Next-Lab

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

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Executive Summary

This document reports about the activities to produce common workshop material in the first year of the project, reflect on the initial methodological approach and present the first outcomes of the training support material produced so far. This will be followed outlining an inventory of existing material as well as the results of a needs analysis among Next-Lab project partners and Go-Lab Ambassadors on what types of training material for which topics they would need and appreciate to have available. This section concludes by presenting the ideal Go-Lab Training Support Material Package, consisting of a PPT (accompanied with the explanations or supporting material, e.g. articles, background information, etc.), Workshop instructions / guidelines, an exemplary ILS and a video tutorial for each training topic.

In section 3 partners evaluate their activities, discuss the lessons learnt and point out good practices regarding their training workshops for the use of the Go-Lab Ecosystem. In this framework partners were asked to also investigate if the change in user numbers per country can be correlated to specific activities they have been implementing (user numbers on Graasp from 1st of January 2017 until 1st of December 2017). The good practices, experiences and lessons learnt are summarized and presented.

The last part of the report is devoted to the facilities that provide the (technical) functions and (internal) procedures to offer direct support services. However, the technical aspects of the Teacher support and empowerment facilities are described and discussed in D2.3.

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1. Introduction

The overall goal of WP2 is to empower teachers of secondary and primary education from all over Europe (and possible beyond) with different Go-Lab proficiency levels and working with extensively different curricula to create, implement and exploit inquiry learning spaces (ILS) which they implement in their schools and classrooms. Clearly, the main challenge is to find the right mix of support and training that allows us as a consortium to offer the best support to the broadest possible target group, i.e. science teachers in primary and secondary education. Without sufficient support and training, teachers will not be able to fully understand, appreciate and/or apply neither the concepts of Inquiry Based Science Education (IBSE), nor recognize the array of possibilities or opportunities of the various tools available as part of the Go-Lab Ecosystem, ranging from online labs, teaching and learning apps, assessment tools, and the upcoming new functions and features.

To this end, the aim of "Task 2.3. Tutoring" and "Task 2.4. Networking and training" is to plan, design and create a methodology for providing the most effective, individualized support (Task 2.3) and to organize (international) training events as well as to create modular (online) training support material (Task 2.4). The original approach and plan was initially described in deliverable "D2.1 - Specifications of the teacher-empowering facilities and activities" and an initial report of the activities was presented in deliverable "D2.2 - Initial implementation of the teacher-empowering facilities and activities".

The scope of the current deliverable is to report on the major outcomes of the past activities, re-visit the workplan and evaluate the activities and overall methodology based on the impact and outcomes of the process of year 1. More specifically, this deliverable would like to present:

- The approach followed and work that was undertaken to produce training and workshop material as a first set of modular Go-Lab training in close connection with the Next-Lab Summer School 2017.
- An overview of existing support and workshop material from the Go-Lab and Next-Lab projects that is available to all Next-Lab Expertise Centres (NECs) and Go-Lab Ambassadors.
- The results of a Needs Analysis among the NECs and Go-Lab Ambassadors regarding the scope and type of needed training material and the gaps identified.
- The most significant outcomes of the training activities on the national level based on a reflection process and impact assessment as well as the opportunity to present the partners' best practices in terms of training workshops.
- The results of a needs analysis on the aspects of tutoring, mentoring and/or further coaching services for Go-Lab teachers, to enable a common understanding of the desired services - mentoring and coaching, thereby meeting the needs and expectations of teachers.
- A short review and impact assessment of the Intercom Help-desk service facilities.

This document is targeted to Next-Lab partners, so that they can be aware of the ongoing discussions regarding the work of WP2. It is of particular relevance to those Next-Lab partners who are providing training workshops and are eager to learn about the experience and best practices of other partners and countries.

The results of this deliverable will be the foundation of work planned and to be implemented in year 2 of the Next-Lab project, and will support the planning of further support actions, and the organization of the creation of modular material and the international events.

2. Creating Modular Go-Lab Training Support Material

As outlined in D2.1, the key focus of the training provided within the project shifts away from the overall goal of ILS creation and community building, towards providing and enabling more specific expertise regarding the specific concepts, use and implementation of high-quality inquiry-based science education when using Go-Lab tools. The current goal is to focus on enabling greater multiplying impact among partners and key teachers (especially Go-Lab Ambassadors and Next-Lab Expert Teachers), so that the user base in Go-Lab will be extended beyond those teachers directly trained and communicated with by Next-Lab partners or Go-Lab Ambassadors.

To facilitate and enable a complete course on all aspects of the Go-Lab Ecosystem, the idea is to create modular training and workshop support material. This should be accessible to all Next-Lab project partners and Next-Lab associates (e.g. Go-Lab Ambassadors, Teacher Training Institutes (TTIs)), so that they can base their workshops on ready-made, well-structured workshops.

This section and the following sub-sections will report about the activities to produce common workshop material in the first year of the project, reflect on the initial methodological approach and present the first outcomes of the training support material produced so far. This will be followed by reporting our efforts to establish an inventory of existing material as well as the results of a needs analysis among Next-Lab project partners and Go-Lab Ambassadors on what types of training material for which topics they would need and appreciate to have available.

2.1 Reflection on the initial approach and methodology

In the Next-Lab project (as in the previous Go-Lab project) the implementation of training is not being centrally coordinated, but rests in the responsibility of each NEC, Ambassador or Next-Lab partner. The reason for this is clear: specific teacher training needs, (national or regional) circumstances and conditions, curricula, etc. are so unique and somewhat unforeseeable. Consequently, each partner (and in fact each single trainer and workshop organizer) needs to have the full flexibility to plan, design and implement tailor-made workshops in order to be able to respond to the needs of the workshop participants. There is no doubt among the Next-Lab partners that only on NEC-level the best understanding of their respective target groups exists. Next-Lab partners are all well connected to their respective teacher community and thus understand and respond to the needs and requirements for training.

Nonetheless, the set of skills and competences to fully appreciate and use the Go-Lab Ecosystem are the same in the end even though the base and topics of implementation may differ. A common framework was therefore – at the beginning of the project - understood to be the best approach to plan, produce and align or adjust their (existing) training material and workshops to ultimately form the Go-Lab Curriculum. Consequently, the initial idea and plan was to start developing a detailed and complete Go-Lab competence & skills framework. Based on this framework, partners and the project overall could better identify training needs and create training phases and courses that match with the skill and competence development phases in the Next-Lab Teachers Journey (see D1.1) to update or create accordingly the training material. Additionally, the development of such a competence and skills framework would have guided the consortium to understand what areas and skills require training and what material is still missing.

However, the development of such a framework is a complex challenge (which has not been specifically foreseen in the Description of Action). At the same time, the need for some common training material for partners and ambassadors was urgent, especially for the preparation of the first international training event. Therefore, a more pragmatic approach to the work of Task 2.4 that could deliver more immediate results was needed.

Additionally, the need to create an inventory and catalogue became obvious in order not to duplicate or re-produce material, videos, etc. that already exist and might only need an upgrade. Lastly, following discussions especially with the "new" Next-Lab partners that did not participate in the previous Go-Lab project and the appointed Go-Lab Ambassadors, the consortium understood that there are different needs or understanding. Also, the teachers – the end-users of the Go-Lab Ecosystem – were looking for more instant practical help and support. From the interaction with teachers we learnt that their need was not primarily to attend some type of complete (online) course for Go-Lab, but rather to have concrete help and steps to learn about how to better use the functions and pedagogical approach in their trainings and classroom realities. We decided to postpone the development of the competence framework and the development of an all-encompassing (and centrally developed) Go-Lab course and curriculum, and to focus more on the practical needs.

The planned international training event (Next-Lab Summer School 2017) was a great opportunity to prepare the first commonly designed workshops given the thematic focus of the event (main theme: Go-Lab Scenarios), and it was decided to develop new workshops that would be tested and applied during the summer school. An initial "model training workshop structure" was created and the first set of workshops were created (for details see D2.1, and below Section 2.2). Following the summer school (autumn 2017), an internal needs analysis was conducted in an attempt to understand what types of material are sought after by everyone to conduct effective training on all aspects of the Go-Lab Ecosystem, before continuing the rather theoretical and academic exercise of the competence framework.

2.2 Next-Lab Workshops and Support Material

When designing the methodology and framework for the production of training support material connected with the topics planned to be offered during the first summer school of the project, the emphasis was given on ensuring time for practical work of workshop participants. In the past, teachers have shown more appreciation to hands-on activities rather than talks. Teachers attending training workshops usually come with specific needs and the desire to learn practical tips that will make them more efficient and save their time in preparing a lesson. Or they want to learn about the newest developments, labs, apps and other functions.

The idea was to provide the specific details on how courses and workshops should ideally be organized in order to achieve a higher or new proficiency level of the participants. To ensure a similar structure, the "model Go-Lab Ecosystem training or workshop" was proposed to be used wherever applicable. Each workshop was ideally to be accompanied by a brief description and trainers' instructions for each of the parts, so that a trainer / tutor is able to implement the workshops and knows what she/he is expected to do. More detailed information and an example of the model can be found in D2.1 and its Annex.

The goal was to develop more focused training support material that can be used by partners and teachers alike and that will improve the relevance and outcomes of teacher training, taking into consideration a wide variety of learning material, types of training delivery and workshops, (online) courses and instructional delivery models. Each workshop

presentation and additional content was developed with the goal that every NEC and/or Go-Lab Ambassador – independently of their expertise – can use and implement it.

The theme selected to be the focus for the 2017 summer school were the Go-Lab Scenarios (http://www.golabz.eu/scenarios). Currently, there are six different scenarios that can be used to shape the didactical structure of an ILS. The theme was ideal to introduce many other topics of the four Go-Lab competence domains (as defined in D2.1): Pedagogy / IBSE; Go-Lab Ecosystem; 21st Century Skills and Learning Assessment; Multiplication / Communication. Consequently, the production of support material was focusing on these areas. The table below is an overview of the material that was developed specifically for this occasion.

Table 1: Overview of training support material in Next-Lab

Training / Workshop Title	Authoring Organisation	Domain	Type of Material
Inquiry Learning in Go-Lab	University of Twente	Domain I - Pedagogy - IBSE	PPT presentation
Cognitive Load Theory and Go-Lab	University of Twente	Domain I - Pedagogy - IBSE	PPT presentation
Motivation	University of Twente	Domain I - Pedagogy - IBSE	PPT presentation
Flipping the Classroom and Go-Lab	University of Turku	Domain I - Pedagogy - IBSE	PPT presentation Workshop guidelines Background information Supporting studies / articles
The Go-Lab Scenarios	University of Twente	Domain I - Pedagogy - IBSE	PPT presentation
The Big Ideas of Science	Ellinogermaniki Agogi	Domain I - Pedagogy - IBSE	PPT presentation Workshop guidelines
Brainstorming the Big Ideas of Science	Ellinogermaniki Agogi	Domain I - Pedagogy - IBSE	PPT presentation Workshop guidelines Workshop sheet
The Tangram Challenge	Ellinogermaniki Agogi	Domain I - Pedagogy - IBSE	PPT presentation Workshop guidelines A Tangram Guide for educators Tangram help Tangram puzzle (pdf) Tangram printouts (pdf)
The Big Ideas (merged with the tangram challenge)	Ellinogermaniki Agogi	Domain I - Pedagogy - IBSE	PPT presentation, Workshop guidelines Workshop sheet A Tangram Guide for educators Tangram help Tangram puzzle (pdf) Tangram printouts (pdf)

Training / Workshop Title	Authoring Organisation	Domain	Type of Material
New Features and Services I: Labs and apps – What is new?	EPFL	Domain II - The Go-Lab Ecosystem	ILS with examples
New Features and Services I: Labs and apps – The Seesaw Lab	University of Tartu	Domain II - The Go-Lab Ecosystem	PPT presentation Workshop guidelines ILS with examples Workshop sheet
New Features and Services I: Labs and apps – Peer Assessment Tool	University of Twente	Domain II - The Go-Lab Ecosystem	PPT presentation
21st Century Skills I: Introduction to 21st century skills - Overview	University of Deusto	Domain III - 21st century skills - Learning Assessment in Go-Lab	PPT presentation
21st Century Skills I: Introduction to 21st century skills - Apps	University of Deusto	Domain III - 21st century skills - Learning Assessment in Go-Lab	PPT presentation ILS with examples Workshop guidelines
21st Century Skills I: Introduction to 21st century skills – GoMODEL app	University of Deusto	Domain III - 21st century skills - Learning Assessment in Go-Lab	PPT presentation ILS with examples Workshop guidelines
21st Century Skills I: Introduction to 21st century skills – Peer Assessment App	University of Cyprus	Domain III - 21st century skills - Learning Assessment in Go-Lab	PPT presentation Workshop guidelines ILS with examples Video Tutorial
How to become an effective multiplier?	European Schoolnet	Domain IV - Communication - Dissemination	PPT presentation Workshop guidelines
Visual Identity and Social Media	European Schoolnet	Domain IV - Communication - Dissemination	PPT presentation

All workshop material and information is accessible for the partners and Go-Lab Ambassadors. There are spaces on Graasp both in the Next-Lab folders structure as well as in the Go-Lab community for ambassadors that have been created to which all potential trainers can access, download and use the presentation, other material, supporting documents, etc.:

For Next-Lab partners - http://graasp.eu/spaces/58ff24c21e0ddb47893bcf86

For Go-Lab Ambassadors - http://graasp.eu/spaces/587f351a97159c57e1161b2f

The material is stored according to the Go-Lab Domains and based on the workshop title (see below Figure 1). The training material will also be made available to the Teacher Training Institutes (TTIs).

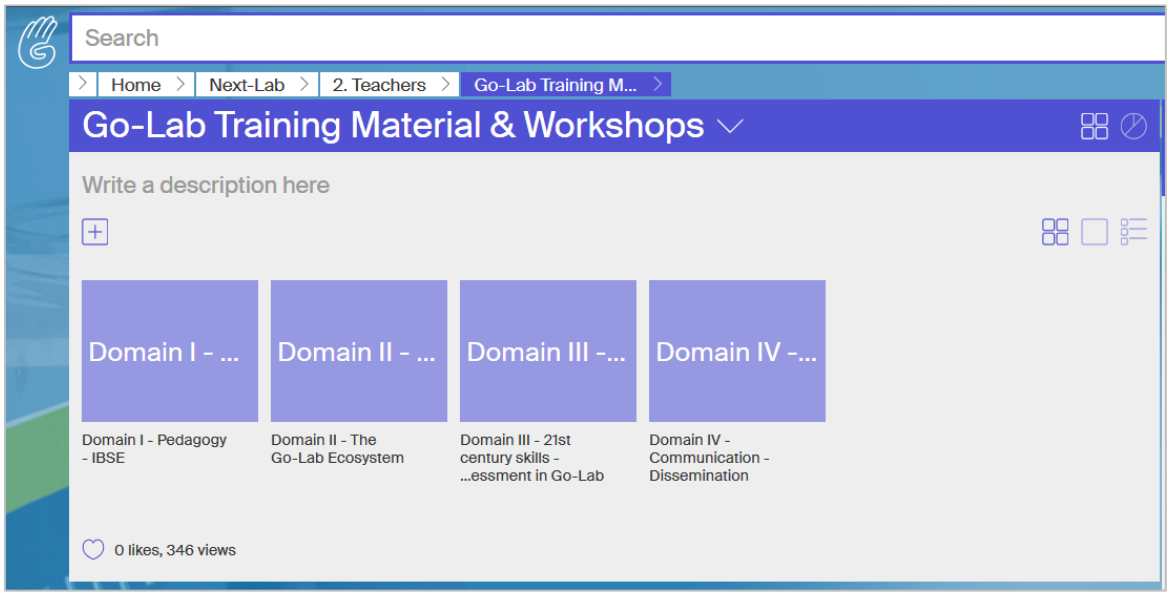


Figure 1: Screenshot of the Graasp space with training support material

Overall, the approach has worked well so far, especially the activities aimed at producing material for the specific summer school. It is therefore also planned to organize the production of future material along with the topics and needs of the future international training events.

Table 2: Overview of future Next-Lab international training events and indicative topics

Main Theme	Type	(Indicative) Date	(Indicative) Location	Main Target group
Co-Creation of ILS (connected with Task 2.5) / Big Ideas of Science	Spring School	22-27 April 2018	Bilbao, Spain	Primary and Secondary Science Teachers – Experts
Learning Analytics in Go-Lab	Summer School	8-13 July 2018	Marathon, Greece	Primary and Secondary Science Teachers - Beginners
The use and application of the Go-Lab eco-system in primary schools	Autumn School	2-7 Sep 2018	Tartu, Estonia	Primary school teachers – Beginners
TBD	Winter School	January 2019	Lisbon, Portugal	Secondary school teachers – Experts

However, during discussions it became clear, that what is helpful for the Next-Lab partners and NECs is not necessarily what Go-Lab Ambassadors or TTIs need for their trainings. Moreover, we felt the need to evaluate and re-think the chosen approach for the development of common material. In order to ensure that our work is effective and according to the needs, we decided to do the following two activities that were taking place at the same time:

a) A needs analysis among Go-Lab trainers to find out what type of material is mostly asked for;
b) An initial inventory of existing material, to ensure that work is not duplicated and to identify gaps in support material.

2.3 Preliminary inventory of existing material

One of the consequences of having a decentralized approach to training - where the responsibilities of training lie with the national partners or Go-Lab Ambassadors - is that a great variety and mix of different training material exists as each partner created their own. Additionally, it is being uploaded to many different locations in Graasp not yet known to other partners or other storage options, as well as adapted to local circumstances (language, curriculum needs, etc.). Also, and more importantly, no common standard has been defined or been taken into consideration.

Consequently, for the initial analysis of already existing training support material, the main effort was placed on identifying the material that the partners already produced, as well as the locations where material was stored. This was followed by the classification of the existing material and to what extent it can be used during Go-Lab training activities. The analysis of this material was done in parallel to the internal needs analysis that highlighted the actual needs for the development of new common material and its specific parameters, e.g. the preferred type of material or domain to be covered.

The results of the initial process revealed that there are numerous items and parts of separate support material that are available to support teachers (most of it created as a part of the support platform under the Go-Lab project), and that could be used in workshops for teacher training without any or little need for localization or editing. However, the material exists without a framework or instructions how to use it effectively as part of a workshop or training. Mostly, the material is meant for self-study or consists of PowerPoint-type presentations without further guidance or explanation. Consequently, there is only little consistency in the existing support material without an overarching strategy for a holistic training workshop or course. Apart from what has been produced specifically for the Next-Lab summer school (see above) any other new material had been produced in a process of demand and supply, independently by each NEC following the need of their training and teachers.

To support the collection of already existing material, partners were asked to upload material to a specific folder in Graasp (under Next-Lab, WP2 - http://graasp.eu/spaces/58319084c74a95fbce2415dc). Additionally, training support material is available in Golabz under the Support section (http://www.golabz.eu/support) and more specifically under the area Video Tutorials (http://www.golabz.eu/support/videos). Last, the Go-Lab Initiative YouTube channel (https://www.youtube.com/channel/UCcpdFl6jIiRM5oRSIE-LYvw) hosts many video tutorials (which are currently being updated as part of WP4) that can be used as supporting material during Go-Lab training.

In total, we have identified 95 items (see Appendix), consisting of presentations (e.g. PPT), Word files, PDFs, Google Docs, Video files, Streaming videos (e.g. YouTube) or Excel files. The clear majority (see Figure 2) of them are YouTube videos and thus are publicly accessible for anyone.

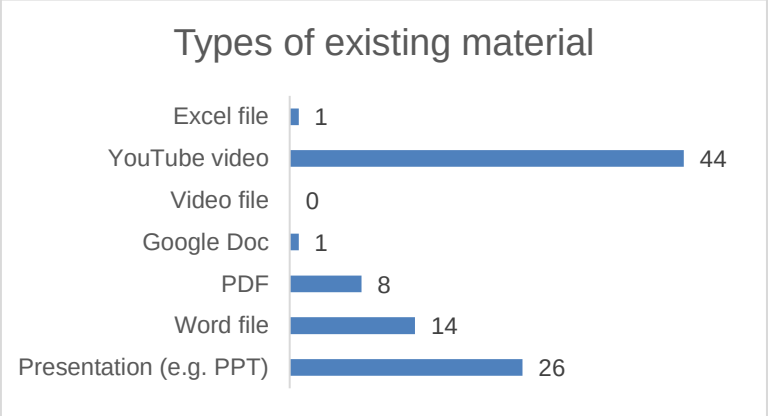


Figure 2: Types of existing Go-Lab material

Regarding the domains covered, we have tried to characterize the identified items based on the domains considered as most important for the project: (a) Pedagogy / IBSE, (b) Go-Lab Ecosystem, (c) 21st Century Skills and (d) Multiplication / Dissemination. Guidelines for the use of the Go-Lab Ecosystem are dominating as shown in Figure 3, while material about the Pedagogy / IBSE follows with about 22% representation among the items. Last, 21st century skills and Multiplication/Dissemination are poorly covered.

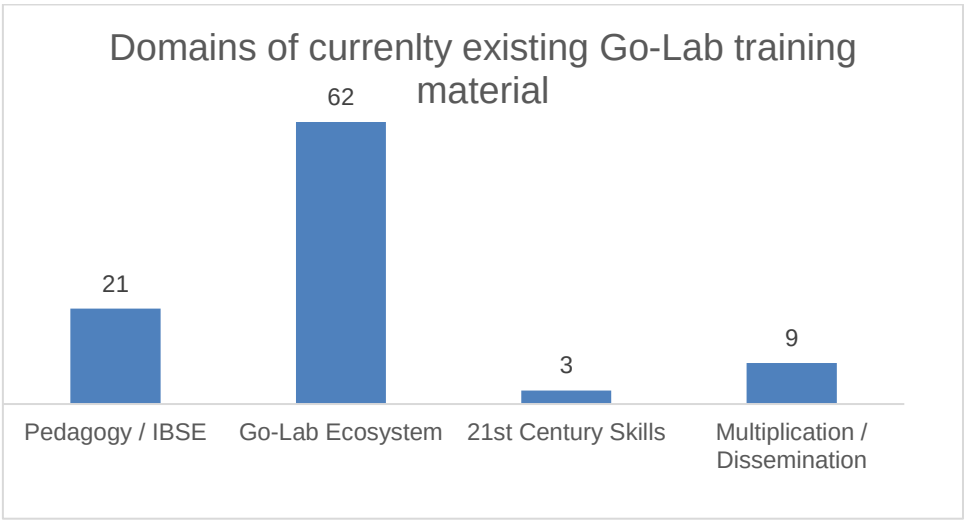
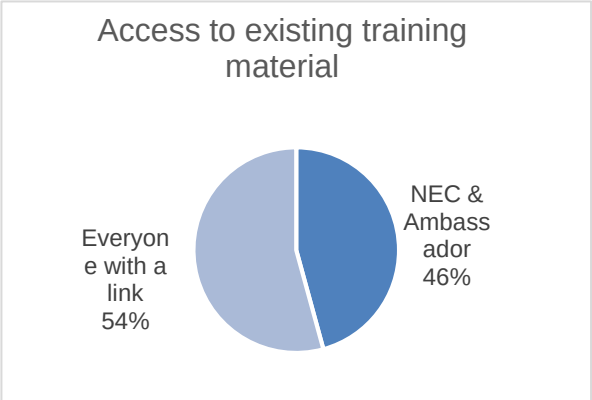


Figure 3: Domain coverage of existing Go-Lab material

Most of the items are in English with only 7 of them in Greek and 5 of them in Dutch, as it can be seen in Figure 4. Also, there are single items in Spanish, Russian and Estonian. Almost half of the items are available to everyone (as part of the Support services on Golabz) with the link as shown in Figure 5, while 46% of them are only accessible to NECs and Ambassadors mostly because they are hosted in Graasp areas where only Ambassadors and NECs have access.



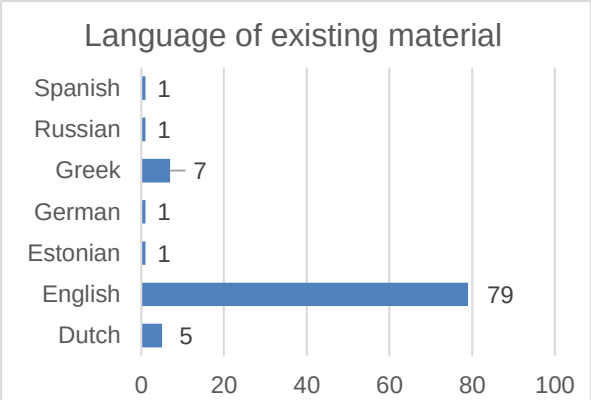


Figure 4: Accessibility of Go-Lab Material

Figure 5: Language of existing Go-Lab Material

2.4 Internal Needs Analysis

Before continuing to create more homogenous and modular Go-Lab training material, and based on discussion with Go-Lab Ambassadors during the Summer School in 2017, it was necessary to firstly understand the needs for such a task. It was important to understand how trainings were organized and what types of common material were actually needed and sought for by partners. To support our understanding, an internal needs analysis was conducted, involving NECs, other Next-Lab partners and Go-Lab Ambassadors.

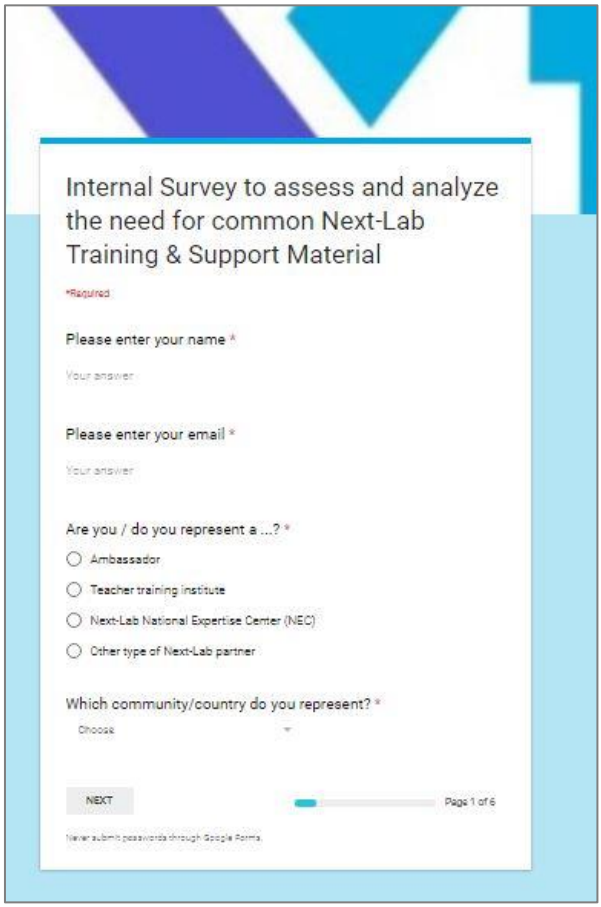


Figure 6 Screenshot of Google Questionnaire

2.4.1 Analysis of Results

The complete overview of responses of the participants to each question can be found in the Appendix. Here we are going to present a summary of the results to draw conclusions on how these could affect the future creation and adaptation of existing training support material to support Go-Lab trainers in their activities.

A special Google Form survey has been designed in order to gather the responses of partners regarding the needs of training material. An email has been circulated amongst the partners informing them about the procedure. In total 30 replies have been collected during this survey.

The Google Form consisted of **6 separate thematic sections**, and the most important results are as follows (the complete questionnaire and answers can be found in the Appendix):

1. Participants' demographic information

In this section, we gathered the information about the 30 participants who took part in the research and apart from the demographic information, such as names, the communities or countries they are representing, most importantly their roles in the project (see Figure 7).

