of the contest, 24 out of 28 summer school participants had already created and implemented an ILS. A few weeks before the summer school another 4 teachers were added to the team of participants. These teachers had either received an Erasmus+ fund or they were selected by the project partners as they were considered to be pioneering teachers who could act as change agents in their countries.

6.2.3 Preparation

All information regarding the summer school was available to everyone through the summer school's website (fig.39) (http://golab.ea.gr/).

Figure 39. The website of the Go-Lab summer school

A month before the beginning of the summer school, all participants received an e-mail including all the necessary information about the summer school in general as well as what they were expected to do as a preparation for the course. This year the summer school focused mainly on promoting collaborative work as well as multidisciplinary activities. To this end, all teachers were asked to prepare a small experimentation on their teaching subject which would be connected to our Sun. Based on the ideas they sent the organizers groups the participants in teams based on common subjects.

In order to facilitate the needs of the summer school and make the exchange of information easier, a Graasp space (fig.40) was created for the summer school. Participants also had a separate space were they uploaded and stored their work and materials. All the information relative to the summer school, (programme, questionnaires, tutors' presentations etc.) was also stored in the Summer school Graasp space.

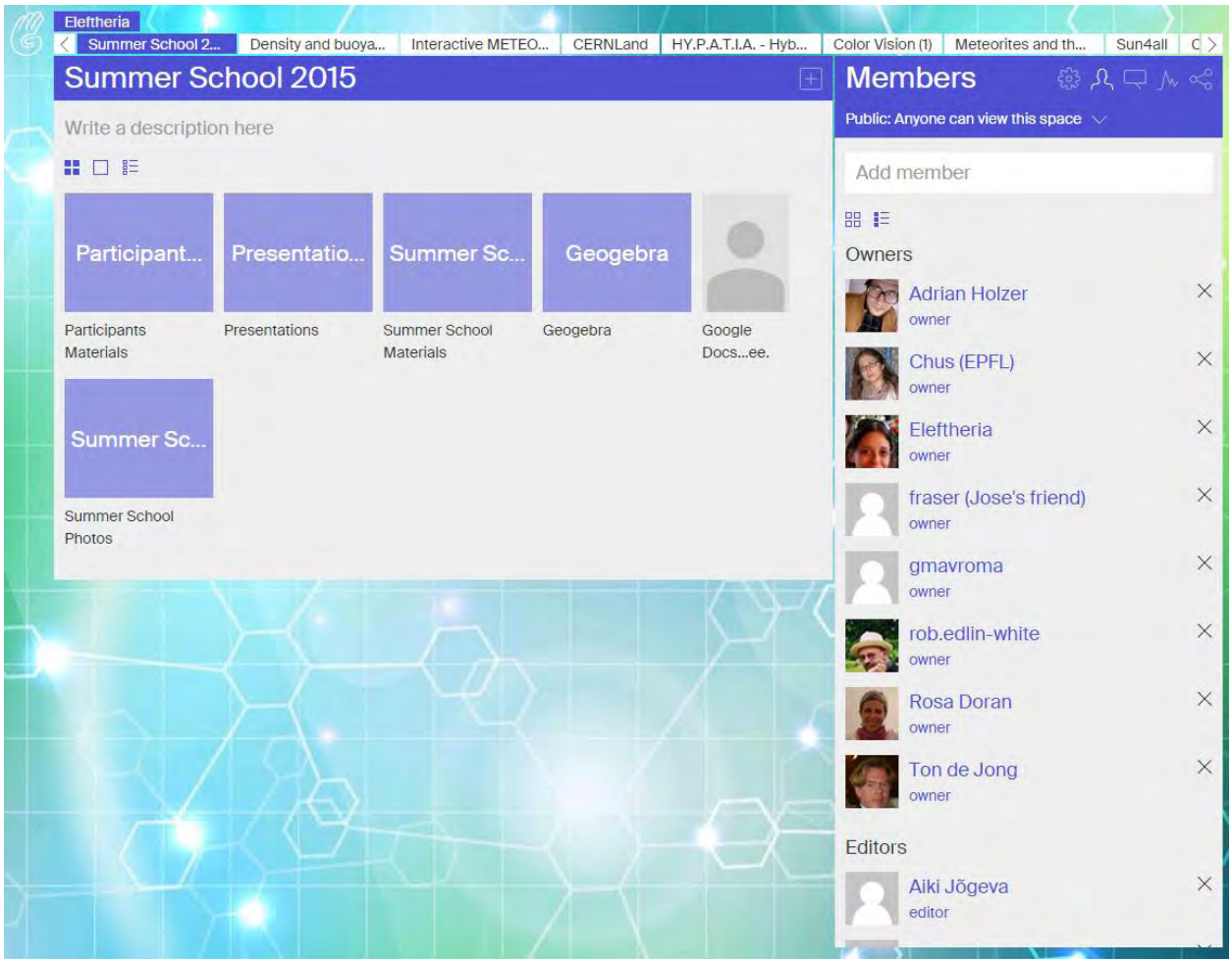


Figure 40. The Graasp space made for the summer school

By the time the summer school began, all participants had prepared the experimentation requested and had uploaded it to Graasp along with all its supporting materials.

When arriving in Marathon, each participant received a summer school bag which included all the necessary materials:

1. Training course program
2. Go-Lab authoring tool guide
3. Go-Lab Big Ideas of Science guide

6.2.4 Workshops and activities

The program of the training course had 4 main branches:

a) Lectures

b) Workshops

c) Extra activities

d) Participants' presentations and reflection.

Day 1:

The summer school started with a welcome session which included a brief presentation to the structure of the summer school and a "Meet and Greet" event (Fig.42) .

After that participants attended the opening session which was comprised of three talks focusing on different subjects. More specifically the talks given were the following:

- "Making the classroom attractive with online labs"
  Ton De Jong (University of Twente)
- "Developing teachers' communities"
  Rosa Doran (NUCLIO)
- "Inspiring Science Education"
  Franz Bogner (University of Bayreuth)

Figure 42. The Go-Lab project coordinator during his opening lecture.

Day 2:

The first session started with organizing the participants in groups. Based on the materials the participants had sent before the summer school, seven teams were created each of which had four members:

- Solar Structures
- Stellar Evolution
- Photosynthesis
- Celestial Motions
- Solar Energy generation
- Heat
- Shadows

As more than seven project partners were present, each team has its own tutor throughout the course. During the summer school, each group would have to make use of the materials the team members had prepared and create one ILS. The ILSs would be built and enhanced throughout the summer school based on the input received during the lecture sessions of the course.

On this first session of the course, participants were introduced to three Go-Lab inquiry scenarios. These were the Go-Lab Basic scenario, the jigsaw scenario and the six thinking hats scenario. After the presentation of the scenarios, the whole team discussed which of these scenarios teachers had already used in class and what their opinion on them was. Teachers shared their experiences and discussed on the overall usability of these scenarios and in what circumstances are they suitable for use.

Figure 43. Presentation of the Meteorites ILS

After discussing the scenarios, the tutors presented an example multidisciplinary activity that was based on meteorites (http://www.golabz.eu/spaces/meteorites-and-their-impact-earth) (fig. 43).

The purpose of this presentation was to demonstrate how a subject as meteorites which is an astronomy-related subject can actually be used to teach many different subjects, from mathematics (meteorite trajectories) to environmental sciences (the impact of meteorites to our environment). During the summer school the participants would have to do a similar work. All teams would work on ILSs that are connected to our Sun but studied from different viewpoints. So, for example, team "Photosynthesis" would make an ILS about the importance of our sun to the photosynthesis procedure (biology) while team "Shadows" would make an ILS about how shadows change based on the Suns position (mathematics).

Figure 44. Team "Heat' working on a Go-Lab scenario.

After the presentation participants had some time to go over the materials of their team, decide which Go-Lab scenario they would use and discuss the overall structure of their ILS.

The evening session of the day, was a hands-on workshop. During that, the teams would have to start building their ILSs (fig. 44) and focus on which scenario they want to use and how it can be integrated in their ILS.

Day 3:

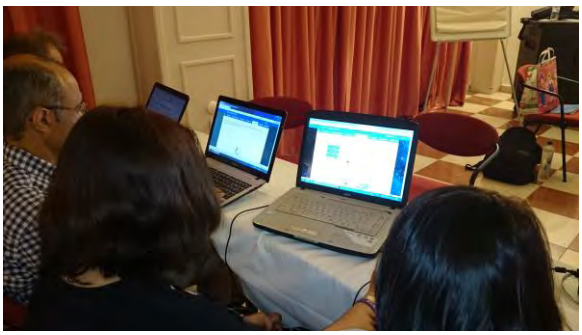


Figure 45. Team "Solar structures" working on supportive apps.

Day 3 was devoted to the Go-Lab supportive apps. The workshop had two main sections: review of IBL apps and evaluation of reflection and awareness tools. In the first part, the tutors used a demo ILS (http://graasp.eu/ils/558be7f0b5a072ca55673462/?lang=en) which included 17 apps in total. Each app was added in the inquiry phase that is best used (conclusion tool for example was in the conclusion phase). Participants were given ample time to play with each app. During this practice session, the tutors facilitated the participants by answering questions and explaining how each app works.

In the second part of the workshop, the tutors introduced the reflection and awareness apps available or potentially available in the Go-Lab repository for teachers and students (fig.45). The participants had the chance to see all the data that was gathered while they were practicing with the apps. This way, the teachers had a first-hand experience on how to monitor their students while using an ILS and how to retrieve the info the students would give through the different apps (e.g., hypotheses, concept maps, observations, notes, conclusions etc.).

After using the awareness and reflection tools, each group of four teachers evaluated the apps using a 7 point Likert scale. The aspects evaluated were related to the pragmatic quality and the attractiveness. Concretely we took into account:

- Presentation of the information: confusing (0) - clearly structured (6)
- Usefulness of the app: not useful (0) - very useful (6)
- Design of the app in terms of user interface: ugly (0) - attractive (6)
- General evaluation of the app: bad (0) - good (6)

The following table summarizes the apps and the quantitative evaluation received from the teachers.

Target users	App	confusing (0) - clearly structured (6)	not useful (0) - very useful (6)	ugly (0) - attractive (6)	bad (0) - good (6)
Teacher apps	Active students	5.86	4.57	5.00	5.00
	Number of students per phase	1.57	1.86	3.14	2.71
	Submitted reports	5.29	5.86	4.71	5.57
	Students in phases over time	3.71	4.57	4.43	4.57
	Time spent	5.71	5.29	5.14	5.57
	Action statistics	3.00	2.86	3.57	3.29
Student apps	My learning process	2.57	1.86	4.57	3.00
	Reflection questions	5.57	5.29	5.14	5.29
	Time spent in phases	5.86	4.29	5.29	5.00
	Concept map aggregation	3.14	3.86	3.57	4.57

The evening session was a hands-on workshop which focused again on supportive apps. Teams worked on enhancing their ILSs by adding Go-Lab supporting applications in different phases. Participants also worked on configuring the apps and tailoring them to the needs of their ILSs by changing terms and concepts.

Day 4:

The morning session of the fourth day was divided in two parts. During the first part participants were introduced to the concept of the "Big Ideas of Science". After a general introduction on the subject, participants were asked to come up with their own 'Big Ideas of Science' and write them down in post-it notes (fig.46). After completing this task they were asked to put the post-it notes on a wall and group them into subjects. After the grouping of the ideas, participants selected which group of ideas they preferred to work on. Each group was asked to revise all the post-it notes of the group and come up with one "big Idea of Science" based on them. By the end of this part of the session each group, presented the "Big Idea" they had concluded to.

Figure 46. Brainstorming during the Big Ideas of Science workshop.

Big Ideas of Science presented by the participants.

Energy is a quantity in the universe that cannot be conversed. It can only be stored and transformed.

Systems are dynamic interactions between different parts.

All matter in the universe and around us is made of very small particles. The particles are in continuous motion.

We live on a planet which is part of the solar system, which is part of a galaxy (the Milky way) which is part of the universe.

All living organisms are made of cells and the cell is the structure where all life processes take place.

There are 4 fundamental forces in the universe, and they are responsible for all interactions.

Life is an ongoing evolving process. It started in the oceans and it is evolving through sexual selection and affected by the environment.

In the second part of the morning session there was a presentation and a discussion on the significance of misconceptions and how they may be tackled using experimental settings.

Day 5: The morning session of the fifth day was a hands-on workshop during which teams were asked to make their ILSs more interdisciplinary by using the Big Ideas of Science and by adding content that could work as a connection point to the ILSs of other teams. In addition, teachers also had to consider editing their ILSs so as to make sure that students' common misconceptions are tackled.

Day 6:

The last day of the summer school was about divided in three parts. The first part was comprised of four 15 minutes presentations (fig. 47) where teachers where given the opportunity to present a subject of their choosing aside from their work in the summer school. The subjects presented were:

a) School reality in Croatia

b) Inquiry Learning in Ghana

c) "Students as mentors" activities

d) Experimentations with simple materials.

Figure 47. "Inquiry learning in Ghana" presentation

Figure 48. "Speed dating" reflection activity

The second part of the session was a reflection session on the Go-Lab tools and services as well as the summer school course (fig. 48). The session was organized in the form of a 'speed dating' activity. Each participant had a piece of paper with a keyword written on it (eg. "Summer school organization" or "Inquiry learning"). Participants would debate in pairs for a brief amount of time (2 or 3 minutes) during which one participant had to mention the pros and cons of the keyword which the other participant was holding. The comments for each keyword were written by the participants on the paper of the keyword.

The third and final part was about presenting the ILS each team created during the course. Overall 7 ILSs were presented from the seven teams and one additional by a single participant, who also chooses to produce and extra ILS (links available in the following section).

Figure 49. Group photo after the finalization of the summer school

Other Events:

Field trips and extra activities were also carried out during the realization of the course. These initiatives included a visit at cape Sounio, and a visit to the museum of Acropolis and the Acropolis.

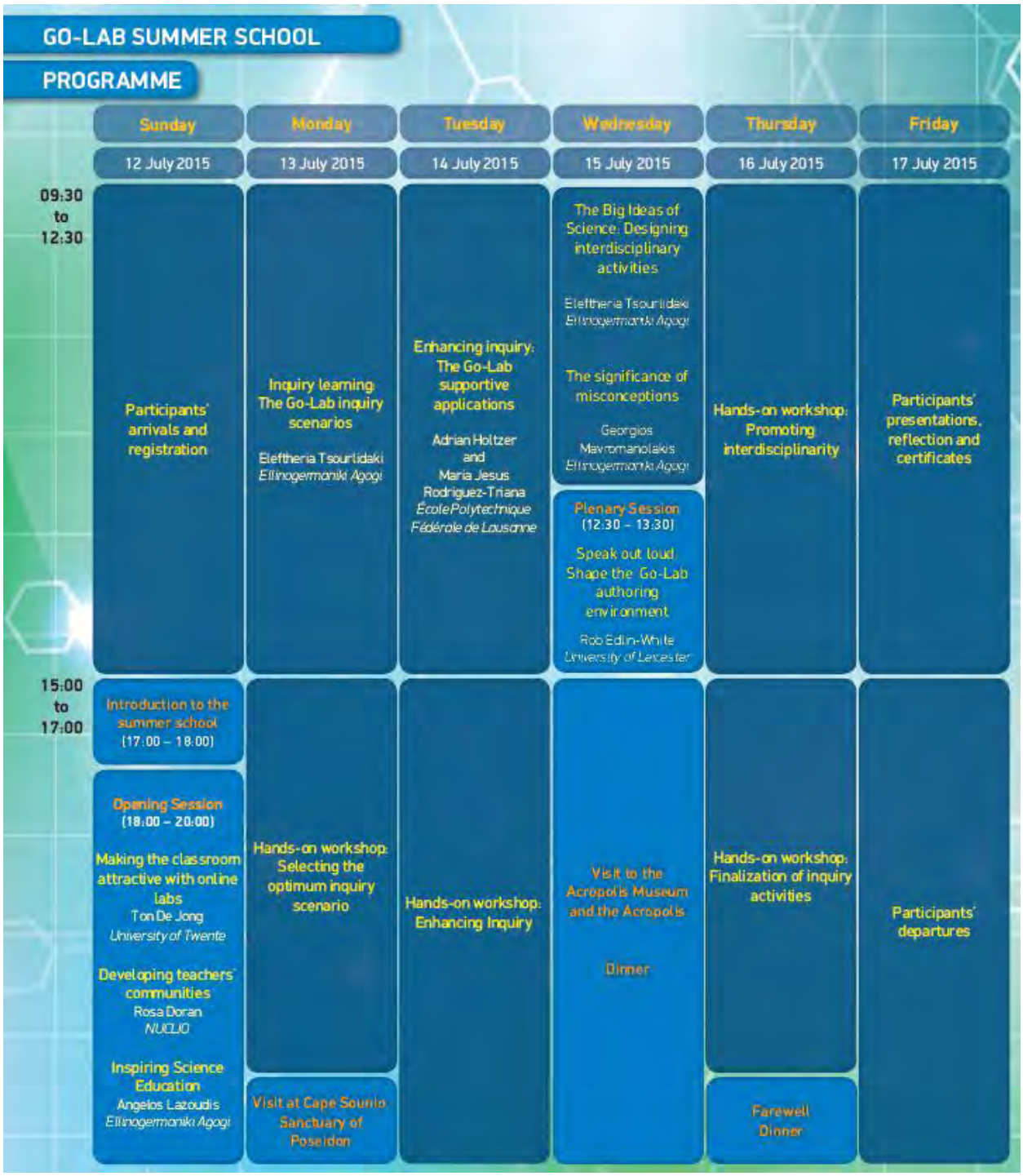


Figure 50. The programme of the Summer School

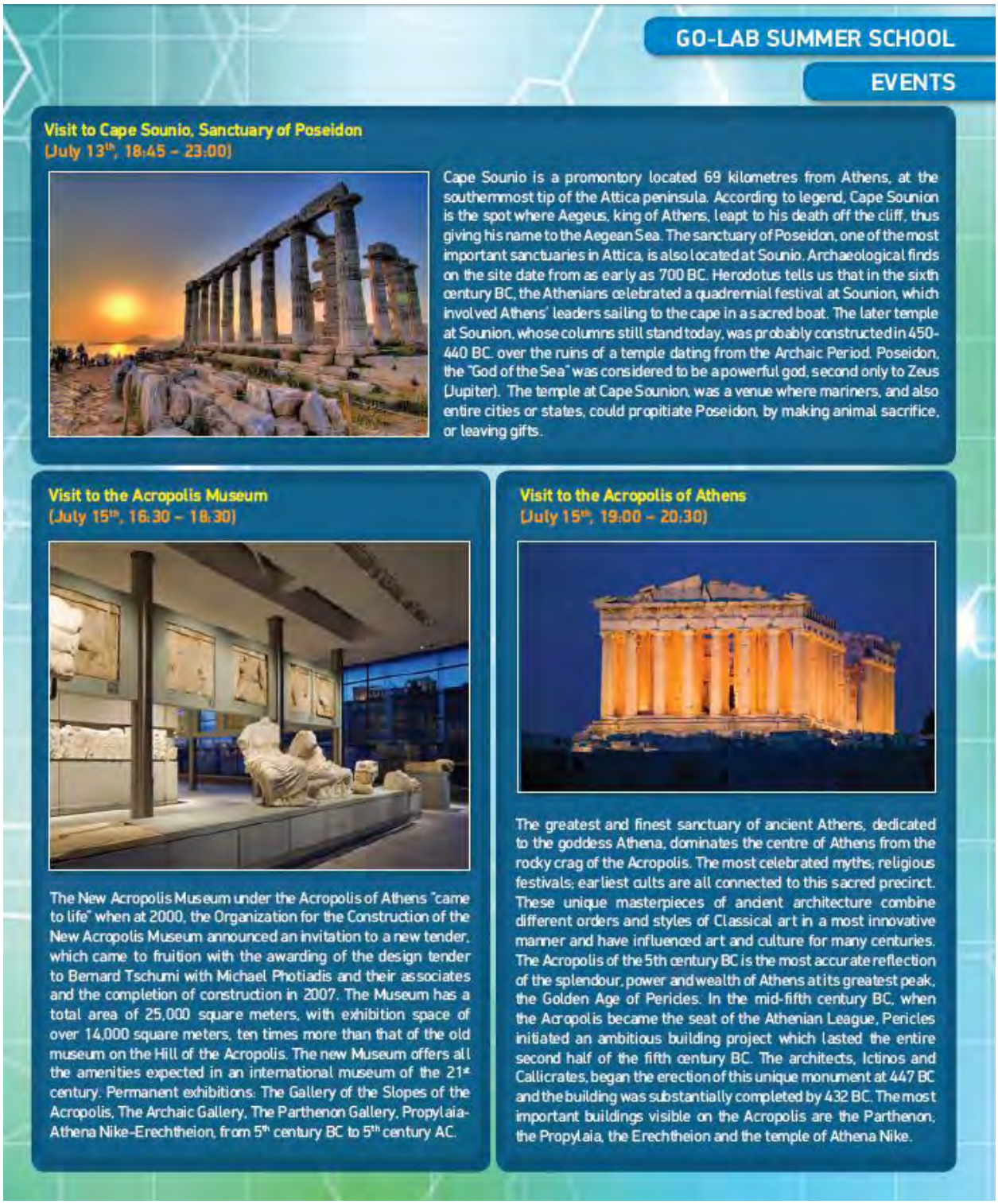


Figure 51. Descriptions of the events carried out

6.2.5 Summer School Outcomes

Overall assessment

The summer school was attended in total by 28 participants from around Europe (table 9).

Table 9. Participants of the training course per country

Country	Number of participants
Belgium	1
Bulgaria	1
Croatia	1
Cyprus	2
Estonia	2
Germany	2
Greece	2
Hungary	1
Italy	2
Poland	1
Portugal	7
Romania	2
Spain	3
The Netherlands	1

All participants worked in teams. Each team prepared one ILS. The common denominator among all ILSs was they Sun. The ILS produced are listed in the table below.

The ILSs produced are listed below:

- Team “Solar Structures”: Solar Structure (SHM)
  http://www.golabz.eu/spaces/solar-structure-shm
- Team “Stellar Evolution”: Star Evolution
  http://www.golabz.eu/spaces/star-evolution
- Team “Photosynthesis”: The Sun Fuels Our Planet
  http://www.golabz.eu/spaces/sun-fuels-our-planet
- Team “Celestial Motions”: Motion in Solar System
  http://www.golabz.eu/spaces/motion-solar-system
- Team “Solar Energy generation”: Reações Fotoquímicas
  http://www.golabz.eu/spaces/rea%C3%A7%C3%B5es-fotoqu%C3%ADmicas
- Team “Heat”: Solar Water Heating
  http://www.golabz.eu/spaces/solar-water-heating
- Team “Shadows”: How do shadows change?
  http://www.golabz.eu/spaces/how-do-shadows-change
- Extra ILS: Solar Energy
  http://www.golabz.eu/spaces/solar-energy

6.2.6 Follow up

As a follow up, teachers received all the tutors' presentations and where invited to join a summer School's Facebook group (fig. 52) (https://www.facebook.com/groups/1449374291994271/) in order to encourage further collaboration and to help them keep in touch. All participants were invited to join the Go-Lab community and participate in the pilot phases of the project. Finally, all the ILSs produced by the participants will be reviewed by the tutors in order to send to their creators more information and suggestions for refinements.

Figure 52. The summer school's Facebook group

6.3 Hands-on Astronomy in Cardiff

G O - L A B Event Code	UK20-130415
Title	Hands On Astronomy, Cardiff University, Cardiff
Country City/Region	UK with support from Portugal (Nuclio), Greece (EA)
Working language	English
Start/End Date	13/04/2015 to 17/04/2015
Organizing Institute	Faulkes Telescope Project / Cardiff University
Coordinator name and email	Fraser Lewis (fraser.lewis68@gmail.com) Chris North (chris.north@astro.cf.ac.uk)

Activity Form	Workshop
Activity Type	International (attendees from UK, Portugal, Austria)
Total number of teachers/schools	15 teachers from 8 schools
Implemented online labs	Faulkes remote telescopes, Impact calculator
Brief description	This event was developed as a co-operation between Cardiff University, National Schools' Observatory and the Faulkes Telescope Project (then USW partner 17 in Go-Lab, now Cardiff partner 20). In conjunction with Rosa Doran (Nuclio), a schedule was developed and teachers were funded through both Erasmus + and UK teacher training funds (NSO and Techniquest). Teachers were taken through a range of activities based around astronomy from Solar System out to Cosmology, with the emphasis always being on practical skills and activities. On the final day, a trip to Stonehenge was arranged. The target audience was really teachers with an interest in astronomy whether they were teaching astronomy, physics or general science. Those who had an interest in the EU projects were especially welcome, but attendance was not limited to these groups. The event was not specifically targeted to teachers of a particular age range of students, but topics included were of more relevance to those in late secondary education. The objectives were to encourage a two-way discussion between teachers and those that provide resources for teachers and to demonstrate the online resources currently available via online portals such as Go-Lab.
Learning outcomes	Teachers were presented with a range of activities and resources, many of which follow the IBSE format. Those that were new to the online portals were introduced to them and registered for Graasp The discussion with Eleftheria Tsourladiki (EA) provided an insight into the Big Ideas of Science. All UK participants were required to share their experiences in a further hour-long Skype meeting to demonstrate their understanding of the topics and how the introduction to Go-Lab, IBSE had improved their teaching.
Website	http://blogs.cardiff.ac.uk/physicsoutreach/inspiring-science-education/hands-on-astronomy-teacher-conference/ See also http://www.faulkes-telescope.com/news/2568
Photos or other relevant material	See http://www.faulkes-telescope.com/news/2568

6.4 European Space Agency – GTTP training session

G O - L A B Report Code	*PT19071214*
Title	*Teacher Training in partnership with the European Space Agency*
Country City/Region	*Netherlands / Leiden*
Working language	*English*
Start/End Date	*7-12-2014 / 12-12-2014*
Partners Involved	*NUCLIO / ESA/ University of South Wales*
Coordinator name and email	*Rosa Doran / rosa.doran@nuclio.pt*
School Profile	*Organized by NUCLIO an ESA and implemented with support from the Lorentz Center (University of Leiden)*
Number and age of students	25 teachers, 10 trainers/scientists
Activity Description	*Training on the use of online tools and resources, presentations about ESA space missions, hands-on activities*
Implemented online labs	*Salsa J, SOHO archives, Planetaria software, Faulkes Telescope, Impact Calculator*
Learning outcomes	*Participants created their own accounts at graasp, started producing their ILS. They learned how to plan an observing session, how to use the Faulkes Telescope, how to analyse astronomical images. They have also used the impact calculator and built a light curve of a stellar black hole. In the practical sessions they learned how to represent a black hole, how to build comets and to make craters.*

Photos or other relevant material	

6.5 Curriculum Matching as a tool for Community building around content and TPD *support*

In order to meet a very important requirement of Go-lab pilot schools an important exercise was implemented. With the support of several teachers in different countries a map matching ILSs, approved by the project team, and the curriculum was prepared. The map is taking into account the country's specific curriculum by level of education, grade, student age, subject and topic. We have maps from 12 countries so far and the rest are still being collected.

The maps received will be sent to the NCs and will be used in all aspects of the project with the purpose on enriching the Go-Lab repository and facilitating teachers in finding and using the appropriate, for their needs, laboratory.

This material will also be highlighted in the different areas of Go-lab Portal. Specific ILSs will be featured as resource of the week in social media and discussion/collaboration sessions fostered in the tutoring platform.

7. Conclusions

Go-lab is a powerful project that is introducing cutting edge tools and resource for science teaching. The success of the project depends, from the technical and resources point of view, on the existence of a wide repository of labs and apps, a fair wealth of inspiring scenarios and a user-friendly interface. But the first priority is the necessary support for pilot teachers. National coordinators are offering enough opportunities for teachers so that they feel confident in exploring the proposed Go-lab approach. Teachers need support to find meaningful ways to use Go-lab methodology to address pupil specific needs. The project successfully developed the necessary tools to support national coordinators in this mission. The existing support platform can act as a self-sustainable help desk where teachers can find help from the technical team, the lab owners, ILS designers and most important from their peers.
Pilot schools and teachers are being supported to create a sustainable wealth of resources and self-generated opportunities for professional development and to create proficiency in the use of this innovative models for science teaching. The designed model for teacher training and support builds toward a strong pilots' continuous support that can endure and flourish in the future.

The aim of our work in the framework of WP6 was twofold:

To develop a mechanism that will support the large scale implementation effort of the Go-Lab consortium to implement the project in at least 1000 school in Europe
To develop a mechanism that will monitor the process of the community development, and that will help the consortium to realize how the users are interacting with the systems, to understand their needs and their problems in order to provide personalized support.

During Phase A and B of the large scale implementation more than 600 schools and 1100 teachers reacted to the calls for participation to Go-Lab activities. WP6 team had the quite demanding task to support this community to use a system under development. The outcomes of this work, as described in this deliverable, were rather satisfactory taking into account that about 1200 teachers have been involved in using, adopting and creating ILSs for their classrooms. The support mechanism has demonstrated its potential to support such a large community. Additionally we have used different tools to monitor users behavior while their using the different components of the system.

Based on these results we believe that WP6 has both the support mechanism and the monitoring methodology for the large scale pilot implementation with more than 1000 schools in the last phase of the project.

References

Airasian, P. W., Engemann, J. F. & Gallagher, T. L. (2007). *Classroom assessment: Concepts and applications*. McGraw-Hill.

Emily Lawson and Colin Price. (2003). A synopsis of: The Psychology of Change Management. *The McKinsey Quarterly*.

Falik, O., Eylon, B. & Rosenfeld, S. (2008). (2008). Motivating teachers to enact Free-Choice PBL in Science and Technology (PBLSAT): Effects of a professional development model. *Journal of Science Teacher Education*, *19*, 565–591.

Hannon, V. (2007). "Next Practice" in education: a disciplined approach to innovation.

Hofstein, A., Shore, R., & Kipnis, M. (2004). Research Report. *International Journal of Science Education*, *26*(1), 47–62. doi:10.1080/0950069032000070342

Krajcik, J., Blumenfeld, P., Marx, R., & Soloway, E. (2000). Instructional, curricular, and technological supports for inquiry in science classrooms. *Inquiring into Inquiry Learning and Teaching in Science*, 1–34.

McKee, J. (2009). The 90-9-1 principle: How users participate in social communities, 9–10. Retrieved from http://www.90-9-1.com/

OCDE, & Juliet, E. (2014). TALIS 2013 Resultados, 1–33. doi:10.1787/9789264196261-en

Pratt. (2001). Jack Rhoton and Patricia Bowers, editors National Science Teachers Association National Science Education Leadership Association.

Trust, T. D. (2015). Developing-Great-Teaching-Summary (1).pdf. Teacher Development Trust.

Annex I - Effectiveness and strength of the community

Graasp Analytics

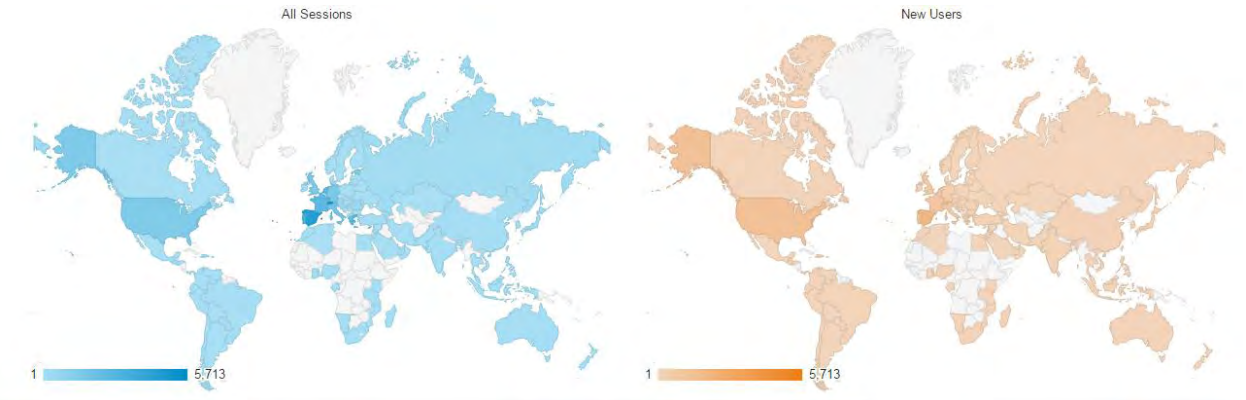
Looking at the Analytics of Graasp we can infer a more complete view of what users are doing (Feb 2015 – Set 2015). These numbers are related to the new Graasp.

	Acquisition			Behaviour		
	Sessions ↓	% New Sessions	New Users	Bounce Rate	Pages/Se...	Avg. Session Duration
	33,306	37.24%	12,402	61.38%	2.55	00:06:20
1 Direct	25,100			58.57%		
2 Referral	6,836			70.74%		
3 Organic Sea	1,063			66.42%		
4 Social	307			65.47%		

We can see that in average the visitors are visiting an average of 2.5 pages per visit and the average duration of their visits is around 06:20 min.

