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Specifications of Participatory Activities

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Go-Lab

Global Online Science Labs for Inquiry Learning at School

Collaborative Project in European Union's Seventh Framework Programme

Grant Agreement no. 317601



Deliverable 6.1

Specifications of Participatory Activities

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The Go-Lab Consortium

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4	EUN Partnership AISBL	EUN	Belgium
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Executive Summary

This deliverable presents a common operational framework for activities in Go-Lab that aim to engage different stakeholders (teachers, teacher trainers, policy makers, lab owners etc.) with the goals and products of Go-Lab. The main mechanisms we use are participatory activities in the form of different kinds of workshops. This relates to task 6.2 of the Go-Lab project (Participatory Engagement Activities). The project's Description of Work has constituted the basic background on which the specifications for these participatory activities have been developed, keeping in mind the need to make participatory activities coherent among themselves and integrated with other tasks of WP6, with other WPs and with the overall life-cycle of the project. Go-Lab has an ambitious piloting scheme that will start to be implemented in the project second year, but needs to be prepared by fine-tuning the original project work plan, the pedagogic and organisational approaches in order to make them applicable in the variety of school establishments and countries in which the pilots have to be run.

In the first year of the project participatory activities will have the main purpose of collecting stakeholders' views on the future of science education, establishing a dialogue with them through Visionary Workshops and, as secondary and relevant purposes, contributing to dissemination of information on the Go-Lab project approach, to recruitment of schools and teachers that will accept to participate to the large-scale Pilots and, of course, to the collection of early stakeholders' feedback on the project hypothesis of work (in terms of objectives, assumptions, and general approach).

In the second and third project year participatory activities will have a "formative evaluation" as the main characteristic, by preparing a reflection on the parallel piloting activities open to potentially "newcomer" schools and to policy makers able to consider the transferability and scalability issues associated to the implementation of the Go-Lab approach.

In particular, the second cycle of workshops (Practice Reflection Workshops) will be a fundamental source of input from experience and will substantially contribute to the project's research achievements such as teachers' needs, perspectives etc. as well as to WP8 activities (Validation and Evaluation). In the last period of the project the participatory activities will mostly be aimed at drawing lessons from experience of integrating the use of online laboratories in school practice.

While the third cycle, "Summative Workshops" will be run after the last implementation cycle in the pilot sites. They will mainly serve as reporting events from participants to project representatives and national stakeholders, including reflections on next steps necessary for full exploitation of the project's results in national school systems. The following specifications are intended as a guidance tool for WP6 partners and National Coordinators in view of guaranteeing sufficient homogeneity in the organisation of activities and reporting of results. However, the specificities of national, local and institutional contexts involved will be considered to allow a certain degree of flexibility in the implementation of participatory activities.

As complementary activity to the workshops, an on-line survey will be set up all along the life-cycle of the project, as a way to involve large number of stakeholders, not necessarily based in the countries and places where the Large-scale Piloting will take place, to reflect and envisage the effective integration of the use of online labs in daily school practice.