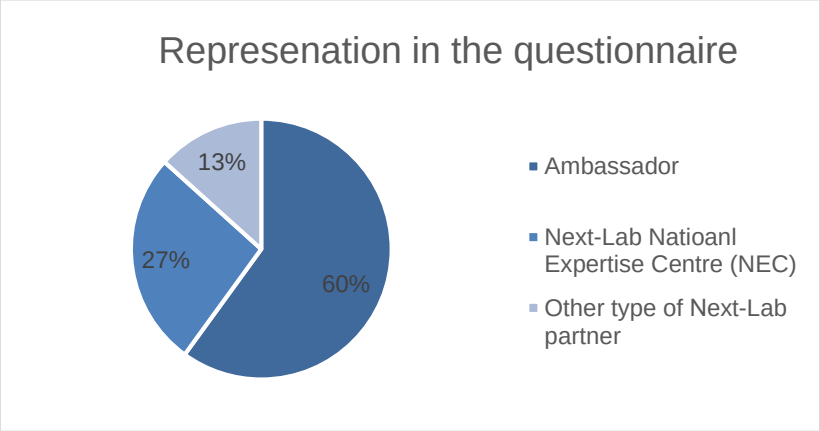


Figure 7: Role of participant in Next Lab

2. Training / Workshops types and currently used material

At the start of the survey, we aimed to understand how a "standard" or "usual" Go-Lab training looks like, how it is organized and what kind of material is used. Ideally, the answers would help to form a realistic depiction of the type of workshops that are organized and what kind of material is used by those who usually conduct Go-Lab training.

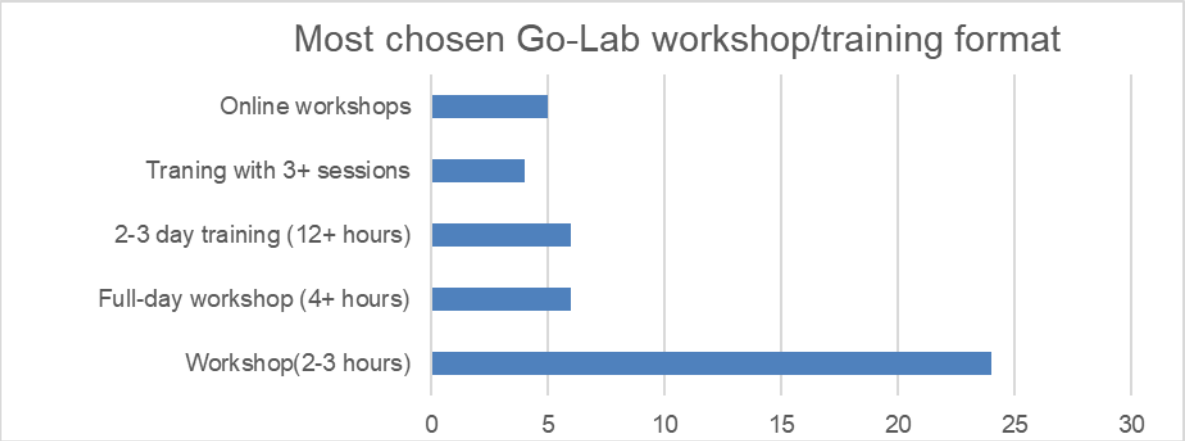


Figure 8: Most often applied Go-Lab training format

Most trainings organized by Next-Lab partners or Go-Lab Ambassadors are workshops, lasting between 2-3 hours (see Figure 8). Trainers usually structure a workshop or trainings that last up to 2-3 days, by starting with presentations followed by practical hand-on sessions, while also using the Go-Lab Ecosystem for demonstrations. The shorter a workshop is, the more likely it is that demonstrations are used rather than practical exercises. The focus seems to be on presenting a complete picture of the Go-Lab Ecosystem and its three main websites (Golabz, Graasp, Support page).

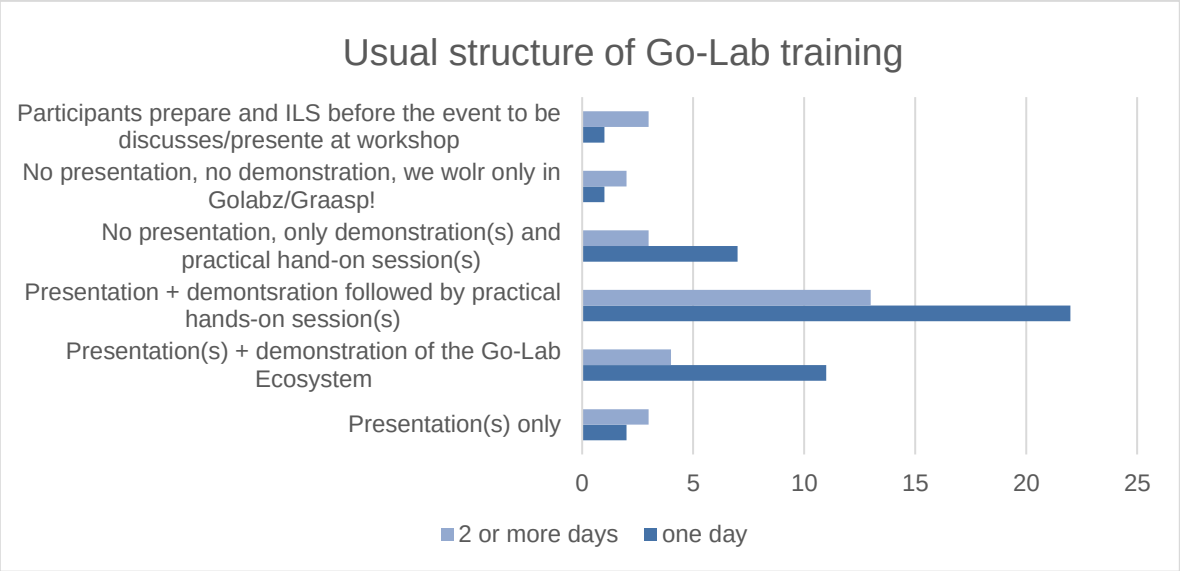


Figure 9: Usual structure of Go-Lab training lasting at least one day (or more)

The importance of presentations is also confirmed by their responses in the question: "*In your Go-Lab workshops / training: What types of Go-Lab material do you typically use?*". The majority of respondents use the actual Golabz website for training purposes. But almost as many participants (23) confirmed that they (also) use presentations that have been prepared by themselves or their organization.

Showing prepared or exemplary ILSs is considered as a preferred option in trainings and are used by many of the Go-Lab trainers. ILSs are a good tool for training, as workshop attendees can immediately see the functions of presented labs or apps as well as functions of Graasp, once the theoretical part is covered.

Video tutorials are also used in workshops, as most of them are provided by Golabz in the support section. To a lesser extent, the Go-Lab manual – produced during the preceding Go-Lab project - is used during the workshops by some trainers.

Table 3: Responses regarding the types of Go-Lab material typically used during Go-Lab training activities

Type of Go-Lab material typically used	Responses
Golabz / Graasp website	26
Presentations prepared by myself / my organization	23
An ILS that was prepared by you	18
An ILS that was prepared by someone else	17
Video tutorials (prepared by the consortium)	16
The Go-Lab manual	12
The Tips & Tricks / Frequently Asked Questions (FAQ)	4
Presentations prepared by someone else / another organization (without editing)	1
Presentations prepared by someone else / another organization (but edited / localized)	1
Video tutorials (prepared by myself / my organization)	1

However, while the Go-Lab Manual is not as often used during the workshop, it seems to be a popular option to be shared with participants for self-study as a follow-up to the training received. Nonetheless, when it comes to material that they usually share with the participants, presentations are the number one option (see Figure 10), along with dissemination material and the Support Page.

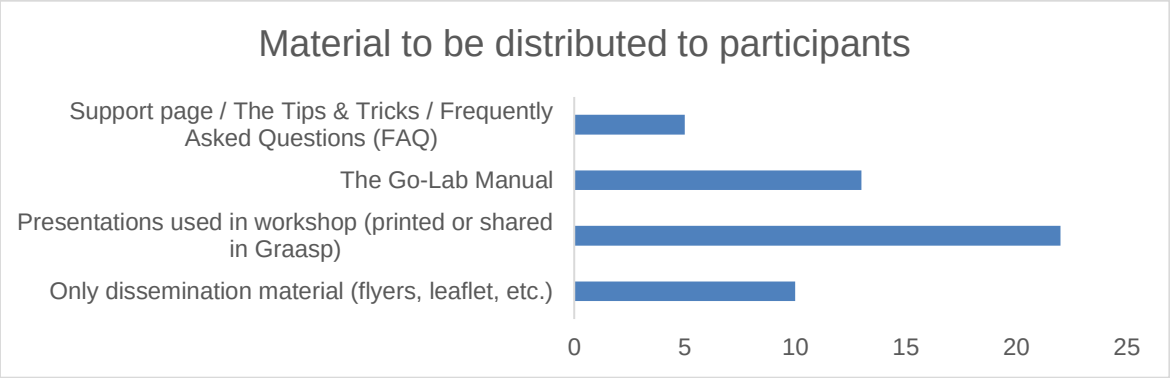


Figure 10: Material to be distributed to participants during Go-Lab training activities

Participants were asked to rate the need for specific types of training and support material in order for them to offer a workshop / training on a Go-Lab topic that is **not their area of expertise**. According to Figure 11, most of the participants considered as **very important** to have an **exemplary ILS** and video tutorials that can show to participants the issues with which they may not be familiar. Additionally, further workshop guidelines or instructions and an updated **Tips & Tricks section / FAQs** were considered as very important by the respondents. Interestingly, a presentation – albeit still important – was not a top priority in such cases.

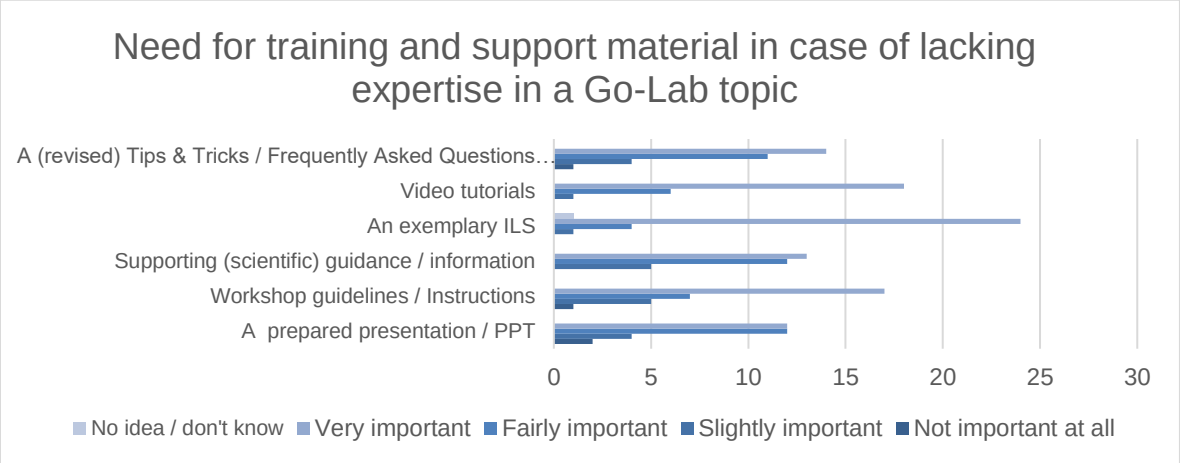


Figure 11: Need for training and support material for Go-Lab training events

3. Pedagogy / IBSE

There is a great interest during Go-Lab training in the topics of the domain Pedagogy / IBSE (Inquiry Based Science Education). When asked about the preference regarding a variety of topics connected to the domain, respondents confirmed their preference for presentations concerning the following topics which are the most popular to be covered (see Figure 12):

- How Go-Lab can be used when “Flipping the Classroom”
- The concept and models of Inquiry Based Science Education (IBSE)

- Technological Pedagogical Content Knowledge (TPACK) and Go-Lab
- The Go-Lab Scenarios
- Cognitive Load Theory – How it impacts the design of ILSs in Go-Lab

Still there is interest in exemplary ILSs and video tutorials. These elements can assemble a complete training concerning the pedagogical framework and the presentation of IBSE for participants, be they beginners or advanced users.

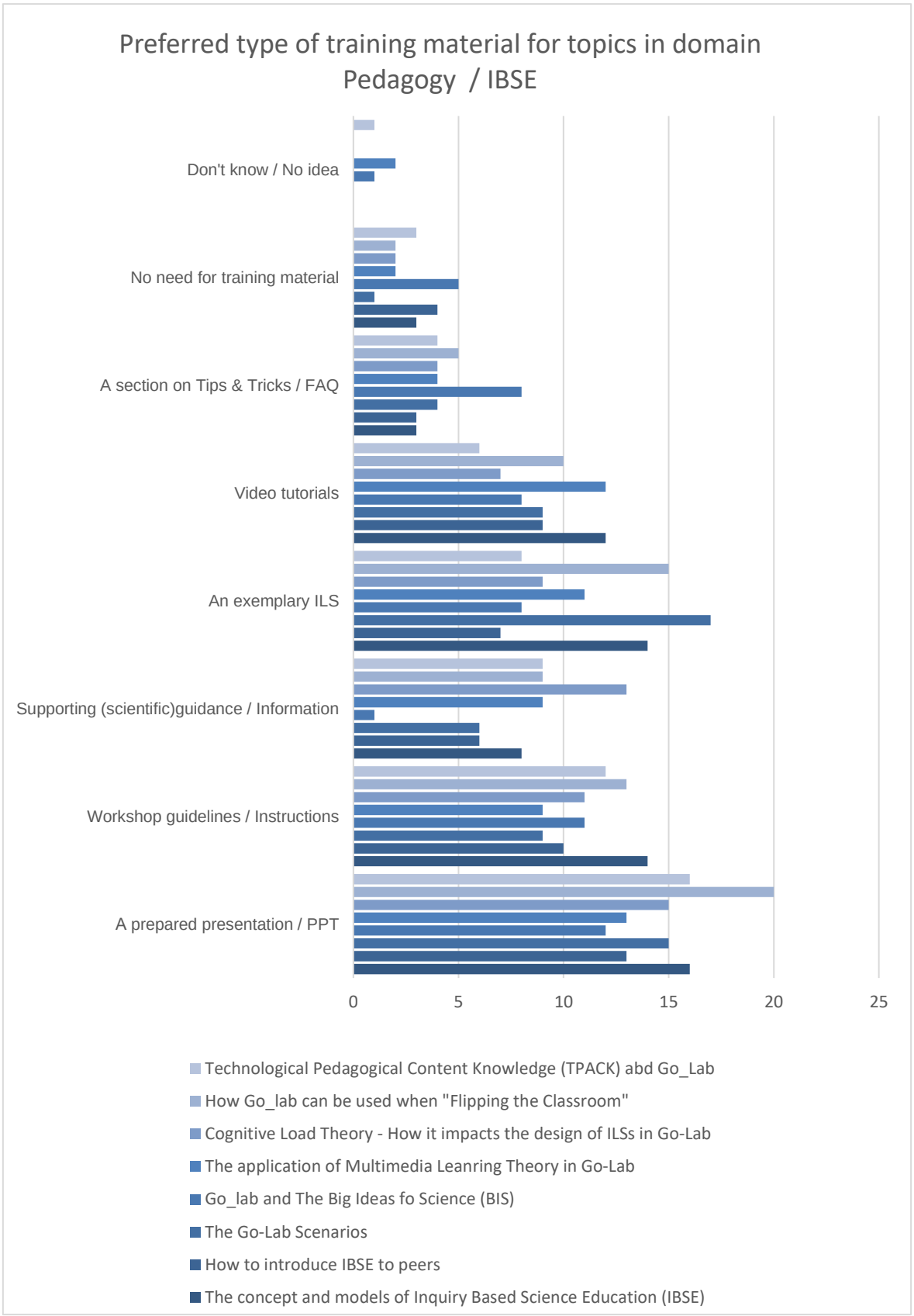


Figure 12: Types of training material on specific topics regarding Pedagogy / IBSE

4. Use of the Go-Lab Ecosystem

The trend noticed in the previous domain can also be seen regarding the topics of the domain “the Go-Lab Ecosystem”. Presentations are the most popular means of training support material for most of this domain’s topics during Go-Lab training sessions as most respondents have chosen the option “prepared presentation” for the given topics:

- Graasp-General introduction
- How to publish and ILS to Golabz
- The most used Labs – Introduction and presentation
- The most used Apps – Introduction and presentation
- Collaboration and Communication Apps
- Graasp – new development and features
- The teachers’ / students’ ePortfolio
- Data literacy, ethics and privacy
- The Go-Lab community

Using presentation to introduce the topics seems to be a good way to kick-off the other, more practical activities and other forms of training actions can be built around them. Notably, participants have expressed the interest in videos covering the general introduction to the authoring tool Graasp, e.g. on how to create, edit and share an ILS, on collaboration and communication apps as well as about the teachers’ and the students’ ePortfolio. Lastly, they would also appreciate to show ILSs with the most used apps, the communication and collaboration apps and the most used labs.

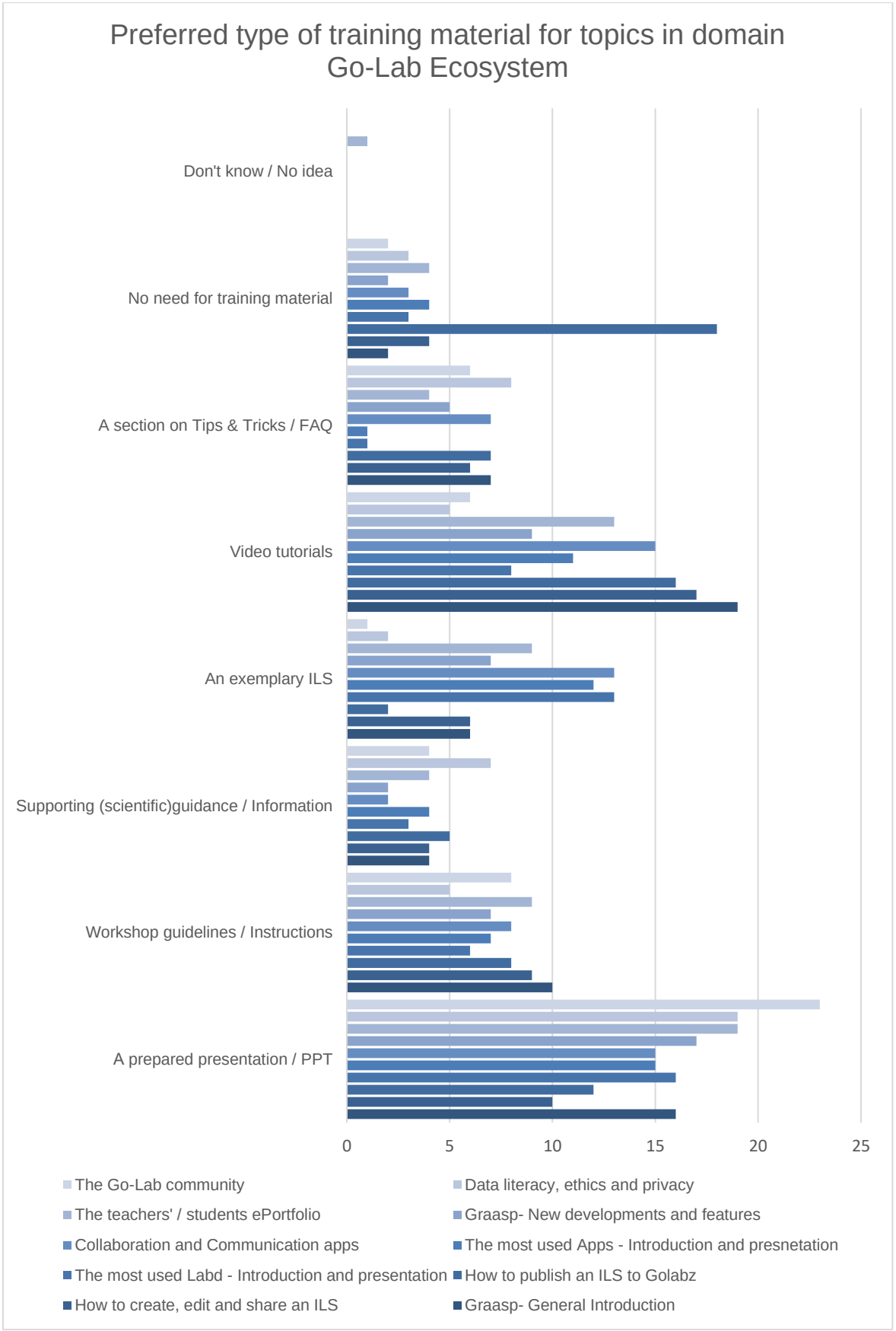


Figure 13: Types of training material on specific topics regarding the Use of Go-Lab Eco-System

5. 21st century skills / Learning Assessment

According to the survey participants' responses, there is a great demand for presentations for all the suggested topics: (a) 21st Century Skills – An Introduction, (b) Awareness, assessment and reflection apps for teachers, and (c) Awareness, assessment and reflection apps for students. In the meantime, participants would also like to have workshop guidelines and instructions for a and b, which implies that they would rather feel more secure to present such issues and video tutorial for b and c, most probably because they believe that reflection is very important for the educational community and that it would be very straightforward to show such videos to their trainees.

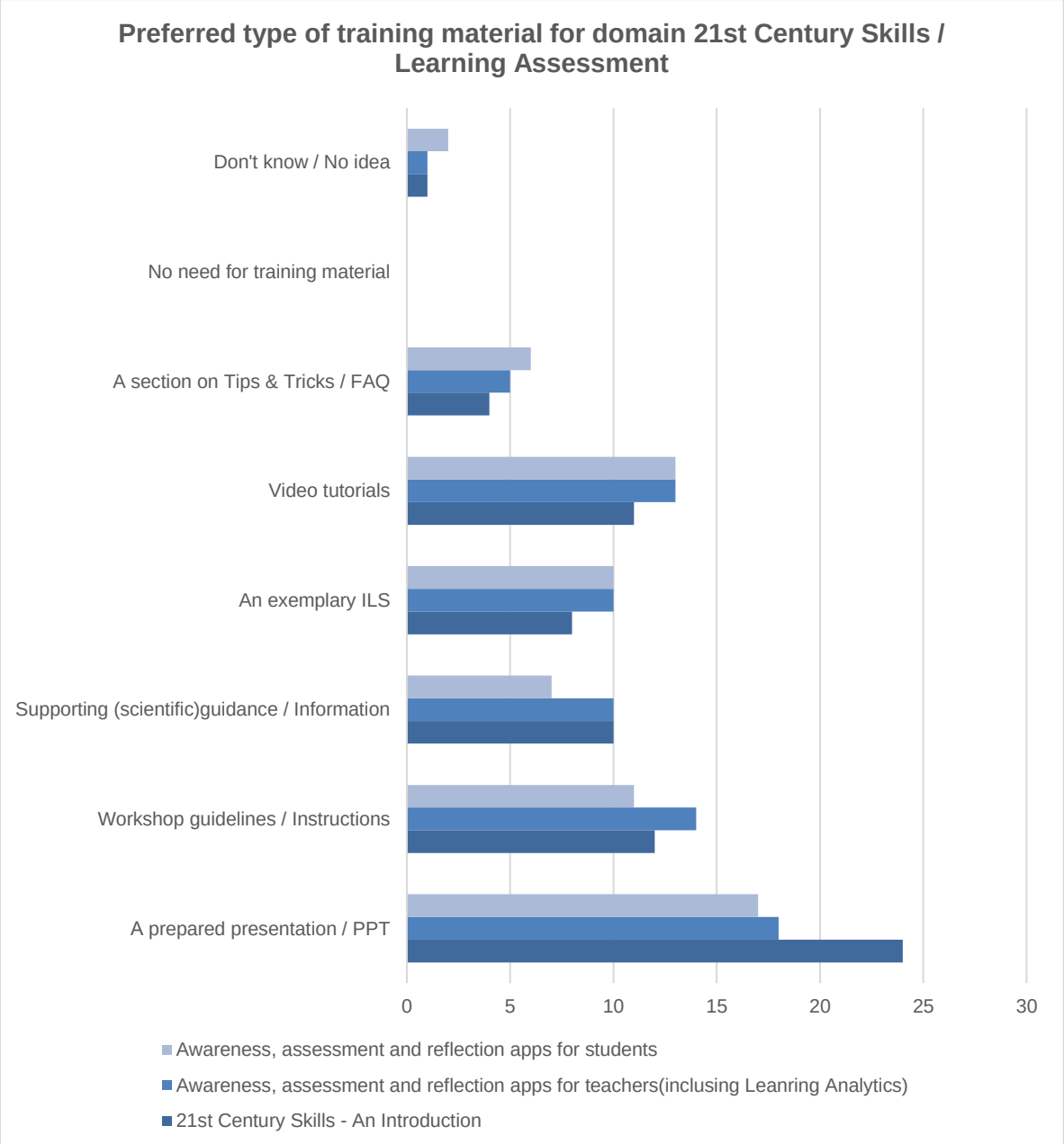


Figure 14: Types of training material on specific topics regarding the 21st Century Skills /Learning Assessment

6. Multiplication / Communication

Regarding multiplication and communication topics participants selected workshop guidelines and instructions covering: (a) How to be a successful multiplier, (b) Organizing workshops and events and (c) How to promote the use of Go-Lab in Social Media in your community. It is not only that participants feel the instructions for these areas would be more useful and beneficial, but also it is the nature of the topics that it would be more suitable to shape the content in the form of workshop guidelines and instructions. Presentations are also asked, but it becomes obvious in Figure 15, that they are less popular in this case.

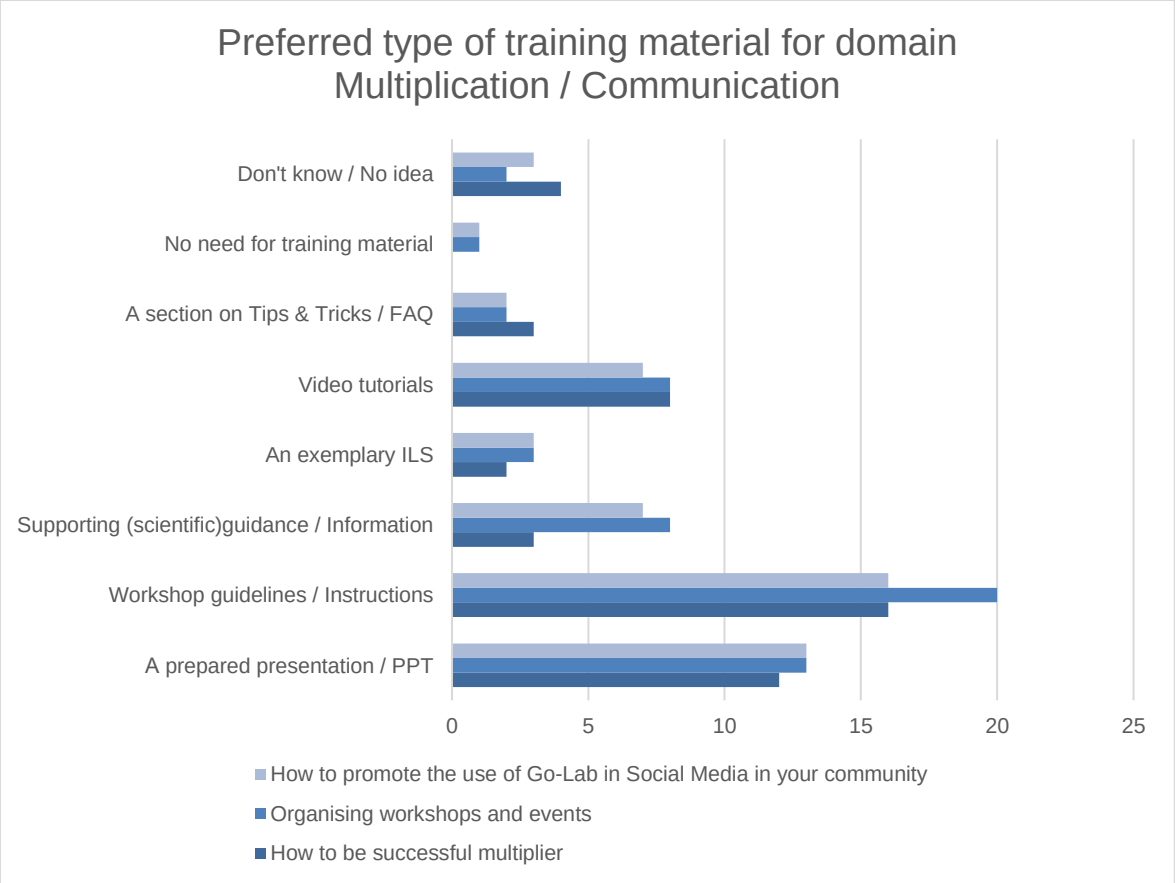


Figure 15: Types of training material on specific topics regarding the Multiplication / Communication

2.4.2 Summary and Conclusions

The survey results have been very helpful to establish a few principles and extract the following main findings for Go-Lab training activities and needs for supporting material:

Main Findings	Explanation
Most Go-Lab Workshops last 2-3 hours	The most used workshop format is a **workshop session lasting 2-3 hours** which starts with a presentation and demonstration of the Go-Lab Ecosystem, but may (and should!) also include practical activities or exercises.
(PowerPoint) Presentations	(**PowerPoint) Presentations** are the most popular training and support material (for trainers) and are material to be shared with workshop participants. However, trainers would like to have additional support for ILSs and video tutorials.
Video tutorials	Video tutorials are the most desired support material when it comes to all rather technical aspects concerning the authoring environment.
Use of prepared ILSs in workshops	Each workshop / topic covered during a training should be accompanied by an **existing ILS** to reinforce the respective subject with an example. It helps trainers to show the practical application of the training subject and learners to see directly, how this is applied in the Go-Lab Ecosystem.
Go-Lab Starter Kit – Quick Start guide	The Go-Lab Manual is still an important element to hand out and we should consider updating it. Or at least create a "**Go-Lab Starter Kit**" - A compact document of how to get started (e.g. sign in, duplicate, student view, options for student login, etc.).