After cleaning the data from the usage of the technical team we have a nice overview of the countries that originated more traffic to Graasp and the behaviour of users are in accordance with the reported activities by the different countries participating in Go-lab.

All countries



Country	Acquisition			Behaviour		
	Sessions ↓	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
All Sessions	34,424 % of Total: 100.00% (34,424)	37.33% Avg for View: 37.33% (0.00%)	12,850 % of Total: 100.00% (12,850)	61.50% Avg for View: 61.50% (0.00%)	2.55 Avg for View: 2.55 (0.00%)	00:06:18 Avg for View: 00:06:18 (0.00%)
New Users	12,850 % of Total: 37.33% (34,424)	100.00% Avg for View: 37.33% (167.89%)	12,850 % of Total: 100.00% (12,850)	66.16% Avg for View: 61.50% (7.56%)	1.81 Avg for View: 2.55 (-29.04%)	00:04:10 Avg for View: 00:06:18 (-33.87%)

This gives us a total of 34 424 session with 12580 new users (around 37.33%) of the total

Excluding from this analytics the numbers coming from US and an extra Graasp fraction of users unrelated to Go-lab (France) we have the following results

Country	Acquisition			Behaviour		
	Sessions ↓	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
All Sessions	30,504 % of Total: 88.61% (34,424)	35.42% Avg for View: 37.33% (-5.13%)	10,803 % of Total: 84.07% (12,850)	60.36% Avg for View: 61.50% (-1.86%)	2.66 Avg for View: 2.55 (4.58%)	00:06:43 Avg for View: 00:06:18 (6.79%)
New Users	10,803 % of Total: 31.38% (34,424)	100.00% Avg for View: 37.33% (167.89%)	10,803 % of Total: 84.07% (12,850)	65.06% Avg for View: 61.50% (5.78%)	1.86 Avg for View: 2.55 (-27.04%)	00:04:29 Avg for View: 00:06:18 (-28.85%)
1. Switzerland						
All Sessions	**5,713** (18.73%)	24.70%	1,411 (13.06%)	53.77%	5.45	00:11:48
New Users	**1,411** (13.06%)	100.00%	1,411 (13.06%)	64.78%	2.32	00:04:37

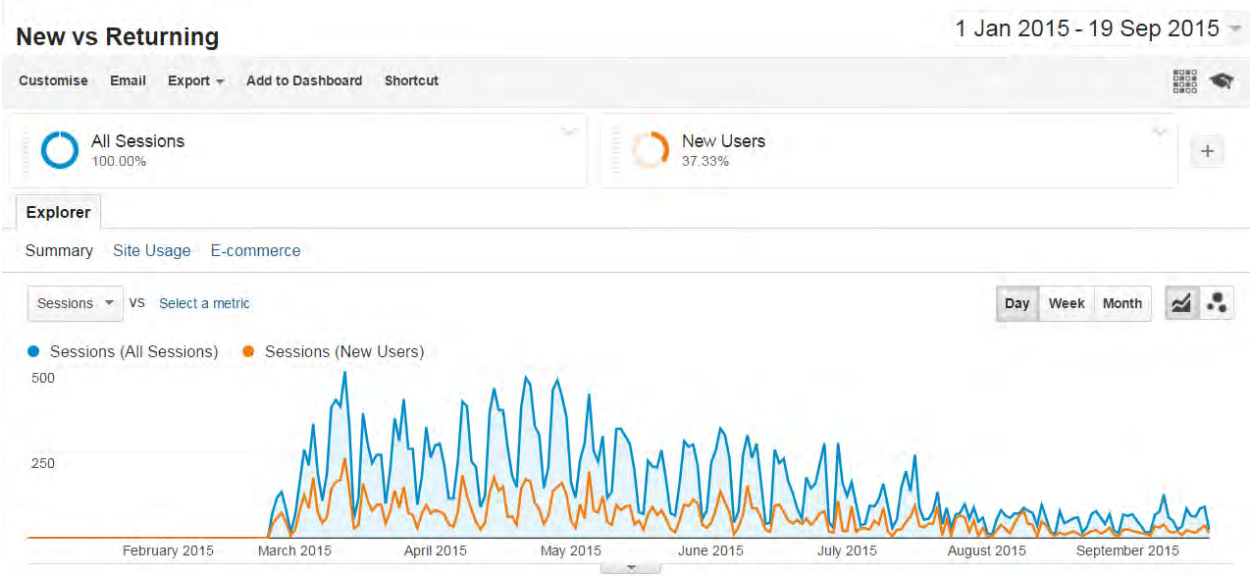
We can still exclude the data from Switzerland to exclude the technical team but this will also exclude the data from teachers coming from Switzerland.

Country	Acquisition			Behaviour		
	Sessions ↓	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
All Sessions	24,791 % of Total: 72.02% (34,424)	37.88% Avg for View: 37.33% (1.49%)	9,392 % of Total: 73.09% (12,850)	61.88% Avg for View: 61.50% (0.61%)	2.02 Avg for View: 2.55 (-20.57%)	00:05:33 Avg for View: 00:06:18 (-11.80%)
New Users	9,392 % of Total: 27.28% (34,424)	100.00% Avg for View: 37.33% (167.89%)	9,392 % of Total: 73.09% (12,850)	65.10% Avg for View: 61.50% (5.84%)	1.79 Avg for View: 2.55 (-29.77%)	00:04:28 Avg for View: 00:06:18 (-29.18%)
1. Spain						
All Sessions	**4,524** (18.25%)	40.30%	1,823 (19.41%)	61.16%	2.00	00:05:36
New Users	**1,823** (19.41%)	100.00%	1,823 (19.41%)	61.33%	1.86	00:05:14
2. Portugal						
All Sessions	**3,111** (12.55%)	34.59%	1,076 (11.46%)	60.24%	1.98	00:05:45
New Users	**1,076** (11.46%)	100.00%	1,076 (11.46%)	55.11%	2.12	00:05:59
3. Netherlands						
All Sessions	**2,421** (9.77%)	19.74%	478 (5.09%)	60.64%	2.14	00:06:10
New Users	**478** (5.09%)	100.00%	478 (5.09%)	58.79%	1.99	00:07:03
4. Greece						
All Sessions	**2,365** (9.54%)	23.85%	564 (6.01%)	61.44%	2.35	00:06:40
New Users	**564** (6.01%)	100.00%	564 (6.01%)	61.17%	1.98	00:04:39
5. Cyprus						
All Sessions	**1,789** (7.22%)	20.91%	374 (3.98%)	49.36%	2.43	00:07:38
New Users	**374** (3.98%)	100.00%	374 (3.98%)	61.50%	1.78	00:04:51
6. Italy						
All Sessions	**1,745** (7.04%)	33.47%	584 (6.22%)	65.16%	1.77	00:04:56
New Users	**584** (6.22%)	100.00%	584 (6.22%)	65.07%	1.78	00:04:33
7. Estonia						
All Sessions	**1,644** (6.63%)	49.57%	815 (8.68%)	53.95%	2.31	00:06:18
New Users	**815** (8.68%)	100.00%	815 (8.68%)	53.50%	2.29	00:06:24
8. Germany						
All Sessions	**1,581** (6.38%)	25.36%	401 (4.27%)	59.01%	2.04	00:05:20
New Users	**401** (4.27%)	100.00%	401 (4.27%)	62.84%	1.84	00:04:21
9. United Kingdom						
All Sessions	**1,438** (5.80%)	43.39%	624 (6.64%)	57.44%	2.29	00:07:00
New Users	**624** (6.64%)	100.00%	624 (6.64%)	57.69%	1.97	00:06:12

Cleaning the data from Robots, other users of the platform in unrelated projects and the technical team we are left with the number of 24 791 session with 9392 (37.88%) new users for the period of (1 jan – 21 set 2015)

As we can see from the values above the bounce rate is high. However one must take into account that this was the year when the system was introduced to visitors. Also there is not much to see if you don't have a login and specific interest in interacting with the system.

The graph below shows the relation of the whole community and the new users.



User Type	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
All Sessions	34,424 % of Total: 100.00% (34,424)	37.33% Avg for View: 37.33% (0.00%)	12,850 % of Total: 100.00% (12,850)	61.50% Avg for View: 61.50% (0.00%)	2.55 Avg for View: 2.55 (0.00%)	00:06:18 Avg for View: 00:06:18 (0.00%)
New Users	12,850 % of Total: 37.33% (34,424)	100.00% Avg for View: 37.33% (167.89%)	12,850 % of Total: 100.00% (12,850)	66.16% Avg for View: 61.50% (7.56%)	1.81 Avg for View: 2.55 (-29.04%)	00:04:10 Avg for View: 00:06:18 (-33.87%)

This graph shows us that there are a large number of new users all along the months alongside with a large fraction of returning users. And this is not an exploration platform, it's a space for creation and use of ILS.

Sessions
34,424
% of Total: 100.00% (34,424)

Page Views
87,722
% of Total: 100.00% (87,722)

Count of Sessions	Sessions	Page Views
1	12,850	23,235
2	3,991	8,111
3	2,253	5,063
4	1,558	3,473
5	1,187	2,855
6	966	2,270
7	805	1,985
8	683	1,954
9-14	2,775	7,655
15-25	2,510	7,290
26-50	2,168	7,791
51-100	1,404	7,022
101-200	1,012	5,487
201+	262	3,531

These analyses are showing a large number of users that are really returning and using the system. If we consider the number of users that have more than 25 sessions we have a total of 4846 sessions (September 21st) that viewed a total of 23 831 pages (an average of 5 pages per session). From those 262 people visited an average of 13.5 pages per session.

Looking at the analysis of the engagement of visitors we can conclude that over 2 000 sessions had a duration of more than 1800 seconds 15.8 page views per session.

All Sessions
100.00%

+ Add Segment

Distribution

Session Duration Page Depth

Sessions
34,528
% of Total: 100.00% (34,528)

Page Views
87,908
% of Total: 100.00% (87,908)

Session Duration	Sessions	Page Views
0-10 seconds	21,919	22,503
11-30 seconds	833	1,790
31-60 seconds	820	1,871
61-180 seconds	2,039	5,059
181-600 seconds	2,938	8,830
601-1800 seconds	3,935	15,420
1801+ seconds	2,044	32,435

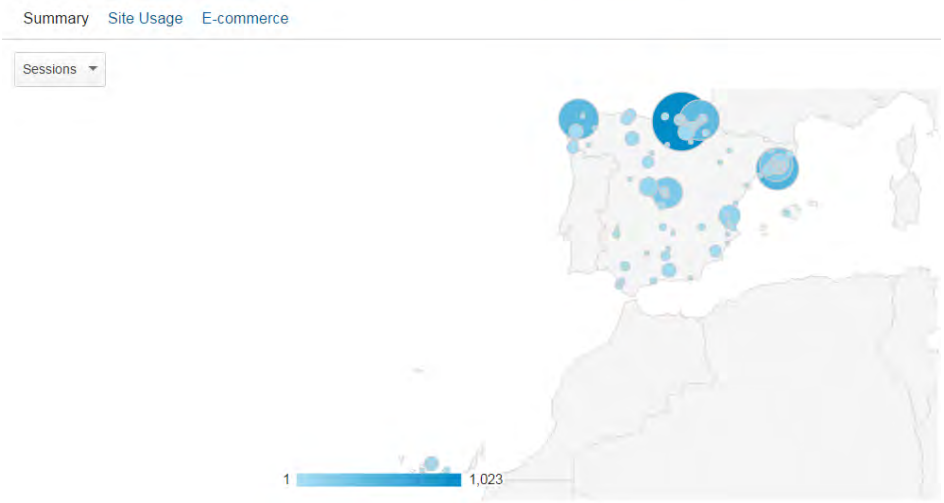
With this numbers we can conclude that around 10% of the users are really using the system and this are probably teachers. The almost 9 000 users that are staying from 60 to 1800 seconds are probably students using the prepared ILS or teachers exploring the system.

Users from countries that are members of the consortium are in average spending 7 minutes on the system.

	Country	Acquisition			Behaviour		
		Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
		27,129 % of Total: 78.72% (34,464)	32.84% Avg for View: 37.14% (-11.59%)	8,908 % of Total: 69.59% (12,800)	59.03% Avg for View: 61.51% (-4.04%)	2.79 Avg for View: 2.55 (9.50%)	00:07:07 Avg for View: 00:06:18 (13.01%)
1.	Switzerland	5,721 (21.09%)	24.70%	1,413 (15.86%)	53.82%	**5.44**	00:11:48
2.	Cyprus	1,789 (6.59%)	20.91%	374 (4.20%)	49.36%	**2.43**	00:07:38
3.	Greece	2,367 (8.72%)	23.83%	564 (6.33%)	61.43%	**2.35**	00:06:40
4.	Estonia	1,655 (6.10%)	49.85%	825 (9.26%)	54.14%	**2.30**	00:06:16
5.	United Kingdom	1,438 (5.30%)	43.39%	624 (7.00%)	57.44%	**2.29**	00:07:00
6.	Netherlands	2,422 (8.93%)	19.74%	478 (5.37%)	60.65%	**2.14**	00:06:10
7.	Germany	1,581 (5.83%)	25.36%	401 (4.50%)	59.01%	**2.04**	00:05:20
8.	Spain	4,528 (16.69%)	40.26%	1,823 (20.46%)	61.17%	**1.99**	00:05:36
9.	Portugal	3,115 (11.48%)	34.54%	1,076 (12.08%)	60.19%	**1.98**	00:05:46
10.	Italy	1,753 (6.46%)	33.31%	584 (6.56%)	65.09%	**1.77**	00:04:56

Bellow we present a more careful analysis of the behaviour of the communities in the differnet countries and regions

Spain

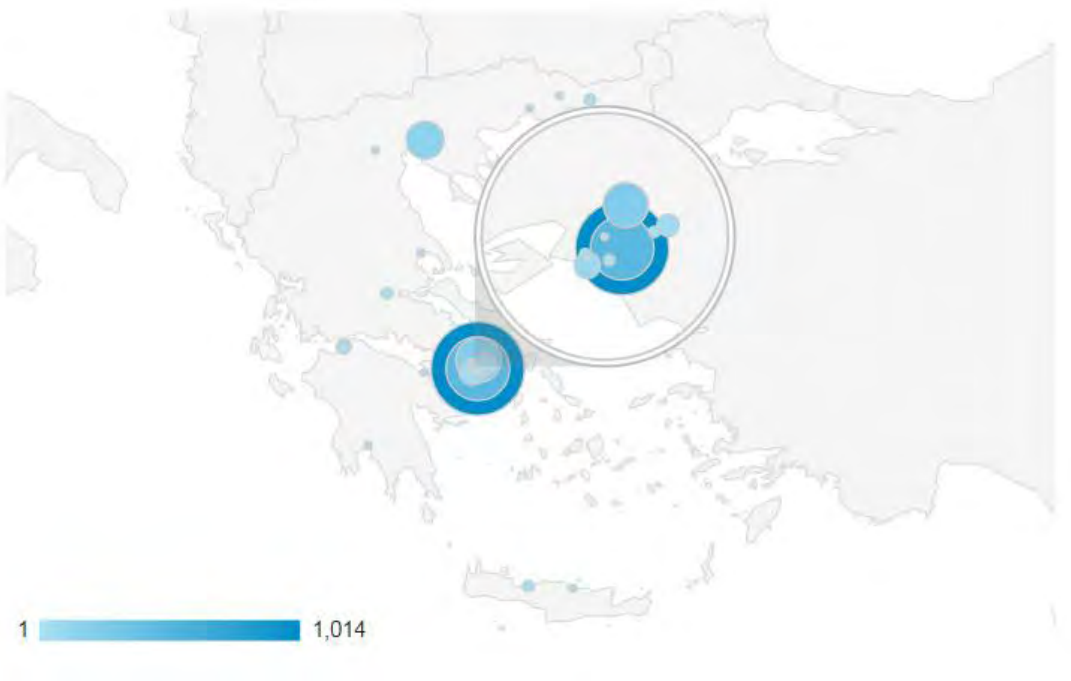


There is a good spread of users in the country with the majority being concentrated near the NC location.

City	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	4,528 % of Total: 13.14% (34,464)	40.26% Avg for View: 37.14% (8.40%)	1,823 % of Total: 14.24% (12,800)	61.17% Avg for View: 61.51% (-0.55%)	1.99 Avg for View: 2.55 (-21.70%)	00:05:36 Avg for View: 00:06:18 (-11.04%)
1. Bilbao	1,023 (22.59%)	32.75%	335 (18.38%)	60.90%	1.96	00:05:14
2. Barcelona	529 (11.68%)	29.68%	157 (8.61%)	61.06%	2.06	00:06:06
3. A Coruna	460 (10.16%)	37.17%	171 (9.38%)	55.65%	2.15	00:06:47
4. San Sebastian	444 (9.81%)	23.42%	104 (5.70%)	65.32%	1.95	00:05:54
5. Sabadell	311 (6.87%)	82.96%	258 (14.15%)	57.23%	2.02	00:06:42
6. Madrid	262 (5.79%)	31.68%	83 (4.55%)	61.07%	1.92	00:04:03
7. (not set)	150 (3.31%)	41.33%	62 (3.40%)	71.33%	1.89	00:05:05
8. Valencia	126 (2.78%)	21.43%	27 (1.48%)	55.56%	3.06	00:09:56
9. Mollet del Valles	96 (2.12%)	90.62%	87 (4.77%)	62.50%	1.59	00:06:30
10. Granollers	90 (1.99%)	40.00%	36 (1.97%)	64.44%	1.68	00:04:20

The user is spending in average 5 min per session

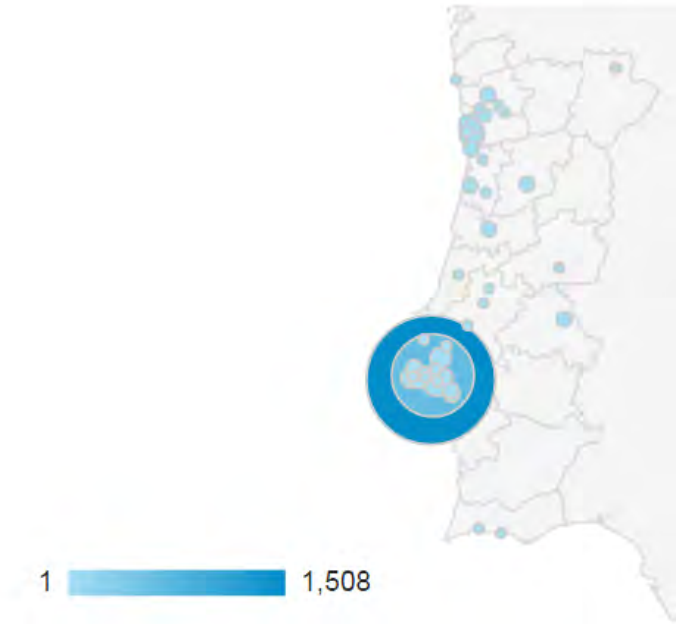
In Greece there is a larger concentration in the area of Athens and surrounding



The average session duration in most of the cities is in agreement with the reported reach of the project. Active teachers are coming from places were Visionary Workshops. PRW and training have been implemented.

City	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	2,367 % of Total: 6.87% (34,464)	23.83% Avg for View: 37.14% (-35.84%)	564 % of Total: 4.41% (12,800)	61.43% Avg for View: 61.51% (-0.14%)	2.35 Avg for View: 2.55 (-7.62%)	00:06:40 Avg for View: 00:06:18 (5.92%)
1. Athens	1,014 (42.84%)	26.13%	265 (46.99%)	65.58%	1.88	00:05:27
2. Athens	480 (20.28%)	27.71%	133 (23.58%)	63.54%	2.39	00:05:27
3. Acharnes	237 (10.01%)	9.70%	23 (4.08%)	51.90%	3.17	00:10:09
4. Thessaloniki	163 (6.89%)	22.09%	36 (6.38%)	49.08%	3.15	00:12:50
5. Thessaloniki	156 (6.59%)	19.23%	30 (5.32%)	57.05%	2.26	00:06:04
6. (not set)	92 (3.89%)	9.78%	9 (1.60%)	80.43%	1.33	00:02:45
7. Pireas	78 (3.30%)	14.10%	11 (1.95%)	58.97%	3.69	00:06:43
8. Vrilissia	56 (2.37%)	21.43%	12 (2.13%)	16.07%	6.30	00:21:54
9. Patras	22 (0.93%)	50.00%	11 (1.95%)	68.18%	1.45	00:01:22
10. Chalandri	11 (0.46%)	18.18%	2 (0.35%)	63.64%	1.45	00:01:44

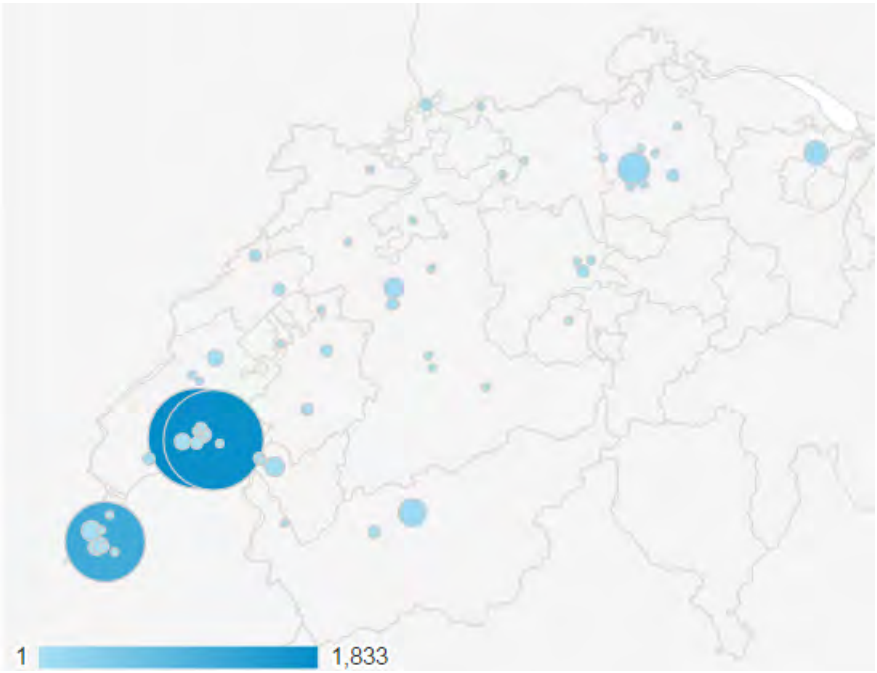
In Portugal we also see a good geographical distribution of teachers and the active ones are located in places where VW, PRW and training events were implemented



As in the other active countries the average session duration is close to 6 min.

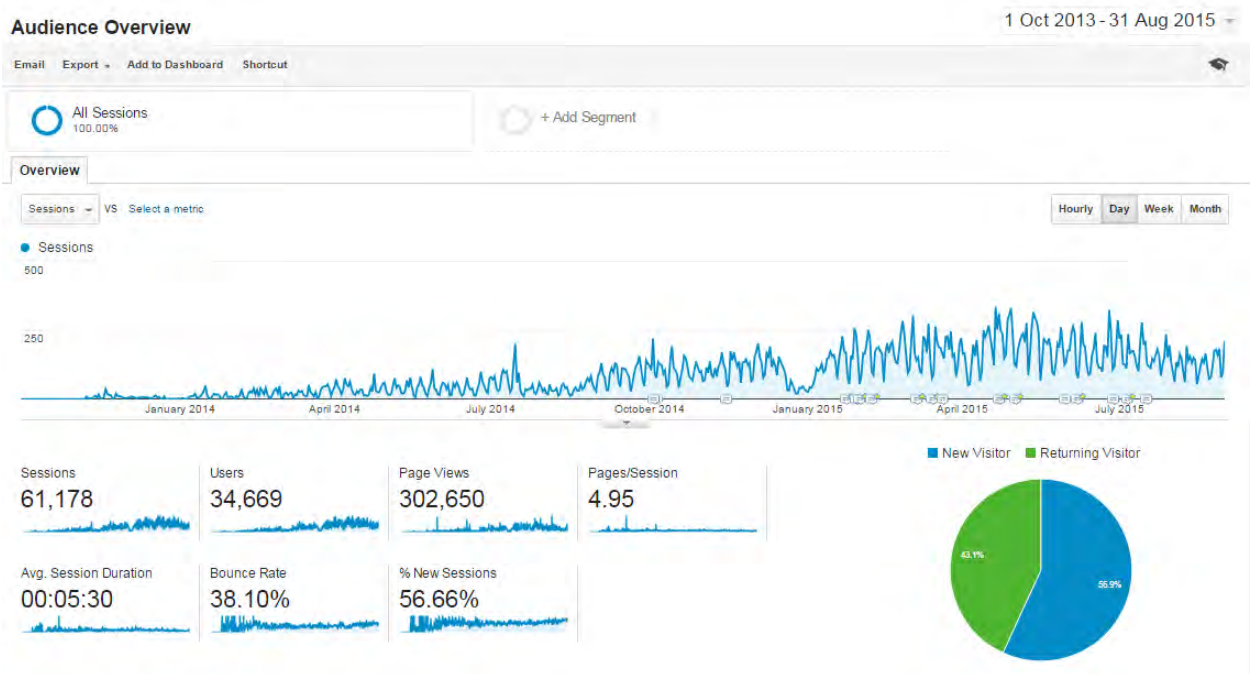
City	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	3,115 % of Total: 9.04% (34,464)	34.54% Avg for View: 37.14% (-6.99%)	1,076 % of Total: 8.41% (12,800)	60.19% Avg for View: 61.51% (-2.15%)	1.98 Avg for View: 2.55 (-22.29%)	00:05:46 Avg for View: 00:06:18 (-8.46%)
1. Almada	1,508 (48.41%)	28.45%	429 (39.87%)	57.69%	1.98	00:06:04
2. Lisbon	621 (19.94%)	32.05%	199 (18.49%)	64.09%	1.94	00:05:50
3. (not set)	250 (8.03%)	42.80%	107 (9.94%)	53.60%	2.22	00:07:57
4. Funchal	231 (7.42%)	51.08%	118 (10.97%)	64.50%	2.22	00:04:17
5. Seixal	63 (2.02%)	36.51%	23 (2.14%)	68.25%	1.62	00:02:31
6. Porto	44 (1.41%)	56.82%	25 (2.32%)	63.64%	2.00	00:05:45
7. Oeiras	33 (1.06%)	30.30%	10 (0.93%)	75.76%	1.97	00:05:58
8. Alverca do Ribatejo	31 (1.00%)	29.03%	9 (0.84%)	70.97%	1.87	00:02:53
9. Ponta Delgada	29 (0.93%)	20.69%	6 (0.56%)	68.97%	1.66	00:02:25
10. Cascais	28 (0.90%)	78.57%	22 (2.04%)	50.00%	2.43	00:13:26

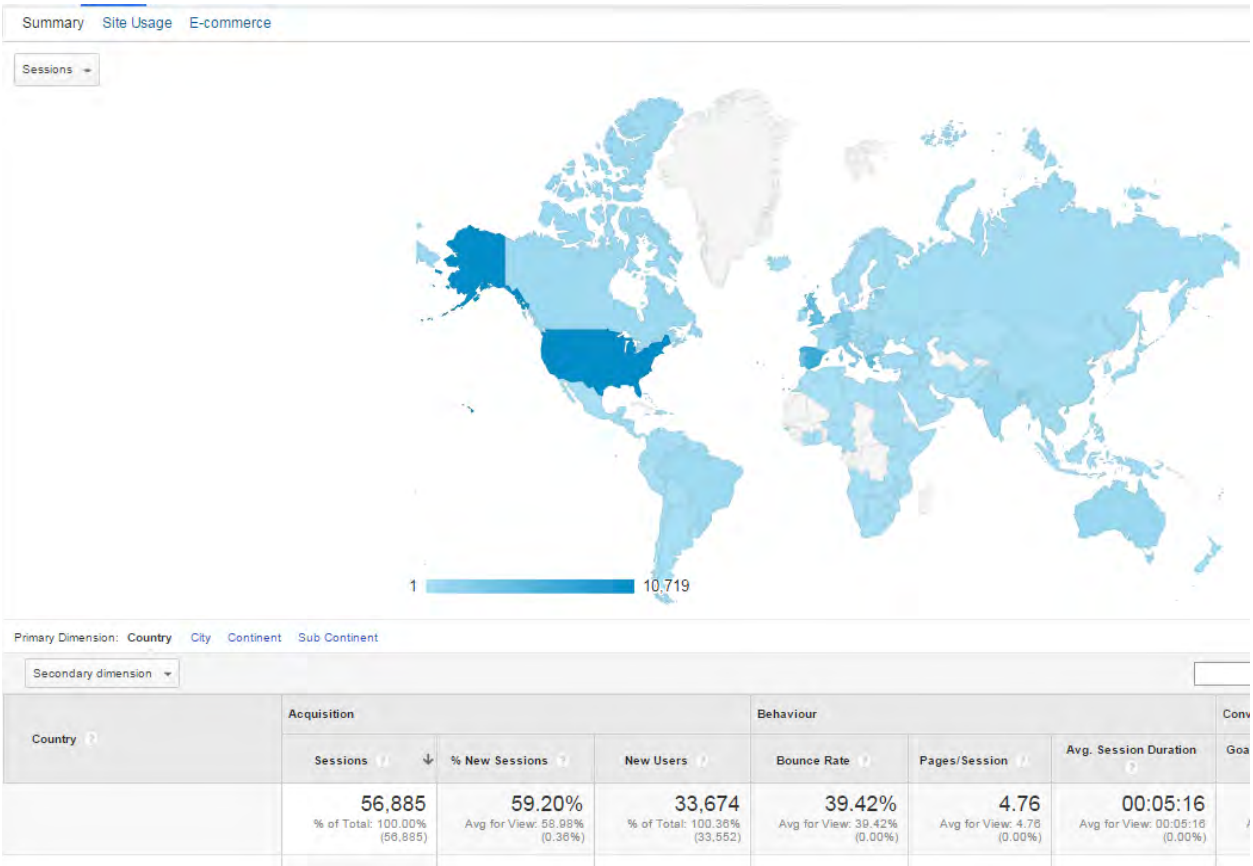
In Switzerland we can clearly see the difference in behaviour from the technical tem in Lausanne as compared to the rest of the users that are presenting a higher number of new sessions and a higher number for bounce rate



City	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	5,721 % of Total: 16.60% (34,464)	24.70% Avg for View: 37.14% (-33.50%)	1,413 % of Total: 11.04% (12,800)	53.82% Avg for View: 61.51% (-12.51%)	5.44 Avg for View: 2.55 (113.56%)	00:11:48 Avg for View: 00:06:18 (87.37%)
1. Ecublens	1,833 (32.04%)	11.89%	218 (15.43%)	43.70%	7.52	00:16:52
2. Lausanne	1,765 (30.85%)	14.33%	253 (17.91%)	44.19%	7.80	00:16:38
3. Geneva	1,154 (20.17%)	53.81%	621 (43.95%)	69.84%	1.65	00:03:16
4. Zurich	180 (3.15%)	37.22%	67 (4.74%)	76.11%	1.57	00:01:44
5. Sierre	119 (2.08%)	30.25%	36 (2.55%)	77.31%	1.43	00:01:18
6. Saint Gallen	100 (1.75%)	14.00%	14 (0.99%)	72.00%	2.08	00:06:45
7. Zollikofen	58 (1.01%)	37.93%	22 (1.56%)	48.28%	1.91	00:09:04
8. Meyrin	52 (0.91%)	32.69%	17 (1.20%)	51.92%	2.12	00:04:53
9. Montreux	49 (0.86%)	4.08%	2 (0.14%)	83.67%	1.31	00:03:31
10. Renens	47 (0.82%)	68.09%	32 (2.26%)	76.60%	1.66	00:00:56

Golabz Analytics





Country	Acquisition			Behaviour			Conv
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration	Goa
	56,885 % of Total: 100.00% (56,885)	59.20% Avg for View: 58.98% (0.36%)	33,674 % of Total: 100.36% (33,552)	39.42% Avg for View: 39.42% (0.00%)	4.76 Avg for View: 4.76 (0.00%)	00:05:16 Avg for View: 00:05:16 (0.00%)	

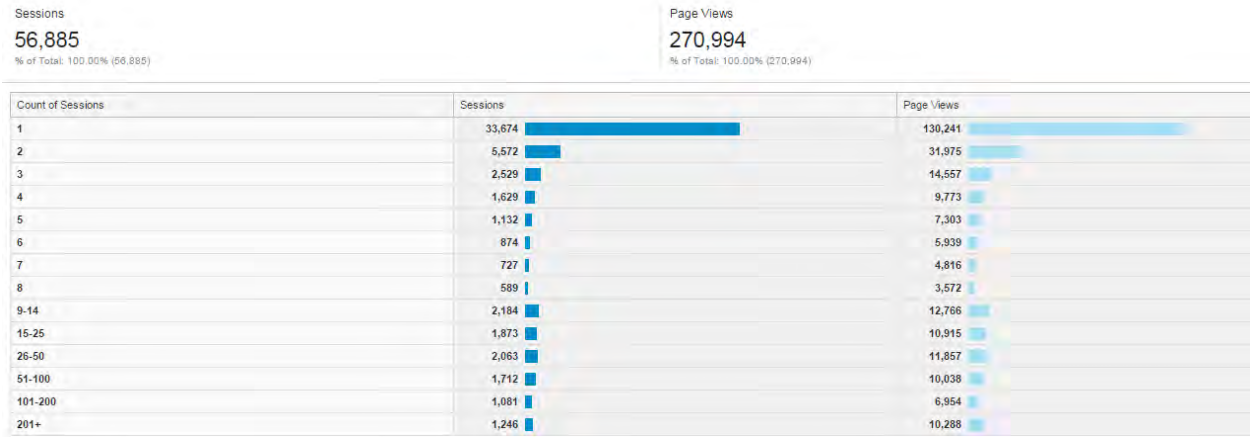
The Go-lab portal presents in the period of one year (Sept 1st 2014 to Sept 21st 2015) a total of 56885 sessions from wish 59,20% are coming from new users.