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1 Introduction

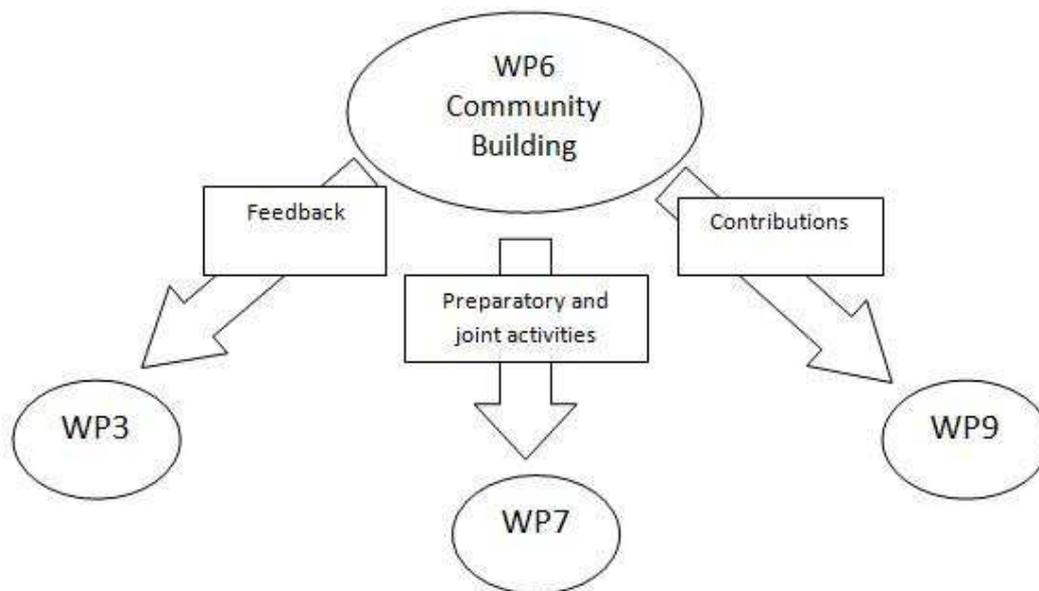
This deliverable is aimed at providing a common operational framework to task 6.2 of the Go-Lab project (Participatory Engagement Activities). The project's Description of Work has constituted the basic background on which the specifications have been developed, keeping in mind the need to make participatory activities coherent among themselves and integrated with other tasks of WP6, with other WPs and with the overall life-cycle of the project. Go-Lab has an ambitious piloting scheme that will start to be implemented in the project second year, but needs to be prepared by fine-tuning the original project work plan, the pedagogic and organisational approaches in order to make them applicable in the variety of school establishments and countries in which the pilots have to be run.

The original text of task 6.2 has been discussed and further developed in a parallel session of the kick-off meeting including partners from WP6 (Community Building and Support), WP7 (Large-scale Pilots) and WP9 (Dissemination and Exploitation).

Therefore, the WP6 will be implemented in collaboration and coordination with the other WPs that imply the involvement of Go-Lab end users. In particular WP6 will:

- provide feedback for needs analysis and Go-lab portal requirements for WP3. It should be underlined that WP3 works more at the *empirical, task-oriented, structured* and *shorter-term* (iterative design cycles) whereas WP6 more at the *strategic, policy-oriented, open* and *longer-term* level (sustainability). The methodologies applied by the two WPs are bit differentiated even if some share of results can be put in action. As matter of fact, WP3 will rely on a small-group hands-on practical approach, bringing developers, designers, teachers and students together to define as well as refine prototypes of different levels of fidelity; WP3's focus are real end-users of Go-Lab. WP6 will be on a larger-group scale and focus more at the policy-making as well as organizational level;
- engage and form (since the early stage of the project) those users who will be involved in piloting (WP7) as well as keep on engaging further users and members of the community through piloting activity;
- give contributions to Dissemination activities (WP9) by disseminating the project to wider audience through the workshops foreseen in the WP.

The scheme below shows the workflow among mentioned WPs



In the first year of the project participatory activities will have the main purpose of collecting stakeholders' views on the future of science education, establishing a dialogue with them through *Visionary Workshops* and, as secondary and relevant purposes, contributing to dissemination of information on the Go-Lab project approach, to recruitment of schools and teachers that will accept to participate to the large-scale Pilots and, of course, to the collection of early stakeholders' feedback on the project hypothesis of work (in terms of objectives, assumptions and general approach) .

In the second and third project year participatory activities will have a "formative evaluation" as the main characteristics, by preparing a reflection on the parallel piloting activities open to potentially "newcomer" schools and to policy makers able to consider the transferability and scalability issues associated to the implementation of the Go-Lab approach.

In particular, the second cycle of workshops (*Practice Reflection Workshops*) will be a fundamental source of input from experience and will substantially contribute to the project's research achievements such as teachers' needs, perspectives etc. as well as to WP8 activities (Validation and Evaluation). In the last period of the project the participatory activities will mostly be aimed at drawing lessons from experience of integrating the use of online laboratories in school practice.

The third cycle, "*Summative Workshops*" will be run after the last implementation cycle in the pilot sites. They will mainly serve as reporting events from participants to project representatives and national stakeholders, including reflections on next steps necessary for full exploitation of the project's results in national school systems. The following specifications are intended as a guidance tool for WP6 partners and National Coordinators in view of guaranteeing sufficient homogeneity in the organisation of activities and reporting of results. However, the specificities of national, local and institutional contexts involved will be considered to allow a certain degree of flexibility in the implementation of participatory activities

As complementary activity to the workshops, an on-line survey will be set up all along the life-cycle of the project, as a way to involve large number of stakeholders, not necessarily based in the countries and places where the Large-scale Piloting will take place, to reflect and envisage the effective integration of the use of online labs in daily school practice.