Overall, the respondents seem satisfied with the choice of topics and thematic areas presented per Go-Lab domain. However, two more topics should be added:

- Best practice in ILS design and implementation (this includes pedagogical as well as technical issues, such as design, tools, etc.)
- Opportunities for formative assessment / Peer and self-assessment with Go-Lab

Consequently, the "**Ideal Go-Lab Training Support Material Package**" that enables all Go-Lab trainers to offer training in the specific and relevant domains and topics should consist of:

- A PPT (accompanied with the explanations or supporting material, e.g. articles, background information, etc.);
- Workshop instructions / guidelines (on how to structure the session, how to organize participants e.g. with group work, duration, infrastructure, etc.);
- An exemplary ILS that demonstrates the topic that has been introduced as good practice or for better understanding;
- A video tutorial that shows the function or provides some explanation
- Additionally, the Go-Lab Manual and/or a Go-Lab Starter Kit should be created and handed out especially when training beginners with little or no prior experience.

3. Reflection of Next-Lab Training Activities

The main goal of reporting in D2.2 was for every Next-Lab partner to report about the implemented and planned training activities in their country. In this section of D2.4, partners are asked to evaluate their activities, discuss the lessons learnt and point out good practices. Each Next-Lab partner involved in offering training was asked to self-assess their experience of organizing training activities at their countries. In this framework partners were asked to also investigate if the change in user numbers per country can be correlated to specific activities they have been implementing. Therefore, each country report includes an overview of the development in user numbers on Graasp from 1st of January 2017 until 1st of December 2017.

Consequently, this section is an opportunity to reflect upon and discuss all the relevant factors related to task 2.4 activities. Partners analysed their user numbers in their respective country and provided input for their achievements, successes or why their (self-set) targets might have not been fully met. The idea was to enable a discussion about the factors that influenced the user numbers and what conclusions should / could be drawn at national or project level.

This first-year report is meant to be an opportunity to look at the activities of the first 12 months of the project and understand what impact they had in terms of user numbers, classroom implementation, but also from the feedback received from workshop participants.

3.1 Reports of National Training Activities

Each of the country reports include a table with the collected user numbers in Graasp. Please note the definition of the following terms:

- "**Creators**" refers to those that have created at least one ILS.
- "**Potential implementer (>5)**" is a registered user in Graasp that has created an ILS and has at least 5 different stand-alone users.
- "**Potential implementer (>10)**" is a registered user in Graasp that has created an ILS and has at least 10 different stand-alone users.
- "**Standalone users**" are all those that log in to an ILS by using the standalone link shared by a ILS creator (usually they are students).
- "**Graasp events**" are spaces created under the Go-Lab community sections for events. They are training events, organised by Next-Lab partners or Go-Lab Ambassadors.

3.1.1 Cyprus – University of Cyprus

3.1.1.1 User data for 2017

Table 4 below presents the user numbers for Cyprus from January 2017 until December 2017. Moreover, the table provides information about our targets for 2018 and 2019.

Table 4: User number Cyprus – Jan-Dec 2017

Cyprus	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	107	93	24	17	1595	0	0	0
Dec 1st	173	147	37	31	3466	5	17	3
Total	+66	+54	+13	+14	+1871	+5	+17	+13
% of change	+62%	+58%	+54%	+82%	+117%	-	-	-
Target 2018	250	200	60	50	4500	10	100	150
Target 2019	300	250	90	70	5500	20	200	250

3.1.1.2 Discussion / Reflection

According to the user numbers for Cyprus depicted in Table 1, for the period of January 2017 to November 2017, there has been an increase in the number of users registered in Graasp (+66) and the number of creators (+54). Potential implementers did also increase. Indeed, the implementers with more than 5 standalone users, and implementers with more than 10 standalone users, were similar in the range of +13 and +14 respectively. During this period, we implemented 5 events. However, the number of users registered in these events and moreover in the community, is less than expected. This happened because the first 4 events were not created in Graasp before the actual day of the event, but they have been created long after, since the Community and Event Management System was under review at the beginning of the Next-Lab project. The increased number of Graasp users and ILS creators can be attributed to the fact that during the training workshops all the participants had been encouraged to create their Graasp account and an ILS, in order to try out all the possibilities of the authoring environment, i.e., add items, add members, share an ILS.

Concerning the 82% increase in the number of potential implementers with more than 10 standalone users, it can be concluded that our training workshops succeeded in motivating trainees to use the Go-Lab in their teaching practice. Furthermore, a plausible reason for this sharp increase may be that we had included a Go-Lab training workshop in the curriculum of two main courses at the Department of Education of the University of Cyprus. In the context of these trainings, undergraduate students (prospective primary school teachers) had the opportunity to create their own ILSs and tried them out with a small number of primary school students. Apart from that, it is likely that teachers who had been trained in the past, i.e., before January 2017, have returned to the Graasp, have created ILSs and used them in their classes.

Regarding the number of people who registered in the events and the members of the Cypriot community, these are expected to increase in the upcoming months, since we have already begun to communicate with the teachers who had been trained in the past, informing them about the benefits of joining the Go-Lab Community.

3.1.1.3 Good practice / Lesson learnt

- The duration of a training workshop about Go-Lab Ecosystem should be at least three hours. This will allow for a thorough exploration of the Go-Lab Ecosystem and familiarization with resources and design opportunities that are provided.
- Hands-on-activity: Choose the lab of your preference and create your ILS. This activity can be done if the training workshop lasts more than one day.
- Individual support after the training: Personalized support through regular email communication, phone or online calls, face-to-face meetings, support in the classroom, provision of expert feedback for designing and implementing an ILS.
- Sharing of translated materials in the Go-Lab community, e.g. brief manuals (a brief manual for the use of Graasp, in Greek, can be found here) and tutorials, tips and tricks.

3.1.1.4 Outlook for 2018

Our planning to reach the user numbers for 2018 will be based on three aspects: 1) Duration, structure and content of the training, 2) Support after the training through the Cypriot Go-Lab Community and 3) Individual level support after the training.

Concerning the duration of the trainings that we will offer, according to our experience so far, each training should not last less than three hours. In a three-hour meeting, there is enough time to make a brief introduction and demonstration of the Go-Lab portal and then participants can learn step by step how to create an account/profile in Graasp and how to create/adapt an ILS. According to the expertise of the teachers, the structure and the content of the training may differ, and it should be targeted to their needs and desires. For example, if teachers are Chemists, we may choose to demonstrate online labs and ILSs for Chemistry. In this way, it is more likely that some of them will become implementers and creators in the future. In general, one of our main goals is to organize more lengthy trainings, in order to examine each group's needs and fine-tune the content and structure of the training around them. For example, after exploring the Go-Lab portal and knowing how to use the Graasp authoring environment, participants can choose a lab based on their teaching subject and create an ILS based on it, following the basic inquiry scenario. This activity can serve a twofold goal, namely, (1) the increase of the number of creators and implementers and (2) the provision of individual support to each participant while creating an ILS.

To further support our teachers, we plan to share several materials (e.g. brief manuals and video tutorials) in our community space, to help our members to better communicate between them and learn how to use new features and apps in their ILSs. The materials will be in Greek to motivate even more our members to read them. Moreover, to increase the communication and the exchange of good ideas and practices within our community, we will also share several events and implementations in our social media channels.

Another important support to our teachers in using the Go-Lab Ecosystem and implementing ILSs in their classroom is to initiate and maintain personal communication with each one of them. Since the teacher community in Cyprus is relatively small, based on the size and the population of the island, it is easy to have a personalized interaction, either by phone or by face-to-face meetings with teachers. Therefore, our aim is to let the teachers know that we are willing to support them in several ways after a training, i.e., school visits, support during classroom implementations and provide feedback for designing and implementing ILSs.

Finally, our national dissemination strategy will help us make the Go-Lab Ecosystem well known among teachers, school administrators and policy makers. In this way, it is easier to create networks and invite teachers to our training workshops or receive invitations to train them. For example, we have already a close collaboration with several teacher communities, e.g. the Cyprus Physicists Society, the Cyprus Biology Teachers Society and the Cyprus Chemistry Teachers Society, and we are expecting to organize training workshops together.

3.1.2 Estonia – University of Tartu

3.1.2.1 User data for 2017

Table 5: User number Estonia – Jan-Dec 2017

Finland	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	407	322	43	29	2911	0	0	0
Dec 1st	557	426	73	50	6177	3	7	23
Total	+150	+104	+30	+21	+3266	+3	+7	+23
% of change	+37%	+32%	+70%	+72%	+212%	-	-	-
Target 2018	667	529	88	60	9354	6	40	80
Target 2019	854	677	115	78	14531	12	80	160

3.1.2.2 Discussion / Reflection

In 2017 the number of Estonian users in Graasp increased from 407 to 557, representing a 37% increase. Also, the number of Estonian creators increased from 322 to 426 (a 32% increase) and the number of Estonian potential implementers (> 10) increased from 29 to 50 (a 72% increase). These increases reflect the efforts we have put into providing in-service and pre-service teacher trainings as well as disseminating information about Go-Lab to Estonian teachers. Especially important has been offering teachers face-to-face hands-on training with the Go-Lab Ecosystem in order to get them acquainted with the learning environment, build their confidence to use it in classroom learning situations and assigning homework tasks to report on their classroom experience using Go-Lab. By training teachers through the entire process of getting familiar with the Go-Lab online learning environment and creating ILSs, we ensure not only growth in user numbers, but also in potential implementations.

In the upcoming months, we expect that our efforts to integrate Go-Lab into the pre-service teacher curriculum at the University of Tartu will start to yield good results. Two courses currently apply the Go-Lab Ecosystem in the context of inquiry instruction and digital content creation for pre-service teachers. Additional courses might also include the use of the Go-Lab Ecosystem. By introducing Go-Lab to preservice teachers during coursework we hope to facilitate a progression of teachers to a more advanced level. This will also enable us to better involve the cooperation and collaboration of teachers in participatory design activities. Teachers with more experience can help us co-author new ILSs in the Estonian language. The limited number of ILSs in the Estonian language may be one barrier for a larger uptake of Go-Lab in Estonia. However, our aim at the Institute of Education of the University of

Tartu is to align pre-service education of teachers, in the context of learning about inquiry instruction and/or digital content creation, with the progression of teachers to more advanced levels in the Go-Lab Ecosystem. This will allow us to assign as coursework the creation of new Estonian language ILSs and ensure a supply of quality digital learning materials available to all Estonian teachers in Go-Lab.

3.1.2.3 Good practice / Lesson learnt

From our experience, the most effective trainings occur in meetings that occur more than once. For example, an in-service training course we delivered, we met two times with teachers and had about a two-month interval between these meetings. This allowed us to train teachers during the first meeting with using Go-Lab. Then the teachers were assigned a homework assignment to create an ILS and test it with their students in the classroom. In the second meeting, these teachers presented the results of their homework assignment. This two-part training appeared to be effective in increasing the uptake of ILS creation and classroom implementation in Estonia. Moreover, it motivated the teachers to apply and demonstrate the theory of inquiry instruction they learnt. Also, very important was giving time for teachers to reflect on their experience in the second meeting. Reflection helps prepare teachers to relate the theories taught in teacher education institutes to the practical situations they encounter in the classroom.

3.1.2.4 Outlook for 2018

In 2018, we plan to integrate the Go-Lab Ecosystem with at least two other pre-service courses at the University of Tartu. This should help us increase the user numbers in Estonia as well as help with creating new content in the Estonian language. Also, in 2018 we plan to offer at least two in-service training courses where the Go-Lab Ecosystem is introduced and teachers are given the opportunity to demonstrate their competence in creating and evaluating ILSs. Furthermore, the 2018 Go-Lab summer school is planned to occur in Tartu in September for in-service teachers and focuses mainly on pedagogy and inquiry-based science education. In addition, another strategic idea we will consider in 2018 is to visit schools and/or Estonian science teacher winter/summer schools rather than teachers coming to Tartu for teacher trainings. Finally, we aim to disseminate more information in Estonian via social media channels or during large events about new Estonian language ILSs, labs, apps in Go-Lab and about teacher training opportunities related to Go-Lab.

3.1.3 Finland - University of Turku

3.1.3.1 User data for 2017

Table 6 shows the figures for Finland for the period of January 2017 until the end of November. As can be seen from the general overview, the number of Graasp users and creators and the number of standalone users went up considerably, but unfortunately this increase was not yet reflected to the same extent in the increase of the number of implementers. The next sections will try to provide some background to these figures and reflect upon the activities from 2017 and how these are displayed in the figures.

Table 6: User number Finland – Jan-Dec 2017

Finland	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	62	43	2	2	237	0	0	0
Dec 1st	155	119	7	4	705	4	43	47
Total	+93	+76	+5	+2	+468	+4	+43	+47
% of change	+150%	+177%	+250%	+100%	+197%	-	-	-
Target 2018	300	200	30	20	1300	10	100	125
Target 2019	500	300	50	40	1800	20	200	250

3.1.3.2 Discussion / Reflection

Reflecting on the numbers and activities in 2017, three types of activities can be distinguished: (a) events where the project was presented, (b) events where a short workshop was organized, and (c) one event with a longer workshop. It will be discussed how the nature of these three types of events led to different outcomes, both in terms of figures, but also in terms of learning more about the target audiences.

As a new partner, UTU's targets and expectations for the first year were relatively modest. During the first part of the year UTU presented the project on two occasions, once for a wide Finnish audience (from teachers to policy makers) on the ITK (interactive technology in education; https://www.itk.fi) and once to an international audience (the presidents of the academy of science from the Baltic countries and representatives of teacher education institutes in those countries) on the symposium "the future of teacher education in the Baltic region".

Before and after Summer 2017, two short workshops were held, both of which led to some new registrations, but also revealed roughly three different profiles among those who attend the events:

a. those who will not register until they have been convinced that Go-Lab Ecosystem has material that they can more or less immediately use (and would like to be able to include in the Learning Management System that they are using for their organization),

b. those who are willing to modify ILSs and will register and start creating to try that out, and

c. those who are seeking for ideas and inspiration that may (they find inspiration and see potential) or may not (they find ideas but will use them for their own material) register and start creating.

Since representatives of each of the profiles are likely to be mixed in events, for the future it will be important to reflect on the needs of the teachers from these different profiles and to try to develop a framework for addressing their needs in a single training event, especially for shorter workshops. At the same time, as in both events the number of teachers with own devices was lower than expected, it is also important to be able to address them without hands-on experiences.

Given that the most successful training events were towards the end of this period, impact on implementation cannot yet be expected to be that visible (although there was some increase towards the end of the period), but we hope that some more will make the transition to become implementers, and in the beginning of next year we plan to follow up with them to see if we can be of assistance in this process, or if they would be willing to become co-creators in the project.

Given the effort that was put in the dissemination events and the short workshops, their reflection to the numbers was a bit disappointing at first. Given the size of the national ICT conference, it had been expected that the exposure would have been higher and that more people would have signed up to find out more about the Go-Lab Ecosystem. Now towards the end of year one, and in the light of the other events, these expectations may have been overly optimistic. In retrospect, one event of this size and the amount of information that they are exposed to during the conference initiative after the event might not be expected and initiative form the side of participants should be immediate, or pro-actively coming from the project.

A lesson learned for dissemination type of events would be that they should be as concrete as possible towards the audience (e.g. about co-creation and topics) to make it easy to take the step towards joining the Go-Lab Community. Another lesson related to that is that for this purpose being able to point out more (almost) ready to use (in Finnish) is an important aim for the next year.

With respect to higher achievement in the two later events, the one for in-service teachers organized in Tampere and the one for pre-service teachers in Turku, there are some factors that may have contributed to their successes that could be mentioned here. In Tampere, there were probably three main factors that contributed to this achievement. The first factor that may have been important is the fact that the event was organized by the “Tampere region education development support centre”. The fact that it was organized by them could contribute to many people enrolling and attending the event.

The second factor was the duration of the event. As it was a whole day event there was no need to rush into things and try to squeeze too many things in a short time. The third factor that may have contributed, which is in a way related to the second, is that while the Go-Lab Ecosystem was used in the training, it was not framed as a Go-Lab training, but more generally as “inquiry learning and interactive ICT in education”, and started off from connecting the topic to the curriculum, and later introduced the Go-Lab Ecosystem as an example, where interactive inquiry learning environments can be found, adapted and/or developed. In Turku, the workflow of the workshop may have been something that contributed. Based on the previous experiences it was decided on a format where participants were introduced to IBSE and were given a ‘student’ experience with a ILS first, and only after that were asked to register to the event for the purpose of personalizing the ILS that they had just experienced as a ‘student’ and then as an author. This workflow seems promising both from a practical and conceptual point of view.

With the increased interest in Learning Analytics (LA), the LA support is one of the unique selling points of the Go-Lab Ecosystem, and something that could be done at a project level is to provide an ILS that can be used to illustrate the different aspects of LA. What is meant here is an ILS that not only includes LA apps but also student (not necessarily real students) data. This would allow showing the LA features to the teachers in an ILS in the same way that they will later look at it themselves. Instead showing images in a PowerPoint presentation. This could give them a better impression of the workflow both for setting up

the ILS and for making use of the information during and/or after the implementation in the classroom.

Another issue that could be attempted to be addressed at project level is the diversity of audiences. During the two shorter workshops, it became clear that there are in a way three types of teachers:

a. the ones that want something ready (and preferably for the topic that they will deal with during the next weeks),
b. the ones that are willing to make ILSs on their own (sometimes even to a large extent), and
c. the ones that only look for ideas and inspiration, but then they will make something according to their views.

While at first glance especially the first and the latter could be thought to be both benefitting from going through the portal, their focus is quite different. While the first group is looking for ready material and is benefitted by covering key domains in professional ILSs, the second group also benefits from non-professional ILSs, but still preferably covering a wide range of domains. The latter group is a bit different as they do not necessarily look for a variety in terms domains but for variety in terms of pedagogical approaches in ILSs in combination with apps used to support these approaches. From this perspective, these ILSs could in principle be on the same domain. In fact, this might even make the reviewing process easier just because the ILSs are all around the same domain. As an example, in one training one teacher was sampling ILSs to see how they were organized and what materials were included (concluding at one point that all things he is looking for are incorporated) while at the same time picking up on ideas (e.g. on structuring and use of apps). Given the popularity of the electricity lab (and that there is already different pedagogical scenario versions), this could be a candidate domain that could serve this purpose (e.g. more open ended, more structured for different ages, a more collaborative version with peer review, etc.). Versions for different age groups may also be very helpful for elementary school teachers. In a recent training, one pre-teacher was asking how she can start using an ILS if she is uncertain about the exact nature of the underlying domain. Different age version could illustrate that you can approach domains on different conceptual levels (for different age groups) which may help them to see that you do not always need to understand the full detail (one cannot expect an elementary school teacher to be an expert in all subjects on the same level as a subject teacher) in order to bring something into class.

More generally for each of these three groups, an alternative to using the demo view for exploring the ILS in the form of a document like a pdf that allows a faster assessment could be a welcome amendment.

3.1.3.3 Good practice / Lesson learnt

As mentioned above, one factor that contributed to the relative success of the training in Tampere was that it was organized by “Tampere region education development support centre” for their existing network. The lesson learnt is offering trainings through similar organizations, may be a better channel to access teachers and build a community through those who attend these events than trying to build a community through other means. In a way, this extends also to the social media, it might be better to try to get access to social media with an established group of followers from (one of) the target audiences rather than putting effort in trying to draw people in yet another social media channel.

Starting to build a whole new community is challenging. Bringing a whole new eco-system and vocabulary to teachers is even more challenging. A message that was taken from the Turku training event was that the workflow of using the same ILS first for a learning experience, and consequently for illustrating Graasp seemed to help to provide a clearer view on the Go-Lab Ecosystem to the participants, while making the registration process easier at the same time. This felt as an important gain because earlier experiences indicated that the first experience with the Go-Lab Ecosystem and the interrelations between the different components can be rather overwhelming for teachers. Something that could also be beneficial in this respect is the use of vocabulary that is more familiar to teachers. After newly registering there are for example two options when clicking the "+"-button on the Graasp frontpage: "Create Space" and "Create ILS". The word space does not have equivalent meanings in Finnish as in English and its translating and understanding is therefore not straightforward, while ILS is a new term altogether. For new users, it could lower the threshold if at least on the first encounter these options would connect more intuitively to terms that they are already familiar with.

A notion that may translate into a good practice that seemed to arise from the figures from Cyprus, is that the transition from user to implementer is not an immediate one. It suggested that there may be a first phase in which people sign up which does not lead to creation and/implementation directly, which is followed by an intermediate phase in which they take part in a training, and that this trajectory increases the likelihood of making the transition towards implementation. As such it may be rather important to follow registrations, and follow up on newly registered users in order to get them involved with trainings.

3.1.3.4 Outlook for 2018

There are several things that will be done during 2018 to reach the target numbers. In relation to the ITK (interactive technology in education) conference, the approach for this year will not be presenting the project and expecting that that is enough to result in teachers starting to use the Go-Lab Ecosystem. For this year the focus will be on the one hand to get teachers directly involved with the Go-Lab Ecosystem in a workshop, and on the other hand to have a very specific focus on the poster; namely co-creators. More generally, the focus for this year will be on trying to achieve more transitions from especially creators to implementers, and one line of work that will pursued for the establishing of a larger collection of Finnish language ILSs both through the work on co-creation, but also through stimulating the pre-service teachers to create ILSs that can be published in Go-Lab. Once it is known what the focus domains will be for Finland, these topics will be put to the forefront in the course interactions with pre-service teachers, but also in the contacts with in-service teachers. For instance, in following up on trainings these can be used as concrete examples of topics for ILSs where we will offer direct collaboration and support to teachers who are interested to develop an ILS around one of the focus domains. In relation to the notion that came from reviewing the Cyprus case, one focus for 2018 will also be to reach out to people that have attended an event in order to try to support them in a trajectory from user through creator to implementer.

3.1.4 France – ENS Lyon

3.1.4.1 User data for 2017

Table 7: User number France – Jan-Dec 2017

France	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	235	50	9	9	212	0	0	0
Dec 1st	387	114	14	14	977	3	22	36
Total	+152	+64	+5	+5	+765	+3	+22	+36
% of change	+65%	+128%	+55%	+55%	+361%	-	-	-
Target 2018	500	200	30	25	1500	5	60	100
Target 2019	650	350	50	40	2000	8	150	200

3.1.4.2 Discussion / Reflection

France is one of the countries that entered Next Lab team without having participated in Go-Lab, which explains the low input values in January compared to some other partners.

The data structure provided enables us to discuss various aspects of implementation and teachers' empowerment. They do not provide information on the locations where the activities took place to derive the amount of activity that occurred inside classrooms during "ordinary teaching time", which would be the ultimate proof of empowerment of our teacher's community. The three numbers: (a) registered users, (b) community registered and (c) potential implementers reveal three progressive steps in the commitment of the teachers in Next Lab.

- Registered users' number depends only on the strategy or pressure put on the trainees during the events. As our events always mix theoretical presentations and practical work, most of the teachers registered or physically present during an event have to register in Graasp. Concerning the increase number is greater than the number of people involved, we can infer that some of the trainees succeeded in involving some colleagues. It is a small effect in terms of numbers, but it is an important point for next years' perspective.
- Number of users in the community reflects the willingness of teacher to be members of an active group. Considering the activity visible in the community, being a member does not mean becoming an active contributor. Recently registered members do not challenge to communicate or share questions, successes or failures. In a previous use of Graasp we tried to introduce a community manager that did not have any effect. 36 /387 (less than 10%) is a low value of commitment and we have been surprised by these values. A first straightforward interpretation could be that French teachers are in a consumer's mood: they agree to use the resource, but they do want to get involved. Reasons of this position may require further inquiries, but most of the teachers in all disciplines criticize the short length of the teaching time to fulfil the requirements of the national programs and that could be one of them.

Even if numbers might be too small to derive accurate interpretations, the transfer between community members and potential implementers seems satisfactory 14/36 (39%). This figure demonstrates that when teachers decide to enter the community they seem ready to go further and try to use the tools during their current practice and maybe they start to modify the space according to their needs. This situation is very encouraging and points out the necessity to take care of the enrolment in the community. One of the drawbacks in France is that the language is very often a problem and we look forward to getting a strong community to make it more active and attractive and get more conversions from members to implementers. The large number of standalone users is interesting because it testifies the fact that either members use many fake users to test the functions and behaviour of Graasp or some teachers have tried the tool in real conditions, dramatically increasing the number of standalone users. This is a very positive indicator of Graasp use: whenever a teacher implements an activity, important standalone activity appears.

The number of registered people in the events seems to be underestimated. This could be due to a misuse of the tool by the NEC but maybe a common skip of registration to the events has taken place. This is because French teachers have to follow a difficult administrative track in order to participate in the event and this last step does not bring any advantage in their minds.

We have organized a special event targeted to non-formal education practitioners and some teachers have described Graasp as a useful tool for "club activities" driven by volunteer teachers. This approach is very interesting for us because some teachers are reluctant to step into Inquiry Based Learning because they feel it does not fit easily into the hypothetic-deductive approach, they are requested to use in their courses. This pedagogical approach can be discussed, but it clearly disappears in non-formal situations when pupils work on their own outside the class or when they participate to club activities. Graasp is then an efficient tool to cross the artificial walls between school, society and home and this may strongly support its acceptance by teachers.

In France, the link between events and increase of the activity is very clear on the monthly evolution of registered and standalone users. This could be due to the fact that the development of Next Lab is in its early stages in France, because we cannot build on Go-Lab results, but it reveals the need and efficiency of events. As it was mentioned teachers complain about the lack of time and one important advance should be that Graasp and Next Lab are officially recommended by the ministry or the inspectors; in that case teachers will use Golabz any time they need experimentation or whenever they want to set up digital activities.

3.1.4.3 Good practice / Lesson learnt

The major problem for teacher empowerment on Graasp and Next Lab seems to be the "jump" into inquiry based learning for French teachers. Activities like "La main à la pâte" have opened a track in primary schools but for secondary schools the prescription of a hypothetic-deductive approach to scientific method raises many theoretical and practical obstacles on our way. The most successful examples have been those that tackle short and precise activities. It seems that Graasp and Golabz resources are better accepted when they are meant to be used in short sequences (few minutes) integrated in a progression.