Taking out data coming from US this is the scenario

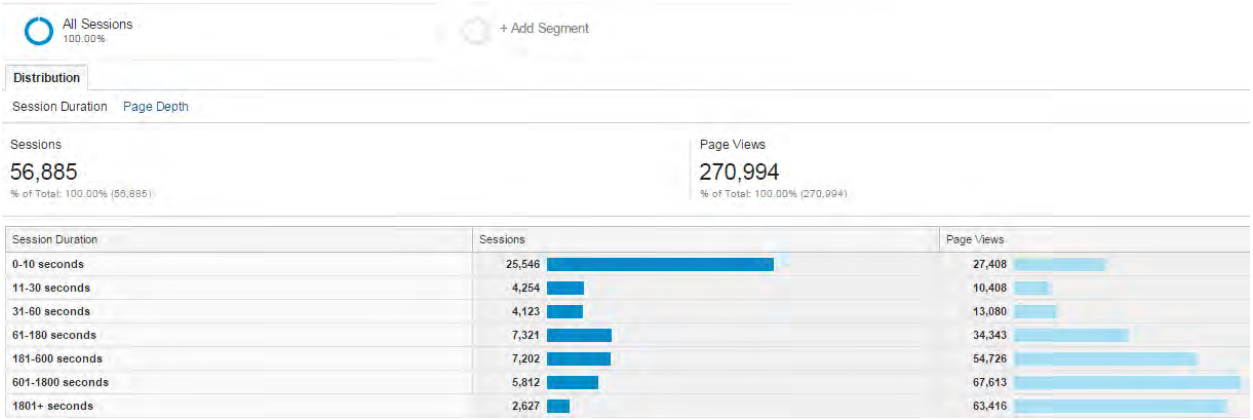
Country	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	46,166 % of Total: 81.16% (56,885)	51.77% Avg for View: 58.98% (-12.23%)	23,899 % of Total: 71.23% (33,552)	33.67% Avg for View: 39.42% (-14.58%)	5.34 Avg for View: 4.76 (12.02%)	00:06:09 Avg for View: 00:05:16 (16.82%)
1. Spain	6,763 (14.65%)	42.14%	2,850 (11.93%)	22.62%	6.33	00:07:22
2. United Kingdom	4,083 (8.84%)	41.61%	1,699 (7.11%)	34.48%	6.79	00:08:53
3. Greece	3,833 (8.30%)	32.32%	1,239 (5.18%)	23.12%	6.18	00:07:54
4. Portugal	3,415 (7.40%)	38.80%	1,325 (5.54%)	18.62%	6.69	00:07:58
5. Netherlands	2,757 (5.97%)	28.04%	773 (3.23%)	20.86%	5.52	00:06:36
6. Italy	2,474 (5.36%)	51.82%	1,282 (5.36%)	27.73%	6.04	00:07:07
7. Germany	2,212 (4.79%)	45.93%	1,016 (4.25%)	29.25%	5.87	00:06:50
8. Estonia	2,072 (4.49%)	55.41%	1,148 (4.80%)	26.01%	5.22	00:05:48
9. Romania	1,164 (2.52%)	46.56%	542 (2.27%)	28.78%	5.98	00:05:22
10. India	1,110 (2.40%)	89.01%	988 (4.13%)	53.24%	2.62	00:02:22

Over 46 000 users, a bounce rate with an average of 33,7% and with an average number of pages per session of 5.34, a very good number

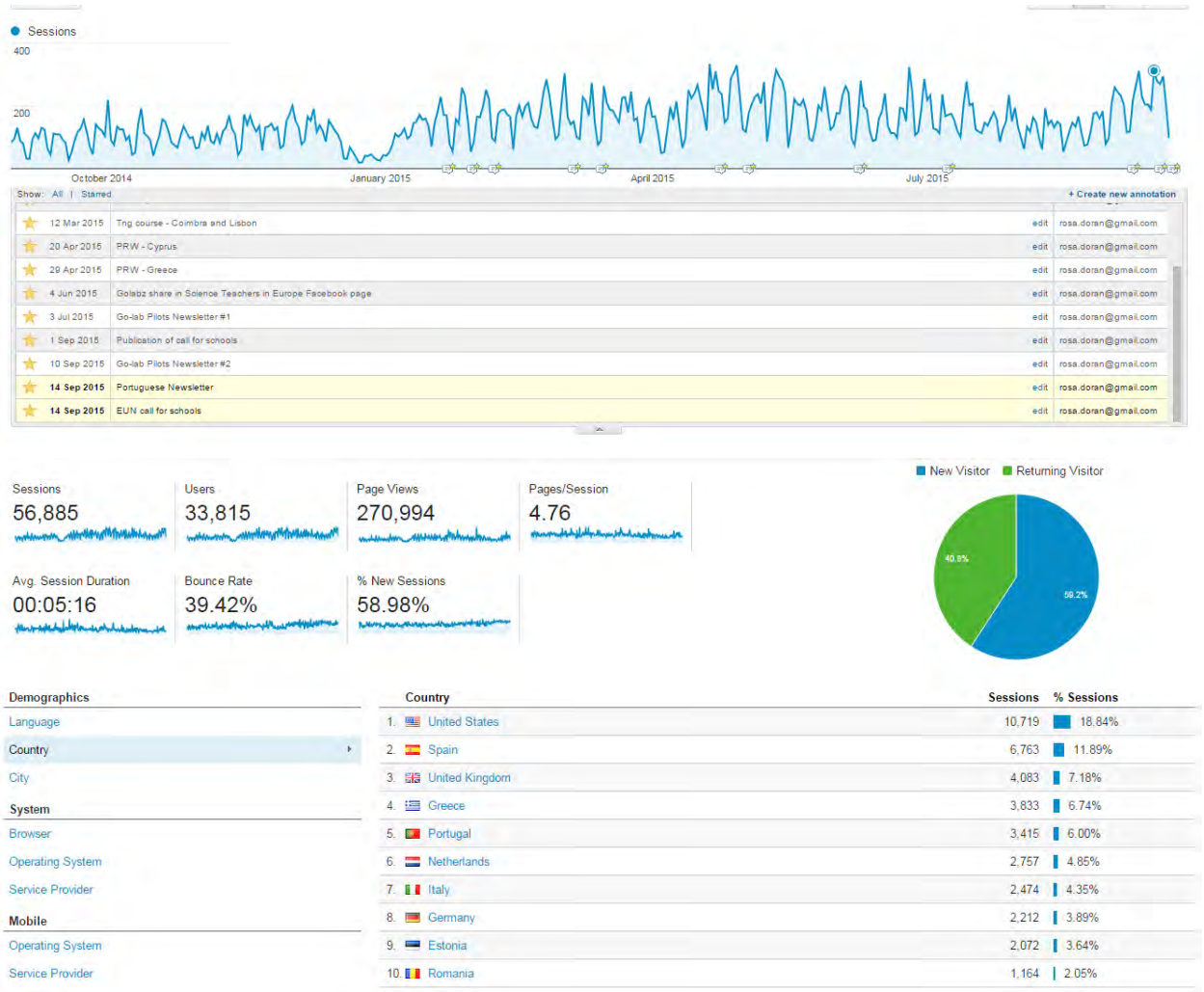
In this case, the number of users really returning and using the system, also considering those that present a number over 25 session, gives us a total of 6 102 sessions with 39 137 page views (an average of 6.4 pages per session)



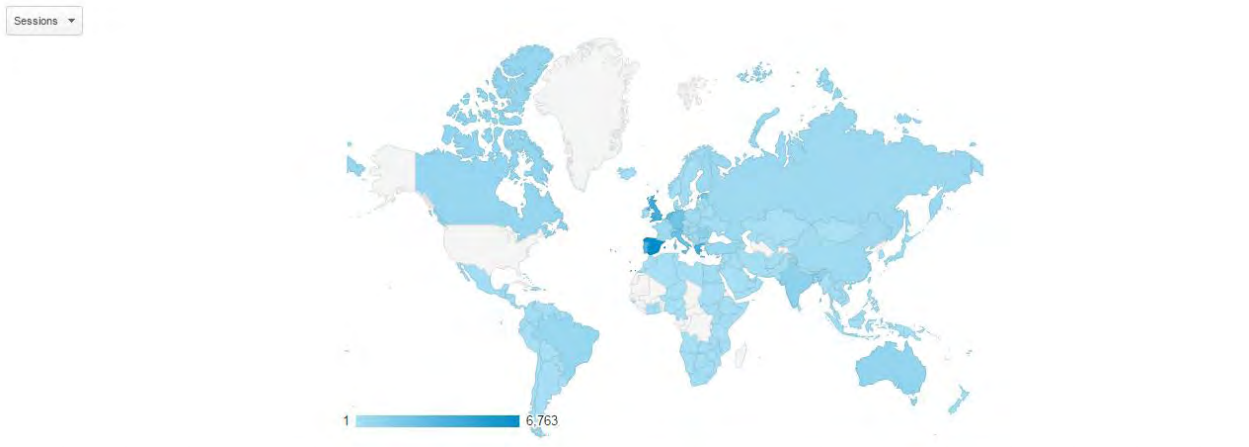
The engagement of the users shows us that there were more than 2600 session with the duration of more than 201 seconds with an average of 24 page views per session. With this number we can conclude that around 5% are deeply exploring the system. While another 15641 session are originated by users that stay more than 60 seconds, also with a high number of pages views (220 000) and an average of 14 pages per session.



We analysed the peak of activities in terms of sessions and most of them are connected to training and reflection sessions. Or major announcement as the call for schools or the teacher's newsletters.



After cleaning the noise introduced by robots based in US we have the following distribution in terms of countries



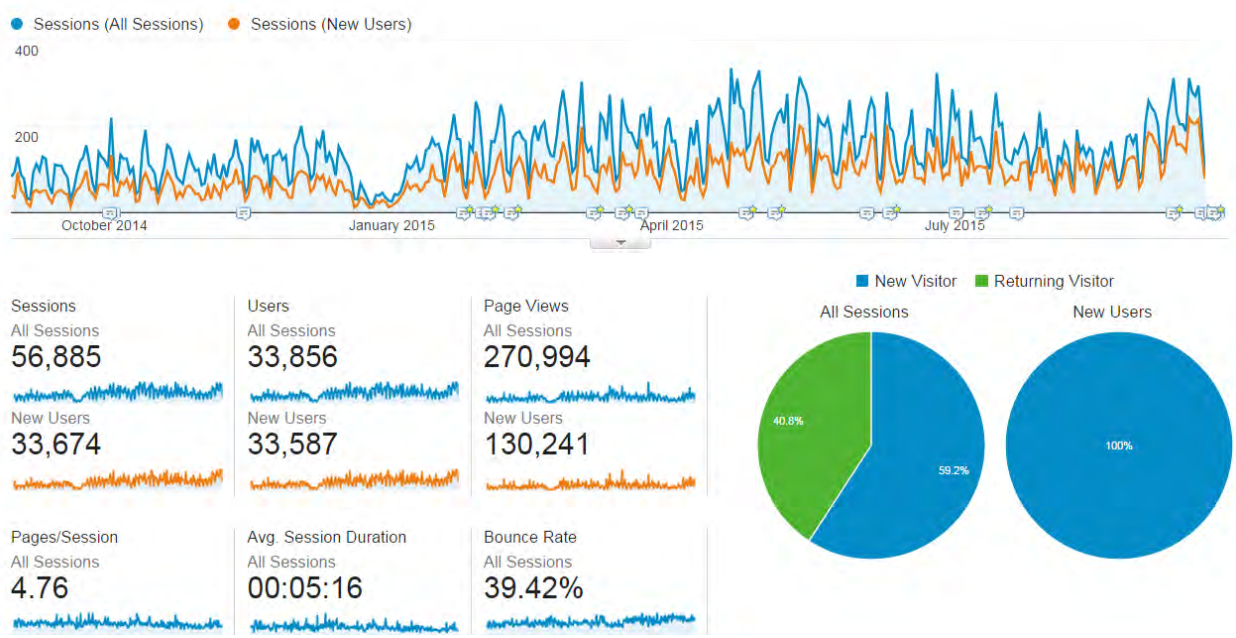
Country	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	46,166 % of Total: 81.16% (56,885)	51.77% Avg for View: 58.98% (-12.23%)	23,899 % of Total: 71.23% (33,552)	33.67% Avg for View: 39.42% (-14.59%)	5.34 Avg for View: 4.76 (12.02%)	00:06:09 Avg for View: 00:05:16 (16.82%)
1. Spain	**6,763** (14.65%)	42.14%	2,850 (11.93%)	22.62%	6.33	00:07:22
2. United Kingdom	**4,083** (8.84%)	41.61%	1,699 (7.11%)	34.48%	6.79	00:08:53
3. Greece	**3,833** (8.30%)	32.32%	1,239 (5.18%)	23.12%	6.18	00:07:54
4. Portugal	**3,415** (7.40%)	38.80%	1,325 (5.54%)	18.62%	6.69	00:07:58
5. Netherlands	**2,757** (5.97%)	28.04%	773 (3.23%)	20.86%	5.52	00:06:36
6. Italy	**2,474** (5.36%)	51.82%	1,282 (5.36%)	27.73%	6.04	00:07:07
7. Germany	**2,212** (4.79%)	45.93%	1,016 (4.25%)	29.25%	5.87	00:06:50
8. Estonia	**2,072** (4.49%)	55.41%	1,148 (4.80%)	26.01%	5.22	00:05:48
9. Romania	**1,164** (2.52%)	46.56%	542 (2.27%)	28.78%	5.98	00:05:22
10. India	**1,110** (2.40%)	89.01%	988 (4.13%)	53.24%	2.62	00:02:22
11. Cyprus	**1,026** (2.22%)	32.65%	335 (1.40%)	12.09%	8.79	00:11:34
12. Switzerland	**1,023** (2.22%)	30.69%	314 (1.31%)	27.66%	4.48	00:05:01

The table below show how the time spent in average in Golabz by initiators of sessions

Country	Acquisition			Behaviour		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	38,345 % of Total: 67.41% (56,885)	47.08% Avg for View: 58.98% (-20.19%)	18,051 % of Total: 53.80% (33,552)	30.72% Avg for View: 39.42% (-22.07%)	5.65 Avg for View: 4.76 (18.62%)	00:06:36 Avg for View: 00:05:16 (25.27%)
1. Cyprus	1,026 (2.68%)	32.65%	335 (1.86%)	12.09%	8.79	**00:11:34**
2. United Kingdom	4,083 (10.65%)	41.61%	1,699 (9.41%)	34.48%	6.79	**00:08:53**
3. Portugal	3,415 (8.91%)	38.80%	1,325 (7.34%)	18.62%	6.69	**00:07:58**
4. Greece	3,833 (10.00%)	32.32%	1,239 (6.86%)	23.12%	6.18	**00:07:54**
5. Spain	6,763 (17.64%)	42.14%	2,850 (15.79%)	22.62%	6.33	**00:07:22**
6. Italy	2,474 (6.45%)	51.82%	1,282 (7.10%)	27.73%	6.04	**00:07:07**
7. Germany	2,212 (5.77%)	45.93%	1,016 (5.63%)	29.25%	5.87	**00:06:50**
8. Netherlands	2,757 (7.19%)	28.04%	773 (4.28%)	20.86%	5.52	**00:06:36**
9. Austria	725 (1.89%)	49.66%	360 (1.99%)	30.62%	5.63	**00:06:16**
10. Belgium	714 (1.86%)	38.38%	274 (1.52%)	30.81%	5.38	**00:06:01**
11. Estonia	2,072 (5.40%)	55.41%	1,148 (6.36%)	26.01%	5.22	**00:05:48**
12. Romania	1,164 (3.04%)	46.56%	542 (3.00%)	28.78%	5.98	**00:05:22**

We can also say that the bounce rate is very low and the number of pages per session means they are exploring the portal.

Below the combined graph of all users and new ones. We can see that the number of new users is growing at a very satisfactory rate



If we analyse the pages visited by the users

	Page Title	Page Views	Unique Page Views	Avg. Time on Page	Entrances	Bounce Rate	% Exit
		270,994 % of Total: 100.00% (270,994)	195,213 % of Total: 100.00% (195,213)	00:01:23 Avg for View: 00:01:23 (0.00%)	56,343 % of Total: 100.00% (56,343)	39.42% Avg for View: 39.42% (0.00%)	20.79% Avg for View: 20.79% (0.00%)
1.	Go-Lab	61,467 (22.68%)	44,859 (22.98%)	00:00:59	27,904 (49.53%)	23.62%	17.65%
2.	Online Labs | Go-Lab	49,969 (18.44%)	31,420 (16.10%)	00:00:45	5,293 (9.39%)	29.94%	9.78%
3.	Inquiry Spaces | Go-Lab	22,804 (8.41%)	15,773 (8.08%)	00:01:00	1,148 (2.04%)	30.20%	10.56%
4.	Apps | Go-Lab	12,265 (4.53%)	7,625 (3.91%)	00:00:59	894 (1.59%)	44.69%	11.28%
5.	Search | Go-Lab	9,699 (3.58%)	7,386 (3.78%)	00:00:24	257 (0.46%)	15.51%	5.63%
6.	Hypothesis Tool | Go-Lab	3,180 (1.17%)	2,735 (1.40%)	00:02:22	2,237 (3.97%)	89.10%	73.90%
7.	Craters on Earth and Other Planets | Go-Lab	2,806 (1.04%)	2,063 (1.06%)	00:04:28	217 (0.39%)	35.46%	40.06%
8.	Big Ideas of Science | Go-Lab	2,486 (0.92%)	1,895 (0.97%)	00:01:13	282 (0.50%)	63.08%	21.36%
9.	Hypothesis Scratchpad | Go-Lab	2,454 (0.91%)	2,164 (1.11%)	00:02:19	1,838 (3.26%)	91.41%	76.12%
10.	Home page	2,338 (0.86%)	2,338 (1.20%)	00:00:00	2,079 (3.69%)	100.00%	100.00%

Exploring the top events in Golabz we can see that around 3000 people are creating ILS and over 2000 copying existing ones.

Event Category	Total Events	Unique Events
	61,998 % of Total: 100.00% (61,998)	25,741 % of Total: 45.25% (56,885)
1. Outbound links	48,993 (79.02%)	18,926 (73.52%)
2. Downloads	7,075 (11.41%)	2,839 (11.03%)
3. create ils-lab button	2,968 (4.79%)	2,080 (8.08%)
4. copy ils button	2,098 (3.38%)	1,322 (5.14%)
5. addthis	451 (0.73%)	309 (1.20%)
6. Mails	322 (0.52%)	174 (0.68%)
7. to use this feature visit: EVENT-TRACKING.COM	89 (0.14%)	89 (0.35%)
8. blacklisted-FOFF	1 (0.00%)	1 (0.00%)
9. button	1 (0.00%)	1 (0.00%)

The copy feature has to be analysed with caution since not all users notice that they have an option to see the ILS without having to copy it (using the student view). That might be the driver of the number of users of this feature. On the other hand, the ones using the create ils-lab button are indeed interested in creating ILS using the specific lab.

Golabz x Graasp

Comparing the audience overview of Golabz and Graasp we can see that there is a diminishing use of Graasp during school breach period but Golabz continues to be in use.

We can also see that the peaks of sessions in one is also reflected by a peak in the other

Annex II: Invitation Letter for Go-lab Pilot Schools

Go-lab Call for Schools

What is Go-Lab?

The Go-Lab Project (Global Online Science Labs for Inquiry Learning at School) opens up online science laboratories (remote and virtual labs) for the large-scale use in school education. The overall aim of the project is to encourage young people aged from 10 to 18 to engage in science topics, acquire scientific inquiry skills, and experience the culture of doing science by undertaking active guided experimentation.

To achieve this aim, the Go-Lab project creates the Go-Lab Portal allowing science teachers to find online labs and inquiry learning applications appropriate for their class, combine these in Inquiry Learning Spaces (ILSs) to support particular lesson scenarios, and share the ILSs with their students. Using the ILSs, the students receive the opportunity to perform personalized scientific experiments with online labs in a structured learning environment.

What is the task about?

Although Go-Lab has a large repository of labs and applications for teachers to use in their classroom, we want to enable teachers to make full use of them by making it possible to find ILSs by grade/topic/students' age and other such relevant filters. Because Scientix has access to a wide network of teachers of different nationalities we have the possibility to cover a large span of countries and thus ensure diversity and access for as many as Go-Labs' teachers as possible.

What do the teachers need to do?

What the Scientix ambassadors will have to do is to **map a list of ILSs (that they will receive from us) in their country's specific curriculum** by level of education, grade, student age, subject and topic. To make sure the process is complete, **additional comments and background explanations are fully encouraged.**

Volunteers will receive an email (either from a Scientix contact person or Go-Lab) with the .xls document and list of ILSs and will have 2 weeks for this task.

Expected deadline: 15th September 2015.

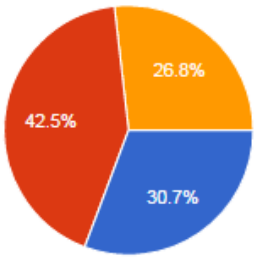
If they require assistance?

If they have any questions or are encountering any difficulties (technical, etc.) they can contact

Teodora Ioan at teodora.ioan@eun.org**.**

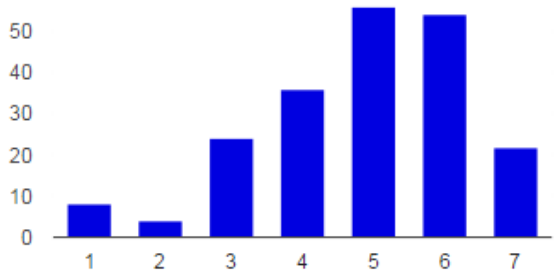
Annex III - Summary of the answers to the online survey

How have you used Go-Lab:



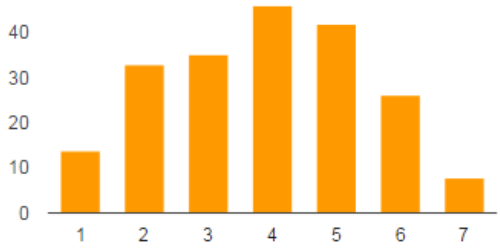
A. I am only searching for online labs on the Lab Repository to use them in my lesson	**55**	30.7%
B. I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers	**76**	42.5%
C. I am an experienced Go-Lab user. I am creating new Inquiry Learning Spaces (ILS) for my lessons	**48**	26.8%

1. To what extent do you think that the Go-Lab tools are supporting your teaching practice?



Not at all: 1	**8**	3.9%
2	**4**	2%
3	**24**	11.8%
4	**36**	17.6%
5	**56**	27.5%
6	**54**	26.5%
A lot: 7	**22**	10.8%

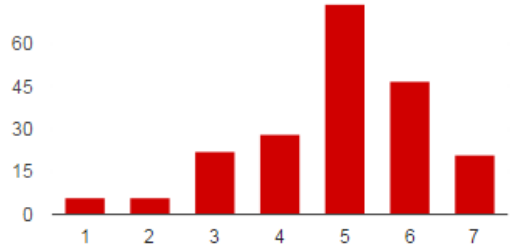
2. With Go-Lab I have the opportunity to introduce lab work in almost every lesson



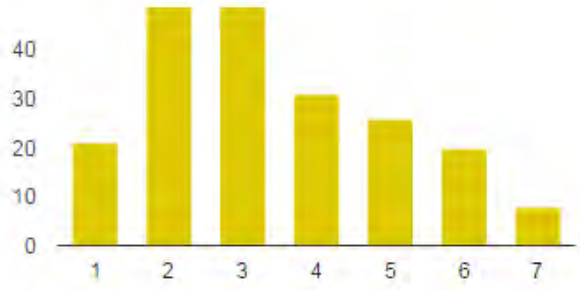
Strongly Disagree: 1	**14**	6.9%
2	**33**	16.2%
3	**35**	17.2%
4	**46**	22.5%
5	**42**	20.6%
6	**26**	12.7%
Strongly agree: 7	**8**	3.9%

Below questions 3 and 4 will be properly analysed by WP3. They are presented here for the sake of completion

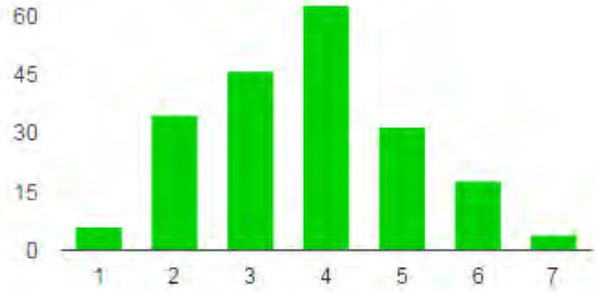
3. In the table below you will find 10 pairs of contrasting attributes. Where you place your choice between two attributes indicates your view about the quality of [the Go-Lab Portal]. This choice tells us that the Go-Lab Portal is somewhat likeable, but there is still room for improvement (Note: There is no right or wrong answer. Your personal opinion is what counts.)



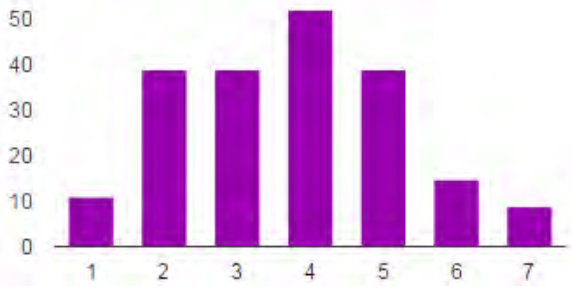
Confusing: 1	**6**	2.9%
2	**6**	2.9%
3	**22**	10.8%
4	**28**	13.7%
5	**74**	36.3%
6	**47**	23%
Structured: 7	**21**	10.3%



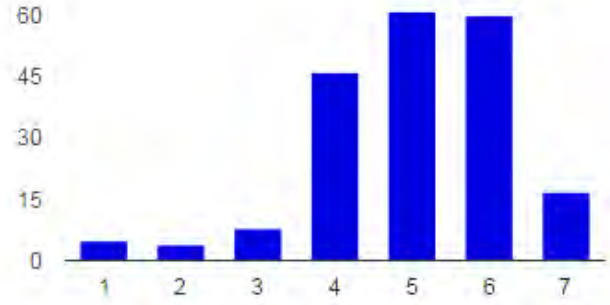
Practical: 1	**21**	10.3%
2	**49**	24%
3	**49**	24%
4	**31**	15.2%
5	**26**	12.7%
6	**20**	9.8%
Impractical: 7	**8**	3.9%



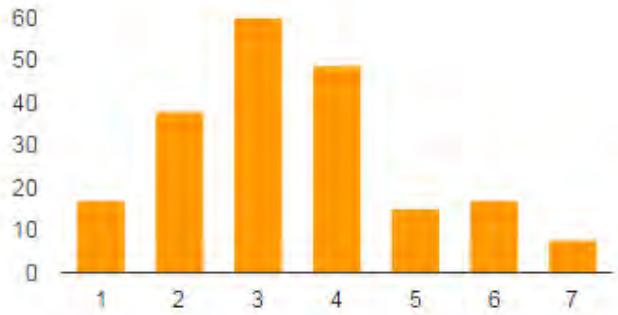
Predictable: 1	**6**	2.9%
2	**35**	17.2%
3	**46**	22.5%
4	**63**	30.9%
5	**32**	15.7%
6	**18**	8.8%
Unpredictable: 7	**4**	2%



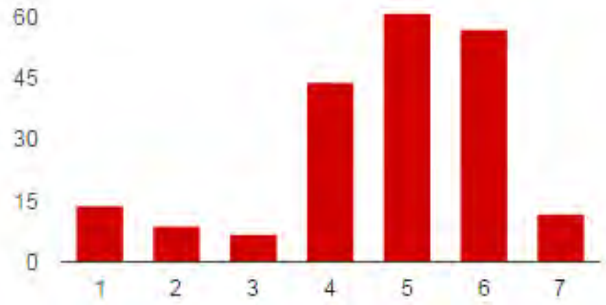
Simple: 1	**11**	5.4%
2	**39**	19.1%
3	**39**	19.1%
4	**52**	25.5%
5	**39**	19.1%
6	**15**	7.4%
Complicated: 7	**9**	4.4%



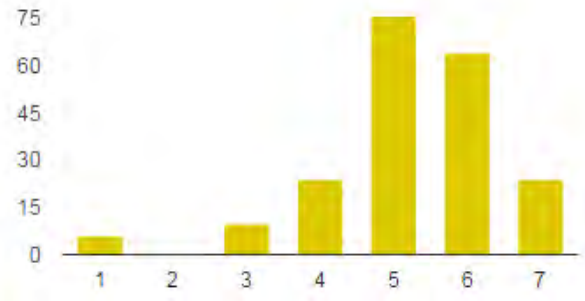
Dull: 1	**5**	2.5%
2	**4**	2%
3	**8**	4%
4	**46**	22.9%
5	**61**	30.3%
6	**60**	29.9%
Captivating: 7	**17**	8.5%



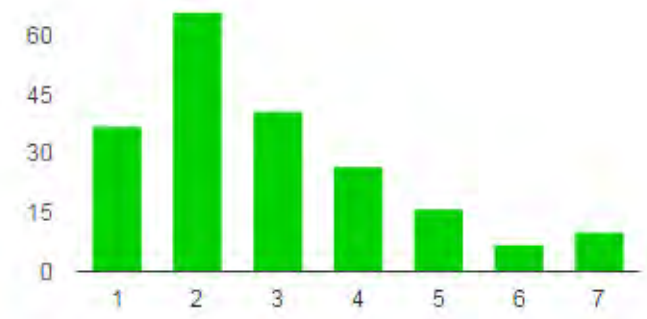
Stylish: 1	**17**	8.3%
2	**38**	18.6%
3	**60**	29.4%
4	**49**	24%
5	**15**	7.4%
6	**17**	8.3%
Tacky: 7	**8**	3.9%



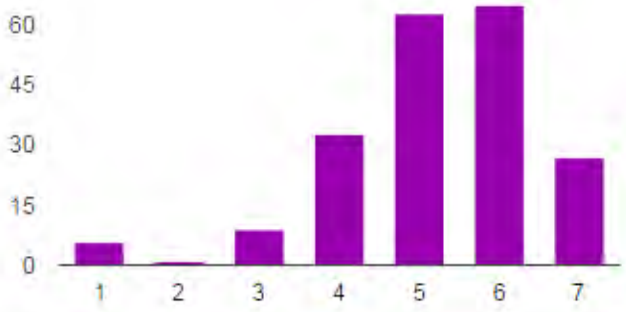
Cheap: 1	**14**	6.9%
2	**9**	4.4%
3	**7**	3.4%
4	**44**	21.6%
5	**61**	29.9%
6	**57**	27.9%
Premium: 7	**12**	5.9%



Unimaginative: 1	**6**	2.9%
2	**0**	0%
3	**10**	4.9%
4	**24**	11.8%
5	**76**	37.3%
6	**64**	31.4%
Creative: 7	**24**	11.8%



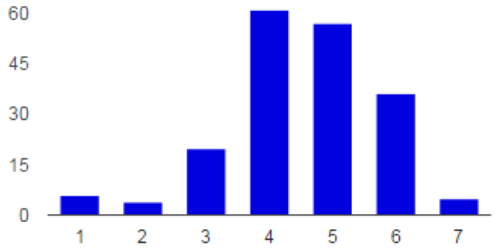
Good: 1	**37**	18.1%
2	**66**	32.4%
3	**41**	20.1%
4	**27**	13.2%
5	**16**	7.8%
6	**7**	3.4%
Bad: 7	**10**	4.9%



Ugly: 1	**6**	2.9%
2	**1**	0.5%
3	**9**	4.4%
4	**33**	16.2%
5	**63**	30.9%
6	**65**	31.9%
Beautiful: 7	**27**	13.2%

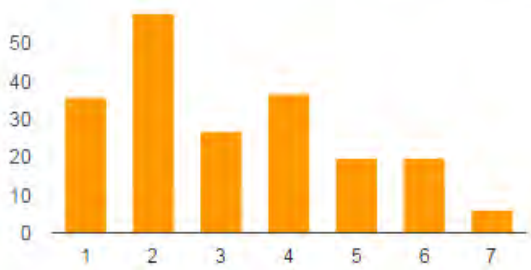
4. For each of the following statements, please indicate your extent of agreement by circling the number of choice

[The Go-Lab Portal's] capabilities meet my requirements.



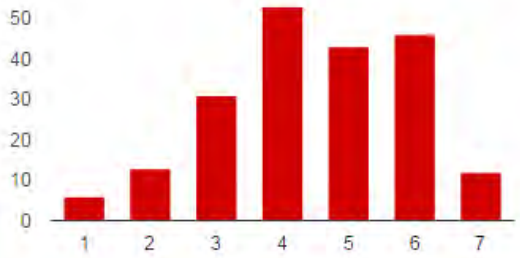
Strongly Disagree: 1	**6**	3.2%
2	**4**	2.1%
3	**20**	10.6%
4	**61**	32.3%
5	**57**	30.2%
6	**36**	19%
Strongly Agree: 7	**5**	2.6%

Using [the Go-Lab Portal] is a frustrating experience.



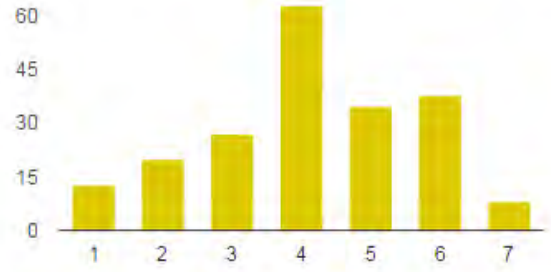
Strongly Disagree: 1	**36**	17.6%
2	**58**	28.4%
3	**27**	13.2%
4	**37**	18.1%
5	**20**	9.8%
6	**20**	9.8%
Strongly Agree: 7	**6**	2.9%

[The Go-Lab Portal] is easy to use.



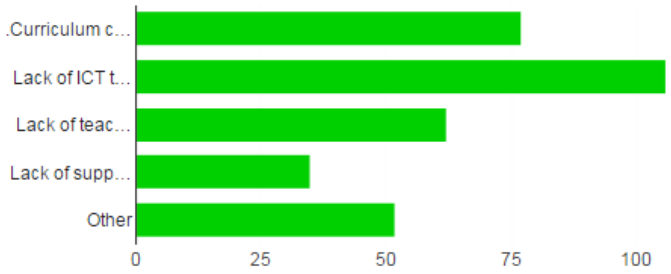
Strongly Disagree: 1	**6**	2.9%
2	**13**	6.4%
3	**31**	15.2%
4	**53**	26%
5	**43**	21.1%
6	**46**	22.5%
Strongly Agree: 7	**12**	5.9%

I have to spend too much time working with [the Go-Lab Portal].



Strongly Disagree: 1	**13**	6.4%
2	**20**	9.8%
3	**27**	13.2%
4	**63**	30.9%
5	**35**	17.2%
6	**38**	18.6%
Strongly Agree: 7	**8**	3.9%

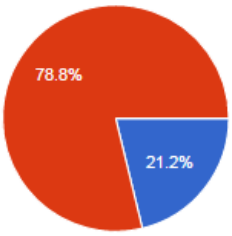
5. What barriers can you identify in introducing Go-Lab in your classroom activities? (choose one or more options)



.Curriculum compatibility – The proposed activities are not part of the curriculum	**77**	37.7%
Lack of ICT tools in classroom – There are no computers for every student	**106**	52%
Lack of teachers' ICT literacy – Too demanding for me	**62**	30.4%
Lack of support from school	**35**	17.2%
Other	**52**	25.5%

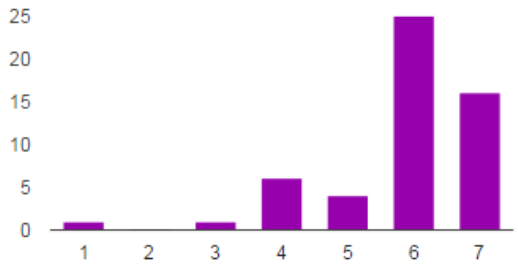
Types of use of Go - lab

6. The Go-Lab tutoring platform provides the opportunity to share your experiences with peers and get support while are you using Go-Lab. Have you used this service? – Yes -- No



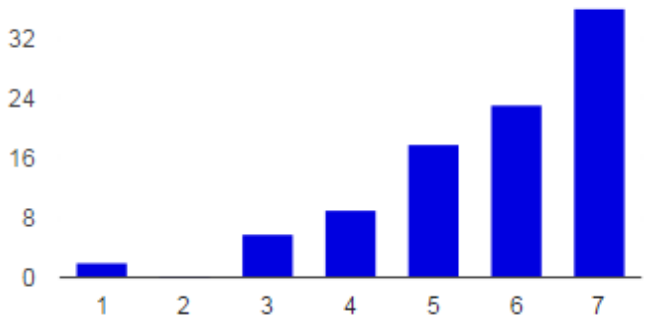
yes	**42**	20.6%
no	**156**	76.5%

1. If yes: Are you considering that the sharing of experiences and bets practices is also improving your practice with Go-Lab?



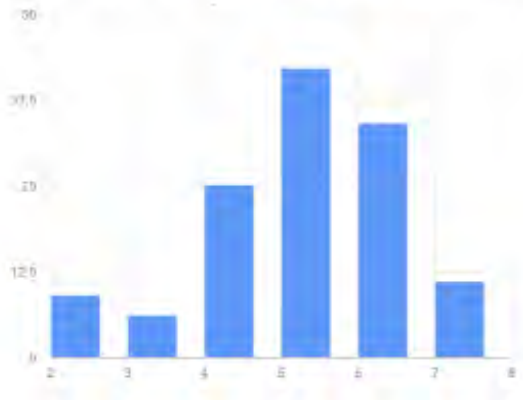
Not at all: 1	**1**	1.9%
2	**0**	0%
3	**1**	1.9%
4	**6**	11.3%
5	**4**	7.5%
6	**25**	47.2%
A lot: 7	**16**	30.2%

2. If no: Would you like to share your ILSs with other teachers using Go-Lab?



No! I do not like to share my resources: 1	**2**	2.1%
2	**0**	0%
3	**6**	6.4%
4	**9**	9.6%
5	**18**	19.1%
6	**23**	24.5%
Yes! Sharing our experiences is the best resource we have: 7	**36**	38.3%

7. Do you think that the ILSs that have been developed by the GoLab team are supporting your practice and covering your teaching needs? (only for B and C modes of use)



Not at all: 1	**0**	
2	**9**	7%
3	**6**	4.7%
4	**25**	19.6%
5	**42**	33%
6	**34**	26.7%
7	**11**	8.6%

8. Do you think that you can use Graasp systematically in order to create ILSs to be used in your teaching practice? (only for C mode of use)

Not at all: 1	**0**	
2	**5**	8.3%
3	**4**	6.7%
4	**7**	11.7%
5	**18**	30%
6	**20**	33.3%
7	**6**	10%

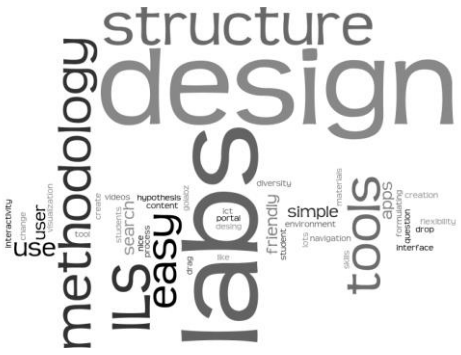
What did you find more challenging in creating your own ILSs? (only for C mode of use)

In general the most common issues related to the obstacles met by the users when creating their ILSs were related to finding the appropriate lab and app that are adequate to be integrated in the curriculum, that allow them to use the proposed methodology in the provided time available.

What did you like most about the Go-Lab activities you have implemented?

For those teachers that implemented or tested the model with students the most common comment was that students were much more motivated when exposed to the proposed ILS. They enjoyed "playing" with the labs and found the apps very appealing. Some students manifested the wish to create ILSs themselves.

In the text box below, please comment on your most liked and most disliked design of the user interface of Go-Lab you have just used:



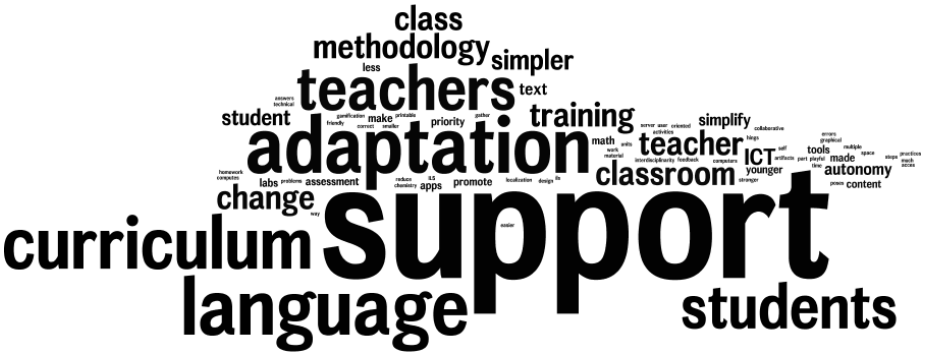
Liked

Teachers in general appreciated the structure being used to present the tools and resources. They found the methodology very appropriate to engage their students in a different and innovative way. They found that the authoring tool was really facilitating the process of creating their ILS. In general they said that once they understand the process it becomes user-friendly.

Disliked

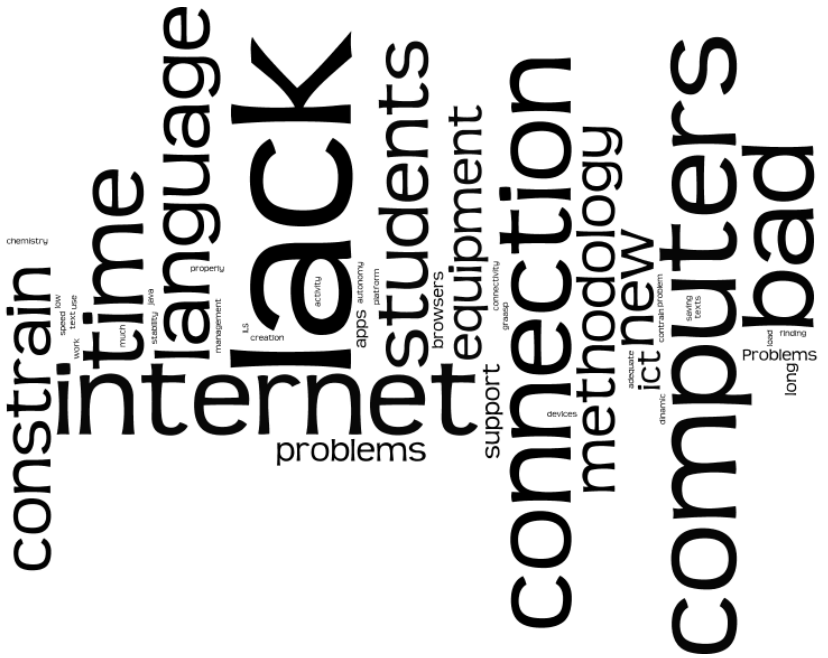
A common comment was the fact that the portal and the authoring tool were different structures. They felt the need to have the labs text translated to their language and commented that several ILSs were not very intuitive.

What are the necessary pedagogical changes in order for Go-Lab to be more efficient to your teaching practice?



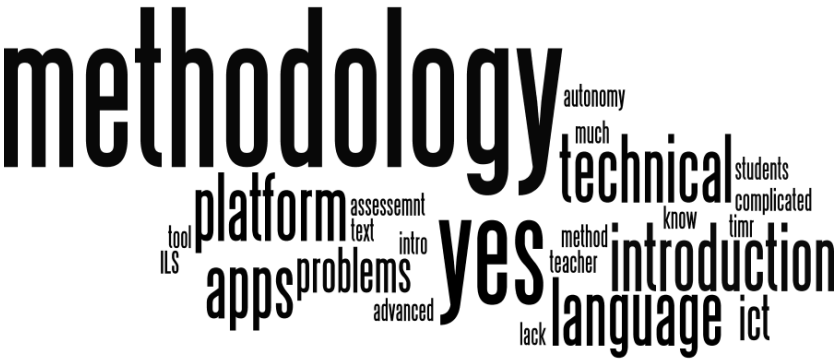
Teachers in general requested continuous support for the learning and implementation of Go-lab in classroom. Translation and localization scored high in their suggestions and adaptation to their curriculum a very important aspect for their full adoption of the system.

What difficulties did you encountered when implementing the Go-Lab activity in the classroom?



When addressing the issue of difficulties the most common issue is without question the lack of ICT infrastructure and support. Also the lack of proper internet connection and time constrain. Language appeared very often.

Did students need explanations/support (more than expected) in order to perform the Go-Lab activity. If yes, please specify



Students are not comfortable in general with the IB methodology. The process requires repetition and more instances of use in order to have the students really engaging in the process. Issues with language and localization were also mentioned several times.

Annex IV - Dissemination Materials

Figure 53 Go-lab contest dissemination material

Annex V – Scores of the submitted entries

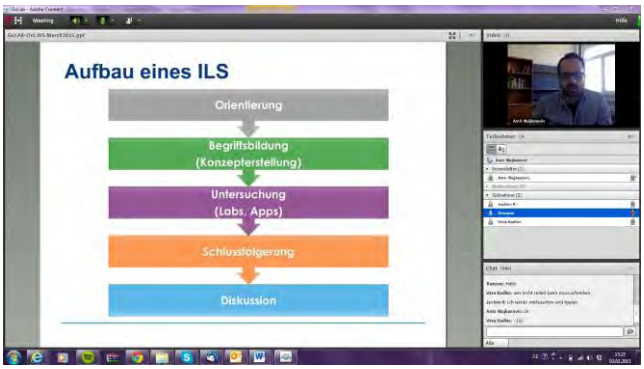
NAME	Total	Does the entry fulfill the contest's rules?	Quality of the entry (10 points total)			Practical Implementation in class (10 points total)			Creativity and Originality (10 points total)			*Use of Go-Lab tools (5 points maximum)*		
			Implementation process and students' results	Overall assessment of students' performance	Overall assessment of the Inquiry Learning Space's impact on students' cognitive skills.	Class organization	Encouraging students creativity	Quality of students' results	Creative presentation	Originality of the work	Clarity of the overall entry	Use of an existing Go-Lab Inquiry Learning Space as is.	Use of an existing Go-Lab Inquiry Learning Space after being adapted by the contestant.	Use of a Go-Lab Inquiry Learning Space created from the contestant from scratch.
			4 points	3 points	3 points	2 points	4 points	4 points	4 points	3 points	3 points	1 point	3 points	5 points
FATIHA Baki	30	Yes	3	3	2	2	4	3	3	2	3			5
HRISTOVA Tsetsa	32	Yes	4	2	2	2	4	4	4	2	3			5
LYMBOURIDOU Chrystalla	30	Yes	3	2	1	1	4	4	4	3	3			5
KAPARTZIANIS Achillefs	16	Yes	1	1	1	2	2	1	2	3	2	1		
KOUTSOU Marina	29	Yes	2	2	2	2	3	3	4	3	3			5
MÄE Karolin	33	Yes	4	3	3	2	4	4	4	3	3		3	
JOGEVA Aiki	26	Yes	3	2	2	2	3	3	2	3	3		3	
WERNEBURG Sören	26	Yes	3	2	2	2	2	3	4	2	3		3	
FRANK Maria	26	Yes	3	3	2	2	3	3	2	2	3		3	
NERANTZIS Nikolaos	35	Yes	4	3	3	2	4	4	4	3	3			5
ARGIRY Panagiota	29	Yes	4	3	3	1	3	3	2	3	2			5
KRITIKOS Panagiotis	16	Yes	1	1	1	2	2	1	1	1	3		3	
VOUKLOUTZI Eleni	21	Yes	2	2	2	1	2	3	1	2	3		3	
MAZZANTI Claudia Maria	24	Yes	2	2	2	2	3	3	4	2	3	1		
LEONE Daniela	28	Yes	3	2	2	2	3	3	**3**	**2**	**3**			5
BAMA Carel	0	No												
GUGIC Ivana	28	Yes	3	2	3	1	3	3	2	3	3			5
OTÍLIA Filep	27	Ye	3	1	2	2	4	3	2	2	3			5

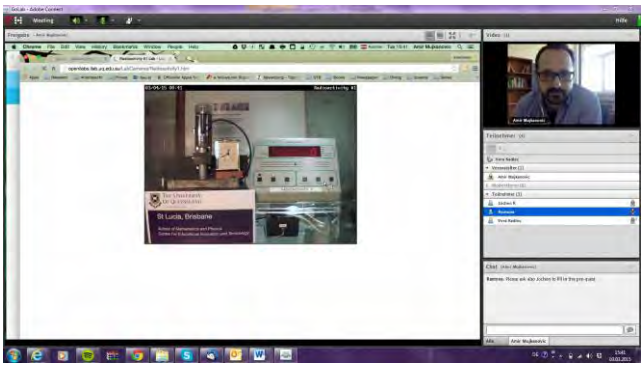
		s												
MAGID Stella	26	Yes	3	2	2	2	3	3	3	2	3		3	
DELIC Suzana	24	Yes	3	2	3	2	2	3	3	2	3	1		
ROCHOWICZ Krzysztof	29	Yes	3	2	3	2	3	3	2	3	3			5
MASLOWSKA Malgorzata	0	No												
CANÁRIO Maria De Fátima Maduro	25	Yes	3	1	1	2	2	2	4	3	2			5
CAPELA Helena	25	Yes	3	1	1	2	2	2	4	3	2			5
JORGE Pedro	0	No												
MELO Célia	21	Yes	2	1	1	1	2	1	3	2	3			5
GIRIO Isadora	21	Yes	3	1	1	1	3	1	2	2	2			5
RIBEIRO Carla	23	Yes	3	1	1	2	2	4	2	2	3		3	
MARQUES César	22	Yes	3	1	1	2	2	2	2	2	2			5
QUADROS Isabel	0	No												
CANÁRIO RIBEIRO Sandra	0	No												
RISTEA Lidia	12	Yes	2	1	1	1	1	1	2	1	1	1		
TANASESCU Gabriela-Violeta	31	Yes	4	2	2	2	4	3	4	3	2			5
DOMÍNGUEZ PACHECO María Del Mar	0	No												
LEIVA Silvia	28	Yes	4	2	2	2	2.5	3	2.5	2	3			5
GIL OSINAGA Mikel	31.5	Yes	4	3	3	2	3	4	2.5	2	3			5
GIMENO REGIDOR Sílvia	30.5	Yes	4	2	2	2	4	3	2.5	3	3			5
DIEZ CALZADA Carmen	0	No												
VAQUERIZO Luis	32	Yes	4	3	3	2	3	4	3	2	3			5
JIMENEZ DE LLANO GARCIA Julieta	34	Yes	4	3	2	2	4	4	4	3	3			5
BURGOA Ibon	20	Yes	1	1	2	1	2	1	2	3	2			5
RODRÍGUEZ SOTO Eduardo Antonio	30	Yes	4	2	3	2	3	4	2	2	3			5
SANTOS M. Guadalupe	28	Yes	4	2	2	2	3	2	3	2	3			5
FABRON Mario	0	No												
OLMO RÍSQUEZ Jose Luis	22.5	Yes	2	1	1	2	3	1	2.5	2	3			5
CURCO Victor	27	Yes	4	1	0	2	3	2	3	4	3			5
DE JONG Casper	23	Yes	1	1	1	2	3	1	3	3	3			5

Annex VI – Countries Reports

- **Austria**

G O - L A B Event Code	AT13-030315
Context: standalone event or combined with other ws, online or face to face	Online WS
Country City/Region	AT, Villach
Working language	German
Start/End Date	15:00 – 16:00, 03.03.2015
Organizing Institute	CUAS
Coordinator name and email	Amir Mujkanovic A.Mujkanovic@fh-kaernten.at
Total number of teachers/schools	3 participants registered and 2 participants online
Brief description	The workshop was structured to fulfill the requirements of the Pilot B and to motivate and support teachers to include Go-Lab apps into their teaching plan. It started with a short overview of last events of Go-Lab and evolution over the years. Than the new contest (summer school) was introduced as a connection point to their tasks and as motivation to use Go-Lab infrastructre with students. After this introduction the tasks and steps that should be followed were explained and exemplified. They received indications and links where to find all materials, checked them and commit to use it and come back with feedback.
Facilitators Observations	The participants were enthusiastic about Go-Lab facilities. The general impression was positive. No real interaction in a sense of community was shown having in mind that were only two participants, one from the beginning and the other joined a bit later the workshop due to technical problems. The web site, Graasp, online labs, apps and all facilities were presented and encourage using them actively. Future collaboration with colleagues may be possible due to their positive reaction.
Theme analysis and reporting from implementation	

activities	
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	Teachers liked the concept of Go-Lab and all activities related to it. It presented a potential on teaching students to learn and to write lab reports on their own. Independence in learning.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Positive impression, positive effect on students.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Go-Lab infrastructure is difficult to include into curriculum because it does not depend on teachers' interest is rather more on school interest. Teachers have no personal decision over it. The curriculum is rigid, but it would be welcomed as an additional e-learning activity.
Challenges and Improvements of the Go-Lab model	There are no challenges and improvement suggestions. Teachers have to get more familiar with the Go-Lab infrastructure to be able to provide useful feedback.
Reflection through questionnaire	2 participants
Website	https://vc.fh-kaernten.at:443/r7cfno4sul3/
Photos or other relevant material	

	 
Event agenda	Agenda • Update Go-Lab • Pre- questionnaires • Contest information • Tasks • Post- questionnaires • Q&A

G O - L A B Report Code	*[AT13-120315]*
Title	*Future job [campus] Speed Dating*
Country City/Region	*Villach*
Working language	*English, German*
Start/End Date	*10:30 – 13:00 12/03/2015*
Partners Involved	*Secondary schools from Villach, AMS,AK, Beruf- und Bildungs- orientierung Kärnten*

Coordinator name and email	*Ramona Oros* *R.Oros@fh-kaernten.at*
School Profile	*Technical school with bilingual teaching programs and profiles like mathematics, physics, chemistry, biology and informatics*
Number and age of students	*30 pupils from secondary school, 10 - 14 years old*
Activity Description	*The main goal was to show students what learning with online and remote labs means. The activities were organized in 6 groups of pupils. During 15 minutes small groups of 3 – 6 pupils attended short presentation about online labs and after that they had the chance to try them. The objective was not to force pupils to use certain labs, more to let the curios ones to try first and motivate the others.* *In general half of the members of one group worked with at least one lab. Not all students feel confident in trying something new for the first time.* *The general impression was a positive. Pupils were attracted by the design of the labs. They came with suggestions of possible subjects and interest in using the labs for self-study.*
Implemented online labs	*Used labs:* - *Radioactivity* - *Splash* - *How are the light fixtures in a house connected?* - *Electricity (DE)* - *pH Scale*
Learning outcomes	*Pupils' reaction was positive on the possibility of using online and remote labs at school. Their interest was oriented on how they can access online labs and use them in reports of self-assessment activities.* *Using online tools in learning was attractive for them.*
Photos or other relevant material	

G O - L A B Event Code	*AT13-280515*
Context: standalone event or combined with other ws, online or face to face	*Standalone face to face Workshop with teachers*
Country City/Region	Villach, Austria
Working language	English
Start/End Date	*28/05/2015*
Organizing	*Carinthia University of Applied Sciences*

Institute	
Coordinator name and email	*Danilo Zutin (d.garbizutin@fh-kaernten.at)*
Total number of teachers/schools	*3 Teachers*
Brief description	*This practice reflection workshop was organized with three teachers from Colegiul National de Informatica „Grigore Moisil", Brasov, Romania.* *During the workshop an introduction to the Go-Lab project was presented, followed by an introduction to the pedagogical approach of the project regarding the use of inquiry learning with students and how online labs can be used to increase the interest of students for sciences and engineering. The workshop followed by a hands-on session where the teachers had the chance to use an ILS and the apps in more detail.* *An overview of the Go-Lab repository was presented with a focus on how to find labs and apps and how to create a copy of an ILS from an existing one. In the last part of the workshop a demonstration on how to author/modify an ILS in Graasp was carried out.*
Facilitators Observations	*The time available for the workshop was limited, but the teachers were enthusiastic about the project and expressed the desire to use it in their lessons.* *However, they also pointed out that a more detailed training institutional support from the school are important to establish its use in their school.*
Theme analysis and reporting from implementation activities	*During the workshop the teachers were introduced to the Radioactivity ILS. They carried out (guided by the workshop presenter) experiments and used the apps (hypothesis and concept map). Link to used ILS (http://graasp.eu/ils/54aff2b051830bd46a666687?lang=en)* *Link to repository link: (http://www.golabz.eu/spaces/radioactivity-always-harmful-humans)*
Group discussion/ reflection	*As previously mentioned, the teachers were enthusiastic about the project and the possibility to use the Go-Lab tools in their school and their courses. The teachers present in the workshop teach Mathematics, Physics and basics of electrical circuits. They pointed out that they would need institutional support if they were really to use Go-Lab in their school, what could be difficult to receive. The language is another problem pointed out by the teachers, ILSs would have to be translated to the local language. This comment from the teachers allowed us to infer that the idea that the ILS design should be done by the teachers specifically for their students was not well understood. This triggered a discussion around this that led us to introduce the Go-Lab ILS authoring tool (Graasp) and to show in some more details the process to create an ILS.*
Experiences of Teachers with the Go-Lab activities	*This was a practice reflection workshop, no implementation was carried out.*

Perceived Experiences / Influence of the Go-Lab Activities on Students	*This was a practice reflection workshop, no implementation was carried out.*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*This was a practice reflection workshop, no implementation was carried out.*
Challenges and Improvements of the Go-Lab model	*The workshop transmitted a lot of information in a very short time, what might have overwhelmed the teachers a bit. Overall the feedback was positive. A more intense work with the teachers is necessary to allow a better understanding and the use the Go-Lab model.* *One of the problems is that teachers are not academics and have to be inspired by other teachers. The main challenge is to overcome this phase.*
Reflection through questionnaire	*Teachers completed the questionnaire after the workshop*
Website	***Workshop did not provide a Website***
Photos or other relevant material	 

	
Event agenda	*No formal agenda available*

- **Belgium**

G O - L A B Event Code	BEEUN-220215
Context: standalone event or combined with other ws, online or face to face	Face to face workshop organized in the framework of a Science Project workshop at the Future Classroom Lab

Country City/Region	Belgium, Brussels
Working language	English
Start/End Date	22/02/2015
Organizing Institute	European Schoolnet (EUN)
Coordinator name and email	Mathilde Bargoin mathilde.bargoin@eun.org Evita Tasiopoulou evita.tasiopoulou@eun.org
Total number of teachers/schools	23
Brief description	This workshop was the first in the series of upcoming Practice Reflection workshops to be organized by European Schoolnet. The proposed agenda by WP6 has been modified in order to address the following issues: • The audience of the workshop was mixed including teachers who have already used Go-Lab and newcomers to the project with limited experience. • WP1 has requested the collection of feedback related to the already developed scenarios so this activity also had to be included in the overall plan. As a result the workshop followed the hybrid approach, including introductory to Go-Lab activities and reflection activities.
Facilitators Observations	EUN noticed a high level of interaction between the teachers. Working in groups, teachers had the chance to collaborate and debate about ILSs integration and set up. In the speed dating session, teachers had the opportunity to discuss about solutions to Go-Lab implementation and new ideas. Teachers found this session very motivating and engaging and exchanged on a variety of ideas. Even during the coffee break and after the session, many teachers came with many questions and showed a great interest for using Go-Lab in class

G O - L A B Event Code	[INTEUN-110315]
Context: standalone event or combined with other ws, online or face to	Standalone online event

face	
Country City/Region	Online
Working language	English
Start/End Date	11/03/15
Organizing Institute	European Schoolnet
Coordinator name and email	Mathilde Bargoin, Evita Tasiopoulou, evita.tasiopoulou@eun.org
Total number of teachers/schools	23
Brief description	This online workshop took place in English, addressing teachers from the International, Belgian, Italian and Polish groups. The aim of the PRW was to collect information on teachers Go-Lab experience along with their suggestions and feedback..
Facilitators Observations	Facilitators have noticed high levels of interaction among the participants. All teachers were interested to see how their colleagues have addressed issues they have all faced i.e. language, unstable internet connection and students motivation. Some teachers have talked about how they have used ILSs as part of a larger set of activities while others have teamed up with English teachers in order to support their pupils with English. These teachers have explained how they have proceeded with these arrangements and how students responded.
Theme analysis and reporting from implementation activities	The teachers discussed the following themes with the whole group while they have been sharing their experience with Go-Lab: the usefulness of Go-Lab in their teaching, the impact of Go-Lab in their teaching, the students reactions, the cross curricula activities, the challenges for the Go-Lab system, the recommendations, necessary pedagogical changes and improvements for Go-Lab to be more advantageous in the teaching practice.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	• All teachers have started composing ILS**s although they are reluctant to publish them**. Most of the feel that they need to develop them further and some have said that they will publish them after they test them with their students and make sure they are logical and realistic. • Teachers who have already published ILS insisted that **simplicity is important** and there is no need to create complicated ILSs. • Teachers like the structure of the ILSs and the labeled tabs with the various IBSE steps.

	• Students do not pay much attention to the steps of inquiry but the **structural process is shaping their attitude** and learning process. • The Authoring tool is very much appreciated by the teachers who find the access to it and its use, easy and straightforward. • Some teachers with iPads had troubles accessing the ILSs. Other tablets seemed to work without any problem.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Teachers have reported that students find the use of ILSs very engaging and interesting. Students need some time to get used to the use of the various tools and ILSs structure but once they do then there is no problem. In some cases lack of knowledge regarding the use of inquiry and its various steps, **confused students** who got lost in the process. In these cases, teachers had to take corrective actions by providing students with longer introductions and more specific explanations. Some teachers have also given ILS as homework to students. The results were very encouraging since students came back to class with specific questions about the content of the ILS and the tools. Technical issues (i.e. slow performance or videos not loading) have also caused problems within the classroom. The issue of translation and the need to provide primary and low secondary students with IlSs in their own language, has also been brought up extensively. Teachers have discussed how they could work together in order to split the translation of existing ILSs but also share the ILSs they are making in case an Italian colleague would like to contribute to their work or develop it further.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Higher motivation and greater student engagement has been stated by the majority of teachers. The willingness to investigate further the use of Graasp and its application to other subjects (beyond STEM) has also been expressed widely.
Challenges and Improvements of the Go-Lab model	All teachers agreed that **more training and support is needed i**n order to ensure their ability to work with Graasp efficiently. Some of them have mentioned that their students are quite efficient into figuring out the use of Graasp so teachers need to be able to support them. Problems with specific applications like the Data viewes and the Hypothesis tool have also been mentioned so more instructions on that area is also needed.
Reflection through questionnaire	10
Website	*n/a*
Photos or other relevant material	

Event agenda	**Agenda** **Workshop duration: 1h30** *Introduction of the workshop – 5 mn* Welcome and aim of this workshop *Introduction to scenarios – 10 mn* Short introduction to the concept of scenarios and how they are used in the development of ILSs. Explanation of Basic scenario, jigsaw and learning by critiquing approaches. *Work on ILSs – 15 mn* Teachers are asked to check 3 ILSs containing 3 different scenarios and to answer different questions (in the chat, or later in the discussion with the moderator) • It is good to be beautiful - Understanding Evolution through Natural and Selection: http://graasp.eu/ils/547be131e9934012b7c662a3?lang=en • Electricity - An Alternative approach of Ohm's Law: http://graasp.eu/ils/54ad280351830bd46a66658a?lang=en • Methyl Orange: http://graasp.eu/ils/54b4f0e751830bd46a666781?lang=en Teachers are asked to get familiar with the ILS in question and continue by thinking about the implementation scenarios, including age groups and how this specific ILS can be used in class. *Go-Lab debate – 30 mn* First, teachers are asked to share their ideas on the scenario related questions, and the moderator is taking notes. The questions are the same as those described in this google doc: http://tiny.cc/Go-Lab-PRW1 Second, Teachers – helped by the moderator – are asked to discuss/debate about one or more of the topics below: • The usefulness of Go-Lab in their teaching • The potential impact of the use of the Go-Lab project on teachers and students • The potential impact of some ILSs on some teachers' collaboration / multidisciplinary activities • The challenges faced and barriers of use • Recommendations for creation of ILSs or for the project in general *Evaluation – 25mn* Teachers fill in the WP6 usability questionnaire (online) *Wrap up and final questions and answers – 5mn*

- **Bulgaria**

G O - L A B Event Code	GR02-270515
Title	Presentation of "The Big Ideas of Science" in the classroom using online labs
Country City/Region	Bulgaria, Sofia
Working language	English
Start/End Date	27/05/2015
Organizing Institute	Ellinogermaniki Agogi
Coordinator name and email	Tsourlidaki Eleftheria eleftheria@ea.gr
Activity Form	Project presentation, Validation Workshop on the “Big Ideas of Science”
Activity Type	Local Event
Total number of teachers/schools	16/15
Implemented online labs	None
Brief description	The workshop took place at the city of Sofia in Bulgaria. The objective of the workshop was to present the Go-Lab project and the Go-Lab repository. In addition teachers were introduced to the “Big Ideas of Science” as a means of an organization/recommendation system of activities for the school classroom and they participated in a “Big Ideas of Science” validation workshop. They were all invited to participate in the pilot phase C.
Learning outcomes	- Acquaintance with the Go-Lab project - Familiarization with Go-Lab ILSs and online labs - Familiarization with the “Big Ideas of Science” and how they may be communicated by teachers so as to provide students with a clearer connection

	between the different subjects they are taught at school.
Website	N/A
Photos or other relevant material	 

	 
Event agenda	• **9:30 – 10:15** Introduction to Go-Lab and the Big Ideas of Science • **10:15 – 10:45** Brainstorming: "What are the Big Ideas of Science according to you?" • **10:45 – 11:00** Break • **11:00 – 11:30** Presentation of teachers 'Big Ideas' and comparison to the Go-Lab set of Big Ideas and to the bibliography. • **11:30 – 12:15** Presentation of the Big Ideas in GoLabz • **12:15 – 12:45** Conclusion – closing discussion
Additional comments	Between 11.30 and 12.15 the tutor presented to participants how the Big Ideas are presented in GoLabz. The participants had a change to navigate The overall observations and outcomes are presented below: When asked to make a search for a lab: - Twelve (12) teachers clicked on the "Online Labs" option. In the 'Online labs' page, 8 of them scrolled down to see the labs displayed while 4 of them used the side bar. - Four (4) of them chose to use the free search. When asked to use the Big ideas of Science to search for a lab. - Participants did not understand how to do that. As they mentioned, looked for a search option with the Big Ideas of Science. - After it was pointed out to them they clicked on the "Big Ideas" button on the top tab. When asked about the Big Ideas of Science page - All participants said that they liked the Big Ideas of Science page and how

	the BI are presented. - When asked about what is the purpose of this page, they all said that it is useful to see the labs under each Big Idea but they wouldn't have thought to use it in order to find labs relative to each other. When asked to look for a lab related to another (while on the preview page of a lab) - Participants again did not know how to do this. Most of them scrolled the page up and down looking for the BI but they could spot them. Only 3 of them clicked on the thumbnails under the lab's image. - The rest of the participants said that they hadn't realized that these where buttons but simple icons.