We still have few examples and it is more a speculation than the result of numerous observations nevertheless, we observed that the intended duration of an ILS has decreased and that Graasp appears always combined with other activities to shape an hour teaching sequence. As stated above teachers' willingness to have their students use Graasp and

Go-Lab during non-formal activities or homework or personal activities seems very promising

3.1.4.4 Outlook for 2018

In 2018 the first major change is that the events are supported by our institution (in 2017 the kick-off has been too late to register the events) and we will take advantage of press relay and advertising among teacher's community. Three events are scheduled; one of them being in the form of a hackathon.

Important efforts are scheduled to present the project to decision makers at various levels from the ministry to inspectors' services in local territories. These are not events in the sense defined in the project, but they might have strong effects on the implementation by teachers.

As we have been told by teachers, the labs were not adapted to French programs. As a result, we investigate teachers' web to find labs or applications that might be translated and integrated into Go-Lab to be directly usable by French teachers.

3.1.5 Greece – Ellinogermaniki Agogi

3.1.5.1 User data for 2017

Table 8: User number Greece – Jan-Dec 2017

Greece	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	233	155	33	24	1852	0	0	0
Dec 1st	369	210	42	31	3479	7	112	67
Total	+136	+55	+9	+7	+1627	+7	+112	+67
% of change	+58%	+35%	+27%	+21%	+90%	-	-	-
Target 2018	400	260	55	45	4500	10	80	150
Target 2019	600	450	80	60	6500	25	150	300

3.1.5.2 Discussion / Reflection

The team at Ellinogermaniki Agogi has implemented five teacher training events during the time examined, reaching a wide variety of teachers from secondary and primary schools in Greece. Four of the events them were addressing the Greek educational community and one of them, the Go-Lab Summer School, had international participation. In total, we have managed to involve teachers 124 teachers.

EA and Greece have participated in the previous Go-Lab project, therefore the basis in Greece has been already existing and active. Table 8 shows an increase in the registered Graasp users' numbers in the distinctive period (by 1st of January 2017, by October 1st, 2017 and by December 1st, 2017).. As for the number of ILS creators, there has been a rise of 55%. There is a notable change in the number of standalone users, reaching 3.479. Furthermore, the number of Graasp events has risen as we are now implementing the developed training strategy for Greece, making use of the Community Space in Graasp. While there 112 users registered in the events and the 67 of those registered in the Go-Lab community, we have actually reached a much higher number of participants during this time.

Overall, we consider the Go-Lab user development in Greece within the expectation. Our (internal set) goals during the first year of the implementation have been achieved and the user statistics and numbers for Greece are more than satisfactory. Following our strategy for Greece we have reached so far 124 teachers via the events we have organized. According to the user numbers we have reached so far, we have succeeded into rebounding with 136 new users registered in Graasp and 55 of them as creators (Table 8). What also needs to be taken into consideration, is that the participants of the Next Lab Summer School have not been necessarily Greek teachers and as a result those participants are not counted under Greece's user numbers.

What has played an important role in achieving our goals has been the continuous contact and support with and to the participants of our events. However, in future, we plan to have more frequent events and most importantly we plan to invest more on series of workshops cooperating with the same group of people, who will start as beginners and by the end of the cycle of the workshops, they will be advanced users and creators.

3.1.5.3 Good practice / Lesson learnt

From our experience, organising a series of workshops with the same group of teachers and participants is most effective and leads to more successful classroom implementations. Working together with the same group of teachers in several consecutive workshops on various topics related to the Go-Lab Ecosystem allows for a deeper comprehension of IBSE and the technical aspects of Go-Lab. This way, users are being accompanied by experience trainers to achieve optimum of Go-Lab use and to finally use Go-Lab in their classroom. We expect this approach to training to result in more creators and implementers.

Furthermore, a good practice that has proven to be very helpful is to involve in our training events teachers, who are already experienced Go-Lab users. Having peers as trainers to talk and share about their experience with using Go-Lab and giving them dedicated time to address the participants, is very motivating especially for teachers that have not used Go-Lab beforehand. Teachers can better relate to a colleague facing the same every day challenges, instead of being instructed by research staff or project managers that do not necessarily face the classroom reality daily. Additionally, those experienced teachers act thus as multipliers for their school community and they inspire more teachers to get involved.

3.1.5.4 Outlook for 2018

The main goal for 2018 is to provide activities, which will empower teachers to create, implement and exploit inquiry learning spaces. According to our internal strategy, we have set some ambitious goals for the coming year that we believe they are achievable with the combination of (dissemination) Go-Lab workshops (one-off workshops organized to present the Golabz platform and introduce the project), one-day Go-Lab Trainings (online or onsite workshops that aim to introduce and to train participants in various aspects of Go-Lab and the Graasp platform) and Go-Lab courses (any series of workshops that last more than a day, and cover in great detail all crucial aspects of the Go-Lab Ecosystem.). We have already initiated the first Go-Lab course with a group of inspired teachers and hopefully we will get have the expected results. More specifically, we have:

- secured a workshop in one of the most important teacher conference in Greece in March 2018 (http://eef17.gr/).
- we have discussed with the network of Greek Scientix Ambassadors a cooperation scheme, to include 2-3 hours workshop in their events.
- Agreed to organize regular workshops for Greek teachers on various subjects of Go-Lab with the support of the Evangeliki School of Smyrna
- Established contact with teachers from outside of the Attica region to organise Go-Lab workshops and training all over Greece.

3.1.6 The Netherlands – University of Twente

3.1.6.1 User data for 2017

In the table below, you will find the user numbers at the start of the project and the ones at the first of December. It can be seen that the number of users registered in Graasp has gone up with more than 70% and is now above 600. Not all users are active creators. There are now 470 people who actually created materials in Graasp (a rise of 65%).

Table 9: User numbers The Netherlands – Jan-Dec 2017

The Netherlands	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	361	284	44	37	2980	0	0	0
Dec 1st	620	470	62	54	7531	4	21	31
Total	+259	+186	+18	+17	+4551	+4	+21	+31
% of change	72%	65%	41%	46%	+153%	-	-	-
Target 2018	700	550	80	70	9000	10	100	150
Target 2019	800	650	100	90	10000	15	150	250

3.1.6.2 Discussion / Reflection

We are satisfied with the large number of new users that we were able to reach by means of several workshops and presentations for (pre-service) teachers. The number of large scale implementations is still low compared to the number of creators, but has gone up by

46%. Some of these implementations however, involved large numbers of users as can be seen in Table 9 and in the number of standalone users.

Apparently, a workshop is a good means to get teachers creating material in Graasp, but more is needed for teachers to actually make something that they are confident to use in their classes. Although the NEC stresses that we are willing to give additional support, not many requests for support are coming in.

Some teachers expressed that they would have liked to have some good examples of ILSs that they can adjust and use as inspiration for their own material. Therefore, the ILSs that will be made in Task 2.5 might give a boost.

The number of training events registered is still low. This is partly due to the fact that the registration system was only available half way the year, and partly because of lack of experience with the system. The number of users registered in the community is still low. The link for registration was send around to users, for instance by a newsletter, but users don't see the need to register. Registering to the community should somehow be more rewarding. In the current situation registering doesn't pay off for the users.

A major problem we are facing is that teachers in the Netherlands are not obliged to follow refresher courses once they work in a school. Training for in-service teachers is not a requirement for progress in their career. Furthermore, there is no formal system to accredit training courses. However, this is going to change. In the near future, teachers will have to keep up to date by going to conferences and participating in refresher courses and they will have to keep track of this in a portfolio in a registration system, to keep working in the educational system.

3.1.6.3 Good practice / Lesson learnt

Using teacher development teams consisting of teachers from the same school or schools in the same region, seems to give a boost to the implementation. In one school, such a team is working on developing ILSs with the guidance of an experienced teacher. Although the process doesn't go fast, progress is made.

3.1.6.4 Outlook for 2018

We are planning to give workshops on conferences for teachers in all subjects within STEM. Furthermore, we are planning a course that will be accredited by the registration authority (see developments above). So teachers who will participate in this course will get credits for this which they can add to the portfolio in the register. They will need a certain number of credits to be able to reregister as a teacher a few years after they graduated from the teacher training institute.

3.1.7 Portugal – NUCLIO

3.1.7.1 User data for 2017

Table 10: User number Portugal – Jan-Dec 2017

Portugal	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	283	223	60	36	2367	0	0	0
Dec 1st	570	384	80	52	4905	7	113	190
Total	+287	+161	+20	+16	+2538	+7	+113	+190
% of change	+101%	+72%	+33%	+44%	+107%	-	-	-
Target 2018	850	350	110	100	6000	15	300	300
Target 2019	1100	450	180	150	8800	25	500	500

3.1.7.2 Discussion / Reflection

The data for Portugal shows a successful number of registered users in Graasp and also of creators. We expected a slightly higher number of potential implementers (>10), although the number of standalone users is very satisfactory. The number of users registered in the events and in the community, although reasonable, could be higher.

Our training and dissemination efforts have been quite effective in having teachers/educators/pre-service teachers creating a Graasp account, understanding how the platform works and the underlying methodology, and creating ILSs. This reflects in the success of registered users in Graasp and of creators.

But it is clear that our efforts have not been sufficient to make those creators implement the ILSs in the classroom. Since most of the creators attend our teacher training courses and we know they create an ILS within the course with the intent of implementing it in the classroom, it is important to address why it does not happen. We believe that there are several reasons. First, there some distrust for technical platforms and solutions. Teachers cannot afford to enter a classroom if the technical system is not working without any problems. There are also logistic problems towards the implementation in certain schools, due to bad internet connection and/or not enough computers/laptops. Secondly, teachers still show some reluctance in trying out a complete new methodology and, although most (if not all) are enthusiastic about such an experience, they decide to not take the risk with the implementation.

As for the number of events, registered users in events and in the community, we could have done better if we started inviting the users since the beginning of our dissemination and training courses. It is always more difficult to have them register after the event has taken place.

3.1.7.3 Good practice / Lesson learnt

We trust our teacher training courses which are certified so that it contributes to the progression of the teachers' career is an excellent practice. We have enough time with them to make sure they register in Graasp, understand the methodology that the ILSs should follow and they are obliged to create an ILS within Graasp, enriched with apps. We support them throughout the whole process.

3.1.7.4 Outlook for 2018

Our main goal in 2018 is to make sure we have a steady growth of implementers. To achieve this, we have restructured our teacher training courses in such a way that now teachers are obliged to implement their ILSs in the classroom, report and discuss with their colleagues how to improve the ILSs, discuss the pros and cons of using this methodology with technology.

3.1.8 Spain – University of Deusto

3.1.8.1 User data for 2017

Table 11: User number Spain – Jan-Nov 2017

Spain	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	637	471	52	45	2415	0	0	0
Dec 1st	1006	741	83	71	6025	11	129	125
Total	+369	+270	+31	+26	+3610	+11	+129	+125
% of change	+58%	+57%	+60%	+58%	+150%	-	-	-
Target 2018	1200	880	100	85	7000	20	200	150
Target 2019	1500	1100	120	100	8000	30	300	250

3.1.8.2 Discussion / Reflection

The University of Deusto team uses the methodology where dissemination workshops are starting points to engage and convince secondary school teachers and their administration to integrate the Go-Lab Ecosystem into STEM class instruction. On the second stage, we propose 2-3 days training introducing the Go-Lab Ecosystem as a whole: the repository of the inquiry learning spaces, the STEM laboratories available, more than 40 Apps and help and support instruments.

Such person-oriented structure of the dissemination brings good results of the Go-Lab Ecosystem use in the Spanish school. The all targets for 2017 were successfully achieved. The gain numbers correctly reflect the ratio between efforts of training offered and results accomplished. In our opinion, direct contact and efficiently created structure of the offered training are the main factors bringing to success.

Although we are satisfied with obtained outcomes, the help and assistance materials translated in national languages could be a source to increase user implementation the Go-Lab Ecosystem in Spanish education system.

3.1.8.3 Good practice / Lesson learnt

During the Go-Lab project we were experimenting with different methods to present the Go-Lab Ecosystem to the target audiences. According to our observation, the best results we can reach when on the first stage of creating an Inquiry Learning Space we introduce the methodology on how to select the topic and labs that fit to the teacher purposes. On the next stage, the work with Investigation phase of the Inquiry Learning Cycle is offered.

Training attendees create around the chosen laboratory the activity such as the assignment for the students, what variables necessary to investigate, required manuals. Then we move on to the other phases, such as Orientation, Conceptualization, Conclusion and Discussion which are elaborated together. The presentation of Apps that are suitable for each phase are demonstrated and tested with participants.

Such structure allows to have a good quality ILS completed by the end of the training. In this case, even next day a teacher can use the developed ILS by him/herself in the classroom.

3.1.8.4 Outlook for 2018

Team of the University of Deusto is planning to continue the strategy developed until today. For 2018 our goal is to reach follow qualitative indicators number of users registered in Graasp around 1200, around 880 ILS creators, and with 100 (>5) and 80 (>10) potential implementers. We believe that the established strategy will allow us to perform successfully our task.

3.1.9 United Kingdom - University of Leicester

3.1.9.1 User data for 2017

Table 12: User number UK – Jan-Dec 2017

United Kingdom	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	189	154	13	10	881	0	0	0
Dec 1st	300	240	19	17	1546	5	34	38
Total	+111	+86	+6	+7	+665	+5	+34	+38
% of change	+59%	+56%	+46%	+70%	+76%	-	-	-
Target 2018	280	250	22	19	1521	8	60	60
Target 2019	350	285	29	26	2041	12	100	100

3.1.9.2 Discussion / Reflection

The University of Leicester (ULEIC) aligned its target numbers with the overall Next-Lab impact promises where they were specified by the project. The concrete target numbers for new users registered in Graasp, as well as creators and potential implementers for the years 2017, 2018 and 2019 have been derived based on the number of NECs and Ambassadors contributing to reach the global targets of the project. The number of Graasp events and users registered in these events have been extrapolated based on the expectations of having about 4 to 6 events per year with about 5 to 20 participants each. The lower expected number of users registered for events in 2017 can be explained by the fact that the event management process was only fully integrated over the course of this year. This is also the reason why the 34 participants registered for the 5 Graasp events do not accurately reflect the actual number of attendants we had in our events (about 65).

The main role of the University of Leicester is to carry out Participatory Design (PD) for the Next-Lab project and Go-Lab resources while being the NEC for the UK. To utilize synergy

effects, we currently implement the strategy of combining PD with training and dissemination activities, which worked efficiently and effectively. Because of our event-based training and dissemination strategy, we expect most of our new users to also register for events and community, with about half of them becoming creators of at least one ILS. The user data mostly reflects the UK dissemination and training efforts, as most of the ULEIC workshops were performed with teachers that were new to the Go-Lab Ecosystem, and therefore registered to Graasp during and for these events.

When comparing our reached and target numbers of 2017, it can be seen that we were able to fulfil all our expectations for this year. However, we think British teachers could be further motivated to participate in Next-Lab dissemination and training events by making it more explicit for them which of the resources they can use to meet their curriculum needs. Another important factor to motivate teachers to invest their time in training events would be to clearly communicate the future plans regarding availability and support of Go-Lab resources (especially after the Next-Lab project has ended).

3.1.9.3 Good practice / Lesson learnt

Before training new members in using the authoring facilities, we think it is helpful to give them an overview and allow for hands-on activities with the Go-Lab sharing platform and the different resources available there. When teachers explore the website by themselves, they can identify specific apps, labs, and other content that they consider suitable for their own lessons and students. Their selections can then serve as the base for their first ILS, motivating them to create additional ones.

We found that offering face-to-face workshops is a very beneficial way to engage teachers in learning more about the Go-Lab environment. However, due to time constraints on the length of such sessions, we can only give a glimpse of the available resources. But this teaser can draw their interest so that they are encouraged to further explore on their own and create online lessons.

3.1.9.4 Outlook for 2018

As the strategies applied in 2017 have been proven to be successful, we are planning to continue in a similar manner in 2018. However, to reach the target numbers for the upcoming years we will have to intensify our teacher recruitment activities.

3.1.10 Go-lab Ambassadors

To fully appreciate the role, tasks and responsibilities of the Go-Lab Ambassadors, please refer to D1.1.

3.1.10.1 User data for 2017

Table 13: User number Rest of the World – Jan-Dec 2017

Rest of the World	Nr. of users registered in Graasp	Nr of creators	Nr of potential implementers (>5)	Nr of potential implementers (>10)	Nr of of standalone users	Nr of Graasp events	Nr of users registered in the events	Nr of users registered in the community
Jan 1st	11629	5729	452	339	2367	0	0	0
Dec 1st	19224	9905	757	584	4905	137	1065	1083
Total	7595	4176	305	245	2538	137	1065	1083
% of change	65%	73%	67%	72%	65%	-	-	-

3.1.10.2 Discussion / Reflection

The Ambassador scheme was designed and launched during the first half year of the project. The official kick-off was beginning of May 2017. In most European countries, the school year is ending in June or July the latest, this is why we only carefully consider the impact of the events of the Go-Lab ambassadors for the first year in Next-Lab. Surely, the impact and results of their efforts will be will be more reliable within the upcoming report in Month 18 (D2.5).

Nonetheless, most of the Go-Lab Ambassadors agreed that the current user numbers are pretty much reflecting their efforts (see a summary for all countries above in Table 13). For many of them this first year has been an experimental year in the sense that, the Go-Lab Ambassadors had to try to identify themselves the best ways of attracting their audience and communicating the advantages of using the Go-Lab ecosystem.

Ambassadors from Croatia, Turkey and Romania have been particularly pleased with their current results, while Ambassadors from other countries felt that there is still room for improvement concerning their outreach. The reasons for this varied from country to country. For example:

- The Maltese Ambassador has carried out a limited number of events since she chose to spend quite some time in creating ILSs that fit to the Maltese context. Now that these are ready, she will start running events in February and she is quite confident that she will reach out to a significant number of teachers.
- The Swedish Ambassador has also followed a similar approach. Starting from January 2018, she now feels confident to better engage teachers through face-to-face trainings.
- In Slovakia, the teachers who attended the dissemination events needed a lot of support in terms of both IT and pedagogical skills (no prior knowledge of IBL). A lot of effort has been put into supporting them, so things are expected to improve in the near future.

3.1.10.3 Good practice / Lesson learnt

In the countries where numbers are still comparably low, the main reasons that have been identified are:

- Lack of ILSs that match the curriculum, needs of local teachers (language, content, etc.)
- Missing translations in apps and labs for language outside the Next-Lab consortium is a challenge.
- Lack of IT and inquiry skills of local teachers
- Difficulty in reaching out to teachers from the entire country

In the countries, where numbers have been particularly high, the Ambassadors underlined the following reasons that might have contributed to their success:

- Existing core group of expert teachers supported their work
- Presence in multiple events around the country with industry's support (Turkey)
- Presence in big conferences with large audiences
- Use of webinars to reach out to more teachers, beyond their specific area
- ILSs available in their own language

Many Ambassadors praised the redesign on GoLabz and agreed on its attractiveness. Some of them mentioned though, that they still believe that the fact that users need to go

to 2 different places (GoLabz and Graasp) in order to use the ecosystem, is very confusing and puts off many potential users. Actions need to be take in order to simplify this connection and transition as much as possible.

Ambassadors have also been mentioning the need to have ready-made material that they can build on i.e. presentations (general, new Golabz, apps etc.).

The connection with the Ministries of Education that has been initiated by European Schoolnet (EUN) is also beneficial and may strengthen the Ambassadors outreach, so there is a need to build on it and facilitate the communication with the Ministries of Education as much as possible

Both the Croatian and the Turkish Ambassadors, have closely collaborated with larger entities (educational books publisher in Croatia and educational authorities in Turkey) in order to receive support to travel around the country and carry out a series of dissemination activities. Both Ambassadors agreed that although there was quite some bureaucracy involved in order to receive the green light from these entities, the support received and possibilities to reach out to wider audiences were definitely worth it.

3.1.10.4 Outlook for 2018

A list of the activities and actions that Ambassadors plan to take in order to improve the uptake of the Go-Lab ecosystem in their countries for 2018 can be found below:

- Focus on the creation of ILSs that match with the curriculum (Turkey)
- Plan some online trainings in collaboration with the Israeli Ministry of Education (Israel)
- Organize more hands-on trainings with the support of the Ministry of Education (Malta)
- Organize trainings for both experienced and non-experienced users (Latvia)
- Use contacts in order to get to organize training sessions in larger events (i.e. conferences)
- Organize more local events and establish a mechanism for regularly sharing information with teachers i.e. Facebook (Latvia)

3.2 Summary and Conclusions

In all countries where training activities have been organized, each respective partner seems to have found a well working training scheme to promote and train teachers in the use of Go-Lab. It is very instructive to collect the various good practices and successful experiences in partner countries, as they can and should serve as possible guidelines, toolbox or inventory of resourceful ideas on how training can be enriched, improved or adapted for each partner. Therefore, based on the reports above, but also based on numerous discussions as part of WP2 meetings, as well as at project meetings and trainings, we summarize and group the main findings of the good practices in the list below.

The good practices can be categorised into three areas: a) the general organisation of training workshops, b) the approach, structure and content of the training workshops and c) the engagement and involvement of the participants or trainers in the workshops:

a. Organisation of Training Events

Good practice	Explanation
Organise training events that last at least 3 hours	The **ideal duration of any Go-Lab training event should not be less than 3 hours**. This will allow for a thorough exploration of the Go-Lab Ecosystem and familiarization with resources and design opportunities that are provided. Otherwise it will be very challenging to introduce the essentials of IBSE, the Go-Lab educational framework, the Go-Lab Ecosystem, including the Graasp authoring platform. Workshops with less than 3 hours, are likely to overwhelm participants with too much information or run the risk that there is not enough time for participants to fully understand, use and test the system themselves. However, this familiarization with the Go Lab Ecosystem will lead to more committed teachers that are more likely to use and apply Go-lab after the training.
Even better: Organise a series of training events	**A series of training events with the same group of participants is more effective**. If the training is offered as a course of 2 and more workshops, it provides both learners and trainers with more opportunities to provide more interesting and effective training. The first workshop could be used to introduce the system. Then the teachers could be assigned to explore Golabz and Graasp by themselves (or they get a specific task / homework assignment to create an ILS). In the second meeting, these teachers could present the results of their homework. This way, there is a higher chance to increase the uptake of ILS creation and classroom implementation. Also, the opportunity for reflection of their user experience in the second meeting is important. More workshops could follow, focusing on specific themes or topics (10 mostly used apps, learning analytics, etc.). In any case, involving a group of teachers over a longer period of time in various workshops or activities will keep their interest up, and allow for a maximum interaction with the facilities offered. It also offers the chance to really advance the expertise from beginner level to advance users, who then can also be expected to become creators of ILSs and implementers. The impact is even bigger if the advanced users will act as multipliers in their professional environments.
Offer personalised support to the participants before, during and after the workshops	Offering **support to the participants** before, during and after the workshop is very important. Personalized support through regular email communication, phone or online calls, face-to-face meetings, support in the classroom, provision of expert feedback for designing and implementing an ILS is essential to enable and ensure classroom implementation. A more personalized support scheme enhances confidence in the teachers knowing that they can always seek help and support if needed, in any phase of their Go lab involvement and reassuring them that there is a person behind Go Lab that they can always turn to.

Good practice	Explanation
Co-organise training with the official regional teacher training institutes	Get the support from and official support of local, regional and national teacher training institutes or other bodies who are responsible for (continuous) professional teacher development. It is also helpful in many occasions to be able to offer certain training certificates to teachers.
Include Go-Lab training event(s) in 3rd part conferences / events	**Including Go-Lab workshops as part of 3rd party events**, e.g. an international conference, taking place in the region and targeting the educational community, has been a successful way not only to disseminate but also to provide "quick-start training" at the same time. While it is usually not possible to go in depth, the first steps of ILS creation, registration, and the basic use and navigation of Graasp can be ideally supported in these events.
Try to make Go-Lab training certified training	In many countries, certified training events can attract higher interest of teachers as they can see the support and recognition of the certification bodies.

b. Structure / Content of Training Events

Good practice	Explanation
Be practical, include many hands-on activities	**Including many hands-on activities** has been identified as a highly effective part of any training. Especially when preparing and using **ready-prepared ILS** that were creating specifically for the subject the training focusses on. Practical exercises (also in the form of homework) is an excellent way to keep the participants' attention and to provide them with a very comprehensive understanding of the use of Go-Lab in the classroom. At the same time, they support participants to get familiar with the facilities and functions offered by the Go-Lab Ecosystem. A possible approach can be: Choose the lab of preference and create an ILS around it. This activity can be done if the training workshop lasts more than one day.
Let participants experience Go-Lab first as "students"	For beginners: introduced teachers new to Go-Lab by giving them the 'student' experience with a ILS first. Share the stand-alone view of a good ILS and let them understand what a student is asked to do. Only after that ask them to register for the purpose of personalizing the ILS that they had just experienced as a 'student' and then as author. This workflow seems promising both from a practical and conceptual point of view.
Use several short and precise activities and exercises	Training sessions should be structured in several **short and precise activities or exercises**. Especially when introducing the various functions of Graasp and Golabz, resources are better accepted when they are meant to be used in short sequences (few minutes) integrated in a progression. Following a demonstration or presentation of a topic of either domain, the same topic should immediately be practiced by

Good practice	Explanation
	applying or implementing the aspect in the learners ILSs. It is also a good way of demonstrating that Go-Lab (or certain aspects of it) can be used in a 45-min class duration.
Allow enough time for participants to explore the authoring tool and the Golabz website	It is important to give participants time by themselves to explore, follow and use the Go-Lab Ecosystem, especially when they are beginners. In that way, they have some time to experiment and to navigate to the ecosystem and thus be better prepared for what is about to be presented by the moderator right afterwards.
Localise to the teachers needs in the respective country or region	What is also considered as important for the success of the training event is the **localisation of the material** to be used, e.g. translation into the local language. Especially, in countries that teachers are not efficient English speakers, it is more than valuable for them to be able to recognise their language. But the localisation goes beyond the language issue, but should refer to the practical work of the teachers, the latest school policy developments, curriculum changes, or expectation of your group of teachers.
Build the ILS around the lab	One possible way to structure a series of training events is to start with introducing a methodology to select the topic and labs that fit to the teacher purposes. On the next stage, support the teachers to create a good Investigation phase of the Inquiry Learning Cycle. Train the attendees to create around the chosen laboratory the activity (such as the assignment), define what variables are necessary to investigate, and the required manuals. Then, move on to the other phases, such as Orientation, Conceptualization, Conclusion and Discussion which are elaborated together. The presentation of apps that are suitable for each phase are demonstrated and tested with participants.

c. Participants

Good practice	Explanation
Teacher development teams	Inviting and training **teacher development teams** - consisting of teachers from the same school or schools in the same region – has proven to give a boost to the implementation. In one school such a team is working on developing ILSs with the guidance of an experienced teacher. Although the process doesn't go fast, progress is made.
Involve an experienced teacher in your team	**Involving teachers in the trainer team**, who are experienced Go-Lab users can be very effective to convince teachers of the added value of Go-Lab. Listening to and learning from peers who can talk and share their experience of using Go-Lab is very motivating. Teachers can better relate to a colleague facing the same every day challenges, instead of being instructed by research staff or project managers that do not necessarily face the

Good practice	Explanation
	classroom reality daily. Additionally, those experienced teachers can act as multipliers for their school community and they inspire more teachers to get involved.
Build a good relationship with your trainees	The relation built with the participants, the activities that can be assigned, the support that can be offered in-between the events prove to be very efficient.
Listen to your participants	It is important to take into account what participants have criticised or favoured after the completion of training events in order to improve your performance.
Share your training material	Share the presentations, ILSs and other material used in your trainings. Put all of the material used in the Go-Lab Community event folder.

4. Teacher Support Facilities

This section is devoted to the facilities of WP2 that aim to empower teachers and provide the (technical) functions and (internal) procedures that allow users to offer services to enable direct support, peer-tutoring as well as a coaching and mentoring scheme. However, the technical aspects of the Teacher support and empowerment facilities are described and discussed in D2.3. This section of D2.4, reports the activities regarding the planning, design and needs analysis for tutoring, coaching and mentoring and how the existing infrastructure can be used.