- **Cyprus**

G O - L A B Event Code	CY09-08032013
Title	Scientific experimental set-ups and virtual laboratories in the teaching process (Εκπαιδευτικές πειραματικές διατάξεις και εικονικά πειράματα στην εκπαιδευτική διαδικασία)
Country City/Region	Cyprus, Nicosia
Working language	Greek
Start/End Date	08/03/2013 and 11/03/2013
Organizing Institute	University of Cyprus
Coordinator name and email	Constantinos Manoli manoli@ucy.ac.cy Zacharias Zacharia zach@ucy.ac.cy Xenofontos Nikoletta xenofontos.nikoletta@ucy.ac.cy
Activity Form	Visionary Workshop
Activity Type	Local
Total number of teachers/schools	17 science teachers attended (13 completed the survey)
Implemented	Stellarium (planetarium software)

online labs	
Brief description	The visionary workshop emphasized the need for improving science teaching using new and attractive science instructions and online labs. The idea of the Go-Lab project, through the use of a mock-up, was presented and evaluated based on its structure and proposed scaffolding. At the begging of the workshop, teachers were informed about existing literature on science teaching, the inquiry process and the connection between science and technology development. The introduction of the workshop concluded with a brief presentation about on-line labs (virtual/remote labs and data set). Further on, teachers were asked to use a planetarium software, Stellarium, based on an astronomy lesson plan designed for upper elementary students. The main idea of the lesson plan was to carry out observations about the planets of the solar system. After teachers completed the activity, a discussion was carried out concerning the main advantages and disadvantages of the software as well as improvement points. Following the lesson plan activity, the workshop addressed the need for organizing on-line labs and the results of some existing initiatives. This fed nicely with the purpose of Go-Lab and the idea of a federation of on-line labs. During the last part of the visionary workshop, a laboratory mock-up, on the bases of Stellarium, was used to present Go-Lab's structure and proposed scaffolding, followed by a discussion concerning teachers' reaction. Finally, 13 of the 17 teachers completed the visionary workshop questionnaire.
Learning outcomes	This visionary workshop was designed to inform educators about science education, teaching methods (e.g. inquiry learning) and technological innovations (virtual/remote labs and data set) and scaffolding through the use of Go-Lab.
Website	NA
Event agenda	**Part A** Background information on: ○ Science education ○ Teaching methods ○ Types of on-line labs, their advantages and disadvantages **Part B** ○ Lesson plan about the solar system ○ Stellarium activity

	○ Discussion **Part C** ○ Go-Lab presentation ○ Mock-up (Stellarium) ○ Discussion **Part D** ○ Visionary workshop questionnaire

Results from Visionary Workshop questionnaire (N=13)

Question 1

Your country:

Country	***n* (%)**
Greece	1 (7, 7%)
Cyprus	12 (92, 3%)

Question 2

Do you use on-line labs in your school?

	***n* (%)**
Yes	1 (7, 7%)
No	12 (92, 3%)

Question 3

How often do you use on-line labs in your school?

	***n* (%)**
Once a week	0
Once a month	0
More than once a month	1 (9, 1%)
Other	

N/A	10 (90, 9%)
	2

Question 4

Do you cooperate with other teachers during the implementation of the activities with which include the use of on-line labs?

	***n* (%)**
Yes	3 (23, 1%)
No	10 (76, 9%)

Question 5

Is it easy to find on-line labs on the internet?

	***n* (%)**
Yes	7 (53, 8%)
No	6 (46, 2%)

Question 6

Would it be useful to have a digital library with educational on-line labs?

	***n* (%)**
Yes	13 (100%)
No	0

How do you believe they should be organized in such a digital library?

According to the participants' responses the following codes and frequencies appeared:

Organize based on:	***frequency***
Subject domain (e.g. Physics, Chemistry, Biology etc)	1
Unit (e.g. living things, forces etc)	3
Specific topic (e.g. rotational motion, electrical circuit, etc)	6

Curriculum of each country	2
Age of students	5
Language	3

Question 7

Would it be useful to have access to educational activities that include the use of on-line labs or would you prefer to create your own?

According to the participants' responses the following codes and frequencies appeared:

	***n* (%)**
Have access to educational activities "…is difficult to create my own on-line lab activities." "…you can enrich your teaching activities/methods." "…it is very difficult to teach some complex phenomena without having the help of virtual /remote labs." "…I would like to have available on-line lab activities, however I would like to be able to modify then based on the needs of my students."	7 (53, 8%)
Design my own activities	0
Both "…I can design my own but sometime I need more/better ideas." "…it depends on the capabilities of your students, some might not be familiar with computers."	6 (46, 2%)

Question 8

Would it be useful to create activities in cooperation with experts?

	***n* (%)**
Yes	12 (92, 3%)
No	1 (7, 7%)

Question 9

Which do you believe are the most important problems that have to be dealt with in order to integrate the use of on-line labs in the curriculum?

According to the participants' responses the following codes and frequencies appeared:

	frequency
Teachers' lack of awareness of existing on-line labs	3
Not all labs are appropriate for students	2
Teachers' lack of computer/software training	9
Financial limitations	1
Small numbers of computers	4
Unattractive labs (lack of playful appearance)	3
Teachers' lack of creativity	1

Question 10

How can we overcome these problems?

According to the participants' responses the following codes and frequencies appeared:

	frequency
Teachers' training	7
Curriculum reconsideration	1
Need for attractive and playful labs	1
Students' training	2
Appropriate school equipment	2
Coordination between teachers and lab owners (exchange of ideas and thoughts for improvement)	1
Professional development concerning the use of on-line labs	3
International adaptive curriculum (according to the needs of each country)	1

Question 11

In how many hands-on workshops for the use of on-line labs have you participated in the past?

	n
None	1 (7, 7%)
One	10 (76, 9%)

More than one	2 (15, 4%)

Comments form the comprehensive discussion

Teachers commented on several aspects of the Stellarium software during the discussion. The majority of the comments addressed the difficulties teachers faced during the activity. All participants highlighted the absence of a note taking tool, a calculator and a place where activity instructions could be found. In addition, they mentioned that the software includes a lot of numerical jargon and lacks of important content information about the planets.

Despite Stellarium's disadvantages, all teachers agreed it is a valuable laboratory for space observation. Many of them expressed their appreciation of the graphics while others referred to the important functions such as the forward/backward options, the viewer position, the zoom in/out function etc.

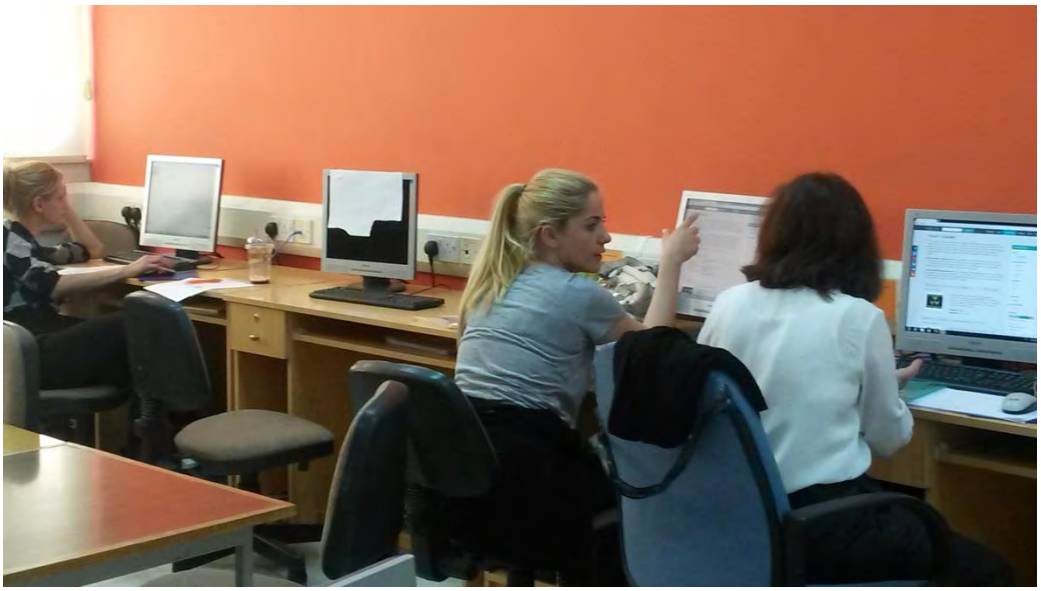
During the second part of the discussion, after the Go-Lab mock-up presentation, all participants liked the presence of scaffolding tools and argued the value Go-Lab for science education. They also mentioned that scaffolds are necessary for students in order to carry out science investigations using complex on-line labs. Based on the aforementioned, the majority of teachers emphasized the need for workshops and seminars how to use the Go-Lab platform.

Furthermore, some participants stated a preference on a more playful platform interface and lab appearance. They insisted that students nowadays prefer a more game-full learning process. Based on that note, other participant found the Go-Lab interface overloaded with information (scaffolds). They went on explaining that this could be confusing and tiresome for the students.

G O - L A B Event Code	CY09-20042015
Context: standalone event or combined with other ws, online or face to face	Standalone face to face (live) workshop
Country City/Region	Cyprus, Nicosia
Working language	Greek
Start/End Date	20/04/2015
Organizing Institute	Cyprus Pedagogical Institute, in collaboration with the University of Cyprus
Coordinator name and email	Zacharias Zacharia zach@ucy.ac.cy
Total number of teachers/schools	8 secondary science teachers (physicists)
Brief description	The main purpose of the workshop was to introduce Go-Lab to participants. In addition, teachers had the opportunity to explore the Go-Lab portal and work through an ILS, "Series and parallel circuits", in Greek. While teachers were exploring the Go-Lab portal, they answered to Part A of the PRW questionnaire*. When they finished with the above-mentioned ILS, they completed Part B*. During the workshop, teachers reflected on activities done and at the end of the workshop, they exchanged their thoughts, concerns and ideas about Go-Lab and its use in schools. **Note: Questions used in order to fit the task of this workshop were:* *Part A: Q1 – Q5* *Part B: Q6-Q8, Q11 and Q12.*
Facilitators Observations	Teachers liked the structure of the Go-Lab portal. They also noted that the number of labs so far was satisfying. However, they expressed the need of translating Go-Lab and its content, especially some interesting labs, like the Friction Lab, which is in Spanish. This would benefit not only teachers themselves, but also students when they would use the labs.

	A teacher described to other participants how one colleague of his has implemented an ILS during the pilot studies of the project. He also commented on the way students worked with the lab and tools in a quite positive manner. Internet connection during the event was limited and teachers expressed their worries about the speed of the internet at schools, as well as the quality of the computer labs.
Theme analysis and reporting from implementation activities	During the workshop, teachers had the opportunity to explore the Go-Lab portal and try some labs and apps available. In addition, they worked with an ILS, in which the following lab and apps were implemented: Electrical circuit lab, Input box, Hypothesis scratchpad, Experiment design tool, Observation tool, Data viewer and Conclusion tool. Their comments and suggestions are summarized below: • Hypothesis scratchpad: o positive comments about the configurable character of the tool • Experimental design tool: o positive comments about the configurable character of the tool o embedded instructions are very helpful, especially for students who have not used this tool before o EDT must include the hypothesis that students had created in the previous phase. In that way, it would be easier for students to focus on the proper experiment design. o Students should be allowed to write their own properties in the EDT. o “Properties” is not very clear term; “variable” would be preferable. • Data viewer tool: o The tool should allow the creation of a graph with more than one line, with different colors, to help students make comparisons during data interpretation. In “Series and parallel circuits”, an example should be a graph that represents the electric current in relation to the number of light bulbs in a circuit. The first data set should be for the series circuits and the second for the parallel. o There is no way to calculate the slope of a line. • Conclusion tool: o Positive comments for tool functions. It is very helpful for students to argue about their conclusion and hypotheses. • Electrical circuit lab: o The symbolic and realistic view of the lab facilitates knowledge acquisition.

Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	• The inquiry learning approach is implemented in an exemplary manner through an ILS. Labeled tabs are very useful because they allow students to monitor their learning process. • The immediate access to the authoring tool (Graasp) by the teacher allows him/her to make changes in the lesson at any time, even during the implementation of the ILS in class. • Virtual experimentation is considered as important in science teaching because it allows for the quick completion of complex experiments. In addition, the possibility of errors is reduced.
Perceived Experiences / Influence of the Go-Lab Activities on Students	• Go-Lab allows students to access a variety of labs, apps and ILSs, which is very interesting. In addition, ILSs look familiar and more attractive to students who use smart devices daily. • Apps can be very useful for students with learning difficulties. For example, the Data viewer can help students who have difficulties with the construction of a graph.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	• There is not enough connection between curricula and labs. A more detailed connection should be strived for. • If teachers became familiar with Go-Lab and its functions, it would be easier for them to implement the inquiry approach in their class. • The Go-Lab approach seems very useful for knowledge acquisition and it is a better way of learning than traditional learning. • Daily teaching practice will be easier because there are several apps that facilitate secondary tasks. For example, if the creation of a graph would be a secondary task for a specific lesson, then the Data viewer tool would be a very helpful tool because would allow for the automated creation of a graph. • Go-Lab capacities should inform curricula, so that to suggest a tighter connection between real and virtual experimentation.
Challenges and Improvements of the Go-Lab model	• There is a need for a better control of the process each student would follow. For example, if a teacher can collect and print student outcomes in each phase, this will be useful for assessment purposes.
Reflection through questionnaire	All participants (8) filled in the two parts of the questionnaires. As mentioned above, Part A consisted of Q1-Q5 and Part B of Q6-8, Q11 and Q12.
Website	"Series and parallel circuits" ILS (in Greek): http://graasp.eu/ils/54b644f551830bd46a666837?lang=el

Photos or other relevant material	 

	
Event agenda	**Part A:** *Go-Lab project and Go-Lab portal* 16:00 – 16:50 • Introduction (10 min) • Demonstration of the Go-Lab portal and Graasp (15 min) • Independent practical work with the Go-Lab portal (15 min) • PRW questionnaire – Part A (10 min) **Part B:** *Inquiry Learning Space example* 17:00 – 18:00 • Inquiry Learning and Inquiry Cycle (15 min) • Demonstration of "Series and parallel circuits" (10 min) • Independent practical work with the ILS (20 min) • PRW questionnaire – Part B (5 min) • Discussion – Reflection (10 min)

G O - L A B Event Code	CY09-22042015
Context: standalone event or combined with other ws, online or face to face	Standalone face to face (live) workshop
Country City/Region	Cyprus, Nicosia
Working language	Greek

Start/End Date	22/04/2015
Organizing Institute	University of Cyprus
Coordinator name and email	Zacharias Zacharia zach@ucy.ac.cy
Total number of teachers/schools	7 pre-service primary school teachers
Brief description	The main purpose of the workshop was the reflection of pre-service teachers who used Go-Lab and Graasp, during their undergraduate studies. At the beginning of the workshop, the 7 participants filled in the questionnaire and then a detailed discussion followed. All teachers were familiarized with Go-Lab within the frame of a course in their undergraduate studies that focused on ICT in science education. They had used at least five laboratories each and they had also gone through the entire list of applications available in Go-Lab. Teachers were given an assignment as part of their final grade, which referred to the preparation of an ILS. In that assignment, they had to use Graasp to deliver their scheduled lesson but they were free to choose any laboratory available online (either in Go-Lab or not) would have fit their planning.
Facilitators Observations	In general, teachers were satisfied with the Go-Lab content (labs, apps and ILSs) and its capabilities for the creation of learning spaces (Graasp). Their most expressed wish was to align Go-Lab and its content in terms of ILSs available with school curricula. This would involve the translation of many ILSs in Greek.
Theme analysis and reporting from implementation activities	After an introduction in Go-Lab and its philosophy, pre-service teachers went through all apps offered in Go-Lab and prepared a table depicting which app they could integrate in which phase of the inquiry cycle. Then, all participants used at least five laboratories each. The entire class focused on “How to cycle up a hill” as an example of an ILS available in Go-Lab.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	**Usefulness** • There are time limitations in a real classroom which must be taken into account in designing ILSs. For example, students would need time to get familiar with apps and labs offered by Go-Lab. • It could be that real experimentation might be preferable because it would allow students to use all their senses. Whenever a real experiment would be feasible, it should be preferable over a virtual experiemnt. • Go-Lab activities can be combined with offline activities. • The most important advantage of Go-lab is it allows an easy and quick

	manipulation of variables of the phenomenon under study. • It is important that students could continue their work at home because they would only need the URL of the ILS they had been working in. In addition, a teacher could assign Go-Lab activities to students as homework.
Perceived Experiences / Influence of the Go-Lab Activities on Students	**Motivation** • Students like any new technological innovation (e.g. smart phones, tablets etc.) so they would like Go-Lab too. In addition, any novel information is better communicated if it is accompanied by image, animation and sound, as is the case in Go-Lab. • Go-Lab comprises a new approach, different from traditional learning and instruction; it would help students save time during experimentation and it would allow for the acquisition of inquiry skills. • Go-Lab would increase student motivation because they would be able to monitor their own learning process, they would be able to repeat whatever was necessary for their investigation and they would reflect upon any activity already undertaken. • It is very interesting that some apps in Go-Lab enable students to collaborate online (e.g. Padlet, Shared wiki gadget). **Knowledge acquisition** • Both students and teachers would acquire content knowledge and inquiry skills. • The Go-Lab could promote the acquisition of experimentation skills. • However, knowledge acquisition sometimes depends on teacher ability to create a good learning environment. • Go-Lab would involve knowledge about the nature of science because students can identify the phases of the inquiry cycle that they had followed and this could be accompanied by a trajectory of steps in scientific inquiry.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	**ICT inclusion** • Go-Lab would be quite complex for ICT inclusion in schools. Some other simulations are more attractive and simpler to use. However, Go-Lab is, indeed, a more comprehensive approach and it would be important that it would allow teachers for more degrees of freedom when they created learning activity spaces. • Considering that teacher training and student familiarization would be prerequisites, Go-Lab would be a proper choice for ICT inclusion in schools. **Curriculum** • It is difficult to include Go-Lab in the curriculum because a revision of the pedagogical philosophy is required. **Every-day teaching practice** • It can be included in every-day teaching practice as a supplementary approach. That means that students can first explore a phenomenon uder real conditions and then investigate relations between variables with Go-Lab, or vice versa.

	Collaboration between teachers • Go-Lab promotes collaboration between teachers in the best possible way, because they share lessons, experiences and comments. In addition, they can create lessons together in Graasp. • Teachers can improve their efforts and lessons through collaboration in Go.-Lab. • Nowadays, teachers can better communicate through the web. In addition, communication among teachers has lesser boundaries as before. • Publication of an ILSs is a good way for teachers from all over the world to share their best practices, and for that reason, Go-Lab presnts a means of peer evaluation of ILSs among teachers anytime such an evaluation would be needed.
Challenges and Improvements of the Go-Lab model	**Barriers** • In many schools there is not enough equipment, computers are outdated and internet connectivity is limited. • It is necessary for teachers to attend a long duration training in order to use the Go-Lab with confidence. • Teachers must have the appropriate pedagogical knowledge and technology skills to plan and execute a lesson with Go-Lab. • Labs available are not fully compatible with national curricula. • Some labs and apps are very difficult for the average student to use. • Language is an important barrier for the use of a lab and/or an app. • If students are not familiar with Go-Lab, they may play around in the platform and undertake learning activities reluctantly. **Improvements** • Translation of labs and apps in different languages. • If the material available in Go-Lab portal covered more subject areas, then it could be used more systematically by teachers. • Explicit connection between content (labs, ILSs) of the Go-Lab portal and national curricula. • Some apps need to be re-worked to become more student-friendly. • There is a need for allowing teachers to monitor each student action and learning outcomes, for example a printable report. • It could be a valid option to convert an ILS in an offline version so that to overcome internet connection problems.
Reflection through questionnaire	All participants (7) filled in the items Q1-Q12 of the questionnaire. Q13 and Q14 were not applicable.
Website	N/A
Photos or other relevant material	

Event agenda	**15:30 – 16:00** Questionnaire administration and completion **16:00 – 17:00**

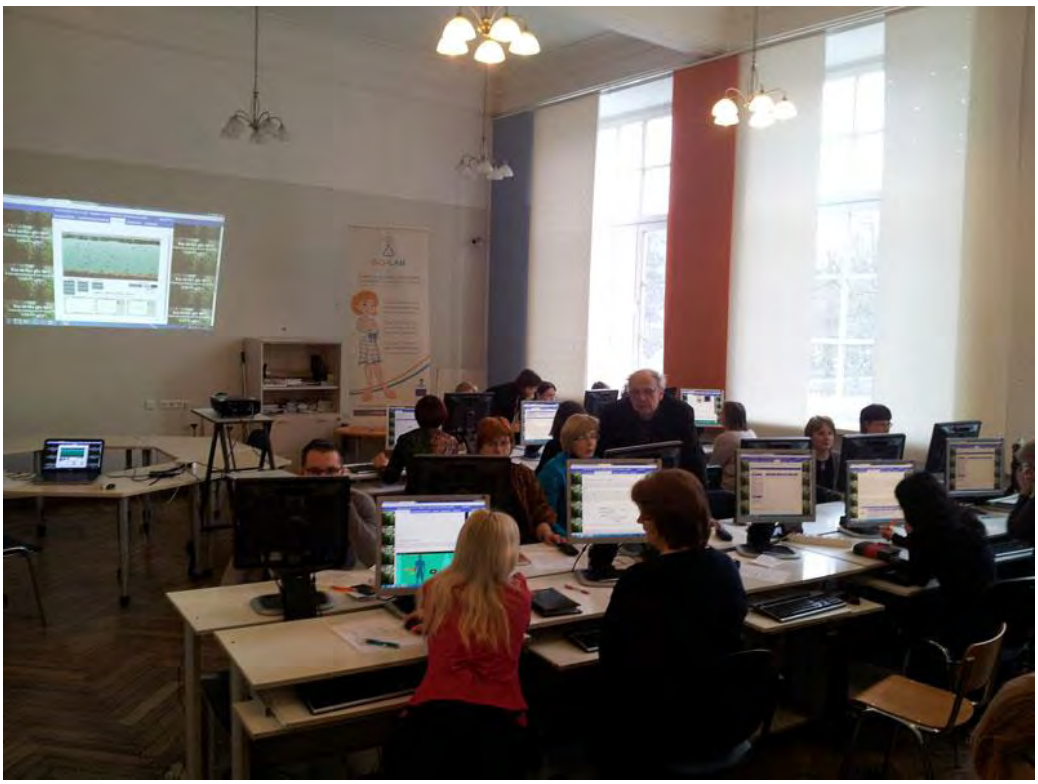
	Discussion/Reflection

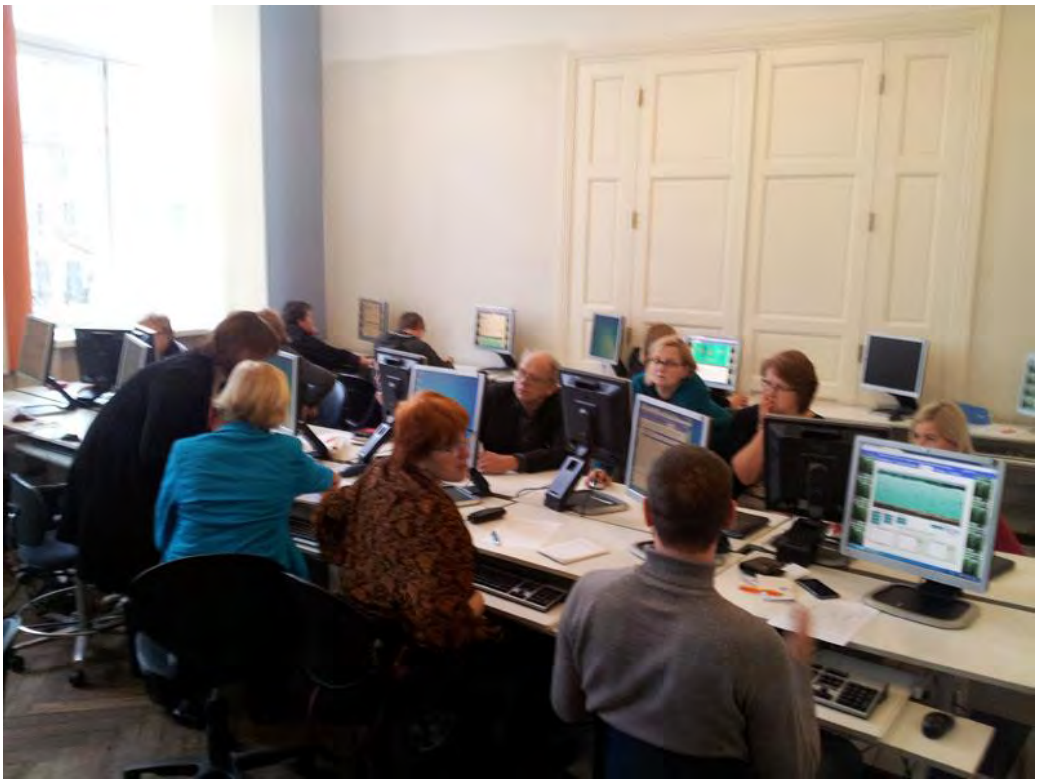
- **Estonia**

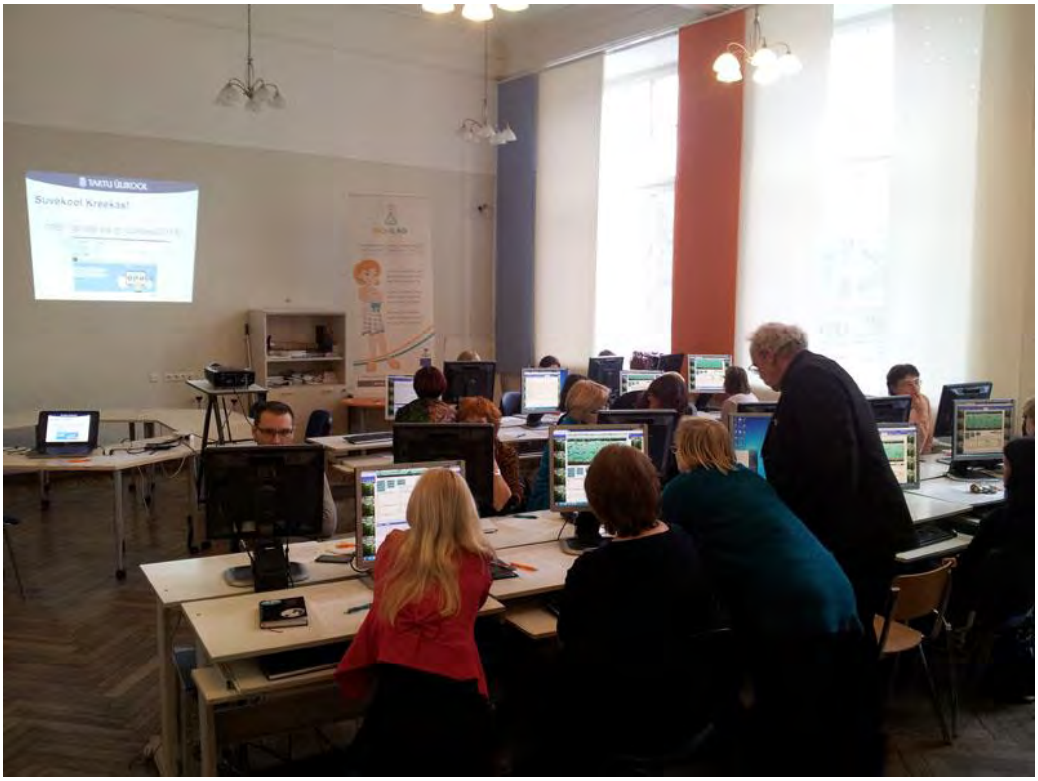
G O - L A B Event Code	*[LLXX-DDMMYY] Please follow this format:* *LL= 2 letter country code, XX = partner id, DDMMYY = date* EEUTE-210215
Context: standalone event or combined with other ws, online or face to face	Face-to-face (live) workshop
Country City/Region	Estonia, Tartu
Working language	Estonian
Start/End Date	*Please use this format DD/MM/YYYY* 21/02/2015
Organizing Institute	University of Tartu
Coordinator name and email	Margus Pedaste, margus.pedaste@ut.ee
Total number of teachers/schools	27 participants
Brief description	*Write one or two paragraphs briefly describing the activity* This workshop was arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). Participants were mainly in-service biology teachers at the primary and secondary school level. During the first session (15 minutes), teachers were introduced to the scope, potential and impact of the Go-Lab learning environment through an auditorium lecture presentation. The presentation also included information about inquiry learning and the inquiry cycle. Additional information (i.e. contact email addresses, printed flyers in Estonian) describing

	the project in more detail was distributed at the end of the presentation. In the second session (90 minutes), participants got to work behind a computer and explore the Go-Lab Portal as well as an example Go-Lab ILS (*Kas on hea olla ilus? – Selgitame evolutsiooni läbi loodusliku ja sugulise valiku*, in English *Is it good to be beautiful? – Understanding evolution through natural and sexual selection*). Two researchers led this session and provided a demonstration of the Go-Lab Portal, the example Go-Lab ILS and how to create a personalized copy of the ILS via Graasp. Participants had time to individually explore the Go-Lab Portal and the example Go-Lab ILS. The researchers helped troubleshoot technical problems participants may have had with using the Go-Lab learning environment. During the course of the workshop, participants filled-in a paper version of the PRW questionnaire. Participants were informed about the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece.
Facilitators Observations	*Give a short description of the level of interaction, the impact you perceive Go Lab to have on this particular group, elements that testify to a sense of community with other Go Lab users or not. Did you present the website/ Graasp/ blog and encourage them to contribute? Did they communicate with colleagues/ express a desire to do so?* Teachers appreciated the fact that the inquiry learning space and its associated scaffolds (e.g. questioning scratchpad, hypothesis tool) were translated into the Estonian language. This significantly increased their level of interaction with the Go-Lab learning environment.
Theme analysis and reporting from implementation activities	*Facilitators have to describe the participants' activity they have been performed and present their experience on it. They have also to highlight the common themes that emerged during implementation activities (e.g. teacher role, how does the Go-Lab use affect students' engagement, achievements, difficulties encountered and solutions envisaged/applied, new ideas and new developments emerging).* A common theme that emerged during implementation of the workshop was that many teachers wanted to know how they can, in a simple way, obtain all the data generated by in the ILS (hypotheses, conclusions). This is important because teachers want to review the work of students. One teacher made a suggestion that what is needed is a Summary Tool (i.e. a tool that organizes all the student-generated data into a single form that is easy to read).
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*

Experiences of Teachers with the Go-Lab activities	As mentioned above, teachers would like a simplified way of obtaining student data from the Go-Lab ILS. They were not particularly willing to login multiple times using unique student nicknames in order to review the work done by students.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Some teachers expressed concern that the tools (e.g. questioning scratchpad, hypothesis tool) in the example inquiry space took too long to load in their web browsers (at times an error message "waiting for available socket" appeared at the bottom of their Google Chrome web browser). They worried that this loading delay would discourage students from using these tools or that students might get impatient and consequently lose motivation to complete the ILS.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Some teachers worried that the technical requirements for implementing the Go-Lab learning environment at their school might not be sufficient (e.g. computers are old and work slowly)
Challenges and Improvements of the Go-Lab model	The Go-Lab system could be improved by ensuring that the resources load quickly and smoothly.
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used* 19 participants filled in the questionnaire. All of these participants were categorized as mode B Go-Lab users (i.e. "I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers"). They did not answer questions 8 or 9 of the questionnaire nor questions 10, 13 and 14.
Website	*(if applicable) The URL of the website that has been set up for this activity.* Go-Lab inquiry learning space *Kas on hea olla ilus? – Selgitame evolutsiooni läbi loodusliku ja sugulise valiku* (Is it good to be beautiful – Understanding evolution through natural and sexual selection) http://graasp.eu/ils/54dc50d1479265d7425bfc8e?lang=et

Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*  





Event agenda

(if applicable) Please copy here the agenda of the event (program of activities, etc.).

Session 1 Auditorium lecture

9:45 – 10:00

- Presentation about the Go-Lab project and inquiry learning
- Distribution of additional info (i.e. email contacts, printed Go-Lab flyers)

Session 2 Computer classroom workshop

12:00 – 13:30

Time (min)	Activity
5	Distribution of printed PRW questionnaires (translated into Estonian) Introduction to the workshop
5	Demonstration of the Go-Lab Portal
10	Participants individually use the Go-Lab Portal to search and find Online Labs, Apps and Inquiry Learning Spaces
5	Participants fill-in questionnaire questions related to the Go-Lab Portal (i.e. questions 3 and 4)
10	Demonstration of the Go-Lab Inquiry Learning Space *Kas on hea olla ilus? – Selgitame evolutsiooni läbi loodusliku ja sugulise valiku.* Demonstration of how some of the Go-Lab Apps work.
30	Participants individually work through the example Go-Lab Inquiry Learning Space
5	Demonstration of how to make a Graasp account and make a personalized copy of the example Go-Lab Inquiry Learning Space
15	Participants fill-in the remaining questionnaire questions
5	Closing and promoting of the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece

G O - L A B Event Code	*[LLXX-DDMMYY] Please follow this format:* *LL= 2 letter country code, XX = partner id, DDMMYY = date* EEUTE-120315
Context: standalone event or combined with other ws,	Face-to-face (live) workshop

online or face to face	
Country City/Region	Estonia, Tartu
Working language	Estonian
Start/End Date	*Please use this format DD/MM/YYYY* 12/03/2015
Organizing Institute	University of Tartu
Coordinator name and email	Margus Pedaste, margus.pedaste@ut.ee
Total number of teachers/schools	9 participants
Brief description	*Write one or two paragraphs briefly describing the activity* This workshop was arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). Participants were mainly teachers at the primary and secondary school level who work in the Viljandi area of Estonia. In this workshop participants got to work behind a computer and explore the Go-Lab Portal as well as an example Go-Lab ILS (*Plärts!*, in English *Splash*). Two researchers led this session and provided a demonstration of the Go-Lab Portal, the example Go-Lab ILS and how to create a personalized copy of the ILS via Graasp. Participants had time to individually explore the Go-Lab Portal and the example Go-Lab ILS. The researchers helped troubleshoot technical problems participants may have had with using the Go-Lab learning environment. During the course of the workshop, participants filled-in a paper version of the PRW questionnaire. Participants were informed about the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece.
Facilitators Observations	*Give a short description of the level of interaction, the impact you perceive Go Lab to have on this particular group, elements that testify to a sense of community with other Go Lab users or not. Did you present the website/ Graasp/ blog and encourage them to contribute? Did they communicate with colleagues/ express a desire to do so?* Teachers liked that the learning environment had been translated into the Estonian language. They liked the design and the large font size in the ILS.

Theme analysis and reporting from implementation activities	*Facilitators have to describe the participants' activity they have been performed and present their experience on it. They have also to highlight the common themes that emerged during implementation activities (e.g. teacher role how does the Go-Lab use affect students' engagement, achievements, difficulties encountered and solutions envisaged/applied, new ideas and new developments emerging).* Some comments about the Go-Lab environment given by participants: 1. Concept Mapper tool: Switching between drawing arrows and editing the names of concepts is cumbersome since a user must click on the arrow button to deselect it and only then can edit text in a concept. It would be better to directly edit concepts when a user clicks on a concept box (i.e. the arrow button is deselected automatically in this case). 2. Hypothesis tool: In the Estonian language the endings of words often need to be changed in order to make a grammatically correct sentence. Thus, the default words presented in the hypothesis tool sometimes need to be modified. Allowing users to edit default words after they are placed into a hypothesis statement would be beneficial for Estonian users. 4. Color scheme issue: The default color scheme for a Go-Lab ILS is generally white text on a purple background or black text on a white background. However, sometimes there appears a black X symbol on a purple background (e.g. the EDT when you click on View the experimental trials you conducted). This is visually distracting because of the low contrast between these two colors. 5. Splash lab Data Viewer tool: It is not clear how to export data from the Splash lab so that it is available to the Data Viewer Tool. Clicking on Load Data Set does not always show generated data.
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	Participants liked that the Go-Lab environment allowed for realizing experiments. They like the design layout.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Participants worried that too much text is not motivating for students. The open-ended discussion questions might be too general for students to answer clearly and thus questions with multiples choices would be a better choice.
Expected Influence of the Go-Lab Activities on School	Participants worried that at school it is difficult to reserve computer classroom time.

Settings and Curriculum	
Challenges and Improvements of the Go-Lab model	Some teachers would have liked an even simpler ILS to work through.
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used* 7 participants filled in the questionnaire. All of these participants were categorized as mode B Go-Lab users (i.e. "I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers"). They did not answer questions 8 or 9 of the questionnaire nor questions 10, 13 and 14.
Website	*(if applicable) The URL of the website that has been set up for this activity.* Go-Lab inquiry learning space *Plärts!* (Splash) http://graasp.eu/ils/54f01c088cd7e5edb8e8608e?lang=et
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*


Go-Lab toolsite

Event agenda

(if applicable) Please copy here the agenda of the event (program of activities, etc.).

Workshop session

15:00 – 16:30

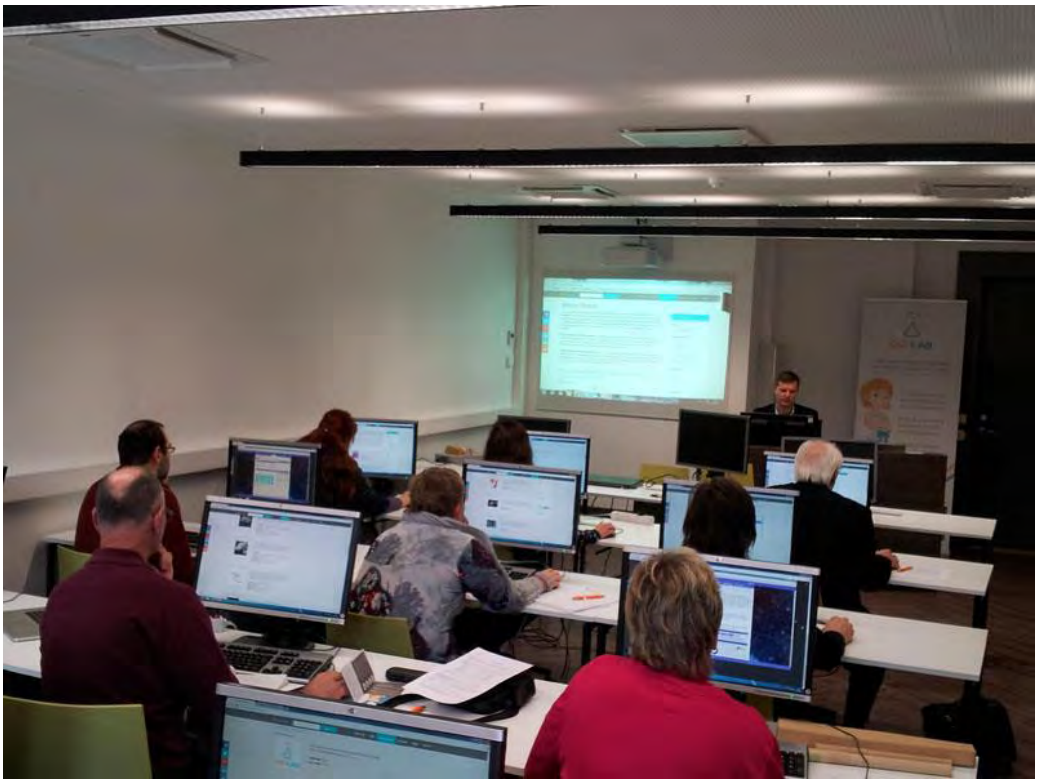
Time (min)	Activity
5	Distribution of printed PRW questionnaires (translated into Estonian) Introduction to the workshop
5	Demonstration of the Go-Lab Portal
10	Participants individually use the Go-Lab Portal to search and find Online Labs, Apps and Inquiry Learning Spaces

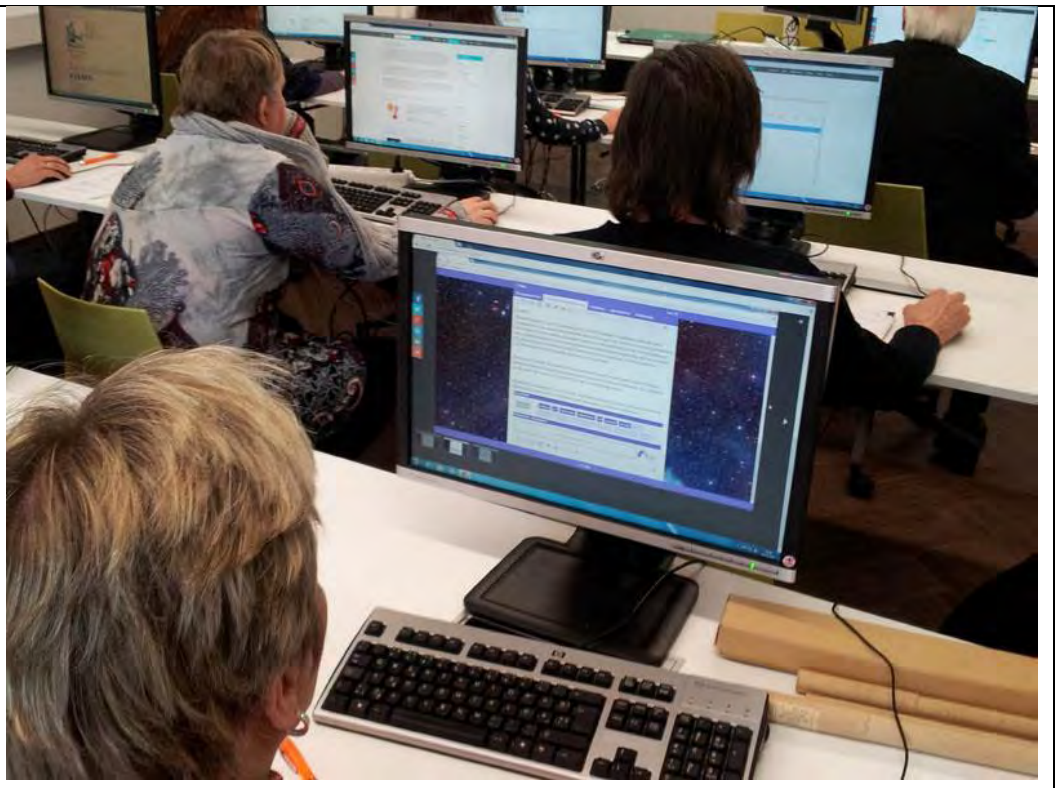
5	Participants fill-in questionnaire questions related to the Go-Lab Portal (i.e. questions 3 and 4)
10	Demonstration of the Go-Lab Inquiry Learning Space *Plärts!.* Demonstration of how some of the Go-Lab Apps work.
30	Participants individually work through the example Go-Lab Inquiry Learning Space
5	Demonstration of how to make a Graasp account and make a personalized copy of the example Go-Lab Inquiry Learning Space
15	Participants fill-in the remaining questionnaire questions
5	Closing and promoting of the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece

G O - L A B Event Code	*[LLXX-DDMMYY] Please follow this format:* *LL= 2 letter country code, XX = partner id, DDMMYY = date* EEUTE-210315
Context: standalone event or combined with other ws, online or face to face	Face-to-face (live) workshop
Country City/Region	Estonia, Tartu
Working language	Estonian
Start/End Date	*Please use this format DD/MM/YYYY* 21/03/2015
Organizing Institute	University of Tartu
Coordinator name and email	Margus Pedaste, margus.pedaste@ut.ee
Total number of teachers/schools	13 participants

Brief description	*Write one or two paragraphs briefly describing the activity* This workshop was arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). Participants were mainly physics/science teachers at the primary and secondary school level. In this workshop participants got to work behind a computer and explore the Go-Lab Portal as well as an example Go-Lab ILS (*Plärts!*, in English *Splash*). Two researchers led this session and provided a demonstration of the Go-Lab Portal, the example Go-Lab ILS and how to create a personalized copy of the ILS via Graasp. Participants had time to individually explore the Go-Lab Portal and the example Go-Lab ILS. The researchers helped troubleshoot technical problems participants may have had with using the Go-Lab learning environment. During the course of the workshop, participants filled-in a paper version of the PRW questionnaire. Participants were informed about the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece.
Facilitators Observations	*Give a short description of the level of interaction, the impact you perceive Go Lab to have on this particular group, elements that testify to a sense of community with other Go Lab users or not. Did you present the website/ Graasp/ blog and encourage them to contribute? Did they communicate with colleagues/ express a desire to do so?* An Estonian language ILS helped maintain a high level of interaction among the teachers who worked through the example ILS.
Theme analysis and reporting from implementation activities	*Facilitators have to describe the participants' activity they have been performed and present their experience on it. They have also to highlight the common themes that emerged during implementation activities (e.g. teacher role how does the Go-Lab use affect students' engagement, achievements, difficulties encountered and solutions envisaged/applied, new ideas and new developments emerging).* A common theme among the teachers was concern about how long it would take students to complete the ILS during a classroom lesson time.
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	Some participants liked the ILS design (font size, colors) whereas others did not (one reason for dislike was due to the ILS frame border taking up too much space when viewed on a web browser). Participants expressed concern that they do not have time to introduce laboratory work during class time. They suggested that using Go-Lab for homework assignments would be an attractive possibility.

Perceived Experiences / Influence of the Go-Lab Activities on Students	Some participants worried that computer simulations do not represent real-life situations and thus do not provide the authentic hands-on experience that a real experiment provides. Some participants did not like scrolling so much through the ILS text.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Better agreement with the national curriculum. Some physics teachers were concerned that the simulation did not appear to give realistic results (material density equal to 1.01g/cm^3 and fluid density equal to 1.00 g/cm^3 results in the object falling almost to the bottom).
Challenges and Improvements of the Go-Lab model	More intuitive and user-friendly functionality on the Apps.
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used* 10 participants filled in the questionnaire. All of these participants were categorized as mode B Go-Lab users (i.e. "I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers"). They did not answer questions 8 or 9 of the questionnaire nor questions 10, 13 and 14.
Website	*(if applicable) The URL of the website that has been set up for this activity.* Go-Lab inquiry learning space *Plärts!* (Splash) http://graasp.eu/ils/54f01c088cd7e5edb8e8608e?lang=et
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*





Event agenda

(if applicable) Please copy here the agenda of the event (program of activities, etc.).

Workshop session

13:00 – 14:00

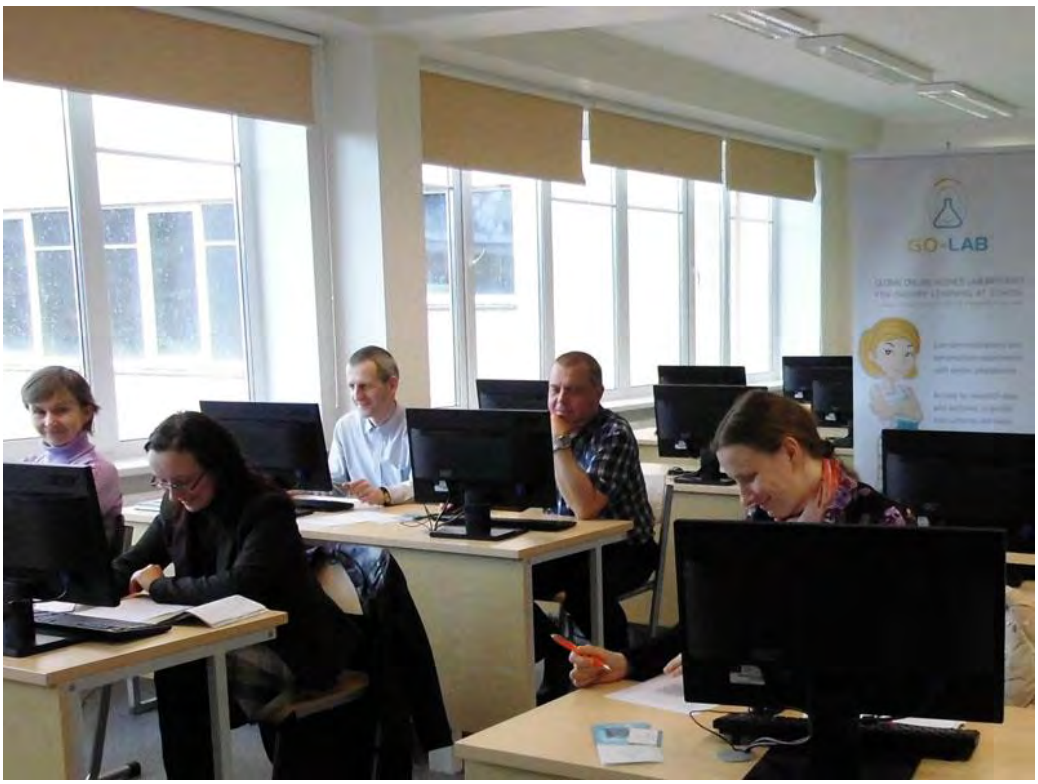
Time (min)	Activity
3	Distribution of printed PRW questionnaires (translated into Estonian) Introduction to the workshop
5	Demonstration of the Go-Lab Portal
5	Participants individually use the Go-Lab Portal to search and find Online Labs, Apps and Inquiry Learning Spaces
5	Participants fill-in questionnaire questions related to the Go-Lab Portal (i.e. questions 3 and 4)
5	Demonstration of the Go-Lab Inquiry Learning Space *Plärts!*. Demonstration of how some of the Go-Lab Apps work.
20	Participants individually work through the example Go-Lab Inquiry Learning Space
5	Demonstration of how to make a Graasp account and make a personalized copy of the example Go-Lab Inquiry Learning Space
10	Participants fill-in the remaining questionnaire questions
2	Closing and promoting of the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece

G O - L A B Event Code	*[LLXX-DDMMYY] Please follow this format:* *LL= 2 letter country code, XX = partner id, DDMMYY = date* EEUTE-160415
Context: standalone event or combined with other ws, online or face to face	Face-to-face (live) workshop

Country City/Region	Estonia, Võru
Working language	Estonian
Start/End Date	*Please use this format DD/MM/YYYY* 16/04/2015
Organizing Institute	University of Tartu
Coordinator name and email	Margus Pedaste, margus.pedaste@ut.ee
Total number of teachers/schools	7 participants
Brief description	*Write one or two paragraphs briefly describing the activity* This workshop was arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). The participants were mainly science teachers at primary and secondary schools. In this workshop participants were able to explore the Go-Lab Portal as well as an example Go-Lab ILS (*Plärts!*, in English *Splash*). One researcher led this session and provided a demonstration of the Go-Lab Portal, the example Go-Lab ILS and how to create a personalized copy of the ILS via Graasp. Participants had time to individually explore the Go-Lab Portal and the example Go-Lab ILS. The researcher helped troubleshoot technical problems participants may have had with using the Go-Lab learning environment. During the course of the workshop, participants filled-in a paper version of the PRW questionnaire. Participants were also informed about the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece.
Facilitators Observations	*Give a short description of the level of interaction, the impact you perceive Go Lab to have on this particular group, elements that testify to a sense of community with other Go Lab users or not. Did you present the website/ Graasp/ blog and encourage them to contribute? Did they communicate with colleagues/ express a desire to do so?* The participants were interested in learning about what opportunities Go-Lab offers and examining what materials are already available in the Estonian language.

Theme analysis and reporting from implementation activities	*Facilitators have to describe the participants' activity they have been performed and present their experience on it. They have also to highlight the common themes that emerged during implementation activities (e.g. teacher role, how does the Go-Lab use affect students' engagement, achievements, difficulties encountered and solutions envisaged/applied, new ideas and new developments emerging).* Teachers worried about the time it takes to perform a Go-Lab activity during school hours. They thought that currently it takes too long and that there is time needed to get familiar with it.
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	In some places teachers though the translation into Estonian was a bit strange.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Teachers thought that the large font size and logical flow of the text would be understandable for students.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Teachers liked the logical structure (i.e. division into inquiry phases) of the example Go-Lab Inquiry Learning Space.
Challenges and Improvements of the Go-Lab model	Some of the Apps could be improved. For example, one teacher wanted the Quiz tool to include more instructions informing a user where to click on a correct answer. She worried that students might rush through the tool and click on the first seemingly correct response.
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used* 6 participants filled in the questionnaire. All of these participants were categorized as mode B Go-Lab users (i.e. "I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers"). They did not answer questions 8 or 9 of the questionnaire nor questions 10, 13 and 14.

Website	*(if applicable) The URL of the website that has been set up for this activity.* Go-Lab inquiry learning space *Plärts!* (Splash) http://graasp.eu/ils/54f01c088cd7e5edb8e8608e?lang=et
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report* 



Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

Workshop session (100 minutes)

15:15 – 16:55

Time (min)	Activity
5	Distribution of printed PRW questionnaires (translated into Estonian) Introduction to the workshop
10	Demonstration of the Go-Lab Portal
10	Participants individually use the Go-Lab Portal to search and find Online Labs, Apps and Inquiry Learning Spaces
5	Participants fill-in questionnaire questions related to the Go-Lab Portal (i.e. questions 3 and 4)
10	Demonstration of the Go-Lab Inquiry Learning Space *Plärts!*. Demonstration of how some of the Go-Lab Apps work.
30	Participants individually work through the example Go-Lab Inquiry Learning Space
10	Demonstration of how to make a Graasp account and make a personalized copy of the example Go-Lab Inquiry Learning Space
15	Participants fill-in the remaining questionnaire questions
5	Closing and promoting of the opportunity to participate in the Go-Lab Summer School 2015 in Attica, Greece

G O - L A B Event Code	CY09-22042015
Context: standalone event or combined with other ws, online or face to face	Standalone face to face (live) workshop
Country City/Region	Cyprus, Nicosia

Working language	Greek
Start/End Date	22/04/2015
Organizing Institute	University of Cyprus
Coordinator name and email	Zacharias Zacharia zach@ucy.ac.cy
Total number of teachers/schools	7 pre-service primary school teachers
Brief description	The main purpose of the workshop was the reflection of pre-service teachers who used Go-Lab and Graasp, during their undergraduate studies. At the beginning of the workshop, the 7 participants filled in the questionnaire and then a detailed discussion followed. All teachers were familiarized with Go-Lab within the frame of a course in their undergraduate studies that focused on ICT in science education. They had used at least five laboratories each and they had also gone through the entire list of applications available in Go-Lab. Teachers were given an assignment as part of their final grade, which referred to the preparation of an ILS. In that assignment, they had to use Graasp to deliver their scheduled lesson but they were free to choose any laboratory available online (either in Go-Lab or not) would have fit their planning.
Facilitators Observations	In general, teachers were satisfied with the Go-Lab content (labs, apps and ILSs) and its capabilities for the creation of learning spaces (Graasp). Their most expressed wish was to align Go-Lab and its content in terms of ILSs available with school curricula. This would involve the translation of many ILSs in Greek.
Theme analysis and reporting from implementation activities	After an introduction in Go-Lab and its philosophy, pre-service teachers went through all apps offered in Go-Lab and prepared a table depicting which app they could integrate in which phase of the inquiry cycle. Then, all participants used at least five laboratories each. The entire class focused on “How to cycle up a hill” as an example of an ILS available in Go-Lab.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	**Usefulness** • There are time limitations in a real classroom which must be taken into account in designing ILSs. For example, students would need time to get familiar with apps and labs offered by Go-Lab. • It could be that real experimentation might be preferable because it would allow students to use all their senses. Whenever a real experiment would be feasible, it should be preferable over a virtual experiment.

	• Go-Lab activities can be combined with offline activities. • The most important advantage of Go-lab is it allows an easy and quick manipulation of variables of the phenomenon under study. • It is important that students could continue their work at home because they would only need the URL of the ILS they had been working in. In addition, a teacher could assign Go-Lab activities to students as homework.
Perceived Experiences / Influence of the Go-Lab Activities on Students	**Motivation** • Students like any new technological innovation (e.g. smart phones, tablets etc.) so they would like Go-Lab too. In addition, any novel information is better communicated if it is accompanied by image, animation and sound, as is the case in Go-Lab. • Go-Lab comprises a new approach, different from traditional learning and instruction; it would help students save time during experimentation and it would allow for the acquisition of inquiry skills. • Go-Lab would increase student motivation because they would be able to monitor their own learning process, they would be able to repeat whatever was necessary for their investigation and they would reflect upon any activity already undertaken. • It is very interesting that some apps in Go-Lab enable students to collaborate online (e.g. Padlet, Shared wiki gadget). **Knowledge acquisition** • Both students and teachers would acquire content knowledge and inquiry skills. • The Go-Lab could promote the acquisition of experimentation skills. • However, knowledge acquisition sometimes depends on teacher ability to create a good learning environment. • Go-Lab would involve knowledge about the nature of science because students can identify the phases of the inquiry cycle that they had followed and this could be accompanied by a trajectory of steps in scientific inquiry.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	**ICT inclusion** • Go-Lab would be quite complex for ICT inclusion in schools. Some other simulations are more attractive and simpler to use. However, Go-Lab is, indeed, a more comprehensive approach and it would be important that it would allow teachers for more degrees of freedom when they created learning activity spaces. • Considering that teacher training and student familiarization would be prerequisites, Go-Lab would be a proper choice for ICT inclusion in schools. **Curriculum** • It is difficult to include Go-Lab in the curriculum because a revision of the pedagogical philosophy is required. **Every-day teaching practice** • It can be included in every-day teaching practice as a supplementary approach.

	That means that students can first explore a phenomenon under real conditions and then investigate relations between variables with Go-Lab, or vice versa. **Collaboration between teachers** • Go-Lab promotes collaboration between teachers in the best possible way, because they share lessons, experiences and comments. In addition, they can create lessons together in Graasp. • Teachers can improve their efforts and lessons through collaboration in Go.-Lab. • Nowadays, teachers can better communicate through the web. In addition, communication among teachers has lesser boundaries as before. • Publication of an ILSs is a good way for teachers from all over the world to share their best practices, and for that reason, Go-Lab presents a means of peer evaluation of ILSs among teachers anytime such an evaluation would be needed.
Challenges and Improvements of the Go-Lab model	**Barriers** • In many schools there is not enough equipment, computers are outdated and internet connectivity is limited. • It is necessary for teachers to attend a long duration training in order to use the Go-Lab with confidence. • Teachers must have the appropriate pedagogical knowledge and technology skills to plan and execute a lesson with Go-Lab. • Labs available are not fully compatible with national curricula. • Some labs and apps are very difficult for the average student to use. • Language is an important barrier for the use of a lab and/or an app. • If students are not familiar with Go-Lab, they may play around in the platform and undertake learning activities reluctantly. **Improvements** • Translation of labs and apps in different languages. • If the material available in Go-Lab portal covered more subject areas, then it could be used more systematically by teachers. • Explicit connection between content (labs, ILSs) of the Go-Lab portal and national curricula. • Some apps need to be re-worked to become more student-friendly. • There is a need for allowing teachers to monitor each student action and learning outcomes, for example a printable report. • It could be a valid option to convert an ILS in an offline version so that to overcome internet connection problems.
Reflection through questionnaire	All participants (7) filled in the items Q1-Q12 of the questionnaire. Q13 and Q14 were not applicable.
Website	N/A

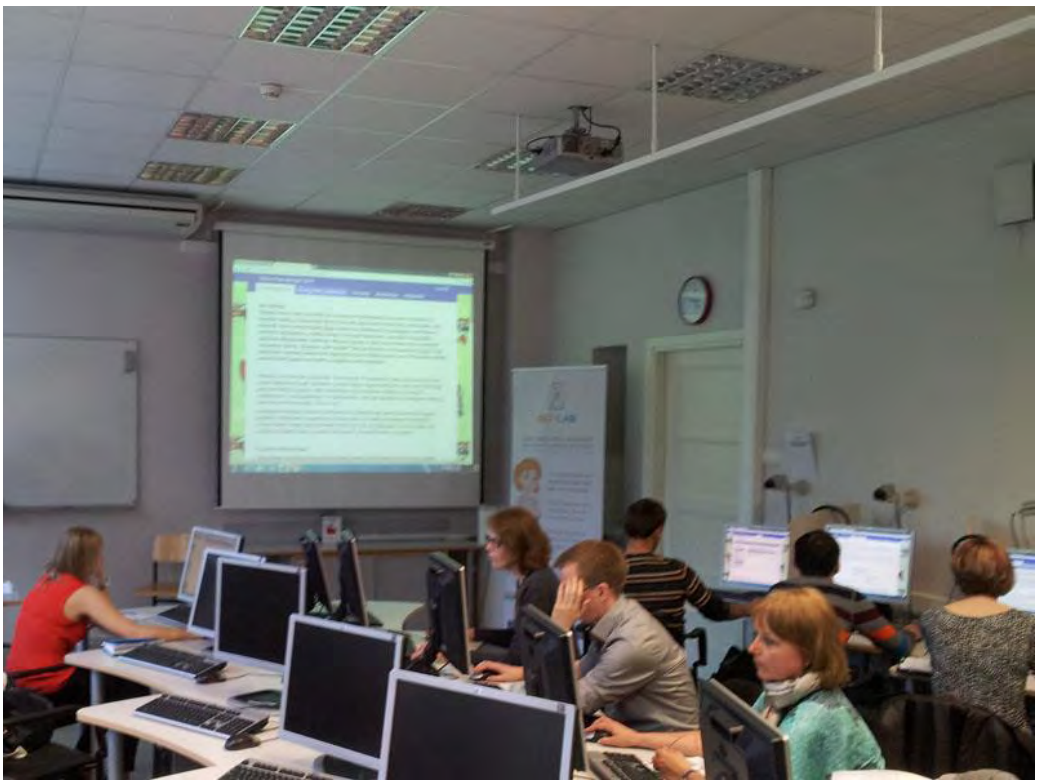
Photos or other relevant material	 
Event agenda	

	15:30 – 16:00 Questionnaire administration and completion **16:00 – 17:00** Discussion/Reflection

G O - L A B Event Code	*[LLXX-DDMMYY] Please follow this format:* *LL= 2 letter country code, XX = partner id, DDMMYY = date* EEUTE-130515
Context: standalone event or combined with other ws, online or face to face	Face-to-face (live) workshop
Country City/Region	Estonia, Tartu
Working language	Estonian
Start/End Date	*Please use this format DD/MM/YYYY* 13/05/2015
Organizing Institute	University of Tartu
Coordinator name and email	Margus Pedaste, margus.pedaste@ut.ee
Total number of teachers/schools	10 participants
Brief description	*Write one or two paragraphs briefly describing the activity* This workshop was arranged to inform Estonian teachers about recent developments in the Go-Lab Project and allow the participants computer-time to interact with the latest version of the Go-Lab Portal, as well as work through an example Go-Lab Inquiry Learning Space (ILS). The participants were mainly biology teachers at primary and secondary schools. In this workshop participants were able to explore the Go-Lab Portal as well as an example Go-Lab ILS (*Kas on hea olla ilus? – Selgitame evolutsiooni läbi loodusliku ja sugulise valiku*, in English *Is it good to be beautiful? – Understanding evolution through natural and sexual selection*). Three researchers led this session and provided a demonstration of the Go-Lab Portal, the example Go-Lab ILS and how to create a personalized copy of the ILS via Graasp. Participants had time to individually explore the Go-Lab Portal and the example Go-Lab ILS. The researchers helped troubleshoot technical problems participants may

	have had with using the Go-Lab learning environment. During the course of the workshop, participants filled-in a paper version of the PRW questionnaire.
Facilitators Observations	*Give a short description of the level of interaction, the impact you perceive Go Lab to have on this particular group, elements that testify to a sense of community with other Go Lab users or not. Did you present the website/ Graasp/ blog and encourage them to contribute? Did they communicate with colleagues/ express a desire to do so?* The participants asked insightful questions about the potential of Go-Lab to teach content and improve inquiry skills. They all appeared deeply involved in working through the example Inquiry Learning Space.
Theme analysis and reporting from implementation activities	*Facilitators have to describe the participants' activity they have been performed and present their experience on it. They have also to highlight the common themes that emerged during implementation activities (e.g. teacher role, how does the Go-Lab use affect students' engagement, achievements, difficulties encountered and solutions envisaged/applied, new ideas and new developments emerging).* The teachers liked that the ILS was structurally divided into multiple sections and that it was easy to move between move back-and-forth between them. They did not like that there was so much text to read.
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	Teachers liked the experience to work through Go-Lab learning resources on their own. However, they expressed interest for more teacher training opportunities (in the Estonian language).
Perceived Experiences / Influence of the Go-Lab Activities on Students	Teachers worried that students with low digital competence would need extra help with using the Go-Lab learning environment. They also wanted more personalization in the ILS, in the sense that it can accommodate students with varying levels of competence.

Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Biology teachers remarked that the Estonian National Curriculum does not require the use of laboratories in teaching biology content. Thus, the use of Go-Lab in terms of fulfilling curricula objectives would have to be justified with another explanation, e.g. integrating technology into classroom learning, integrating inquiry into learning, raising the digital competence of students.
Challenges and Improvements of the Go-Lab model	Currently there is too little Estonian Go-Lab material at the primary school level. Use of Inquiry Learning Spaces is very time consuming.
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used* 7 participants filled in the questionnaire. All of these participants were categorized as mode B Go-Lab users (i.e. "I am using existing Inquiry Learning Spaces (ILS) provided by the Go-Lab team or other teachers"). They did not answer questions 8 or 9 of the questionnaire nor questions 10, 13 and 14.
Website	*(if applicable) The URL of the website that has been set up for this activity.* Go-Lab inquiry learning space *Kas on hea olla ilus? – Selgitame evolutsiooni läbi loodusliku ja sugulise valiku* (Is it good to be beautiful – Understanding evolution through natural and sexual selection) http://graasp.eu/ils/555c388658351538d11ecec0?lang=et
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*



Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

Workshop session (105 minutes)

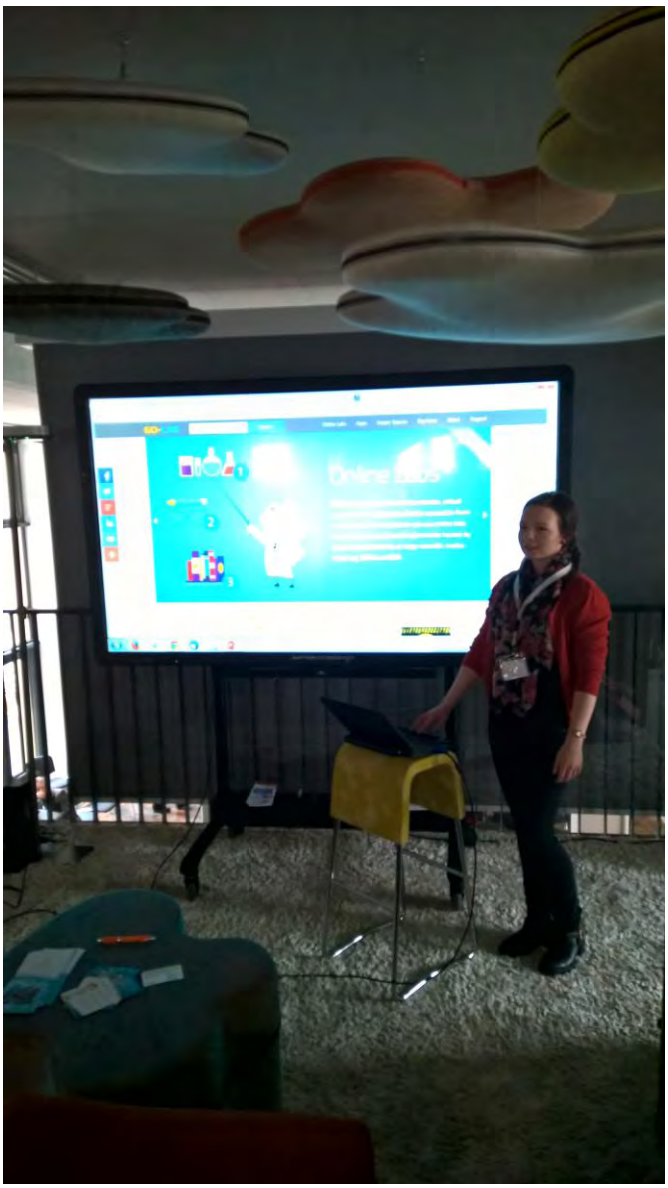
16:00 – 17:45

Time (min)	Activity
10	Distribution of printed PRW questionnaires (translated into Estonian) Introduction to the workshop
10	Demonstration of the Go-Lab Portal
10	Participants individually use the Go-Lab Portal to search and find Online Labs, Apps and Inquiry Learning Spaces
5	Participants fill-in questionnaire questions related to the Go-Lab Portal (i.e. questions 3 and 4)
10	Demonstration of the Go-Lab Inquiry Learning Space *Kas on hea ola ilus?.* Demonstration of how some of the Go-Lab Apps work.
30	Participants individually work through the example Go-Lab Inquiry Learning Space
10	Demonstration of how to make a Graasp account and make a personalized copy of the example Go-Lab Inquiry Learning Space
15	Participants fill-in the remaining questionnaire questions
5	Closing

- **Germany**

G O - L A B Event Code	*DE_-200615*
Title	*Go-Lab: Experimenting with Virtual und Remote Labs*
Country City/Region	*Germany, Chemnitz*

Working language	*German*
Start/End Date	*20/06/15*
Organizing Institute	*University of Duisburg-Essen*
Coordinator name and email	*Kristina Angenendt, angenendt@collide.info*
Activity Form	*Training and Reflection*
Activity Type	*National*
Total number of teachers/schools	*2 following workshops (45 minutes each), 6 teachers per workshop = 12 teachers in total*
Implemented online labs	*Osmosis Lab, Electricity Lab, Star in a Box, Build an Atom, Splash Lab*
Brief description	*This activity was mainly intended to introduce Go-Lab as a project and online labs to teachers. The content was a general description of the project and introducing the Go-Lab idea, as well as demonstrating how to build an ILS in the Graasp authoring environment. Several labs, apps, the OsmoCity ILS, and an Ohm's Law ILS have been presented. Afterwards, the teachers had the chance to create their own ILS in a hands-on activity and ask questions about Go-Lab and its usage.*
Learning outcomes	*Participants have mainly learned about the project, example ILSs and Labs, and how to use Graasp to build ILSs that can be used in class or use already existing ILSs. The teachers had a lot of questions about the technical side of the project and the resources that are necessary to implement ILSs in class. They welcomed that a lot of labs are already implemented in HTML5. Some teachers wanted to know about the possibilities to adjust for example the Electric Circuit Simulator to their needs by adding different energy sources and so on. They really liked the already existing possibilities to adjust the content of pre-defined concepts or hypothesis-parts in the corresponding apps.*
Website	*none*

Photos or other relevant material	 

Event agenda	- *Go-Lab's ideas and possibilities* - *Golabz.eu's inventory, apps, labs, and ILSs* - *Hands-on part*

G O - L A B Event Code	*DE_-240615*
Title	*Go-Lab: Experimenting with Virtual und Remote Labs*
Country City/Region	*Germany, Duisburg*
Working language	*German*
Start/End Date	*24/06/15*
Organizing Institute	*University of Duisburg-Essen*
Coordinator name and email	*Kristina Angenendt, angenendt@collide.info*
Activity Form	*Training and Reflection*
Activity Type	*Online*
Total number of teachers/schools	*2 teachers*
Implemented online labs	*Osmosis Lab, Electricity Lab, Star in a Box, Build an Atom*
Brief description	*This activity was mainly intended to introduce Go-Lab as a project and online labs to teachers. The content was a general description of the project and introducing the Go-Lab idea, as well as demonstrating how to build an ILS in the Graasp authoring environment. Several labs, apps, the OsmoCity ILS, and an Ohm's Law ILS have been presented. Afterwards, the teachers had the chance to ask questions about Go-Lab and its usage.*
Learning outcomes	*Participants have mainly learned about the project and how to use Graasp to build ILSs that can be used in class or use already existing ILSs. The teachers were very enthusiastic and expressed that they have literally been searching for a project like Go-Lab and all its possibilities to be able to support learners in inquiry learning and make them use virtual and online environments. They were very positive about the number of already existing labs and were wondering about the possibility to change the language of the ILSs, Labs, and Apps. They also welcomed that ILSs do give the possibility to form group work that can be supported and observed by the teachers in the classroom itself and that learners can upload their very own learning outcomes, for example concept maps or wiki articles.*

Website	*none*
Photos or other relevant material	-
Event agenda	- *Go-Lab's ideas and possibilities* - *Golabz.eu's inventory, apps, labs, and ILSs* - *Questioning-Part*

G O - L A B Event Code	*DE_-130715*
Title	*Go-Lab: Experimenting with Virtual und Remote Labs*
Country City/Region	*Germany, Duisburg*
Working language	*German*
Start/End Date	*13/07/15*
Organizing Institute	*University of Duisburg-Essen*
Coordinator name and email	*Kristina Angenendt, angenendt@collide.info*
Activity Form	*Training and Reflection*
Activity Type	*Online*
Total number of teachers/schools	*2 teachers*
Implemented online labs	*Osmosis Lab, Electrical Circuit Simulator, Star in a Box, several Apps, OsmoCity ILS*
Brief description	*This activity was mainly intended to introduce Go-Lab as a project and online labs and apps to teachers. The content was a general description of the project and introducing the Go-Lab idea, as well as demonstrating how to use ILS and labs and apps of several domains, and how to build an ILS in the Graasp authoring environment. Afterwards, the teachers had the chance to ask questions about Go-Lab and its usage.*
Learning outcomes	*Participants have mainly learned about the project and how to use Graasp to build ILSs that can be used in class or use already existing ILSs. The teachers were really interested and told me that they had high hopes that Go-Lab can be used in school. When told about our experiences with students they seemed to be quite surprised that online laboratories can cause so much motivation and engagement for students. One of the teachers has been in contact with me for a few months now, so I really think that she'll be joining Go-Lab*

G O - L A B Event Code	*DE10-191114*
Website Title	*Introduction to Go-Lab with overview of Labs and ILSs*
Photos or other Country City/Region relevant material	*Germany, Essen*
Working language Event agenda	*German*
Start/End Date	*19/11/14*
Organizing Institute	*University of Duisburg-Essen*
Coordinator name and email	*Sven Manske, manske@collide.info*
Activity Form	*Advanced Training and Reflection*
Activity Type	*National*
Total number of teachers/schools	*25 teachers*
Implemented online labs	*Osmosis Lab, Electricity Lab and individual choices in the hands-on part*
Brief description	*The activity was an extended (5hrs) and official teacher training, which aimed at introducing the Go-Lab idea, reporting about a success story (regarding an implementation activity), and learning how to create an ILS starting from the Go-Lab inventory.*
Learning outcomes	*Participants have mainly learned about the project and its main goals. They have seen examples of ILSs and have been introduced how to use them. The teachers learned how to find useful labs and apps and how to create an ILS that suits their demands.*
Website	*https://ktapps.lvr.de/KTeam/Event/pdf/25318.pdf*
Photos or other relevant material	 
Event agenda	➢ *Go-Lab: Experimentation with Online Labs* ➢ *Success Story: Go-Lab at the Otto-Hahn-Gymnasium*

	➢ *Demo: Go-Lab – From the Inventory to a Scenario* ➢ *Hands-on Part* ▪ *Labs, Apps and Templates* ▪ *Creation of a Scenario*

- **Greece**

G O - L A B Event Code	GR02-290415
Context: standalone event or combined with other ws, online or face to face	Practice Reflection Workshop for science teachers, face to face
Country City/Region	Greece, Corfu
Working language	Greek
Start/End Date	29/04/2015
Organizing Institute	Ellinogermaniki Agogi
Coordinator name and email	Georgios Mavromanolakis gmavroma@ea.gr
Total number of teachers/schools	12 (from 11 schools)
Brief description	The event was organized in combination with the science contest for junior high school students “little crafts – great challenges”. The event was held in collaboration with the regional schools science center (EKFE) in Corfu island. The teachers accompanying the school teams and had experience using the Go-Lab in their classroom or for training fellow teachers reflected on their experiences and gave feedback.
Facilitators Observations	Participants discussed with the facilitator and interacted with each other expressing their views, their concerns, their experiences and their questions about various themes concerning Go-Lab initiative and approach, IBSE methodology, science curriculum reforms needed etc.

	Then they were given the PRW questionnaires and the rest of the discussion centered on the main themes addressed in the questionnaires.
Theme analysis and reporting from implementation activities	Themes raised in the discussion: • Attendants expressed the view that they need to do a lot of preparation to get confidence before they can use the platform and implement an activity in their classroom. • Since all attendant teachers are teaching in junior high school (age of students 12-15 years old) they feel difficult using activities and labs available in English language. • The majority also believe that the lack of infrastructure in schools (for example availability of high speed internet connection or one pc per student) may be one of the main constrains to overcome along with the curriculum constraints. • In general they expressed the view that the Go-Lab approach and initiative are nice to engage students and that inquiry-based science teaching and learning is beneficial to students however the curriculum constraints with respect to time, flexibility and planning are significant constrains for most teachers. • The majority of teachers wish to have more flexibility within the curriculum to organize their teaching. With respect to more technical matters: • In general, any technical difficulty that may appear, eg network connection or loading time of a lab or ILS or app, is very obstructing for the class and make the teacher feel very vulnerable. • For certain apps and labs there is difficulty in understanding how they work or can be set up correctly • Certain activities are more useful done as hands-on rather as online/virtual labs • Most activities of ILSs are very time consuming. Students need to work on them as homework or out-of-classroom time as well to complete them. • The stages of inquiry process as proposed are very helpful for both teachers and students for designing and delivering ILSs • The process of going through an ILS and in the proposed steps/stages is motivating for students. They find the whole process self-guiding and they can repeat it as homework assignment or in out-of-classroom hours.

Group discussion/ reflection	Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document
Experiences of Teachers with the Go-Lab activities	In general positive view, but difficult to implement in real school environment due to time constraints, curriculum constraints, availability of technical infrastructure
Perceived Experiences / Influence of the Go-Lab Activities on Students	The Go-Lab approach and initiative and in general IBSE is engaging for students
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	May put further pressure for curriculum reforms needed with respect to science teaching and flexibility
Challenges and Improvements of the Go-Lab model	Availability in Greek language, official accreditation from the school authorities is needed to further widespread its application
Reflection through questionnaire	12 teachers filled in the questionnaire
Website	(if applicable) The URL of the website that has been set up for this activity.
Photos or other relevant material	
Event agenda	(if applicable) Please copy here the agenda of the event (program of activities, etc.).

G O - L A B Event Code	*GR02-280515*
Context: standalone event or combined with other ws, online or face to face	*Combined with Practice Reflection Workshop for ISE, but as standalone preceding it*
Country City/Region	Pallini, Greece
Working language	Greek
Start/End Date	*28/05/2015*
Organizing Institute	*Ellinogermaniki Agogi*
Coordinator name and email	*Georgios Mavromanolakis gmavroma@EA.GR and Fani Stylianidou fani@ea.gr*
Total number of teachers/schools	*11 (6 teachers and 5 school advisors/ teacher trainers)*
Brief description	*The event was organised so that a combination of teachers and school advisors, who have had experience either with using the Go-Lab Environment in their classroom or for training teachers reflect on their experiences and give feedback.*
Facilitators Observations	*Participants were briefly shown the Go-Lab website and reminded of the opportunities it offers to teachers. One of the teachers volunteered to talk about her experiences with using Go-Lab, as a success case. Then they were given the PRW questionnaires and the rest of the discussion centered on the themes addressed in the questionnaires. Participants on the whole freely interacted with each other and with the facilitator, expressing their views and their questions.*

Theme analysis and reporting from implementation activities	*Themes raised in the discussion:* • *Difficulties with understanding how the apps work (from a technical point of view)* • *Difficulties with understanding how the experiments should be carried out* • *In general, technical difficulties obstructing the course* • *Difficulties with matching assessment to the ILS process* • *Time requirements of ILSs. Need for students to work on them as homework as well.* • *FileDrop app works well, but issues with readability of Greek language fonts* • *Very helpful stages of inquiry process, both for designing and delivering ILSs* • *In the success case described, students looked through the experiments and chose the one they were interested in and designed their own ILS. Very successful in motivating and engaging them. When they found something they were interested in they also went deeper cognitively into it.* *This process took place in steps. At the beginning they ran two ready-made ILSs with lots of support from their teacher. Only after gaining familiarity and confidence with the environment, did they proceed in groups to design themselves new ILSs.* • *Absence of apps for teaching of mathematics. The existing application to create plots and functions is not user-friendly. MathType would be much easier for creating mathematical formulas.* • *More generally, not enough variety of Labs and apps for teaching all subject domains. There is quite an overlap in the existing offer of Labs.* • *Absence of interdisciplinary apps and in general not enough focus on interdisciplinary projects.* • *Complains about need for multiple logins, e.g. in golabz and graasp. Once logged in in golabz, one should be automatically logged in in graasp.* • *A school head said that it is very difficult for him to convince his teachers to use it, because tools and apps are very difficult to use.* • *The process of going through an ILS is motivating for students.* • *Before finalizing the ILS for standalone, one cannot see how the app will appear, only a part of the app is visible in one part of the screen.* • *Uploading files created in Open Office is not supported.* • *It would be good if there was an Editor to be able to have Styles in Headings, etc.* • *There should be a quality filter for ILS, so that teachers know which are good ILSs.* • *There was the concern that some Labs offer experiments that could better take place hands-on in the lab. Their existence may encourage teachers to avoid hand-on experimentation.* • *The existing Go Lab guide is very good.*
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	
Perceived Experiences / Influence of the Go-Lab Activities on	

Students	
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	
Challenges and Improvements of the Go-Lab model	
Reflection through questionnaire	*13 teachers filled it in (2 did not manage to attend the workshop in person)*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

- **Italy**

G O - L A B Event Code	[INTEUN-250315]
Context: standalone event or combined with other ws, online or face to face	Standalone online event
Country City/Region	Online

Working language	Italian
Start/End Date	25/03/15
Organizing Institute	European Schoolnet
Coordinator name and email	Mathilde Bargoin, Evita Tasiopoulou, evita.tasiopoulou@eun.org
Total number of teachers/schools	23
Brief description	This online workshop took place in Italian, addressing only the Italian group of Pilot teachers. Under the guidance and with the support of EUN, one of the Pilot teachers, Constantina Cossu, has run the whole session following the proposed agenda.
Facilitators Observations	Facilitators have noticed high levels of interaction among the participants. All teachers were interested to see how their colleagues have addressed issues they have all faced i.e. language, unstable internet connection and students motivation. Some teachers have talked about how they have used ILSs as part of a larger set of activities while other have teamed up with English teachers in order to support their pupils with English and they have explained how they have proceeded with these arrangements.
Theme analysis and reporting from implementation activities	The teachers discussed the following themes with the whole group while they have been sharing their experience with Go-Lab: the usefulness of Go-Lab in their teaching, the impact of Go-Lab in their teaching, the students reactions, the cross curricula activities, the challenges for the Go-Lab system, the recommendations, necessary pedagogical changes and improvements for Go-Lab to be more advantageous in the teaching practice.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	• All teachers have started composing ILSs although they are reluctant to publish them. Most of the feel that they need to develop them further and some have said that they will publish them after they test them with their students and make sure they are logical and realistic. • Teachers like the structure of the ILSs and the labeled tabs. • Students do not pay much attention to the steps of inquiry but the structural process is shaping their attitude and learning process. • The Authoring tool is very much appreciated by the teachers who find the access to it and its use, easy and straightforward.
Perceived Experiences /	Teachers have reported that students find the use of ILSs very engaging and interesting. Students need some time to get used to the use of the various tools and ILSs structure but

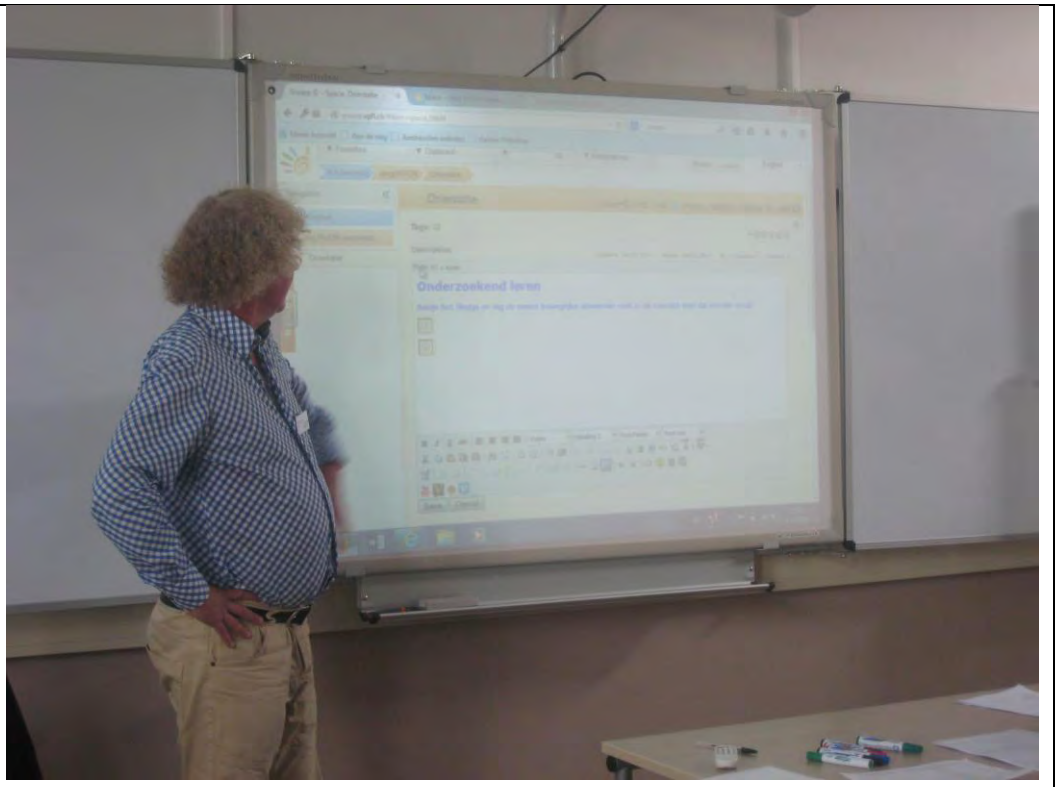
Influence of the Go-Lab Activities on Students	once they do, they are working on them smoothly. In some cases lack of knowledge regarding the use of inquiry and its various steps, confused students who got lost in the process. In these cases, teachers had to take corrective actions by providing students with longer introduction and more specific explanations. Technical issues (i.e. slow performance or videos not loading) have also caused problems within the classroom. The issue of translation and the need to provide primary and low secondary students with ILSs in their own language, has also been brought up extensively. Teachers have discussed how they could work together in order to split the translation of existing ILSs but also share their ILSs in progress in case an Italian colleague would like to contribute to the work. More ILSs on mathematics and chemistry seem to also be on demand.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Higher motivation and greater student engagement has been stated by the majority of teachers. The willingness to investigate further the use of Graasp and its application to other subjects (beyond STEM) has also been expressed widely.
Challenges and Improvements of the Go-Lab model	All teachers agreed that more training and support is needed in order to ensure their ability to work with Graasp efficiently and more specifically with the various tools. Some of them have mentioned that their students are quite efficient into figuring out the use of Graasp so teachers need to be able to support them.
Reflection through questionnaire	9
Website	http://tinyurl.com/pqh7362 (recording)
Photos or other relevant material	n/a
Event agenda	**Agenda** **Workshop duration: 1h30** *Introduction of the workshop – 5 mn* Welcome and aim of this workshop *Introduction to scenarios – 10 mn* Short introduction to the concept of scenarios and how they are used in the development

	of ILSs. Explanation of Basic scenario, jigsaw and learning by critiquing approaches. *Work on ILSs – 15 mn* Teachers are asked to check 3 ILSs containing 3 different scenarios and to answer different questions (in the chat, or later in the discussion with the moderator) • It is good to be beautiful - Understanding Evolution through Natural and Selection: http://graasp.eu/ils/547be131e9934012b7c662a3?lang=en • Electricity - An Alternative approach of Ohm's Law: http://graasp.eu/ils/54ad280351830bd46a66658a?lang=en • Methyl Orange: http://graasp.eu/ils/54b4f0e751830bd46a666781?lang=en Teachers are asked to get familiar with the ILS in question and continue by thinking about the implementation scenarios, including age groups and how this specific ILS can be used in class. *Go-Lab debate – 30 mn* First, teachers are asked to share their ideas on the scenario related questions, and the moderator is taking notes. The questions are the same as those described in this google doc: http://tiny.cc/Go-Lab-PRW1 Second, Teachers – helped by the moderator – are asked to discuss/debate about one or more of the topics below: • The usefulness of Go-Lab in their teaching • The potential impact of the use of the Go-Lab project on teachers and students • The potential impact of some ILSs on some teachers' collaboration / multidisciplinary activities • The challenges faced and barriers of use • Recommendations for creation of ILSs or for the project in general *Evaluation – 25mn* Teachers fill in the WP6 usability questionnaire (online) *Wrap up and final questions and answers – 5mn*

- **Netherlands**

G O - L A B Event Code	*NL01-041014*
Context: standalone event or combined with other ws, online or face to face	*Workshop at a conference for young teachers in physics and chemistry*
Country City/Region	*Utrecht*
Working language	*Dutch*
Start/End Date	*04/10/2014*
Organizing Institute	*University of Twente*
Coordinator name and email	*Henny Leemkuil (h.h.leemkuil@utwente.nl)*
Total number of teachers/schools	*9*
Brief description	*Henny Leemkuil gave an introduction to Go-Lab and demonstrated the Golabz website and the Graasp authoring facilities. After that participants had the opportunity to look at an ILS and there was the opportunity to ask questions and to make suggestions. At the end of the session the participants filled in a short questionnaire.*
Facilitators Observations	*All participants were enthusiastic, except for one (the one with the most experience)*
Common themes identified in the case studies	• *Experiments that are difficult to perform at school can be performed using Go Lab* • *Difficult content can be practiced at home* • *Variation in in lessons* • *Language – the level of English of the pupils is too low to use English learning materials* • *Compatibility with tablets and smart phones* • *Lack of time*
Examples illustrating common themes	
Recommendations made by participants	• *Make clear in Golabz on which devices the labs and apps are working (important when schools switch to BYOD)* • *More materials in Dutch*

Website	http://www.nvon.nl/vereniging/organisatie/jong-nvon
Photos or other relevant material	

	
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

G O - L A B Event Code	NLUT-13042015
Context: standalone event or combined with other ws, online or face to face	Standalone event Face to face
Country City/Region	Netherlands, Enschede
Working language	Dutch
Start/End Date	12-01-204/13-04-2014 (Monthly meetings)
Organizing Institute	University of Twente
Coordinator name and email	Henny Leemkuil and Ellen Wassink-Kamp h.h.leemkuil@utwente.nl or e.t.kamp@utwente.nl
Total number of teachers/schools	7

Brief description	We did our workshop with a group of chemistry teachers who are part of a Teacher Development team. They have a meeting each month to work on professionalization and improvement of their teaching. The teachers as a team decide what they want to learn or what they want to work on. They are guided by a staff member of the UT, who helps to bring in specialists and literature about subjects of interest. One of the staff members designed a virtual chemistry lab called 'Bond' together with our team. The workshop was centered around this lab. In our first workshop with this team of teachers we introduced Go-Lab. In the second meeting we continued by showing how to make an ILS and introducing some of our tools. In the following meeting we discussed an ILS made by one of the teachers. In the last meeting all teachers made an ILS under our guidance. The time we spent with the teachers varied per meeting, depending on their own agenda for the meeting. We generally spent between 45 and 90 minutes with the teachers each month.
Facilitators Observations	We presented the Golabz website, Graasp and the tutoring platform, showed several labs and tools and encouraged the teachers to contribute. One teacher in particular was very enthusiastic and she decided on her own to make ILSs. She has created two so far and published them on Golabz. She did encounter some difficulties along the way. When facing them she choose to contact us, but she did not use the tutoring platform or use other Go-Lab facilities. We noticed that teachers are often overwhelmed at first by all the information and the different websites. We really needed more than one meeting to give them a good view of what Go-Lab is and the possibilities it offers. The teacher were very hesitant to start working on an ILS on their own, because they feel it is very complicated. However, when they start, they become more enthusiastic and realize it is not as hard as they thought it would be. It really helped them to have someone of the Go-Lab team present, when making the ILS. They needed this encouragement to get them going.
Theme analysis and reporting from implementation activities	The biggest challenge all the teachers mention is time. It costs a lot of time to learn to work with Go-Lab and even then it takes a lot of time to make an ILS and time is something most teachers lack. Some of them also feel they don't have sufficient ICT skills to work with Go-Lab. And they feel there is already a broad range of educative tools and platforms available. In their mind Go-Lab is just another. They would love it if Go-Lab could be integrated with the ICT environments they use at school or if it could work together with other programs that they often use.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	Teachers find it difficult to work with Graasp in the beginning. They feel overwhelmed and are worried they do not have the skills to make an ILS on their own. They struggle with the phases and their content and can't always find the right tool for their purpose. However, as they go along it becomes a lot easier and they become enthusiastic. They indicate that making an ILS is a skill you need to learn, but if you have done it once, is actually quite easy. However, it is also easy to forget, so if they do not work with Go-Lab regularly, the skills and knowledge quickly disappear.

	They indicate that they find Go-Lab useful, but mostly as an extra activity and not as part of the normal curriculum. They also predict difficulties because of a lack of ICT facilities and in some cases lack of ICT skills.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Only one of the teachers of the workshop implemented her ILS in the classroom. Her experience was that students had difficulties with the inquiry learning approach. They were focused on the right answer, and not so interested in the process before. They wanted to be told exactly what to do and when to switch to the next phase. Their lack of experience with inquiry learning makes it hard for them and lowers their motivation. As a teacher however, she appreciates this different way of learning. It takes her students out of their comfort zone, which can be very useful and effective sometimes. The students did like working with the Bond lab and it seemed to increase motivation, though they also indicated that they would like to work in a real lab as well.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	The teachers found it hard to predict. They needed more experience with Go-Lab before they can give a decent estimation. For now, they see Go-Lab mainly as an extra, something which can be used next to the normal curriculum or maybe at home.
Challenges and Improvements of the Go-Lab model	
Reflection through questionnaire	5 participants filled in the questionnaire.
Website	Not applicable
Photos or other relevant material	No photos available
Event agenda	Not applicable

- **Poland**

G O - L A B Event Code	[INTEUN-110315]
Context: standalone event or combined with other ws, online or face to face	Standalone online event // Sub report for Polish teachers
Country City/Region	Online

Working language	English
Start/End Date	11/03/15
Organizing Institute	European Schoolnet
Coordinator name and email	Mathilde Bargoin Evita Tasiopoulou, evita.tasiopoulou@eun.org
Total number of teachers/schools	3 Polish teachers
Brief description	This online workshop took place in English, addressing teachers from the International, and Belgian, Italian and Polish groups. The aim of the PRW was to collect information on teachers Go-Lab experience along with their suggestions and feedback.
Facilitators Observations	Facilitators have noticed high levels of interaction among the Polish participants and the other teachers. All teachers were interested to see how their colleagues have addressed issues they have all faced i.e. language, unstable internet connection and students motivation. Polish teachers have mixed experiences concerning the use of online laboratories. Two of them have talked about how they have used ILSs as part of a larger set of activities while the third one has teamed up with his school's English teacher in order to support his pupils with English.
Theme analysis and reporting from implementation activities	The teachers discussed the following themes with the whole group while they have been sharing their experience with Go-Lab: the usefulness of Go-Lab in their teaching, the impact of Go-Lab in their teaching, the students reactions, the cross curricula activities, the challenges for the Go-Lab system, the recommendations, necessary pedagogical changes and improvements for Go-Lab to be more advantageous in the teaching practice.
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	• All 3 teachers have started composing their own ILSs although they are reluctant to publish them. They all feel that their ILSs are not good enough and further development is needed. After the comments and encouragement of other teachers they have agreed to test them in their classes first and then publish them. • Teachers like the structure of the ILSs and the labeled tabs with the various IBSE steps. Two of the teachers were not aware of the possibility to choose the steps of IBSE they wanted and they welcomed this development. • Students do not pay much attention to the steps of inquiry but the structural process is shaping their attitude and learning process. • The Authoring tool is very much appreciated by the teachers who find the access to it and its use, easy and straightforward. • Connection problems due to poor internet connection are still common but teachers seemed to be quite inventive in dealing with them i.e. communicating with students

	off the school hours etc.
Perceived Experiences / Influence of the Go-Lab Activities on Students	Teachers have reported that students find the use of ILSs very engaging and interesting. Students need some time to get used to the use of the various tools and ILSs structure but once they do then there is no problem. In some cases lack of knowledge regarding the use of inquiry and its various steps, confused students who got lost in the process. In these cases, teachers had to take corrective actions by providing students with longer introductions and more specific explanations. Some teachers have also given ILS as homework to students. The results were very encouraging since students came back to class with specific questions about the content of the ILS and the tools. The issue of translation did not seem to be critical for the Polish teachers. Although translated content would be useful, they have all tried working along with English teachers in order to combine language learning with STEM and IBSE successfully, so they were eager to try this approach again.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	Higher motivation and greater student engagement has been stated by the majority of teachers. The willingness to investigate further the use of Graasp and its application to other subjects (beyond STEM) has also been expressed widely.
Challenges and Improvements of the Go-Lab model	All teachers agreed that more training and support is needed in order to ensure their ability to work with Graasp efficiently. Some of them have mentioned that their students are quite efficient into figuring out the use of Graasp so teachers need to be able to support them. Problems with specific applications like the Data viewer and the Hypothesis tool have also been mentioned so more instructions on that area is also needed.
Reflection through questionnaire	3
Website	*n/a*
Photos or other relevant material	
Event agenda	Agenda Workshop duration: 1h30 Introduction of the workshop – 5 mn Welcome and aim of this workshop Introduction to scenarios – 10 mn Short introduction to the concept of scenarios and how they are used in the development of ILSs. Explanation of Basic scenario, jigsaw and learning by critiquing approaches.