In the first year of the project, the focus was on establishing a direct ad-hoc online support function. This included first and foremost the implementation of a help-desk (Intercom). The Intercom service has proven to be of great help and is a service that is starting to be more and more known and accepted. The future task and challenge will be to advance this service and expand it as a peer tutoring service from teachers / Go-Lab users for teachers having pedagogical and technical questions concerning the creation of learning spaces. A brief report with the most important statistics of the Intercom use and experience will be given in Section 4.1

Plans to facilitate a coaching and mentoring scheme are being devised at the time of writing this deliverable and aim to facilitate co-creation by teachers exploiting the authoring platform. The place for this will be the Go-Lab Community (for details see D2.3). In order to better understand the need for such a service, the project team of Task 2.3 decided to run a participatory design action under the coordination the of the University of Leicester. The results of this survey are summarized in section 4.2.

4.1 Summary of the Intercom Help Desk Service

The Intercom help-desk is a service that offers instant help to teachers requesting help with all elements of the Go-Lab Ecosystem - not only during teaching hours, but also during office working hours – although it should be noted that the project team often answer requests outside office hours, including weekends and holidays.

In the period of 14 May 2017 – which is internally regarded as the start date and launch of the service – to 1 December 2017, a total of 252 “New conversations” have been started. As a “new conversation” is defined all those notifications and discussions starting by an inbound message using the Intercom bubble on the website or an email linked to the Intercom tool, and is sorted by the date the conversation started. In total, 1667 replies have been sent. As can be seen in the figures below, except for the holiday period in August and before the official start of the new school year in many countries in September, there has been a constant increase in the use of this service.

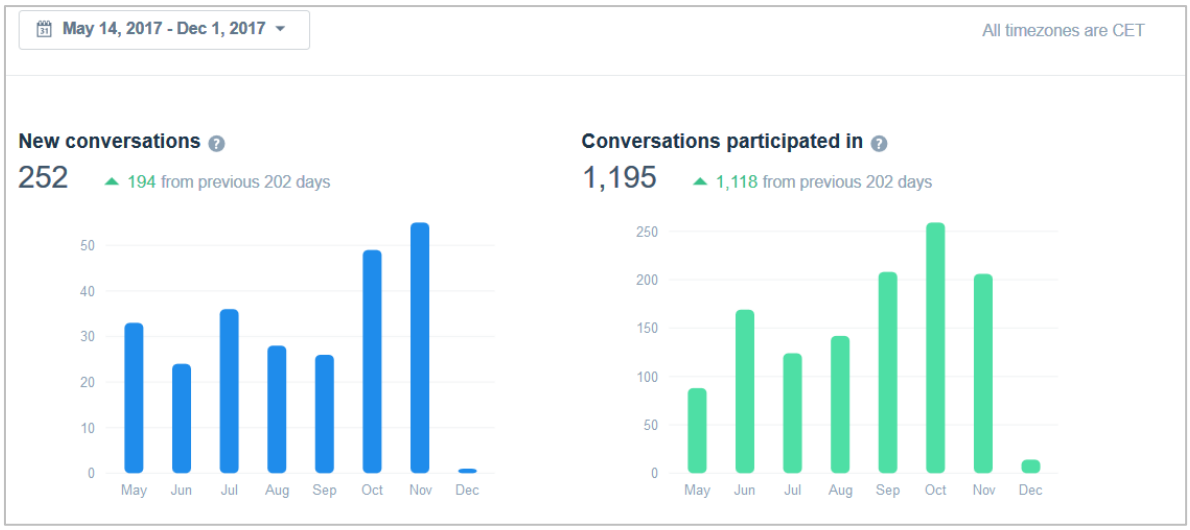


Figure 16: New and total conversations - Intercom May-Dec 2017

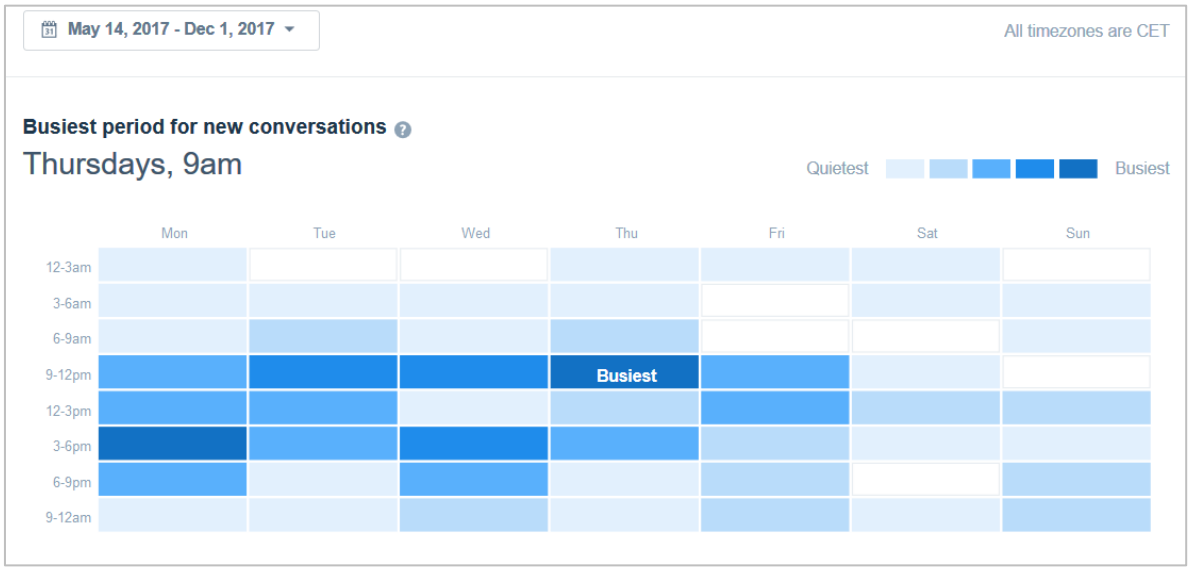


Figure 17: Busiest time for new conversation - Intercom May-Dec 2017

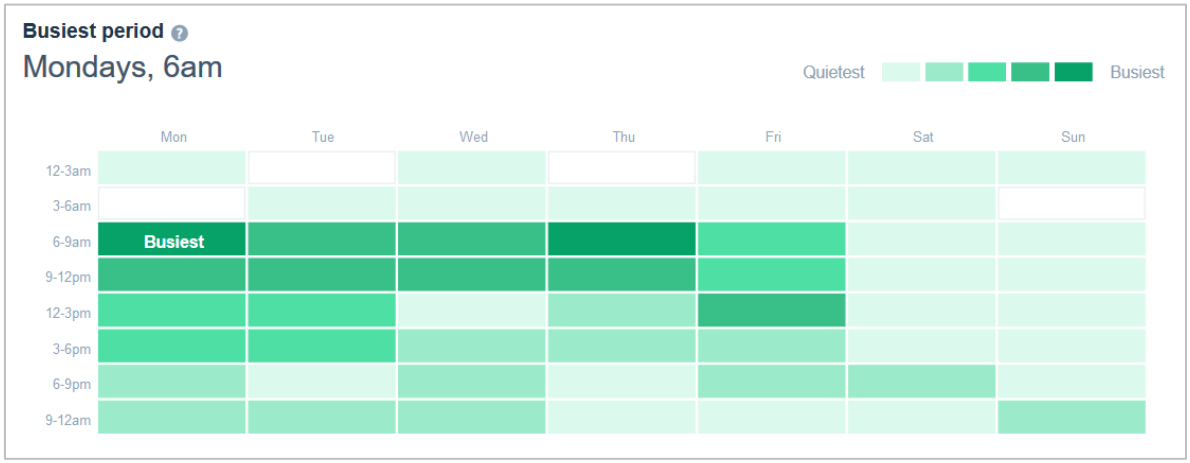


Figure 18: Busiest period - Intercom May-Dec 2017

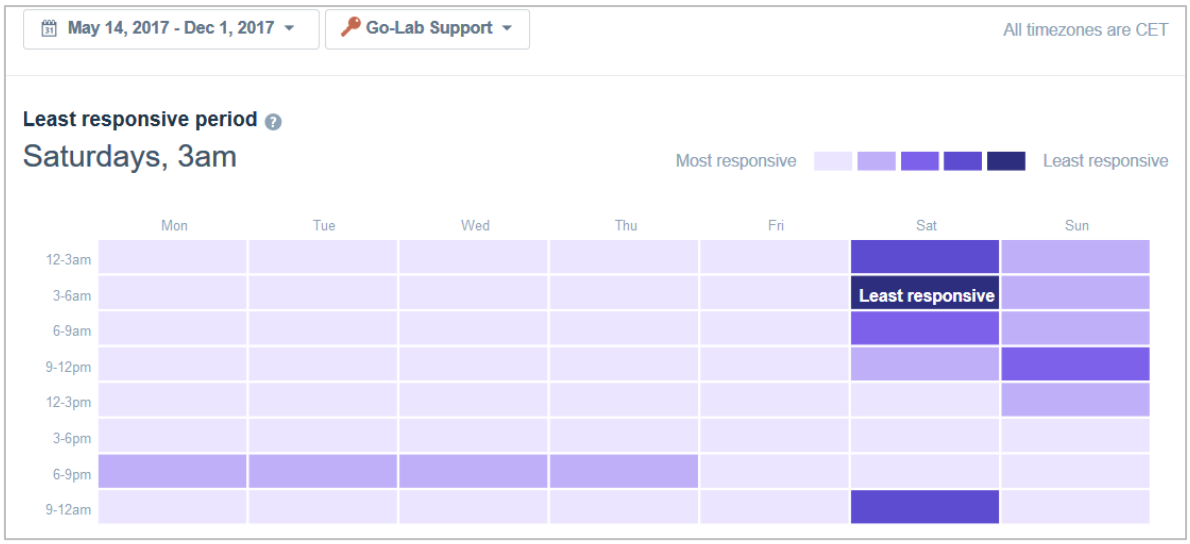


Figure 19: Least responsive period - Intercom May-Dec 2017

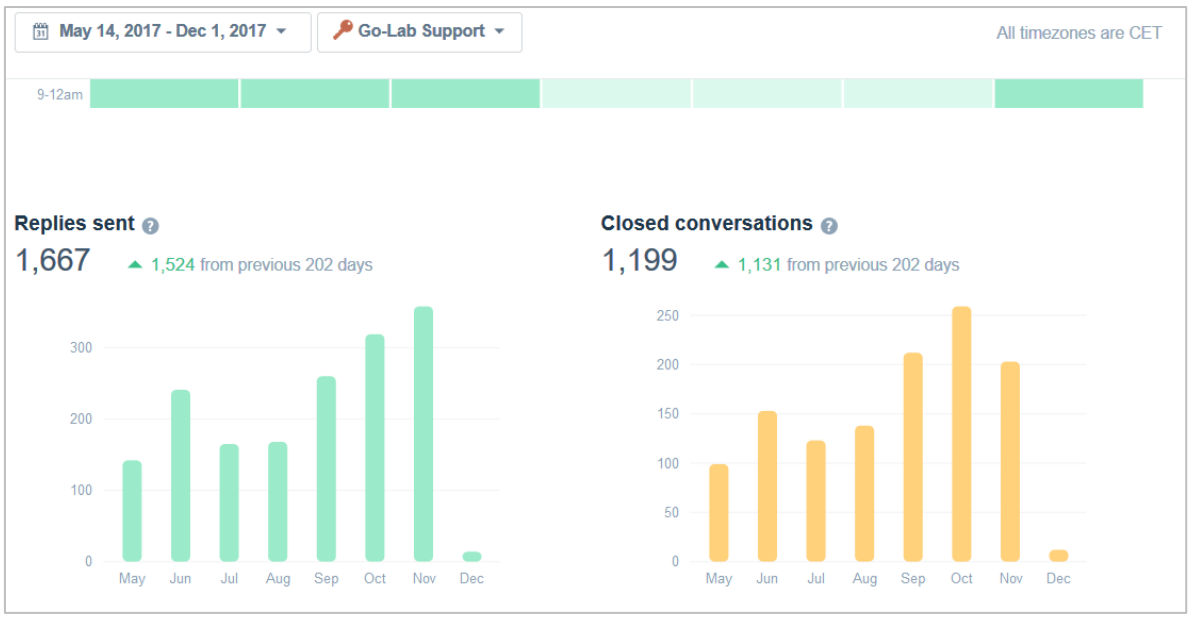


Figure 20: Replies sent and conversations closed - Intercom May-Dec 2017

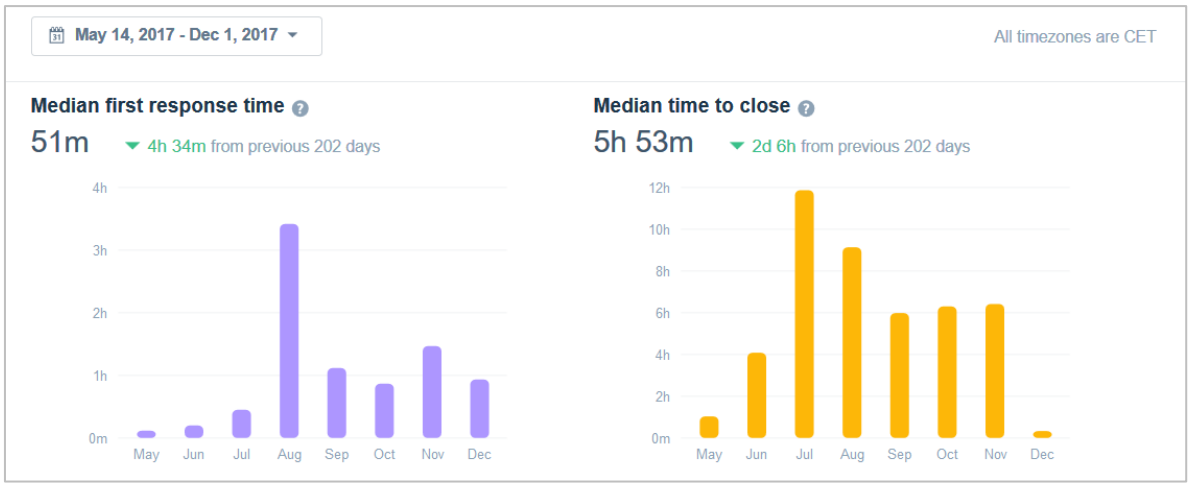
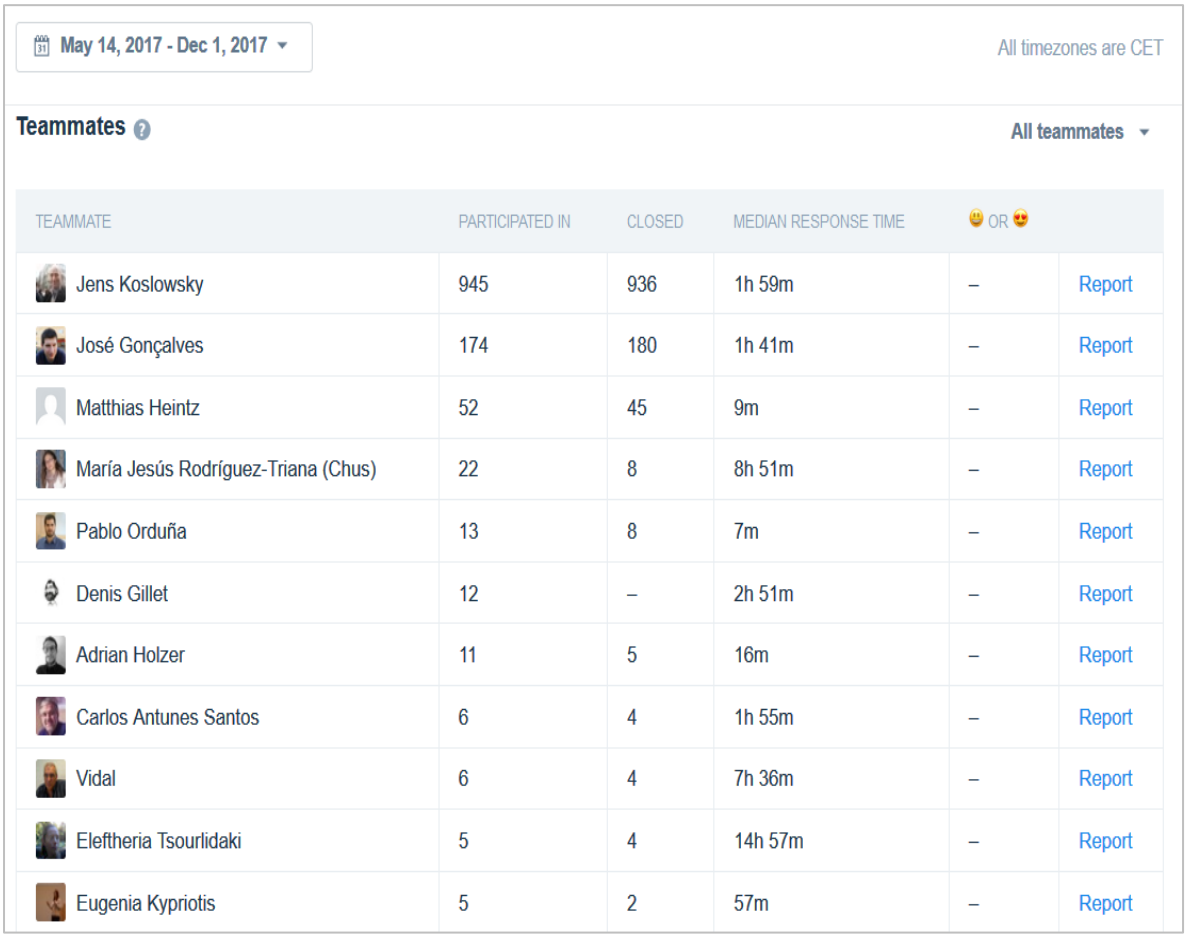


Figure 21: Median response time - Intercom May-Dec 2017



TEAMMATE	PARTICIPATED IN	CLOSED	MEDIAN RESPONSE TIME	😃 OR 😍	
Jens Koslowsky	945	936	1h 59m	–	Report
José Gonçalves	174	180	1h 41m	–	Report
Matthias Heintz	52	45	9m	–	Report
María Jesús Rodríguez-Triana (Chus)	22	8	8h 51m	–	Report
Pablo Orduña	13	8	7m	–	Report
Denis Gillet	12	–	2h 51m	–	Report
Adrian Holzer	11	5	16m	–	Report
Carlos Antunes Santos	6	4	1h 55m	–	Report
Vidal	6	4	7h 36m	–	Report
Eleftheria Tsourlidaki	5	4	14h 57m	–	Report
Eugenia Kypriotis	5	2	57m	–	Report

Figure 22: Intercom team - Intercom May-Dec 2017

The Intercom service has provided us with the functions and possibility that were envisaged in the Description of Action (DoA) and the general vision of the Go-Lab Ecosystem. With the help of this software, the Next-Lab team was able to provide direct support to numerous users and help them solve a problem, receive reports on technical issues (e.g. a broken link, lost passwords, propose a new lab, etc.) or engage them in a discussion about the purpose and usefulness of Go-Lab.

As already reported in D2.2, it is more a technical help-desk and not yet a service desk that users also take advantage of to receive help in the creation of ILSs. The challenge will be to expand this service by involving a greater team to be available to offer help. Currently, the project team is small but effective (see Figure 22). Ideally, we would also like to involve experienced teachers and the Go-Lab Ambassadors to become tutors and use this platform for peer-tutoring services. However, the experience has shown that in order to provide almost instant feedback and advice, the team behind Intercom should be a dedicated team that is continuously aware of incoming messages and ready to respond. Teachers have already a very busy work schedule and it is challenging to involve and train them on the Intercom platform in order to act as tutors.

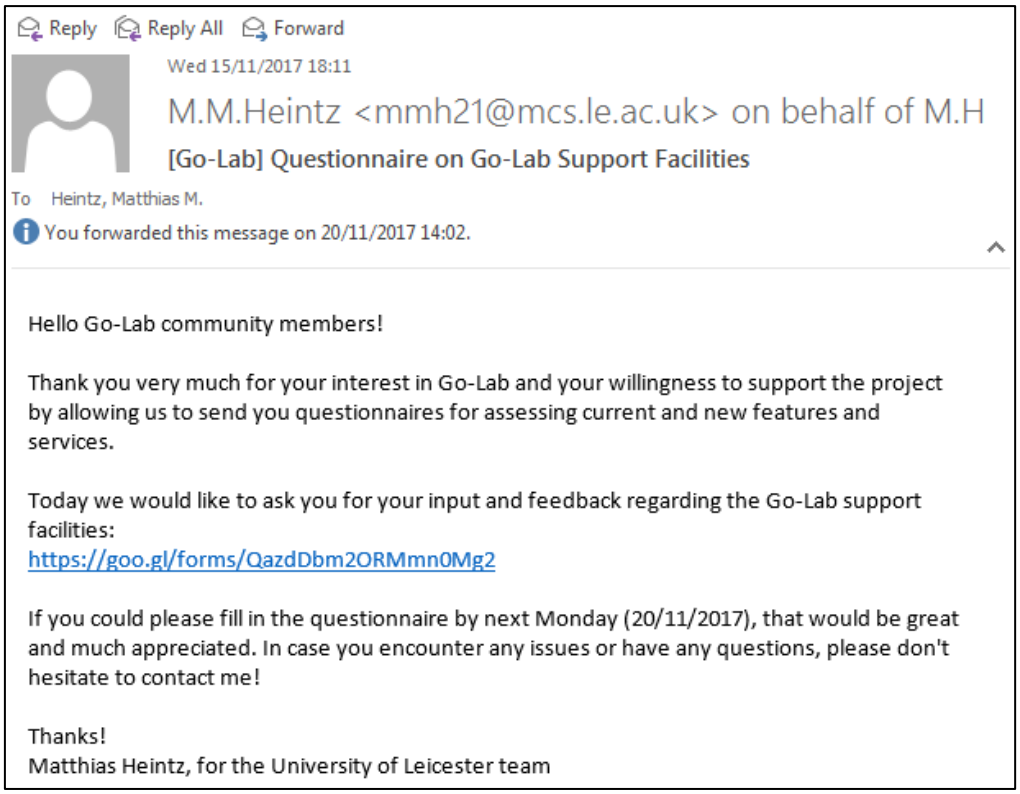
The Intercom platform has certainly proven its value as help-desk and as a first-response mechanism. However, other places like the Go-Lab Community space seem more suitable to facilitate peer-to-peer interactions and are currently being further developed (see D2.3). In order to fully appreciate the needs and willingness to provide for peer-tutoring, mentoring or coaching services, a needs analysis was designed.

4.2 Needs Analysis of Tutoring Activities and Facilities

Since last year, the Go-Lab Community has been established and all partners actively recruit users of Go-Lab to sign up this space. It serves as a platform to share material, but also of communication between teachers. It is also the main space for the Go-Lab Ambassadors to organize their events and trainings, and to encourage collaboration, co-creation of activities, sharing of common interests and building each other's expertise.

To enable the project to have a common understanding of the possible needs and how to design such services, and thereby meeting the needs and expectations of teachers, a web-based questionnaire had been developed. It consists of 12 items, addressing issues related to actual and planned usage of the support facilities. Several rounds of discussions among the partners concerned have been held to refine the questionnaire. The final version is accessible in the following link: https://goo.gl/forms/QazdDbm2ORMmn0Mg2.

On 15/11/2017 the link to this questionnaire was sent to the 611 members of the Go-Lab community on Graasp who signed up to receive questionnaires (up to two times a year), with the following email:


Reply Reply All Forward

Wed 15/11/2017 18:11

M.M.Heintz <mmh21@mcs.le.ac.uk> on behalf of M.H

[Go-Lab] Questionnaire on Go-Lab Support Facilities

To Heintz, Matthias M.

You forwarded this message on 20/11/2017 14:02.

Hello Go-Lab community members!

Thank you very much for your interest in Go-Lab and your willingness to support the project by allowing us to send you questionnaires for assessing current and new features and services.

Today we would like to ask you for your input and feedback regarding the Go-Lab support facilities:
https://goo.gl/forms/QazdDbm2ORMmn0Mg2

If you could please fill in the questionnaire by next Monday (20/11/2017), that would be great and much appreciated. In case you encounter any issues or have any questions, please don't hesitate to contact me!

Thanks!
Matthias Heintz, for the University of Leicester team

Figure 23 Email sent to Go-Lab Community members

Twelve of the email addresses in the system were not or no longer valid, thus the questionnaire was sent to 606 recipients. By 24/11/2017 12:00 (time of writing of this report) 57 responses have been received, resulting in a 9.4% response rate.

4.2.1 Analysis of Results

The complete overview of responses of the participants to each question can be found in the Appendix. Here we present a summary of the results to draw conclusions on how these could affect the existing and newly to be established mentoring, tutoring, and coaching support actions or services.

Clearly, “technical issues in general” is the most frequently chosen reason for the need for support, whereas “the implementation of an ILS” is identified as the least cause for support needs (Q1). The latter can be explained with the experience of teachers in conducting a lesson. To tackle the need for support with technical issues once the technical project partners are no longer available, teachers should be trained to provide technical support. Teachers think support from peers would be beneficial (Q2). From the answers to the open question “Why?” (Q3), it can be derived that the advantages which the participants see are:

- to share experiences and ideas with their peers (11)
- that teamwork is beneficial and effective (5)
- improving their pedagogical skills by interacting with other teachers (4)
- learning technical skills from experienced users of the Go-Lab system (2)
- getting support in solving problems from teachers who faced the same issues in the past (2)

Currently the participants get in contact with other teachers and Go-Lab representatives predominantly via e-mail or in person, the other channels (Intercom, Graasp, and Skype) have never been used by 60% or more of the participants. For the further development of

the support mechanism in Next-Lab, e-mail and face-to-face options should be offered and supported. If a transition from these channels towards other forms of interactions (e.g. discussion and collaboration in Graasp) is desired, the established mechanisms should be considered as a starting point and activities to inform the teachers about alternatives and to promote their usage should be performed.

From the responses to several questions (Q4, Q5, Q6, Q7, and Q8) it can be derived that currently teachers rely on Go-Lab representatives rather than fellow teachers to fulfil their support needs. As those will no longer be available after the project ends, activities to allow for a smooth transition from project to peer support are necessary and should be planned and performed as early as possible, to allow for a gradual transition from one to the other, with both support methods being available in parallel for an extended period of time.

Out of 57 responses to the questionnaire, 42 participants (74%) expressed a high motivation to learn more about the Go-Lab Ecosystem in the future, 14 more (25%) said to be somehow interested in doing so and only 1 person would not like to learn more about Go-Lab at all (Q9). These numbers indicate a real need for the project to help teachers to improve their knowledge and skills regarding the Go-Lab Ecosystem (platforms/apps/labs, to create/adapt/publish an ILS, to apply inquiry learning, etc.).

When asked what would be their preferred method to learn more about Go-Lab (Q10), most teachers said that they would 'likely' or 'very likely' experiment by themselves, attend trainings, or look at the support materials (with 93%, 86%, and 85% respectively). A slightly lower number of teachers would like to try collaborating with other teachers or experts, or join online courses (75%, 74%, and 68%). A lower percentage of teachers would use Intercom as a way to learn more about Go-Lab (22%). A possible reason for this rather low number of teachers that plan on using Intercom to communicate either with other peers or with experts could be a lack of awareness about this solution. After experimenting by themselves, attending trainings and looking at the support materials are the preferred methods of learning more about Go-Lab, thus one aim of the project should be to provide up-to-date and high-quality sessions and content. The highly ranked answer options (collaboration with peers and experts and online courses) should be taken into account for future support mechanisms provided for Go-Lab.

Besides identifying the need for support, another important aim of this questionnaire was to assess the willingness and conditions for teachers to provide support themselves. Q11 therefore asked how comfortable teachers would feel while supporting other peers to learn more about the Go-Lab Ecosystem. The answers can be used to shape the peer support scheme.