	Work on ILSs – 15 mn Teachers are asked to check 3 ILSs containing 3 different scenarios and to answer different questions (in the chat, or later in the discussion with the moderator) It is good to be beautiful - Understanding Evolution through Natural and Selection: http://graasp.eu/ils/547be131e9934012b7c662a3?lang=en Electricity - An Alternative approach of Ohm's Law: http://graasp.eu/ils/54ad280351830bd46a66658a?lang=en Methyl Orange: http://graasp.eu/ils/54b4f0e751830bd46a666781?lang=en Teachers are asked to get familiar with the ILS in question and continue by thinking about the implementation scenarios, including age groups and how this specific ILS can be used in class. Go-Lab debate – 30 mn First, teachers are asked to share their ideas on the scenario related questions, and the moderator is taking notes. The questions are the same as those described in this google doc: http://tiny.cc/Go-Lab-PRW1 Second, Teachers – helped by the moderator – are asked to discuss/debate about one or more of the topics below: The usefulness of Go-Lab in their teaching The potential impact of the use of the Go-Lab project on teachers and students The potential impact of some ILSs on some teachers' collaboration / multidisciplinary activities The challenges faced and barriers of use Recommendations for creation of ILSs or for the project in general Evaluation – 25mn Teachers fill in the WP6 usability questionnaire (online) Wrap up and final questions and answers – 5mn

- **Portugal**

G O - L A B Event Code	*PT1914102014* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*

Country City/Region	Portugal / Palmela
Working language	Portuguese
Start/End Date	*14/10/2014*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*21*
Brief description	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*
Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*All participants were very excited with the experience. There were several problems with the use of Graasp but the necessary support was provided. Teachers prepared ILS and implemented them in school with very positive outcomes from their students.*
Experiences of Teachers with the Go-Lab activities	*Several problems with the constructions of ILS were faced by this group of teachers. All the necessary support was provided*
Perceived Experiences / Influence of the Go-Lab Activities on Students	

Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*n/a*
Challenges and Improvements of the Go-Lab model	*Improvement on the technical aspects was strongly suggested*
Reflection through questionnaire	*N/A*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*   
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

G O - L A B Event Code	*PT1922112014*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in a dedicated Go-lab Pilot Day*
Country City/Region	*Vila Nova de Gaia- Portugal*
Working language	*Portuguese*
Start/End Date	*22/11/2014*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	**22**
Brief description	*During the activity we introduced participants to the new Graasp platform and had a hands-on session on the creation of ILS. Teachers had a research in school session related to asteroids and archive datamining,* *The day ended with a science café about the Rosetta Mission*
Facilitators Observations	*Teachers that already participated in Go-lab training events and demo activities in school where present. The attitude of teachers toward the use of the labs and apps was very positive and in spite of the existence of some problems and questions on the use of the platform, many of them started the creation of their own ILS*

Common themes identified in the case studies	*The Inquiry methodology was discussed and a very fruitful discussion on how to integrate it in classroom promoted. Some teachers are already engaging in using inquiry in school with very positive outcome.* *Several important aspects of the implementation of Go-lab in schools where discussed during this session. Namely:* ***Students Motivation:*** *Very important tool to engage students in a different format for learning. Motivation is fundamental for effective learning. The presented tools allow students to practice while learn. Motivation due to involvement in the whole process. Promotes autonomy. Awareness about the importance of science. Modern tools to sparkle the interest of students. Students build their knowledge.* ***Teachers Motivation:*** *Desperately needed. A challenge at the moment. The presented tools sparkle creativity. Fundamental for the regular development of the teaching/learning process. Modern tools can play this role.* ***Working with the tools proposed require motivation of the teacher to invest time to learn how to use the tool.*** *The motivation increases as a consequence of the motivation of the students. Support of the community and recognition mechanisms are desirable. Students motivation in the use of such tools are translated into motivation for the teachers.* ***Integration of the presented tools and resources to the curricula:*** *Necessary if not mandatory. Students should be engaged in this learning methodology in very early stages of their education. New design of Portuguese curricula made it more difficult to integrate such offers. The use of interactive labs and tools promote and reinforce the understanding of different concepts.* ***Student Centered Teaching:*** *Very hard to be achieved with 30 students in classroom. Presented tools are adequate to achieve this goal. The challenge is to have time to integrate this methodology in the framework of present curricula and educational strategy.* ***Tools to create lessons / scenarios:*** *Powerful tools to promote sharing and collaboration. Strong innovation characteristics. Open new opportunities to integrate innovative strategies in schools. Strong tools where presented to promote the student centered model. Difficult to have to learn how to use new tools. Very handy to have ready made scenarios.* ***Labs and apps repositories:*** *Interesting but have to be user friendly. Select quality over quantity. Existence of local support is fundamental. Very good platforms to share experiences and promote collaboration.*

	ILS repositories: *Very useful. Allow sharing of tools and resources. Values learning processes. Promote the use of the scientific method.*
Examples illustrating common themes	*Down 2 Earth and the creation of ILS using graasp. Introduction to real research in school with the International Astronomical Search Collaboration.*
Recommendations made by participants	*Participants are willing to have a Go-lab training and to try and implement exercises in the framework of different disciplines. An interdisciplinary approach was proposed by some of the participants.*
Website	nuclio.org/blog/nuclio-pilot-days-20142015/
Photos or other relevant material	 
Event agenda	nuclio.org/blog/nuclio-pilot-days-20142015/

G O - L A B Event Code	*PT26112014* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*

face	
Country City/Region	Portugal / Coimbra
Working language	Portuguese
Start/End Date	*26/11/2014*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*20*
Brief description	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.* *The majority of the participants came from bachelor's in Chemistry*
Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*This group came from a school with all necessary ICT support and found the tool very useful for their teaching and for their own professional development. They consider that the acquisition of new skills was very important.* ***Several participants requested more guidelines and tutorials*** *for the use of the different tools and resources.* ***Many referred the need to learn better how to use inquiry properly and to learn more about the different***

	existing models
Experiences of Teachers with the Go-Lab activities	*All participants had the opportunity to explore the labas and apps*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*n/a*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	
Challenges and Improvements of the Go-Lab model	
Reflection through questionnaire	*N/A*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*
G O - L A B Event Code	*PT1901072015* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*

face	
Country City/Region	Portugal / Lisbon
Working language	Portuguese
Start/End Date	*18/03/2015*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*15*
Brief description	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.* *Most participants came from the field of physics and biology*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*
Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*All participants felt that learning to use Go-lab and its tools and associated methodology was a very important experience. They felt they were being introduced to cutting edge resources for science education but in a way where they actually got to use it. Several referred that they would like to have* ***had more time to explore the different tools presented and train more on the methodology****. Need for a supporting page was referred several times. In spite the fact that it will be somehow problematic to implement the use of Go-lab in classroom the general feeling was that it was very good for their professional development and to introduce innovation in their teaching practices. The major issues raised were the usual ones:* ***ICT, Curriculum constrains, time constrains, lack of ICT***

	support
Experiences of Teachers with the Go-Lab activities	*Some teachers revealed some anxiety as to the use of their ILS in classroom due to their lack of experience with IB. Nonetheless they built their ILS addressing curriculum content.*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*N/A*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*N/A*
Challenges and Improvements of the Go-Lab model	*N/A*
Reflection through questionnaire	*N/A*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	

	
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*
G O - L A B Event Code	*PT1919022015* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*
Country City/Region	Portugal / Setubal
Working language	Portuguese
Start/End Date	*19/02/2015*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*20*
Brief description	*This PRW was integrated in the training activity.*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities. Around 83% or the participants have bachelor's degree and 17% MsC. Most of the participants were Physics/Chemistry teachers (60%), another 20% Biology and Geology teachers.*

Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*All participants considered that Go-lab is very interesting. Mainly due to the introduction of modern tools and methods for their teaching. All of them consider that to some level the project can be used by other colleagues in other schools and subject areas. They felt that* ***more training hours would be necessary****. Some teachers felt the need for more mathematics labs.* ***Not all the participants feel confident enough to apply what they have learned in classroom*** *Teachers participated in a Visionary Workshop and in series of training days where they had the opportunity to use the Go-lab portal and build their own ILS. In many cases the* ***lack of ICT support*** *in schools was reported as an issue.* ***Lack of time*** *for getting acquainted with the tool and methodology was also presented as a major issue.* ***Curriculum constrain*** *and* ***pressure to prepare students for exams*** *was a recurrent complain.*
Experiences of Teachers with the Go-Lab activities	*Teachers participated in Visionary workshops/ demo activities and in a 25 hour training course.*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*N/A*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*N/A*
Challenges and Improvements of the Go-Lab model	*Teachers need more time to reflect on the process and test its implementation*
Reflection through questionnaire	*Online and anonymous*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*

Event agenda	1) Teachers presentation of their ILS 2) Group discussion on possibilities and obstacles

G O - L A B Event Code	*PT1901072015* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*
Country City/Region	Portugal / Vialonga
Working language	Portuguese
Start/End Date	*01/07/2015*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*20*
Brief description	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.* *Most participants had bachelor's degree in various science areas: Physics, Chemistry, Mathematics, Natural Sciences*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*

Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*All participants considered Go-lab useful for their daily practices, in particular the integration of IB methodology and the possibility to integrate them in the Graasp platform. A general remark was that they would like to have had more hours of training (their training had in total 25 hours). Half of the participants stated that they intend to use the tools in their teaching. In teacher's opinion Go-lab can be a powerful tool to* ***improve the educational system*** *in the country It fosters collaborative work but at the moment is not adequate to the Portuguese educational model designed by the ministry of education. The IB model is seen as a powerful tool to promote* ***autonomy development i****n students.* ***Meets a lot of resistance on the part of colleagues and students.*** *A topic that appeared often was the concern of teachers for the* ***time necessary to implement an ILS****.*
Experiences of Teachers with the Go-Lab activities	*After some time needed to get acquainted with the tools the construction of ILS seem like a very nice way to structure a lesson*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*N/A*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*Very complicated to implement it in schools due to lack of ICT resources and the constrains of the curriculum*
Challenges and Improvements of the Go-Lab model	*A lot of teaching time is necessary to implement Go-lab in classroom*
Reflection through questionnaire	*N/A*
Website	*(if applicable) The URL of the website that has been set up for this activity.*

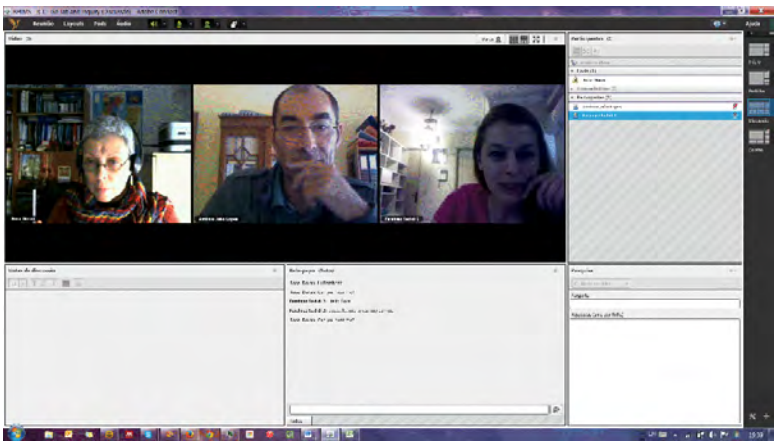
Photos or other relevant material	 
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

G O - L A B Event Code	*PT1926062015* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*
Country City/Region	Portugal / Resende
Working language	Portuguese
Start/End Date	*26/06/2015*
Organizing Institute	*NUCLIO*

Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*20*
Brief description	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.* *Participants were a good mix of science domains: Physcis, Chemistry, Mathematics, Biology and Geology*
Theme analysis and reporting from implementation activities	*Teachers presented their ILS and discussed with trainers and colleagues their strategy for building it and integration in the framework of the national curricula for their subject area.*
Group discussion/ reflection	*The overall feeing of the participants was that they had the opportunity to learn new tools and resources and they found it very useful. They liked the possibility to have a portal were they can find apps and labs and they liked in particular the possibility to structure their* ***lessons using the IB methodology with the support of the structure provided in graasp.***
Experiences of Teachers with the Go-Lab activities	*The majority of the participants were very excited with the use of the portal. Relative to graasp and the creation of IB scenarios they mentioned that more time will be necessary*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*n/a*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*Teachers are willing to experiment implementation of the ILS they built as homework assignments*

Challenges and Improvements of the Go-Lab model	
Reflection through questionnaire	*N/A*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	*Select 3-4 good-quality photos or other relevant material (flyer, brochure, poster) and attach them in this report*
Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

G O - L A B Event Code	*PT1902042015* *LL= 2 letter country code, XX = partner id, DDMMYY = date*
Context: standalone event or combined with other ws, online or face to face	*PRW integrated in the Go-lab training – Laboratórios online para astronomia*
Country City/Region	Portugal / online
Working language	Portuguese
Start/End Date	*07/04/2015, 08/04/2015, 10/04/2015*
Organizing Institute	*NUCLIO*
Coordinator name and email	*Rosa Doran (rosa.doran@nuclio.pt)*
Total number of teachers/schools	*15 in total*
Brief description	*This series of PRW were promoted online in order to allow participants of training sessions that could not be with us in the face-to-face sessions to share their views, ideas and suggestions with us.*
Facilitators Observations	*All participants were already introduced to Go-lab tools and methodology, had the opportunity to create their own ILS. Several participants are colleagues from teachers that participated in demo activities.*

	The dynamics of the participant's communication was very surprising for the national coordinators. Very fruitful discussions on how to implement different ideas and how to target diverse obstacles took place during this online session.
Theme analysis and reporting from implementation activities	*Teachers had the opportunity to share their experiences and provide some tips to other teachers that are in different phases of implementation.*
Group discussion/ reflection	
Experiences of Teachers with the Go-Lab activities	*Teachers referred that they find the system very user friendly and appealing to the teachers. However they requested more support and time to experience on the use of the different tools presented. In general they consider possible to integrate the use of ILS in some instances of their classrooms*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*Only a few students have been involved in implementation actions so far but their motivation was very clear. Lack of knowledge and experience in using inquiry was mentioned*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*Some initial attempts to target curriculum content is being made*
Challenges and Improvements of the Go-Lab model	*Time and curriculum constrains*
Reflection through questionnaire	*Provide the total number of participants filled in the questionnaire and any other comment/ recommendation of the facilitator concerning the questionnaire used*
Website	*(if applicable) The URL of the website that has been set up for this activity.*
Photos or other relevant material	

Event agenda	*(if applicable) Please copy here the agenda of the event (program of activities, etc.).*

- **Romania**

G O - L A B Event Code	RO02-26102015
Context: standalone event or combined with other ws, online or face to face	Combined with Practice Reflection Workshop for ISE project
Country City/Region	Bucarest, Romania
Working language	English
Start/End Date	26/10/2015
Organizing Institute	Ellinogermaniki Agogi
Coordinator name and email	Eugenia Kypriotis kypriotis@ea.gr
Total number of teachers/schools	56 (50 high school teachers and 6 school advisors/ teacher trainers)
Brief description	The event was organised so that a combination of teachers and school advisors, who had some preliminary experience either with using Go-Lab portal and labs in their classroom or for training teachers reflect on their experiences and give feedback.
Facilitators Observations	Participants were briefly shown the Go-Lab portal, website and reminded of the opportunities it offers to teachers. Teachers practiced developing a simple ILS. Then they were given feedback questionnaires and the rest of the discussion centered on the themes addressed in the questionnaires. Participants on the whole freely interacted with each other and with the facilitator, expressing their views and their concerns.
Theme analysis and reporting from implementation activities	Themes raised in the discussion: • In general, technical difficulties that teachers and students may face when using an ILS in a course • Time requirements of ILSs. Need for students to work on them as homework as well.

	• Generally, not enough variety of Labs and apps for teaching all subject domains. • Complains about need for multiple logins, e.g. in golabz and graasp. The majority preferred that once logged in in golabz, one should be automatically logged in in graasp. • Some teachers felt that it may be difficult for them to convince other teachers to use it, because the tools and apps they chose to work on were very difficult to use. • The process of going through an ILS is motivating for students? Debate among teachers. • There should be a quality evaluation for published ILS, so that teachers know which are good ILSs.
Group discussion/ reflection	Summarise as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document
Experiences of Teachers with the Go-Lab activities	The majority of teachers expressed positive opinion. The main concern is inquiry activities are long and difficult to fit in classroom time.
Perceived Experiences / Influence of the Go-Lab Activities on Students	The majority of teachers expressed positive opinion with respect to how their students would view these activities.
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	In general they feel will help to promote curriculum reforms needed in terms of modernization.
Challenges and Improvements of the Go-Lab model	ICT competencies and skills of teachers, ICT infrastructure of schools

G O - L A B Event Code	RO02-31102015
Context: standalone event or combined with other ws, online or face to face	Visionary Workshop during the "Lights of the World conference"
Country City/Region	Bucarest, Romania
Working language	English

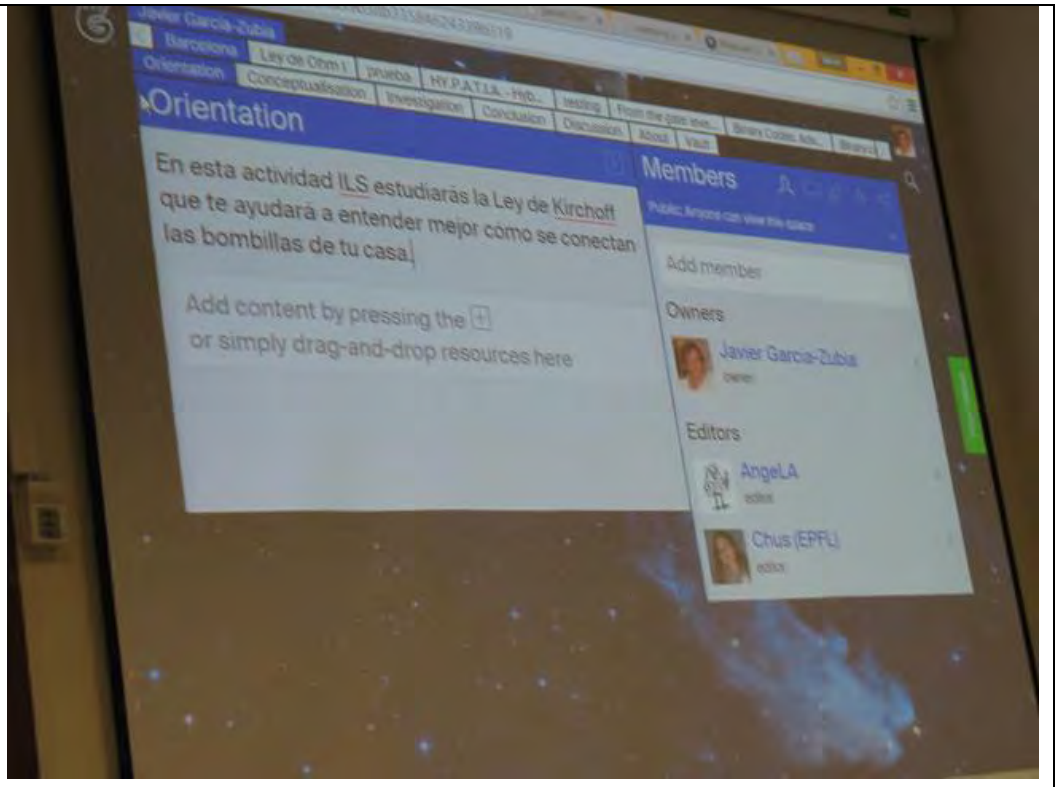
Start/End Date	31/10/2015
Organizing Institute	NUCLIO
Coordinator name and email	Rosa Doran rosa.doran@nuclio.pt
Total number of teachers/schools	100 for the general presentation / 12 for the Visionary (Coordinators of training centers, school inspectors, Scientix Ambassadors and ESERO ambassadors)
Brief description	The event was in the framework of a keynote talk for the International Year of Light. The general model proposed by Go-lab was presented as a path to engage students in the use of the Cosmic Light EDU kit material in their science lessons.
Facilitators Observations	For the group of 12 representatives of different instutes there was a brief presentation of Go-Lab portal and sample labs and ILSs. Teachers discussed the possibility of using the platform in their classrooms and how to integrate it in the framework of their curricula.
Theme analysis and reporting from implementation activities	Themes raised in the discussion: • ICT infrastructure and the possibility of using mobile devices • Time constrains and innovative solutions for integration of modern methodologies. • Need to localize materials • Need for training in the use of the methodology and the tools • Concern about continuous support
Group discussion/ reflection	As a result of this event training courses will be organized in different cities in Romania starting in February 2016. Bucharest training centers and the University of Craiova will collaborate to accredit the courses and to handle the local organization aspects of the training.

- **Spain**

G O - L A B Event Code	*ES1205022015*
Context: standalone event or combined with other ws, online or face to face	*Standalone*
Country City/Region	Spain, Barcelona

Working language	Spanish
Start/End Date	*05/02/2015 – 06/02/2015*
Organizing Institute	*CESIRE: Department of Education of the Catalonian Government*
Coordinator name and email	*Javier García-Zubía, zubia@deusto.es*
Total number of teachers/schools	*29*
Brief description	*The objective of the Workshop is developing the ILS concept using the Go-Lab tools: apps, labs, examples of other scenarios, etc. and integrating it using Go-Lab portal golabz.eu for further implementation in class instruction.*
Facilitators Observations	*The teachers were actively involved in the workshop. The activity was started from discovering the available Go-Lab instruments (http://golabz.eu); The next step, each teacher decided the topic, which would be designed employing ILS concept.* *The teachers built their own ILS using the Graasp platform (http://graasp.eu).*
Theme analysis and reporting from implementation activities	*On the second day, Feb. 6, 2015, after the design experience the attendants were invited to highlight and discuss the pros and cons of the Go-Lab instruments and methodology.*
Group discussion/ reflection	*Summarize as extensive as possible the participants' reflections according to the corresponding reflection points described in the Format and Guidelines document*
Experiences of Teachers with the Go-Lab activities	*86% of teachers expect to use Go-Lab for development own ILS, In general, teachers agree that the Go-Lab tools are supporting their teaching practice (5,6 out of 7). They are enthusiastic with Go-Lab activities. More info see in attached file.*
Perceived Experiences / Influence of the Go-Lab Activities on	*In this activity students were not involved*

Students	
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*They think that with Go-Lab activities can be integrated in curriculum, but there is no clear picture if all subjects of curriculum could be covered. 18% of participants believe that the ILSs that have been developed by the Go Lab team are almost supporting their practice. The ILSs are very motivating and exciting for the students. It is easy to share/copy/modify the ILS. More info see in attached file.*
Challenges and Improvements of the Go-Lab model	*The apps are powerful but they are not intuitive, Need more information about it instruments. There is difficulty to find the app or the lab. Sometime there is no match between the scenario and lab. Needs tutorials for lab and how to use the ILS in class. The lack of products in national language: Spanish or Catalonian (more info in attached file)*
Reflection through questionnaire	*22*
Website	*The CESIRE used its own Moodle System*
Photos or other relevant material	


Orientation
En esta actividad ILS estudiarás la Ley de Kirchoff que te ayudará a entender mejor como se conectan las bombillas de tu casa.
Add content by pressing the
or simply drag-and-drop resources here
Members
Add member
Owners
Javier Garcia-Zubia
Editors
AngeLA
Chus (EPFL)

Event agenda	*First day: February 5th* *The GoLab portals: Golabz, Graasp, and Go-Lab-Project* *Review of apps and labs* *Video tutorials of the ILS*

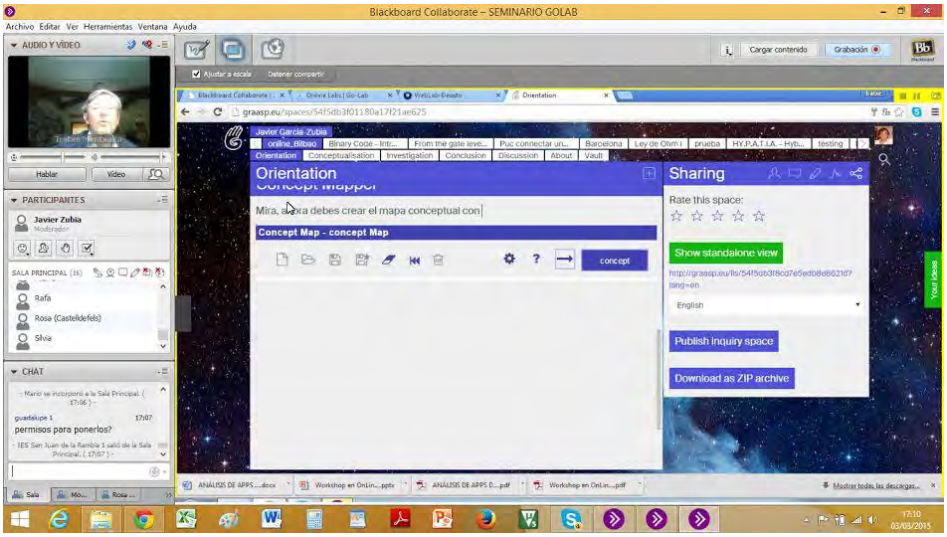
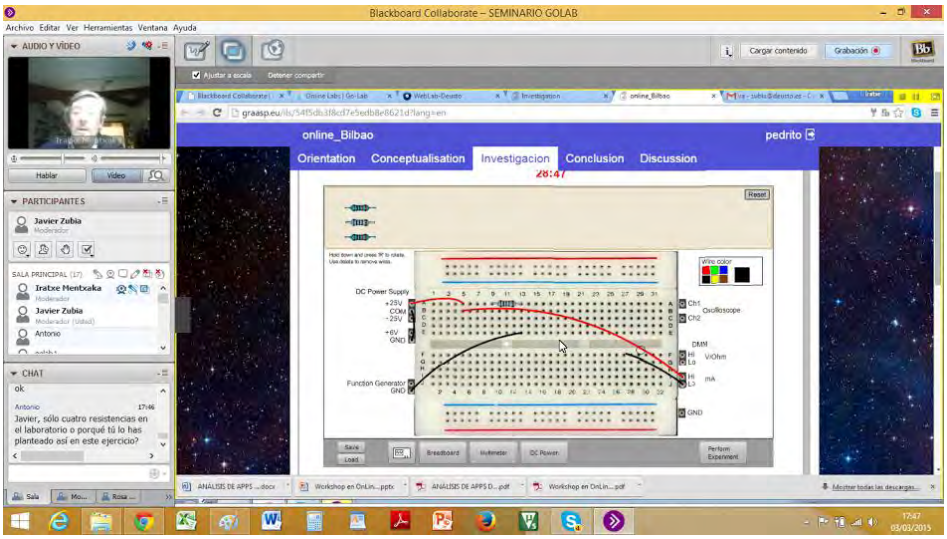
	Guided design of an ILS *Second day: February 6th* *Design of a personal ILS* *Analysis of the Go-Lab tools and methodology* *Explanation of Summer School contest (invitation, deadline, website, etc.)*

G O - L A B Event Code	*ES12-25032015*
Context: standalone event or combined with other ws, online or face to face	*Standalone*
Country City/Region	*Spain*
Working language	*Spanish*
Start/End Date	*18/03/2015, 25/03/2015, 06/05/2015*
Organizing Institute	*University of Deusto in cooperation with Berritzeguneak - Department of Education, Government of Basque Country*
Coordinator name and email	*Javier García-Zubía: zubia@deusto.es*
Total number of teachers/schools	*35 – 20 – 10 participants*
Brief description	*The aim of the activity:* *1) to present new features of the Authoring Tool, introduce the Tutoring tool, and tutoring videos, collect teacher's feedback and evaluation and discussion the tools that can improve the day-by-day teacher practice using Go-Lab Platform;* *2) to initiate development the own ILS;* *3) to completed ILS, the main conclusion of the experience*
Facilitators Observations	*During the workshop teacher were actively involved. The workshop was split on 3 parts: introduction, start – draft design and finish –published ILS. Most teachers have presented their draft ILS. The participants evaluated different instruments such as Go-Lab Repository Portal http://www.golabz.eu/ , Tutoring Platform: http://www.Go-lab-project.eu/tutoring-platform and Authoring tool: http://graasp.eu/*

Theme analysis and reporting from implementation activities	*The teacher presented their ILS and discussed with other which challenges were met by them during this process.*
Group discussion/ reflection	*In general teachers believe that Go-Lab will be helpful for their practice in school; at the same time, the many suggestions and comments were provided. More info, see in attached document.*
Experiences of Teachers with the Go-Lab activities	*Teacher has long experience with work with Go-Lab tools, All of them, from the beginning, want to implement this innovation approach in class curricular. The 60% of participants were drop off of this activity*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*N/A*
Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*The implementation of the developed ILS is planning for next study year*
Challenges and Improvements of the Go-Lab model	*Please see attached file.*
Reflection through questionnaire	*14 participants*
Website	*N/A*
Photos or other relevant material	
Event agenda	1. *Presentation New features and updates in Go-Lab Instruments* 2. *Discussion the Spain Go-Lab community* 3. *Work with teachers on their ILSs (concept, context, content; Apps, implementation concept; Labs etc.)*

G O - L A B Event Code	*ES12-03-100315Online*
Context: standalone event or combined with other ws, online or face to	*Online, standalone*

face	
Country City/Region	*Spain*
Working language	*Spanish*
Start/End Date	*03/03/ 2015 & 10/03/2015*
Organizing Institute	*University of Deusto*
Coordinator name and email	*Javier Garcia-Zubia: zubia@deusto.es* *Iratxe Mentxaka Sierra: iratxe.mentxaka@deusto.es*
Total number of teachers/schools	*23*
Brief description	*The purpose of the workshop to introduce to participants the updated format of the Authoring tool for ILS, the available instruments, and ILS concept in general; to discuss an experience of teachers got from previous work on the Go-Lab portal.*
Facilitators Observations	*The teachers were actively involved in the workshop. The activity was started from presentation of available Go-Lab instruments (http://golabz.eu). Then new features of Authoring Tool (http://graasp.eu). The answer on the question aroused during work on own ILSs or during the presentation were discussed.* *The Spanish community Space were presented for Go-Lab newcomers* *(http://golabspain.deusto.es/)*
Theme analysis and reporting from implementation activities	*The teachers – participants of online meeting – create a ILS by him/her-self and these online meetings were devoted to the discussion and resolution existing questions, problems, and doubts*
Group discussion/ reflection	*The main discussion was limited the nature of online conversation that was continued in community forum and Spanish community mailing list*
Experiences of Teachers with the Go-Lab activities	*Most teachers expect to use Go-Lab for development own ILS, they see promising potential of the Go-Lab tools and they are enthusiastic with Go-Lab activities.*
Perceived Experiences / Influence of the Go-Lab Activities on Students	*N/A*

Expected Influence of the Go-Lab Activities on School Settings and Curriculum	*The prepared ILSs will be incorporated in class lesson plans*
Challenges and Improvements of the Go-Lab model	*Please see attached reports on questionnaires*
Reflection through questionnaire	*10 out of 12 participants provided filled out questionnaires*
Website	*https://eu1.bbcollab.com/p.jnlp?psid=2015-03-03.1543.M.ED5D4D6365F94F63B198A29DB1B450.vcr&sid=2013060 (10 March 2015)* *https://eu1.bbcollab.com/p.jnlp?psid=2015-03-03.1543.M.ED5D4D6365F94F63B198A29DB1B450.vcr&sid=2013060 (03 March 2015)*
Photos or other relevant material	 

Event agenda