The vast majority of teachers (with a range from 47 to 50) would prefer to provide support in their own grade level, subject, country and using their native language. Still 31 and 35 teachers would be willing with providing help in English and in languages for other countries, respectively. This data can be useful when developing the system to connect teachers who look for support and teachers who provide it.

More than 70% of the teachers would also be either 'comfortable' or 'very comfortable' to communicate with peers either via email or in person (compared to the 61% that would prefer to use Graasp, 49% that would like to use Skype or similar tools, and only 18% that would feel comfortable to use Intercom). These reflect the currently used communications channels (see above).

About half of the teachers (49%) said it would be fine for them to help others a few hours per week as compared with 35% who would not be willing to do so. Supporting other

teachers only a few hours per month is clearly more acceptable, with 60% being comfortable with this idea as compared with 12% who would not be willing to do so. These encouraging data can give an idea on how much time spent on peer support can be expected, based on the size of the community.

4.2.2 Summary and Conclusions

The main findings and conclusions of the participatory design can be summarised as follows:

Main Findings	Explanation
Interest in collaboration and co-creation on a common platform	User would appreciate to have a common place to share experiences and ideas. There is a general interest of teachers in collaborating with peers and experts. The vast majority of teachers are either 'comfortable' or 'very comfortable' to communicate with peers.
Technical help as the highest demand	Most often, help is requested for technical issues (Graasp environment, integration of apps and labs, etc.) – this should be directed to the Intercom platform and support system. The helpdesk option of Intercom should be more promoted. Still, many users are not fully aware of this function.
Readiness to provide support	User have expressed their willingness to provide support to other teachers. However, this is dependent on grade level, subject area, country / region, the language and especially the time available.
Currently there is still a strong dependency on the support provided by the project team	There is still strong dependency on direct interaction with Go-Lab representatives. If we want to encourage peer support and co-creation, this needs to be shifted to peer support within the Go-Lab Community. Also, this will no longer be available after the project ends. Activities to allow for a smooth transition from project to peer support are necessary and should be planned and performed as early as possible, to allow for a gradual transition from one to the other, with both support methods being available in parallel for an extended period of time.
Facilitation scheme should be based on national / partner level	When interacting with the project team, email and face-to-face interaction is still the most used option of communication. This also means that this personal support (mostly provided by the NEC) should continue to be offered. That would mean that any facilitation scheme should be organized on partner/country level.
In order to facilitate peer-interaction, Next-Lab partners need to become active in the community space as well	Next-Lab Partners need to be active in "their" Go-Lab community and be present in the Graasp space in order to facilitate or coordinate the interaction of the user. This may require a dedicated time involvement and means that each partner should devise a strategy for community facilitation. User prefer interact in their own language. This is another indication that the Go-Lab community facilitation needs to be organized on partner level.

5. Conclusion and Outlook

The impact of the Next-Lab teacher empowering activities of the first year regarding the registration and use of the Go-Lab Ecosystem is reflected in the rising numbers of registered users in Graasp on all levels of user types. The technical means to provide direct support (such as Intercom or the Go-Lab community), as well as the implementation of dozens of training workshops and international training events all over Europe as well as the provision of more ready-to-be used training workshop material, are all important factors that can explain and support the significant increase of users in the Go-Lab Ecosystem which helps teachers to create and implement engaging and attractive science lessons.

Table 14: User number Whole Project – Jan-Dec 2017

Whole project	Jan 1st	Dec 1st	Change in %
Nr of users registered in Graasp	11629	19224	65%
Nr of active registered users in Graasp per month	603	1456	141%
Nr of creators	5729	9905	73%
Nr of potential implementers (>5)	452	757	67%
Nr of potential implementers (>10)	339	584	72%
Nr of Graasp events	0	137	-
Nr of users registered in the events	0	1065	-
Nr of users registered in the community	0	1083	-

The direct support mechanism of the Intercom service has already shown its value and helped address hundreds of requests by teachers to overcome technical challenges and other usage problems in creating or using labs, apps and ILSs. It has proven to be an efficient help-desk tool that keeps the Go-Lab Ecosystem updated and can quickly fix problems, such as broken links or non-working labs and apps. Many users have come to appreciate the availability of having a direct contact between the project team and teachers (as well as other users) across Europe and beyond to receive almost instant support. One of the challenges to address in the upcoming two years of the Next-Lab project is to expand the appeal of the service-desk to include selected teachers in order to transform and establish the Intercom service together with the Go-Lab Community as a peer-support system that facilitates peer-tutoring, mentoring and coaching.

Next-Lab partners and Go-Lab Ambassadors managed to offer numerous training opportunities for teachers to obtain the needed skills and competences on all domains and topics important to Go-Lab, in order for them to confidently create and implement ILSs in their classroom with their students. The reports and discussions by NECs are an insightful display of many inspiring examples, ideas and good practices on how to organize training for teachers to successfully use Go-Lab. It is a repository of ideas to follow and the training efforts are one of the most important factor that cause the significant increase in the most important categories of user numbers in Go-Lab (see Table 14).

The ongoing training workshops together with the wide-ranging support tools and the increasingly enriched training support material that will be developed, Next-Lab partners and teachers will have the necessary tools to increase the competence and confidence to use Go-Lab in their classrooms. The production and update of more targeted, custom-made

and improved training and support material for NECs, Next-Lab partners, Go-Lab ambassadors and Teacher Training Institutes will be the main aim for the second year of the project. The upcoming international training events in Bilbao, Marathon and Tartu in 2018 will be an important opportunity to update, enhance or create new content for training and test them within the workshops with several teachers. As each course will have a distinct thematic focus (Co-Creation / Standards in ILS design; Learning Analytics in Go-Lab; Primary education and Go-Lab), these events will be used to create training material that can then be used by all.

The internal analysis and survey for the preparation of this report has enabled us to have a better understanding of how a typical Go-Lab training workshops is organized and implemented in most Next-Lab related countries. The important training themes, subjects and domains have been identified or verified. Additionally, the preferred and most often used and appreciated type of training support material. This enable us to define the idea; Go-Lab training support package, consisting of the most appropriate training material (presentation, instructions, example ILS, video). The project and partners of WP2 are now in a better position to continue its work in a structure way to produce further modular Go-Lab material, especially after identifying and categorizing the existing material and understanding the gaps.

A common framework that defines the skills and competences is still a preferred tool to plan, produce and align or adjust the (existing) training material and workshops to ultimately be able to define a Go-Lab Curriculum and course. Based on this framework, partners and the project overall will be able to better plan their trainings, identify training needs and create training phases and courses that match the skills and competences development phases of Next-Lab teachers. The focus of 2018 will therefore be to create the competence framework and connect it with the existing Go-Lab training material and other activities, such as the Go-Lab badges.

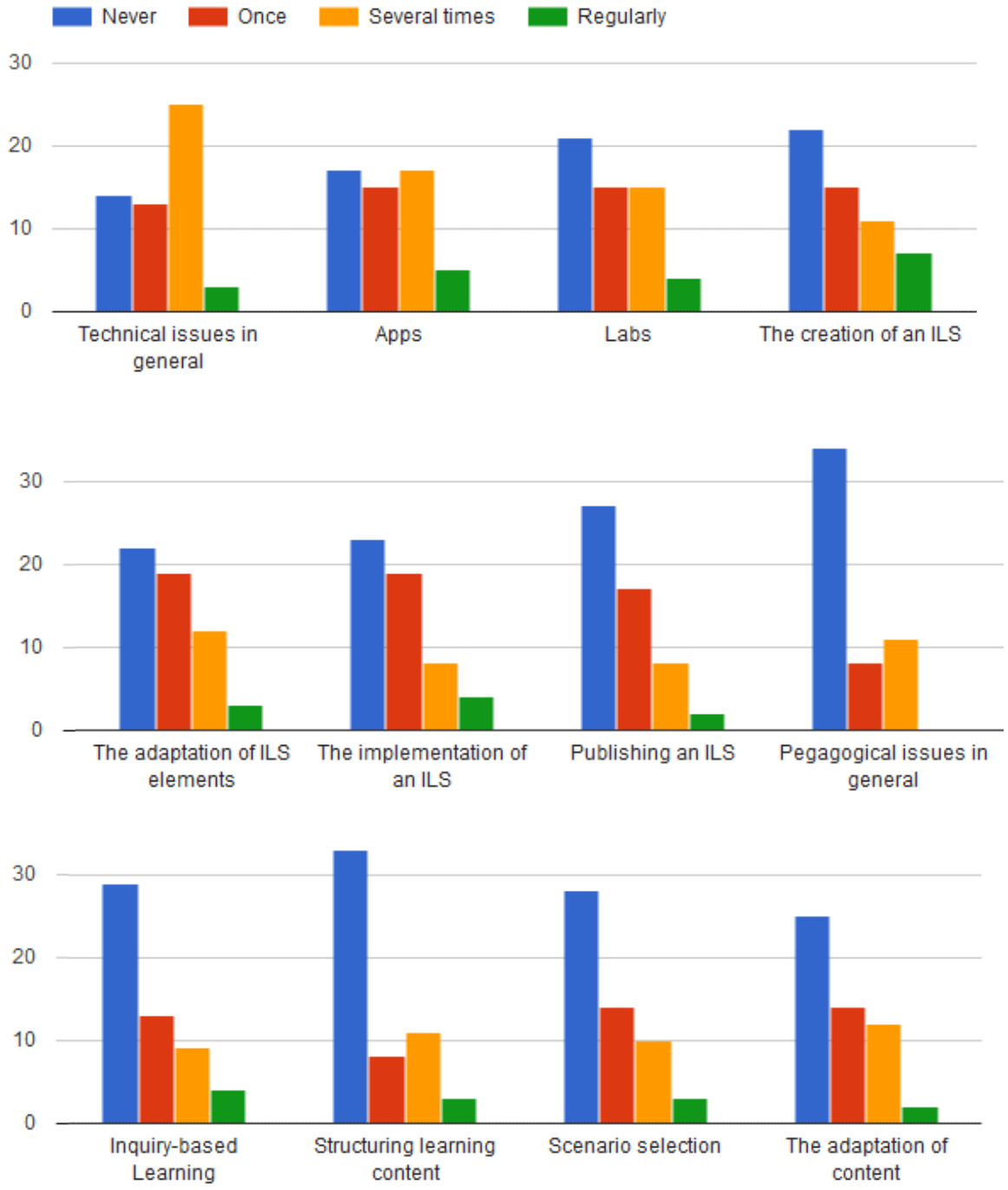
In parallel, the technological functions that facilitate and support training, community building and personalization will continue to be developed and enhanced, including better support through a direct help- and service desk for users of Graasp and Go-Lab.

Appendices

A. Detailed responses of the "Needs Analysis for Mentoring facilities

Responses

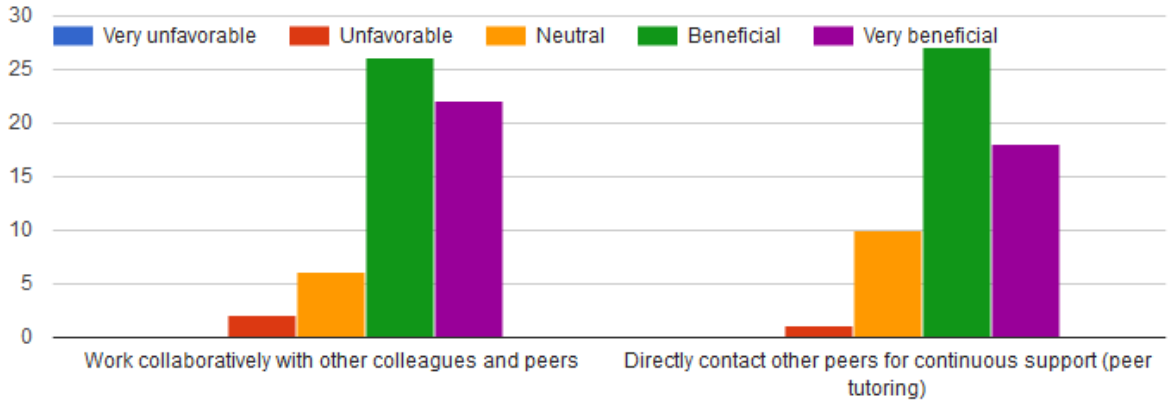
Q0 When working in the Go-Lab Ecosystem, how often were you in need of support regarding:



Q1 When working in the Go-Lab Ecosystem, how often were you in need of support regarding:

	Never	Once	Several times	Regularly
Technical issues in general	14	13	25	3
Labs	21	15	15	4
The creation of an ILS	22	15	11	7
The adaptation of ILS elements	22	19	12	3
The implementation of an ILS	23	19	8	4
Publishing an ILS	27	17	8	2
Pegagogical issues in general	34	8	11	0
Inquiry-based Learning	29	13	9	4
Structuring learning content	33	8	11	3
Scenario selection	28	14	10	3
The adaptation of content	25	14	12	2

Q2 How beneficial would it be for you to:

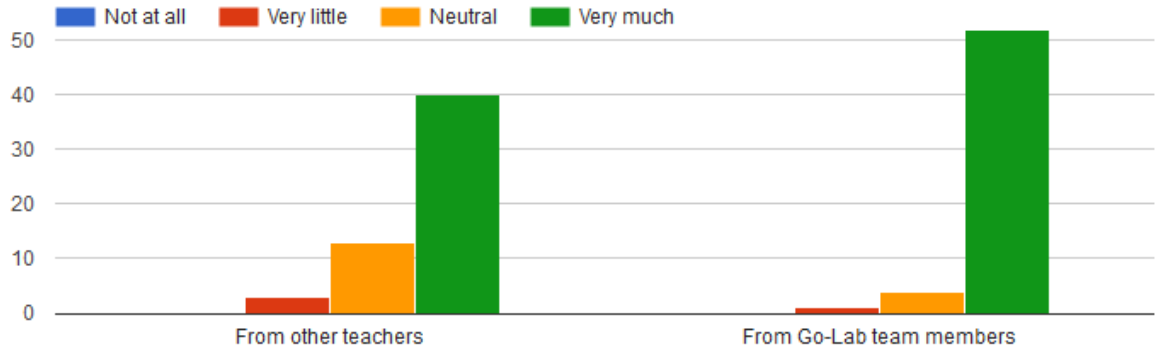


	Very unfavorable	Unfavorable	Neutral	Beneficial	Very beneficial
Work collaboratively with other colleagues and peers	0	2	6	26	22
Directly contact other peers for continuous support (peer tutoring)	0	1	10	27	18

Q3 Why?

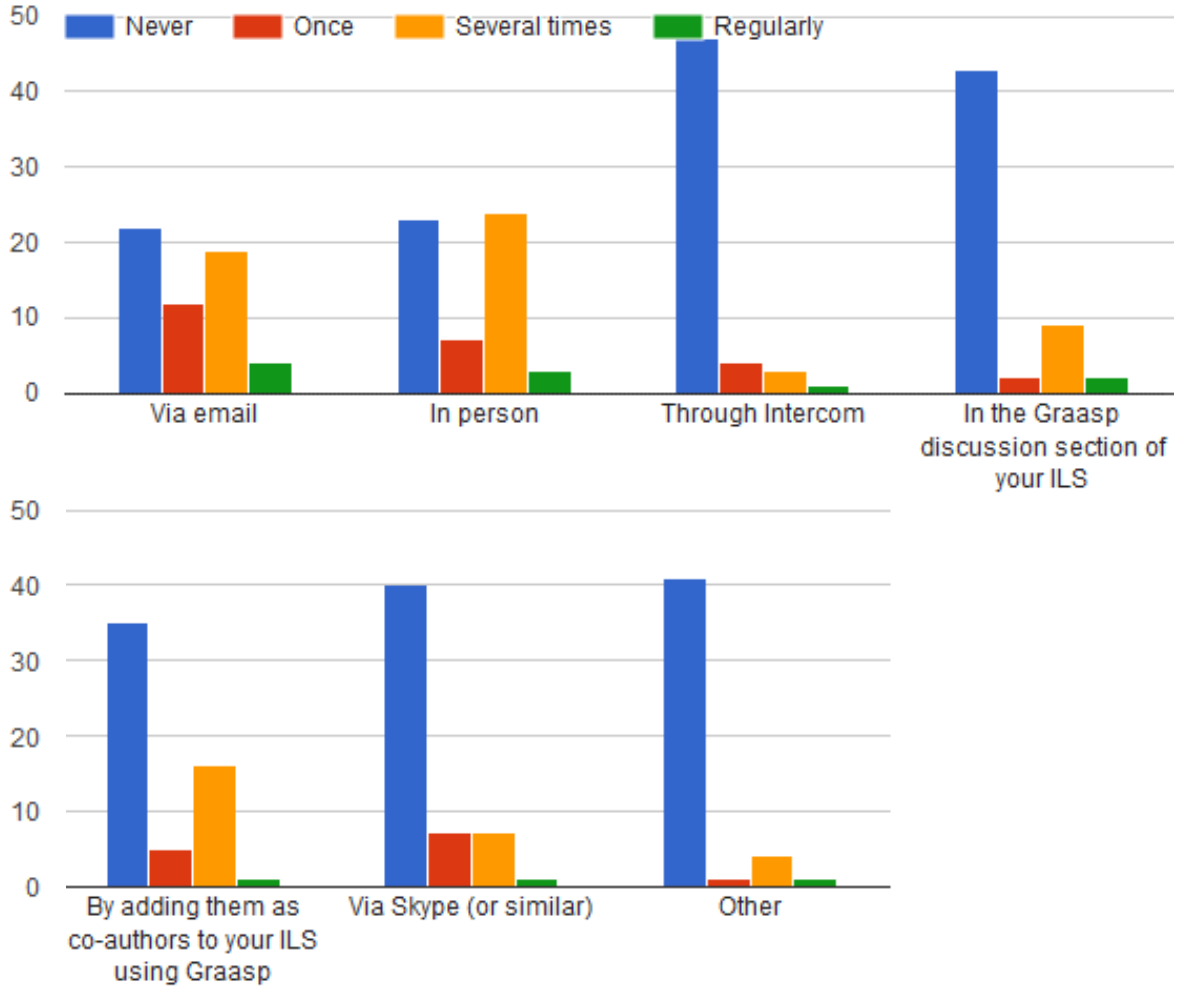
- Because it is not easy for me using this tipe of teaching
- You can easily share things that you want to do and listen to others experience , as well.
- It is very important to improve pedagogical skills.
- confronting you always has something interesting
- For exchange the experiences
- Because I think I must learn this tool to its maximum power while it is hard for me to use it in the classroom engaging students. It seems to me also very hard to set the environment and register students.
- ---
- Probably they had had the same problems before
- When you work with other you get more inspiration to make your ILS better.
- I like to work in collaboration with other collegues, I think you earn more
- Collaboration is always benefical for any work.
- Sharing experiences makes learning faster.
- I like working in team
- In order to share a common metodology and strategy with colleagues
- It collega have had the same experience or the same difficulties they can easily share ahd support each others
- In general, working with other teachers provides me with more ideas and information, and avoid duplicating tasks. And, somehow, its sets and "obligation" to work. Whem I'm overload with work, I tend to maintain those tasks that I share with other people.
- You can always learn from each other
- changing ideas
- The view and opinion of a person with about the same needs and goals, is very valuable
- co-work is effective
- *
- It will allow me to exchange the experience with my peers and to improve the lessons concept.
- Further ideas to gain inspiration on how to use the platform
- Because we can share our experience with other colleagues.
- I am only a beginner!! But a very willing Science-mad one!

Q4 How beneficial do you think it would be for other teachers to have access to tutoring/coaching/mentoring support?



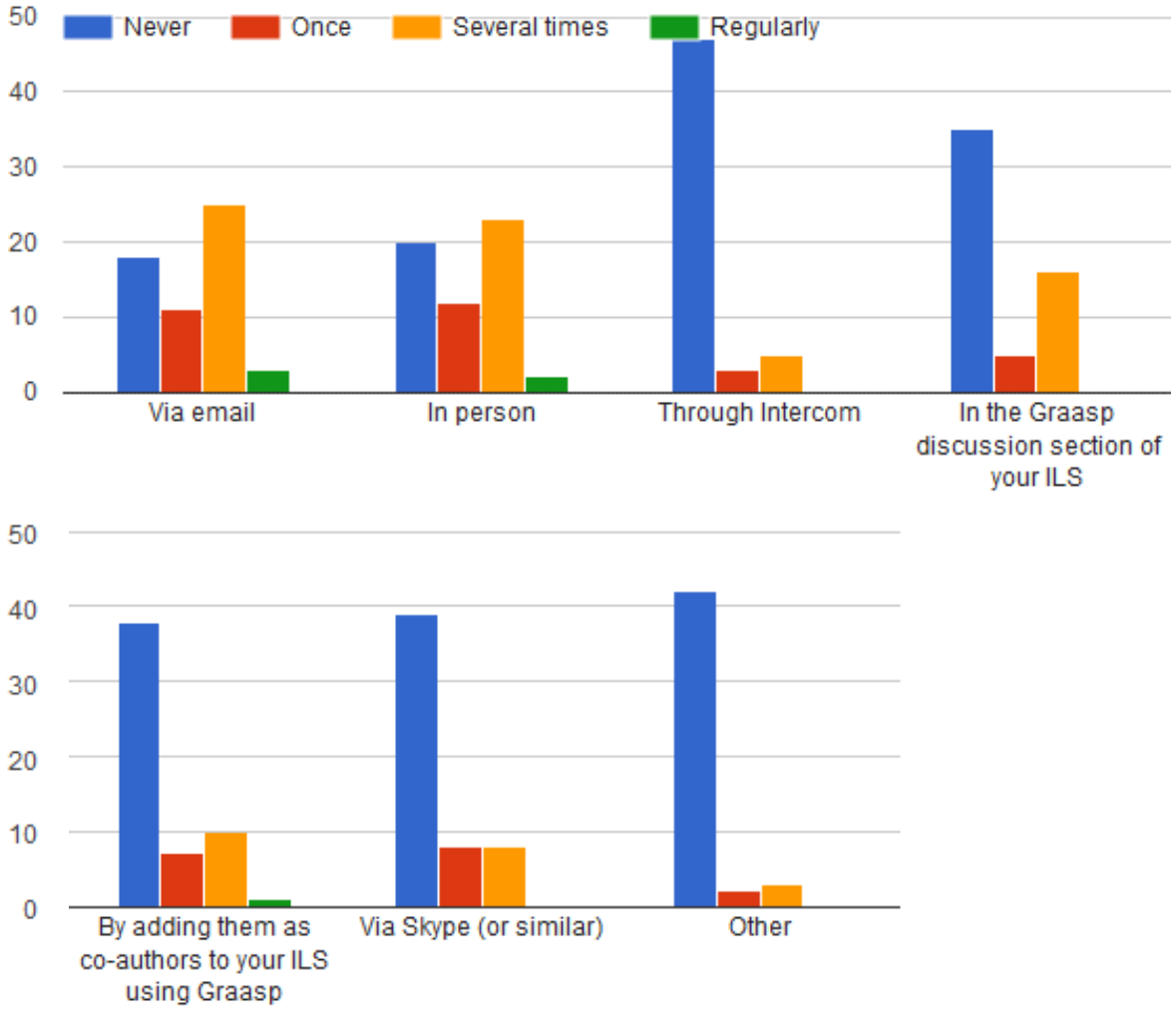
	Not at all	Very little	Neutral	Very much
From other teachers	0	3	13	40
From Go-Lab team members	0	1	4	52

Q5 How often did you get in contact with another teacher when using Go-Lab (e.g. to use the platforms/labs/apps, to create/adapt/publish an ILS, to apply inquiry learning, etc.)?



	Never	Once	Several times	Regularly
Via email	22	12	19	4
In person	23	7	24	3
Through Intercom	47	4	3	1
In the Graasp discussion section of your ILS	43	2	9	2
By adding them as co-authors to your ILS using Graasp	35	5	16	1
Via Skype (or similar)	40	7	7	1
Other	41	1	4	1

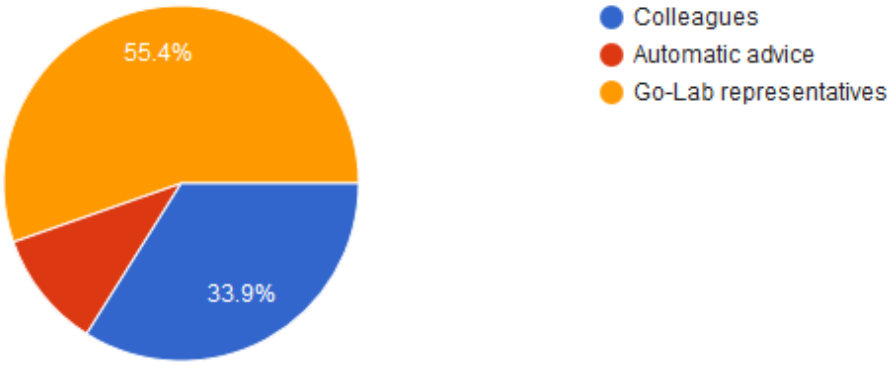
Q6 How often did you get in contact with a Go-Lab representative (ambassadors or Go-Lab team members) when using Go-Lab (e.g. to use the platforms/labs/apps, to create/adapt/publish an ILS, to apply inquiry learning, etc.)?



	Never	Once	Several times	Regularly
Via email	18	11	25	3
In person	20	12	23	2
Through Intercom	47	3	5	0
In the Graasp discussion section of your ILS	35	5	16	0
By adding them as co-authors to your ILS using Graasp	38	7	10	1
Via Skype (or similar)	39	8	8	0
Other	42	2	3	0

Q7 Do you think it is more efficient to receive feedback from:

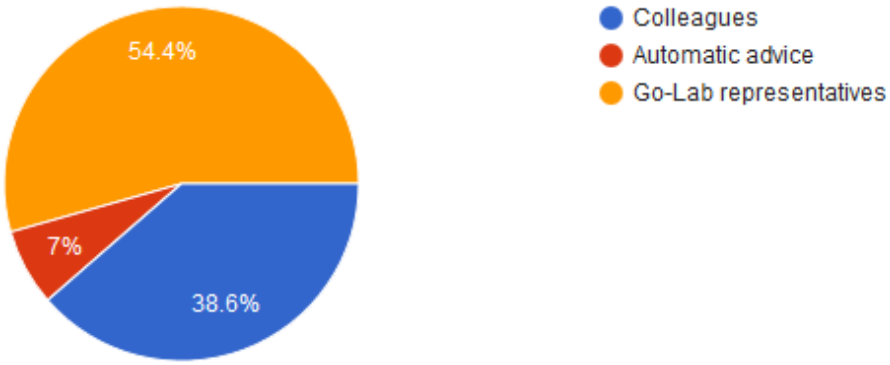
56 responses



Colleagues	19
Automatic advice	6
Through Intercom	31

Q8 Do you think it is better or most helpful to receive feedback from:

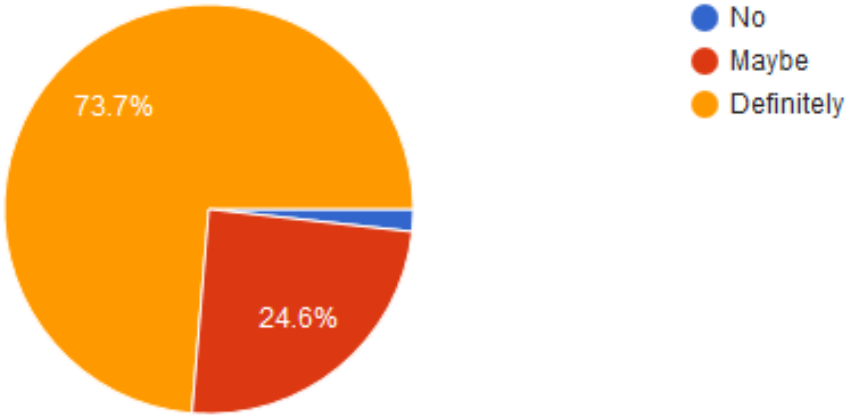
57 responses



Colleagues	22
Automatic advice	4
Through Intercom	31

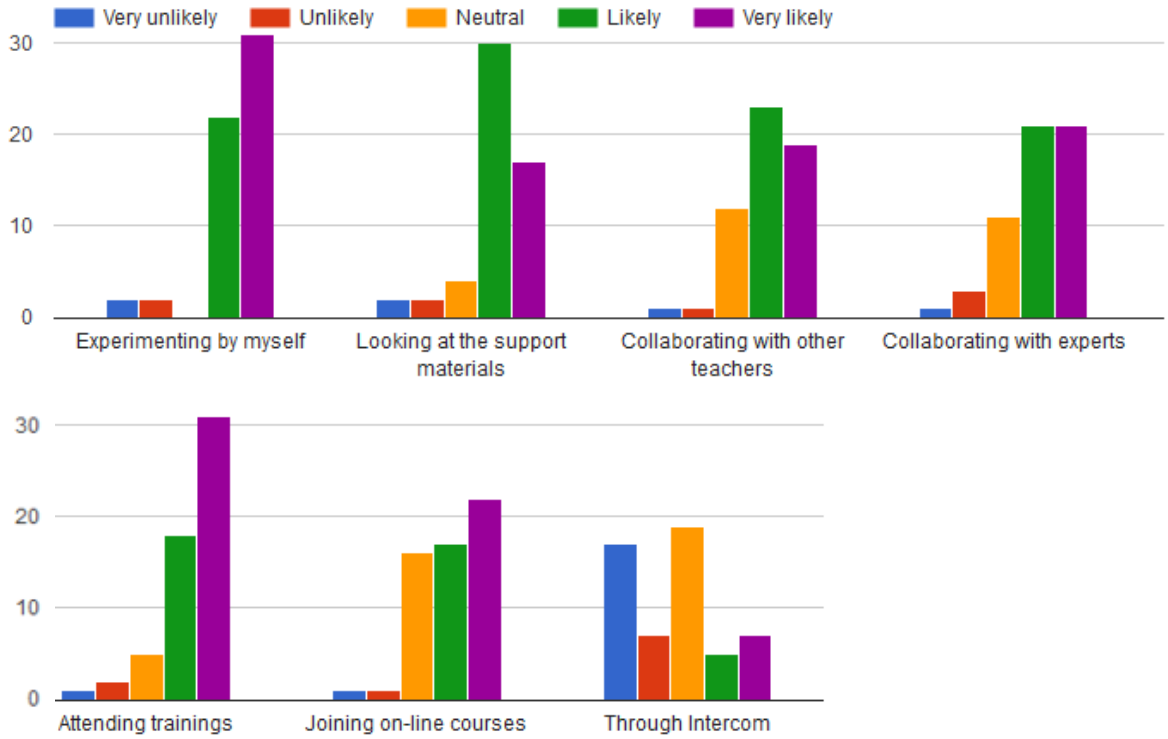
Q9 Are you planning/would you like to learn more about the Go-Lab Ecosystem (platforms/apps/labs, to create/adapt/publish an ILS, to apply inquiry learning, etc.) in the future?

57 responses



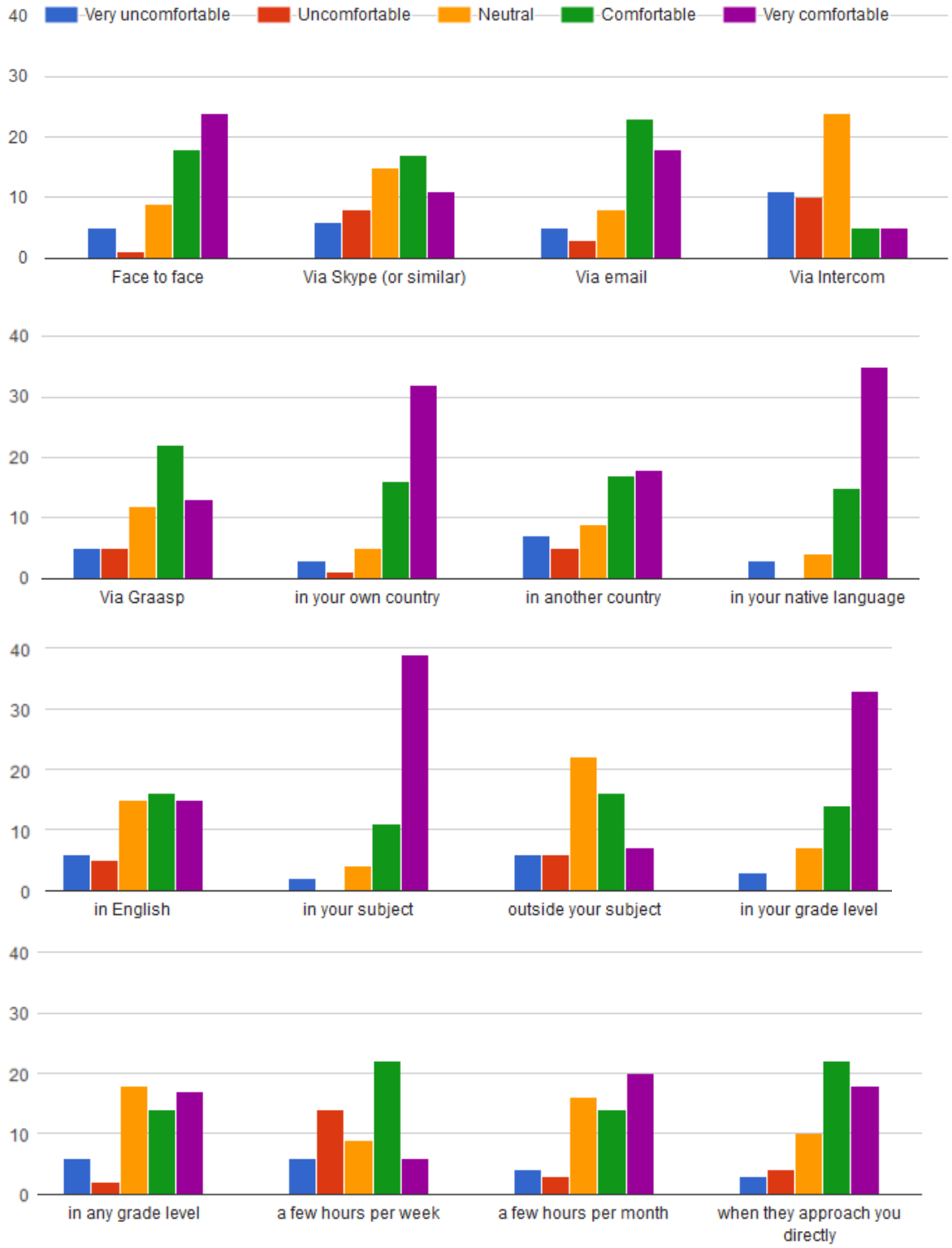
No	1
Maybe	14
Definitely	42

Q10 How likely are you to use the following methods to learn more about Go-Lab?



	Very unlikely	Unlikely	Neutral	Likely	Very likely
Experimenting by myself	2	2	0	22	31
Looking at the support materials	2	2	4	30	17
Collaborating with other teachers	1	1	12	23	19
Collaborating with experts	1	3	11	21	21
Attending trainings	1	2	5	18	31
Joining on-line courses	1	1	16	17	22
Through Intercom	17	7	19	5	7

Q11 How comfortable would you feel to support other teachers


Very uncomfortable
Uncomfortable
Neutral
Comfortable
Very comfortable
40
30
20
10
0
Face to face
Via Skype (or similar)
Via email
Via Intercom
Via Graasp
in your own country
in another country
in your native language
in English
in your subject
outside your subject
in your grade level
in any grade level
a few hours per week
a few hours per month
when they approach you directly

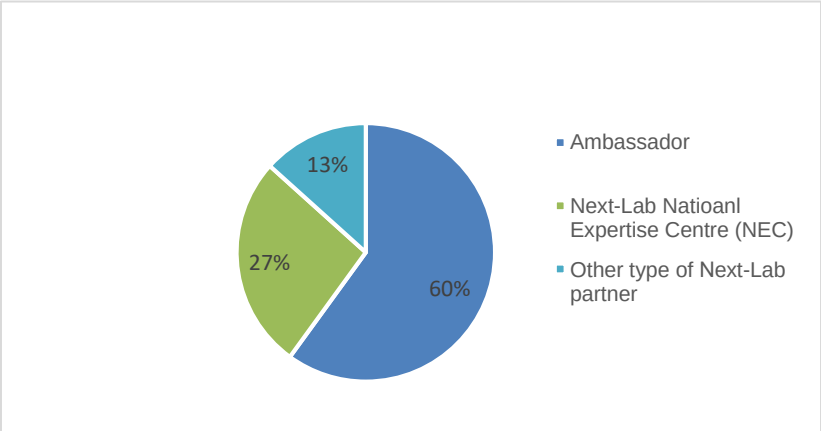
	Very uncomfortable	Uncomfortable	Neutral	Comfortable	Very comfortable
Face to face	5	1	9	18	24
Via Skype (or similar)	6	8	15	17	11
Via email	5	3	8	23	18
Via Intercom	11	10	24	5	5
Via Graasp	5	5	12	22	13
in your own country	3	1	5	16	32
in another country	7	5	9	17	18
in your native language	3	0	4	15	35
in English	6	5	15	16	15
in your subject	2	0	4	11	39
outside your subject	6	6	22	16	7
in your grade level	3	0	7	14	33
in any grade level	6	2	18	14	17
a few hours per week	6	14	9	22	6
a few hours per month	4	3	16	14	20
when they approach you directly	3	4	10	22	18

Q12 If you would be willing to further support Go-Lab by working on similar tasks like filling in this questionnaire on a fortnightly basis please provide your email address below:

The responses to this question have been used to extend the amount of Next-Lab core group and PD teachers.

B. Internal Survey to assess and analyse the need for common Next-Lab Training & Support Material

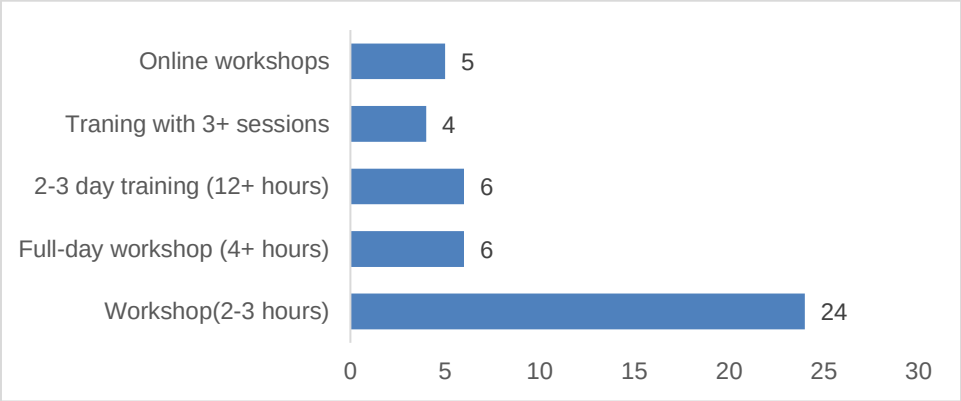
1. Are you/do you represent a…?



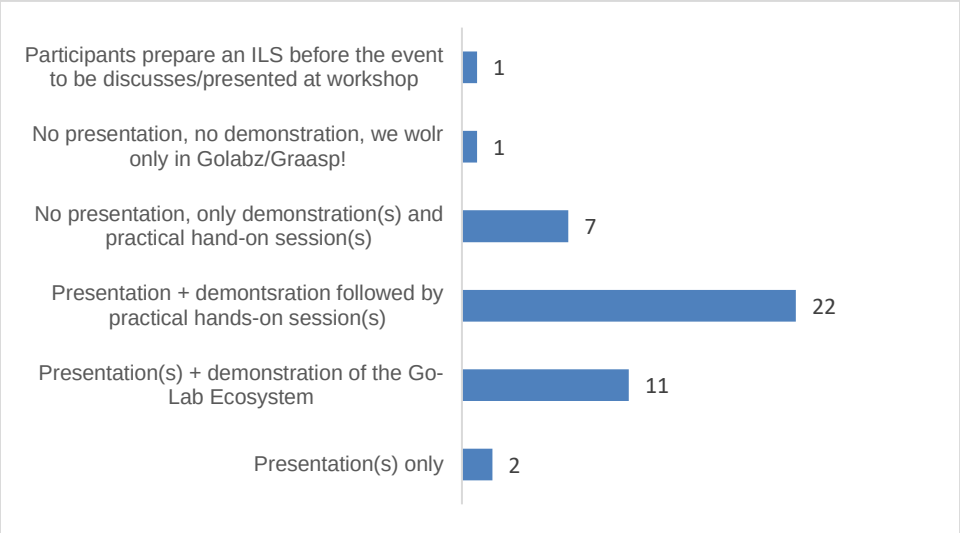
2. Which community/country do you represent?

Belgium	2	Lithuania	1
Bulgaria	1	Malta	1
Croatia	1	Netherlands	1
Cyprus	2	Poland	1
Czech Republic	0	Portugal	1
Estonia	1	Romania	1
Finland	1	Serbia	1
Former Yugoslav Republic of Macedonia	1	Slovakia	1
France	1	Spain	1
Germany	1	Sweden	1
Greece	1	Switzerland	1
Hungary	1	Turkey	0
Israel	1	Online Community	0
Italy	1	International Community	3
Latvia	1		

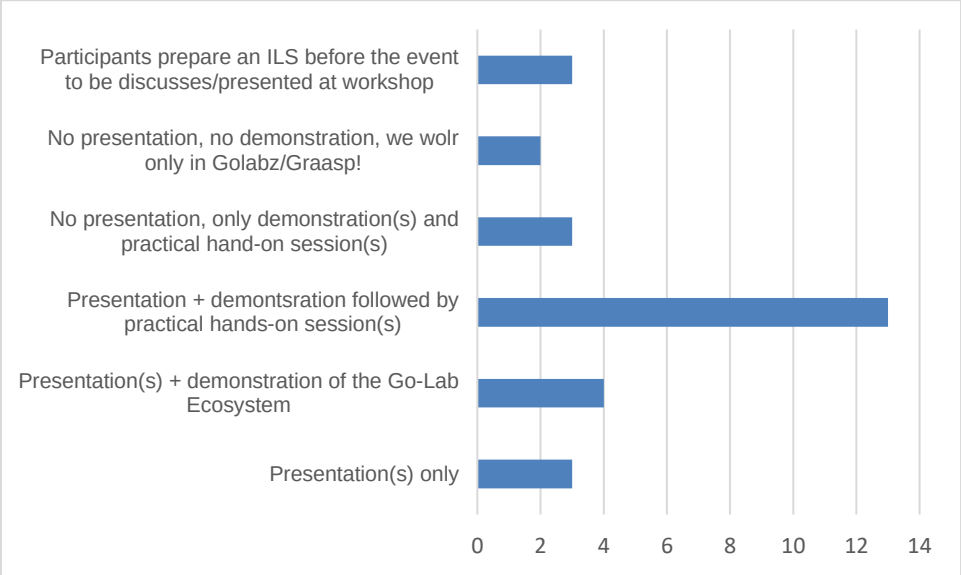
3. Which is the workshop/training format that you implement most often?



4. How do you structure a typical Go-Lab workshop (= up to a full day)?



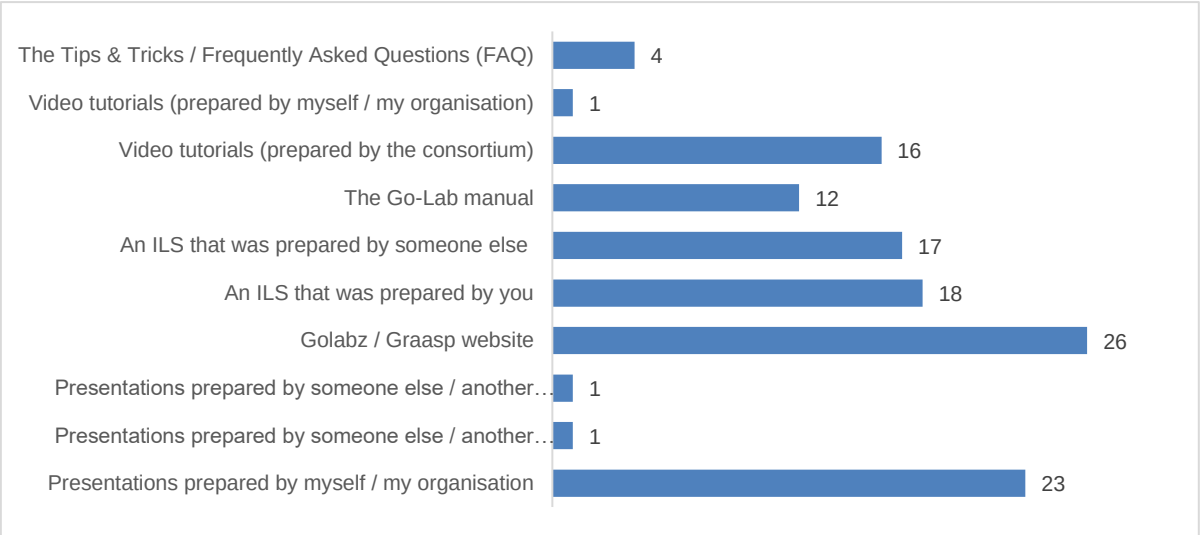
5. How do you usually structure a Go-Lab training (2 or more days)?



6. If none of the above applies, please briefly explain the training /workshops that you are implementing here:

If none of the above applies, please briefly explain the training / workshops that you are implementing here:
usually we present the Eco-Lab system (ILS, apps and labs), before training we ask participants to choose the lab/experiment (Golabz) and what parameter/variable students should understand, and during the training participants create ILS (Graasp) around this experiment.
So far, we have done 2-3 hour and 1-day workshops
Presentation(s) only if I speak to listeners for less than 1 hour

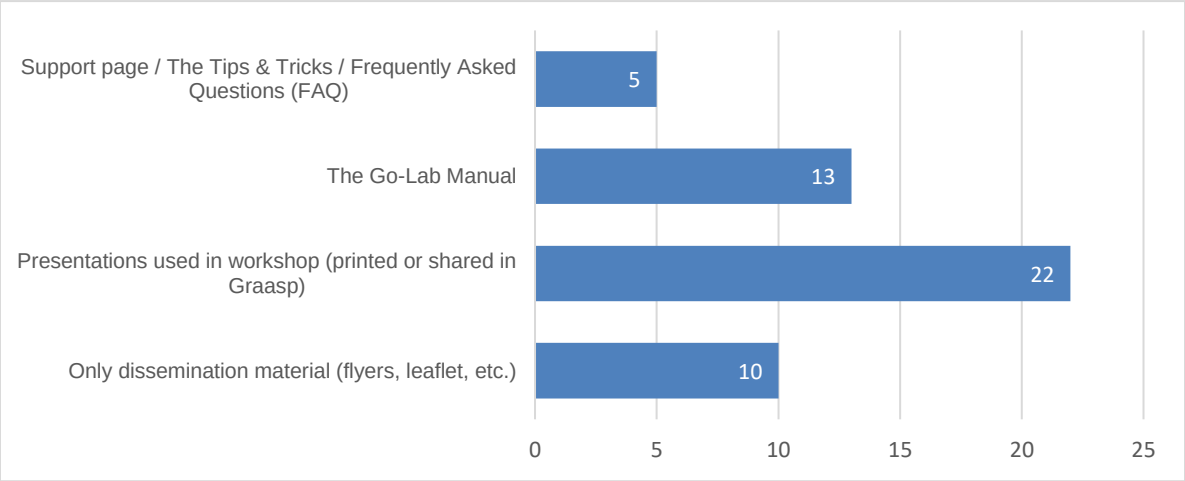
7. In your Go-Lab workshops / training: What type of Go-Lab material are you typically using?



8. If none of the above applies, please briefly describe the training / workshops material that you are using here:

Some materials in Estonian have been developed covering areas in following sections.
I do some real experiments of IBSL-type to explain to my listeners what type of lesson we consider.

9. Are you sharing / handing out (printed/digital/online) material to workshop / training participants?

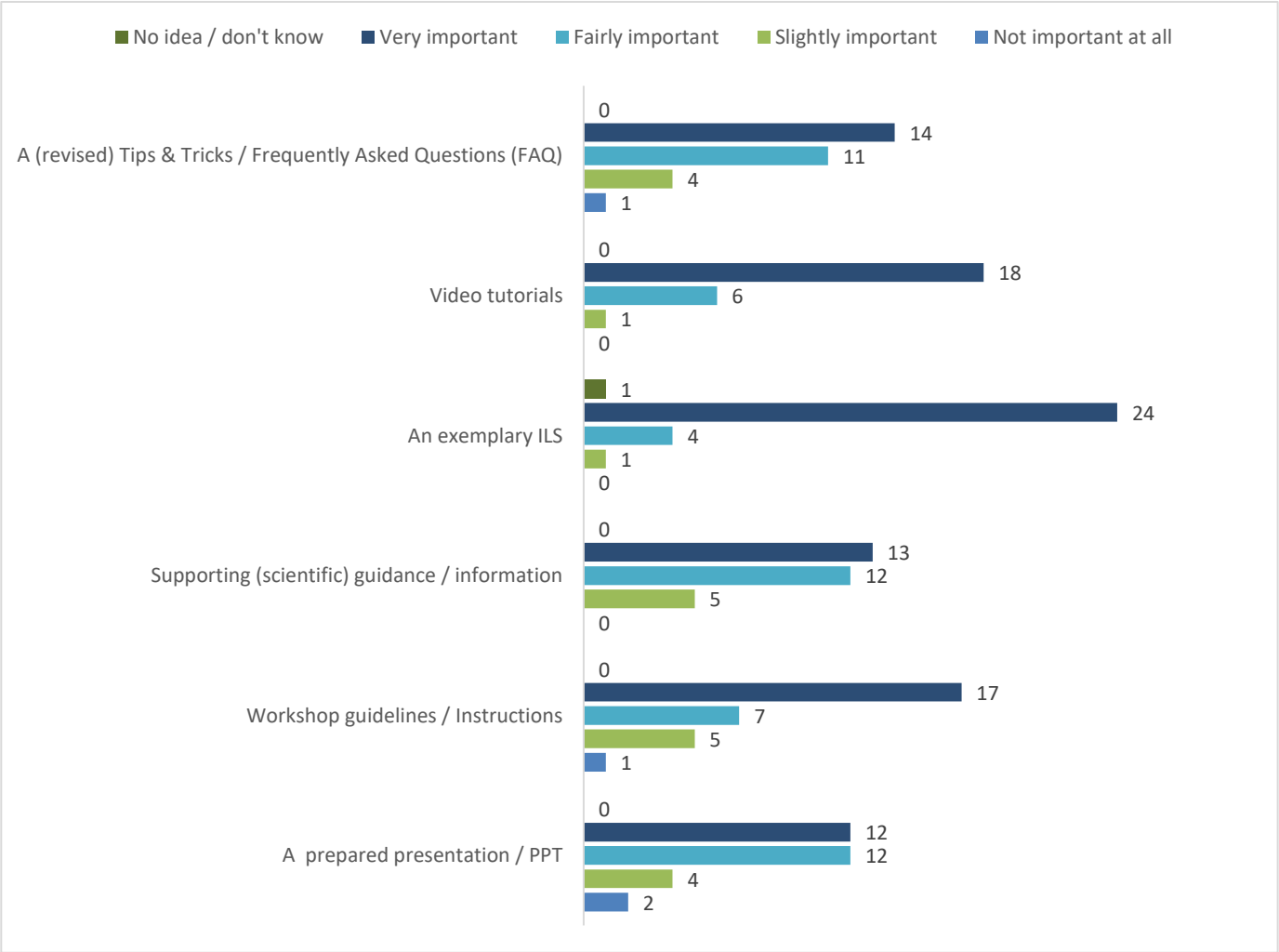


10. Which type of support material would you like to be able to hand out to participants (both in terms of content and material)?

Stats from Go-Lab users
Flyers and posters
Brochures, flyers, posters, guides
brochure about all they need
Go-Lab Manual on Serbian
Translated video tutorials, i.e. how to create an ILS, how to add files, apps, labs, links, etc., how to share and publish an ILS and how to review students' work in Graasp. Manual or video tutorial on how to benefit from the Go-Lab community and how to search and communicate with other members.
brief to do list for ILS creating
flyers, leaflets
The best materials to hand out would be a tutorial of some sort - doesn´t matter if in PPT, PDF or video form (via links).
A kind of compact document of how to get started (e.g. sign in, duplicate, student view, options for student login ...)
Flyers, tricks, manual
Flyers, manuals
leaflets

Basic/Intermediate/Advanced training guides and presentations + best practices
The existing material covers my needs.
Simple tips-a journey to successful ILS
It would be great to have standard sets of slides
I don't know yet
Some tutorials or reading material about the theoretical background

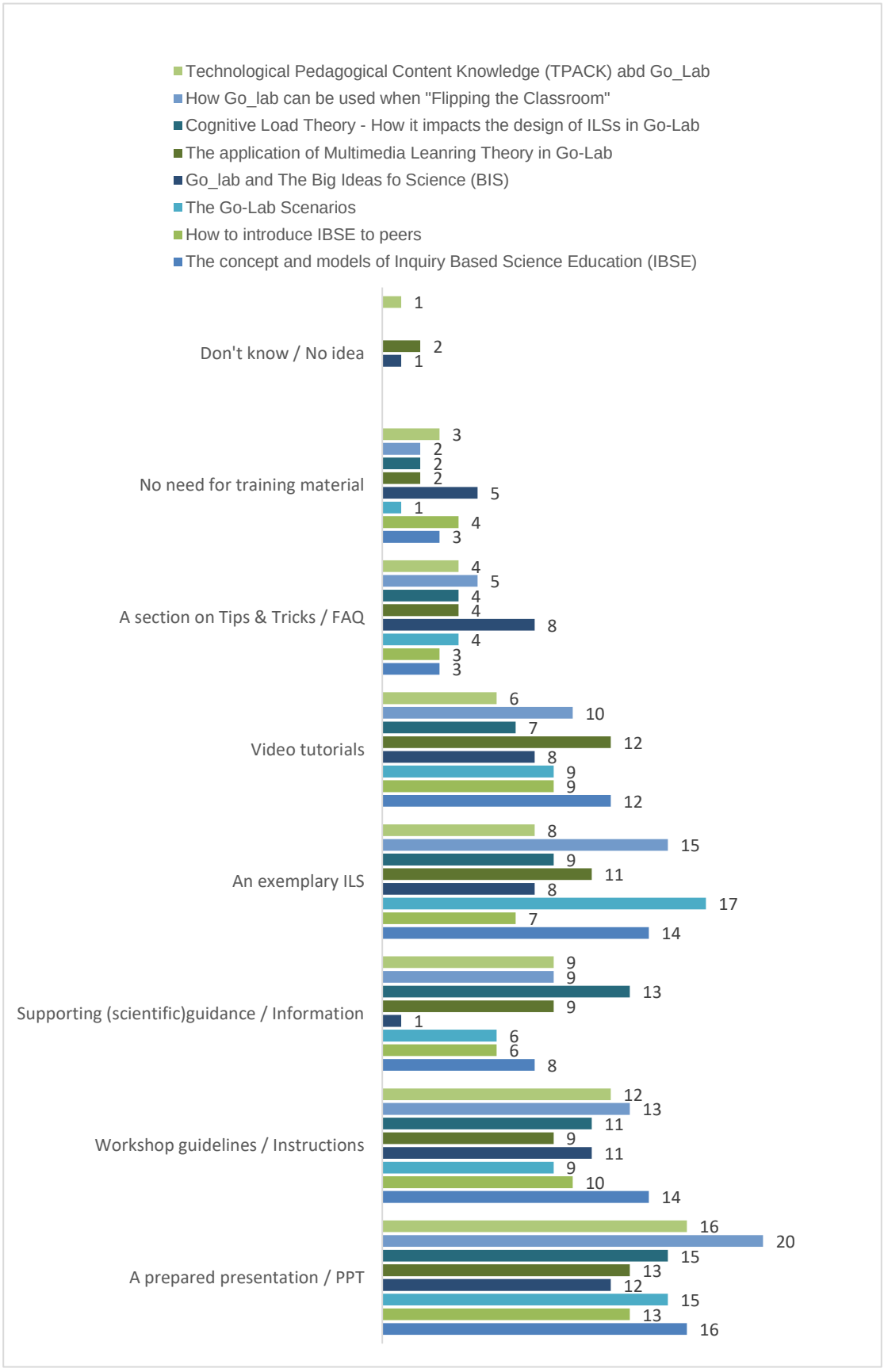
11. Please rate the need for having training and support material produced by the project partners in order for you to offer a workshop / training on a Go-Lab topic that is not your area of expertise.



12. Is there anything else you would like to have to conduct training / workshops outside your field of expertise?

Former experiences of Go-Lab users
tools ICT
brochure
For workshops outside field of expertise introductions or short background materials for the topic of the ILS.
Brief justification/framing of when/why and for whom it is appropriate
A live demo / presentation / meeting with the expert might be helpful to ask questions and present the content more confidentially.
Every support material should be written in Polish.
A computer expert

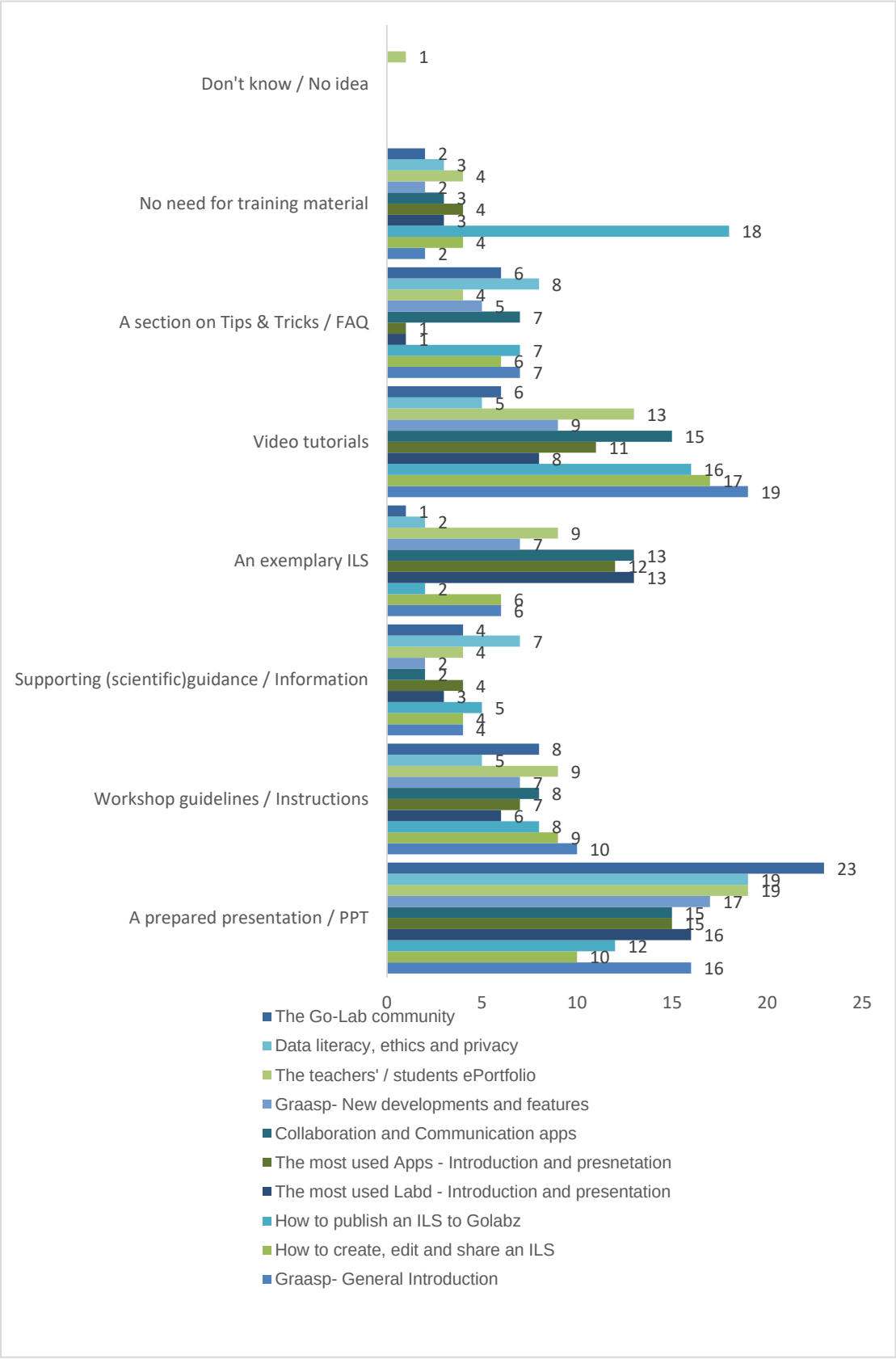
13. What type of training / support material would you prefer for the topics of the Go-Lab Domain “Pedagogy / IBSE” that you believe are important to provide training for?



14. Which training subjects / topics under Pedagogy/IBSE are missing from the lists above that you would like to propose?

Best practice in ILS design and implementation
Practical activities
Motivation
Opportunities for formative assessment/Peer and self-assessment with Go-Lab
Inclusive Training Strategies
Although it may be connected to IBSE and the Big Five, something on "transversal" (multiple / across domains) and 21st century skills may be of interest for teachers as that is coming to the curricula
How to make a ILS?
CLIL for IBL
How to train teachers + best practices examples
Influence of ILS being an online lesson as compared to a traditional face-to-face lesson on teaching style, classroom management, ...
Five from the above list checked as "No, not produced"
Best practice in ILS design and implementation

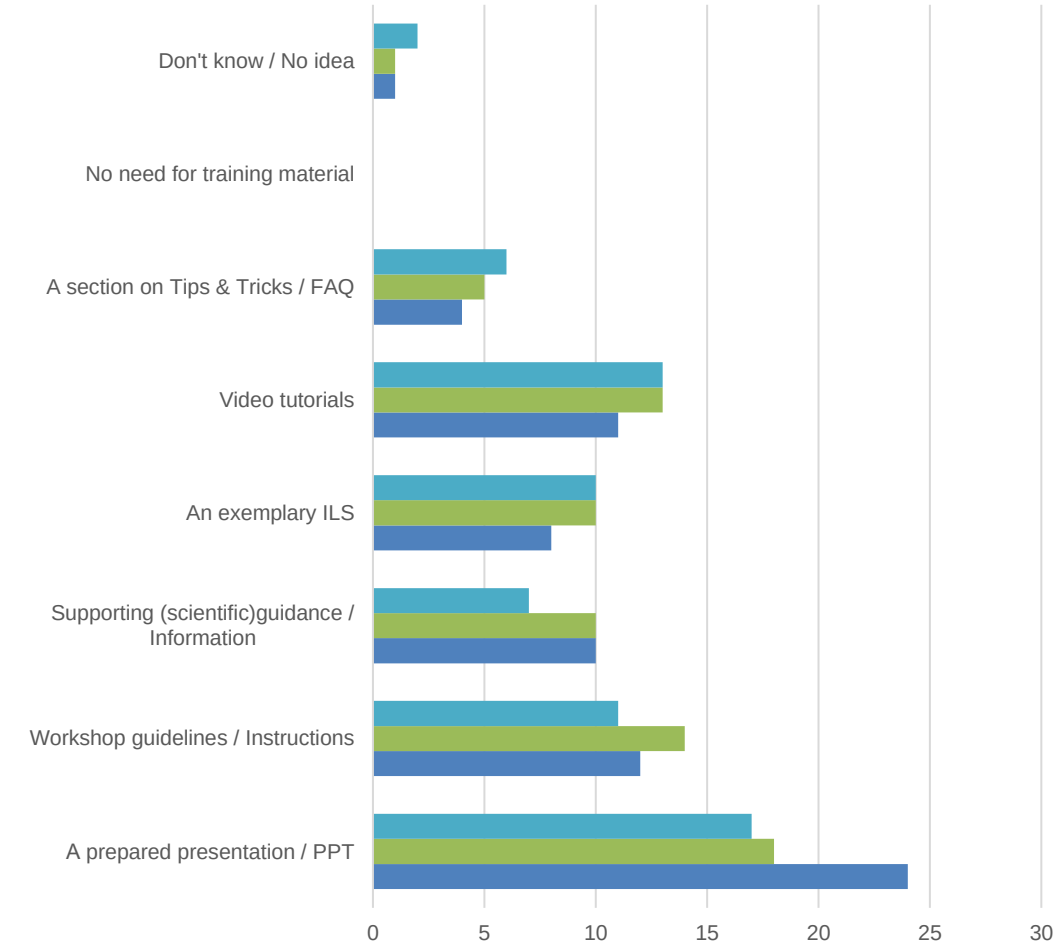
15. What type of training / support material would you prefer for the topics of the Go-Lab Domain “Use of the Go-Lab Eco-System” that you believe are important to provide training for?



16. Which training subjects / topics under "Use of the Go-Lab Eco-System" is missing from the lists above that you would like to propose?

Best practice in ILS design and implementation
How can integrate an ILS created in BIG idea?
UDeusto shared GoModel App presentations
Although it will be covered by Graasp and creating an ILS labelling it from the teacher who wants to implement something (so including that it is necessary to duplicate, but not necessary to publish for that purpose, and choice for learner login and its consequences) could be of value. Also, some notes on combining the Go-Lab ecosystem with their current Learning Management System might be of help.
Not yet - my workshop will be 16 Dec 2017 - I have still some time.
Teacher/student awareness, assessment and reflection

17. What type of training / support material would you prefer for the topics of the Go-Lab Domain “21st century skills / Learning Assessment” that you believe are important to provide training for?



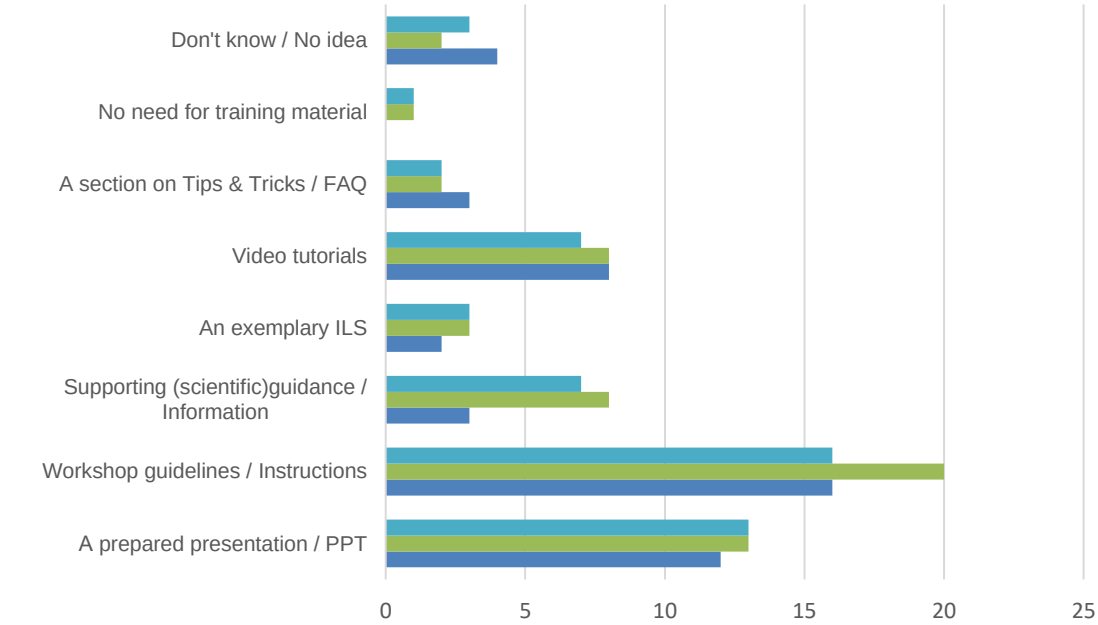
	A prepared presentation / PPT	Workshop guidelines / Instructions	Supporting (scientific)guidance / Information	An exemplary ILS	Video tutorials	A section on Tips & Tricks / FAQ	No need for training material	Don't know / No idea
Awareness, assessment and reflection apps for students	17	11	7	10	13	6	0	2
Awareness, assessment and reflection apps for teachers(inclusing Leanring Analytics)	18	14	10	10	13	5	0	1
21st Century Skills - An Introduction	24	12	10	8	11	4	0	1

18. Which training subjects / topics under "21st century skills / Learning Assessment" is missing from the lists above that you would like to propose?

I mentioned this on page 2 I think, but seeing it here in combination with LA reminds me that (free) LA is a selling point for Go-Lab so something that would help to bring that over the foot-light would definitely be valuable

Would be glad to participate in the development of such materials.

19. What type of training / support material would you prefer for the topics of the Go-Lab Domain “Multiplication / Communication” that you believe are important to provide training for?



	A prepared presentation / PPT	Workshop guidelines / Instructions	Supporting (scientific)guidance / Information	An exemplary ILS	Video tutorials	A section on Tips & Tricks / FAQ	No need for training material	Don't know / No idea
How to promote the use of Go-Lab in Social Media in your community	13	16	7	3	7	2	1	3
Organising workshops and events	13	20	8	3	8	2	1	2
How to be successful multiplier	12	16	3	2	8	3	0	4

20. Which training subjects / topics under "Multiplication / Communication" is missing from the lists above that you would like to propose?

Would be glad to participate in the development of such materials.

C. Overview of existing Go-Lab training support material

Domain	Title of training material	Location / Link	Type	Language	Possible Accessible	Year	Notes
Pedagogy / IBSE	Next-Lab - Workshop Instructions Big Ideas Brainstrom	http://graasp.eu/resources/59b6427bbaa9ab6261fd406e	Word File	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Big Ideas_PostWorkshop_ONLY BI_EN	http://graasp.eu/resources/59b6427cbaa9ab6261fd4070	Word File	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Big Ideas of Science brainstrom	http://graasp.eu/resources/59b6427ebaa9ab6261fd4073	Presentation (e.g. Presentation (e.g. PPT))	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	The Tangram challenge guide for educators	http://graasp.eu/resources/5975d0c223bcee3c213a5a25	PDF	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Tangram_printouts	http://graasp.eu/resources/5975d0ce23bcee3c213a5a27	PDF	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Next-Lab - Workshop Instructions Tangram Challenge	http://graasp.eu/resources/5975d0cf23bcee3c213a5a29	PDF	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop

Domain	Title of training material	Location / Link	Type	Language	Possible Accessible	Year	Notes
Pedagogy / IBSE	The tangram puzzle_EN	http://graasp.eu/resources/5975d0dc23bcee3c213a5a2b	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Tangram_help	http://graasp.eu/resources/5975d0df23bcee3c213a5a2d	PDF	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Pedagogy / IBSE	Tangram_challenge_EN	http://graasp.eu/resources/5975d0eb23bcee3c213a5a2f	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Multiplication / Dissemination	Communication-Dissemination	http://graasp.eu/resources/5948da537b8f5400ecfd849c	Excel File	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Multiplication / Dissemination	Workshop presentation	http://graasp.eu/resources/5948da677b8f5400ecfd849e	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of The Big Ideas of Science workshop
Go-Lab Ecosystem	Links for each participant to the hands-on activity ILS and room numbers to join using the SpeakUP app	http://graasp.eu/resources/5948dabd7b8f5400ecfd84a1	Google Doc	English	NEC & Ambassador	2017	including links of ILSs
Go-Lab Ecosystem	Workshop_Professional_Learning_Spaces	http://graasp.eu/resources/592dfca09576b9833f2df857	Word File	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional

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							Learning Spaces
Pedagogy / IBSE	Flipping the class	http://graasp.eu/resources/5948fac77b8f5400ecfd9938	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional Learning Spaces
Go-Lab Ecosystem	Schneider_Flipping_the_Flipped	http://graasp.eu/resources/594a616ddcc69d184ca85423	PDF	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional Learning Spaces
Go-Lab Ecosystem	Hake_interactive_vs_traditional	http://graasp.eu/resources/594a61fc47cd79184d64960a	PDF	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional Learning Spaces
Pedagogy / IBSE	Deslaurier_Science-article-Active-Learning	http://graasp.eu/resources/594a620347cd79184d64960c	PDF	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional Learning Spaces

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Pedagogy / IBSE	Background information with the slides on flipping the class	http://graasp.eu/resources/594a622a47cd79184d649619	PDF	English	NEC & Ambassador	2017	Part of New Features and Services III: Professional Learning Spaces
Go-Lab Ecosystem	Apps examples	http://graasp.eu/spaces/59521bb35720ebe6885a17ca	selection of apps	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Multiplication / Dissemination	Next-Lab Face-to-Face Training Workshop Instructions	http://graasp.eu/resources/59521ce05720ebe6885a1955	Word File	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
21st Century Skills	Apps21stCenturySkills	http://graasp.eu/resources/59521e205720ebe6885a198a	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Go-Lab Ecosystem	GoMODEL_App	http://graasp.eu/resources/5952738ade6530faa78e08cc	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Pedagogy / IBSE	Next-Lab_WorkshopInstruction_GoModel	http://graasp.eu/resources/59527393de6530faa78e08ce	Word File	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction

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							to 21st century skills
21st Century Skills	Next-Lab - Workshop 21st Century Skills II	http://graasp.eu/resources/592fb4ba9576b9833f2e4db2	Word File	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Pedagogy / IBSE	Peer assessment training for students	http://graasp.eu/resources/592fb4bc9576b9833f2e4db5	Word File	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
21st Century Skills	21st Century Skills II	http://graasp.eu/resources/592fb4ec9576b9833f2e4db7	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Apps/Labs	How to use the Peer Assessment App from Go-Lab	http://graasp.eu/resources/5960a875d7ae4969b0aec2f4	YouTube video	English	NEC & Ambassador	2017	Part of 21st Century Skills I: Introduction to 21st century skills
Multiplication / Dissemination	Boiko_SummerSchool_Greece_14.07.2017	http://graasp.eu/resources/595b4b1d883524fea4160b00	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of How to become an effective multiplier?

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Multiplication / Dissemination	Next-Lab_SummerSchool_Workshop_planning	http://graasp.eu/resources/595b4b1d883524fea4160b02	Word File	English	NEC & Ambassador	2017	Part of How to become an effective multiplier?
Multiplication / Dissemination	Boiko_Brussels_SPW14_social media	http://graasp.eu/resources/595b653a883524fea4161aa7	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of How to become an effective multiplier?
Go-Lab Ecosystem	Next-Lab - Workshop Instructions BIS_MERGED	http://graasp.eu/resources/59b64290baa9ab6261fd4077	Word File	English	NEC & Ambassador	2017	Part of Next Lab workshop BIS MERGED
Pedagogy / IBSE	Big Ideas of Science MERGED	http://graasp.eu/resources/59b6429ebaa9ab6261fd407b	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Part of Next Lab workshop BIS MERGED
Go-Lab Ecosystem	Το Go Lab και οι δυνατότητές του για την αξιοποίηση διαδικτυακών εργαστηριών στη διδακτική των Φυσικών Επιστημών	http://graasp.eu/resources/589cc8f22b20a2e544541557	Presentation (e.g. PPT)	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY
Multiplication / Dissemination	Το Go-Lab και οι δυνατότητές του για τη διδασκαλία της Φυσικής	http://graasp.eu/resources/589cc9072b20a2e54454159a	Presentation (e.g. PPT)	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY
Pedagogy / IBSE	ΝΕΕΣ ΤΕΧΝΟΛΟΓΙΕΣ ΣΤΗ ΔΙΔΑΚΤΙΚΗ ΤΩΝ ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ – Το Go-Lab και οι δυνατότητές του για ενσωμάτωση διαδικτυακών	http://graasp.eu/resources/589cc96e2b20a2e544541669	Presentation (e.g. PPT)	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY

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	εργαστηρίων στο μάθηματων Φυσικών Επιστημών						
Go-Lab Ecosystem	Try an ILS Activity	http://graasp.eu/resources/589cc9472b20a2e544541604	Word File	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY
Go-Lab Ecosystem	Search for Labs Activity	http://graasp.eu/resources/589cc94e2b20a2e54454161c	Word File	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY
Go-Lab Ecosystem	Search for Apps Activity	http://graasp.eu/resources/589cc9532b20a2e544541621	Word File	Greek	NEC & Ambassador	2017	Go-Lab Presentations_UCY
Go-Lab Ecosystem	Go-Lab Amersfoort October 2016	http://graasp.eu/spaces/589d7c182b20a2e5445472ac	Presentation (e.g. PPT)	Dutch	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Online labs in science education, new possibilities for active student learning	http://graasp.eu/resources/589d7c642b20a2e544547344	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Inquiry learning Space (ILS)	http://graasp.eu/resources/589d7ce72b20a2e544547362	Presentation (e.g. PPT)	Dutch	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Scenarios: What they are and how you use them	http://graasp.eu/resources/589d7cfb2b20a2e544547367	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente

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Go-Lab Ecosystem	Global Online Science Labs for Inquiry Learning at School	http://graasp.eu/resources/589d7e9d2b20a2e5445473b6	Presentation (e.g. PPT)	Dutch	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	On supporting inquiry-based learning with online labs: The Go-Lab project	http://graasp.eu/resources/589d7ea32b20a2e5445473ba	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Go-Lab Apps and adaptability	http://graasp.eu/resources/58a1aa87771d849d4334c81c	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Go-Lab sparsely used functionality	http://graasp.eu/resources/58a1aa9f771d849d4334c823	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	On supportng inquiry-based learning with online labs	http://graasp.eu/resources/58a1ab98771d849d4334c8ba	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Aan de slag met de auteursomgeving Graasp	http://graasp.eu/resources/58a708fea2ad6d28a11f9362	Word File	Dutch	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Getting started with the authoring environment Graasp	http://graasp.eu/resources/58a7090fa2ad6d28a11f9369	Word File	English	NEC & Ambassador	2017	Go-Lab Presentations_Twente
Go-Lab Ecosystem	Go Lab portal: online laboratories, inquiry learning applications and spaves for science teaching in schools	http://graasp.eu/resources/589dc84908489df859a3f872	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_IMC

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Go-Lab Ecosystem	Global Online science Labs for Inquiry Learning at Schools	http://graasp.eu/resources/589dc84f08489df859a3f87a	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_IMC
Go-Lab Ecosystem	Global Online Science Labs for Inquiry Learning at School	http://graasp.eu/resources/58a17a7f771d849d433454ba	Presentation (e.g. PPT)	English	NEC & Ambassador	2017	Go-Lab Presentations_EA
Go-Lab Ecosystem	Go-Lab Portal Virtual Tour	https://www.youtube.com/watch?v=ctlq-HPaNKw	YouTube video	English	Everyone with a link	2016	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Go Lab Main components	https://www.youtube.com/watch?v=Jh-3ZXvU9l0	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Create ILS from lab	https://www.youtube.com/watch?v=SKWixLCye5s	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Copy existing ILS	https://www.youtube.com/watch?v=ZR2tI0YUe7c	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Create ILS from Graasp	https://www.youtube.com/watch?v=_g6uZVKv_WE	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area

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							(http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Add labs and apps	https://www.youtube.com/watch?time_continue=152&v=ycJwT212dVk	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Add a file	https://www.youtube.com/watch?v=-51re3chQJg	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Add link	https://www.youtube.com/watch?v=TJPvErpHU4Q	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Share an ILS	https://www.youtube.com/watch?v=am-1jQdmmFU	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Publish an ILS	https://www.youtube.com/watch?v=E8AP8SpjQew	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)

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Go-Lab Ecosystem	Copy and Move	https://www.youtube.com/watch?v=_SoVtnMXoRM	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Learning Analytics and Privacy in Go Lab	https://www.youtube.com/watch?v=cNZ2_MThqFg	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Conceptmap	https://www.youtube.com/watch?v=vMSbiK2ycPQ	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Question Scratchpad	https://www.youtube.com/watch?v=V6f5wAAhx1Y	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Hypothesis	https://www.youtube.com/watch?v=SgM3--Kxqoo	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Experiment Design Tool	https://www.youtube.com/watch?v=f_ZTCDqr_Zk	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.go

Domain	Title of training material	Location / Link	Type	Language	Possible Accessible	Year	Notes
							labz.eu/support/videos)
Go-Lab Ecosystem	Observation Tool	https://www.youtube.com/watch?v=4rOVIIgL8jc	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Data Viewer	https://www.youtube.com/watch?v=b-2F5L1xDkY	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Conclusion Tool	https://www.youtube.com/watch?v=Yz-aiFiHTD0	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Reflection Tool	https://www.youtube.com/watch?v=mZSbxmOPv5U	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Table Tool	https://www.youtube.com/watch?v=mCvwXfZLh2o	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)

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Go-Lab Ecosystem	Configuration of tools	https://www.youtube.com/watch?v=JA7Ot4PeISg	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Speakup	https://www.youtube.com/watch?v=oxPw5GhAOuU	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	Brainstorming with SpeakUp in a Go-Lab ILS	https://www.youtube.com/watch?v=PhAFJ9p2TRM	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Go-Lab Ecosystem	GoModel App Tutorial	https://www.youtube.com/watch?v=1UPl5l1yu5w	YouTube video	English	Everyone with a link	n/a	Go Lab Video Tutorial area (http://www.golabz.eu/support/videos)
Pedagogy / IBSE	How to insert equations in ILSs	https://www.youtube.com/watch?v=9lO9PgZX8C0	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Go-Lab Ecosystem	Electric cirquit lab	https://www.youtube.com/watch?v=egsVO_cD6ao	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Pedagogy / IBSE	Entry Box	https://www.youtube.com/watch?v=sAACLwGK8N8	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Multiplication /	Introductory workshop on how to use Go-Lab (English)	https://www.youtube.com/watch?v=uPa_EQpgGxE&t=334s	YouTube video	English	Everyone with a link	n/a	Support page of Golabz

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Dissemination							
Go-Lab Ecosystem	Go Lab portal demo	https://www.youtube.com/watch?v=GByrCDcWchQ	YouTube video	English	Everyone with a link	2016	Support page of Golabz
Multiplication / Dissemination	Go-Lab Training for the Go-Lab contest participants	https://www.youtube.com/watch?v=N_TK2KVm_6g	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Go-Lab Ecosystem	From the Bluepring to Graasp	https://www.youtube.com/watch?v=wR-u15j8Zi4	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Pedagogy / IBSE	How to make a blueprint	https://www.youtube.com/watch?v=FAkAcIETKWE	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Pedagogy / IBSE	The Go Lab basic scenario template	https://www.youtube.com/watch?v=BdmiKLSqtOU	YouTube video	English	Everyone with a link	n/a	Support page of Golabz
Pedagogy / IBSE	Inquiry Learning Space Essentials	https://www.youtube.com/watch?v=hNj8QnoSotw	YouTube video	English	Everyone with a link	2015	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - estonian subtitles	https://www.youtube.com/watch?v=fvruO3SCX1M	YouTube video	Estonian	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - russian subtitles	https://www.youtube.com/watch?v=f1WIBY9AQTM	YouTube video	Russian	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - german subtitles	https://www.youtube.com/watch?v=Y8uC6XZ5_lM	YouTube video	German	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - english subtitles	https://www.youtube.com/watch?v=sYGGF-TTKdM	YouTube video	English	Everyone with a link	2014	Support page of Golabz

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Go-Lab Ecosystem	Go-Lab Project Smart Show - greek subtitles	https://www.youtube.com/watch?v=Ohldtg1t8_k	YouTube video	Greek	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - dutch subtitles	https://www.youtube.com/watch?v=hGAaDC7ysig	YouTube video	Dutch	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show - spanish subtitles	https://www.youtube.com/watch?v=-KBbm3dPbM8	YouTube video	Spanish	Everyone with a link	2014	Support page of Golabz
Go-Lab Ecosystem	Go-Lab Project Smart Show	https://www.youtube.com/watch?v=eF0qHYPIWAw	YouTube video	English	Everyone with a link	2014	Support page of Golabz