2 Overview of Community building activities

Within the broader scope of WP6 – progressively build the community of users, lab owners, policy makers and, more generally, stakeholders who will accompany the development of the project from the early phases of participatory design (WP3) till the full development of the project results into long term sustainability planning - task 6.2 – participatory engagement activities – is mostly open and dialogue-centred. It is through this task that stakeholders, even those not necessarily participating in the large-scale pilots, will have a voice to influence the project's activities, a gateway to participate in other work packages, and a possibility to take part in the exploitation of project results. The task 6.2 includes two groups of activities:

- a) Online participatory engagement activities that will be organised all along the life-cycle of the project, as a way to involve large number of stakeholders, not necessarily based in the countries and places where the Large-scale Piloting will take place, to reflect and envisage the effective integration of the use of online labs in daily school practice. Online activities will be “centralised” i.e., designed and actuated mainly by the WP leader organisation (MENON Network) and other core WP6 partners, so these activities, that will have to be adapted to the project development phases, are not the core object of these specifications. According the DoW a large scale online survey will be launched in the first year of the project to contribute to task 6.1 (critical forward thinking) by collecting stakeholders' views at the international level on the future evaluation of science teaching and learning and the role of ICT to support the expected evolution. This survey will integrate the research work done in task 6.1 (synoptic thematic documents, future challenges report) by collecting, in an open way, stakeholders' views. The online questionnaire will be prepared in month 4, through a “Community Cluster” meeting dedicated to operationally design – in an integrated way – of WP6, WP7 and WP9 activities for the first two years as well as in line with the survey prepared for the WP3. The survey will then be run between month 6 and 9 to allow the integration of its results into D.6.2 (future challenges report), due in month 12. Other online consultations and participatory activities (e.g. competitions, opinion challenges) will be conducted, on a smaller scale, all along the project in order to complement large-scale piloting and Dissemination and Exploitation activities in which the Go-Lab communities may play a relevant role.
- b) Workshops, distinguished between Visionary Workshops (year 1), Practice Reflection Workshops (year 2 and 3) and Summative Workshops (year 4). These workshops are decentralised activities to be run in each country that participates in the large-scale Piloting, in cooperation with National Coordinators (some of which are not directly involved in other ways in WP6). This is the part of task 6.2 for which Specifications are needed: the following sections propose a format for each of the three kinds of workshops to be organised in the different phases of the Go-Lab Project.

3 Specifications of Visionary Workshops (VWs)

3.1 Aims of the Workshops

- 1) To collect stakeholders views on the future of science education and the specific role that could be played by online laboratories, and then to contribute to task 6.1 (Critical Framework Thinking)
- 2) To collect feedback on the pedagogic, organisational and technological elements of the model initially proposed by the Go-Lab Project and to use this feedback in the development work taking place in year 1, especially as far as the pedagogical framework is concerned
- 3) To inform national audiences on the Go-lab project proposal and to contribute to create favourable institutional conditions for the Large-scale Piloting, thus contributing to Dissemination activities of WP9
- 4) To establish a productive dialogue with a set of national stakeholders who will accompany the development of the project in its different phases

3.2 Where and When

Two Visionary Workshops are to be organised in each of the 10 main piloting countries (Austria, Belgium, Cyprus, Estonia, Germany, Greece, The Netherlands, Portugal, Spain and the UK).

The DoW indicates months 3 to 8 to organise the Visionary Workshops, it is strongly advised to organise the first VW in the period March-April and the second in the period May-June 2013.

3.3 Format

The first cycle of workshops is a series of Visionary Workshops (following a three-step process) organised locally in the participating countries in M3-M8. The Visionary Workshops will provide direct input from the stakeholders (teachers, teacher trainers, school administrators, curriculum developers, policy makers, etc). Visionary workshops can be arranged ad-hoc by National Coordinators (NCs) or be collocated with other “important” relevant events (e.g. exhibition, training event, conference).

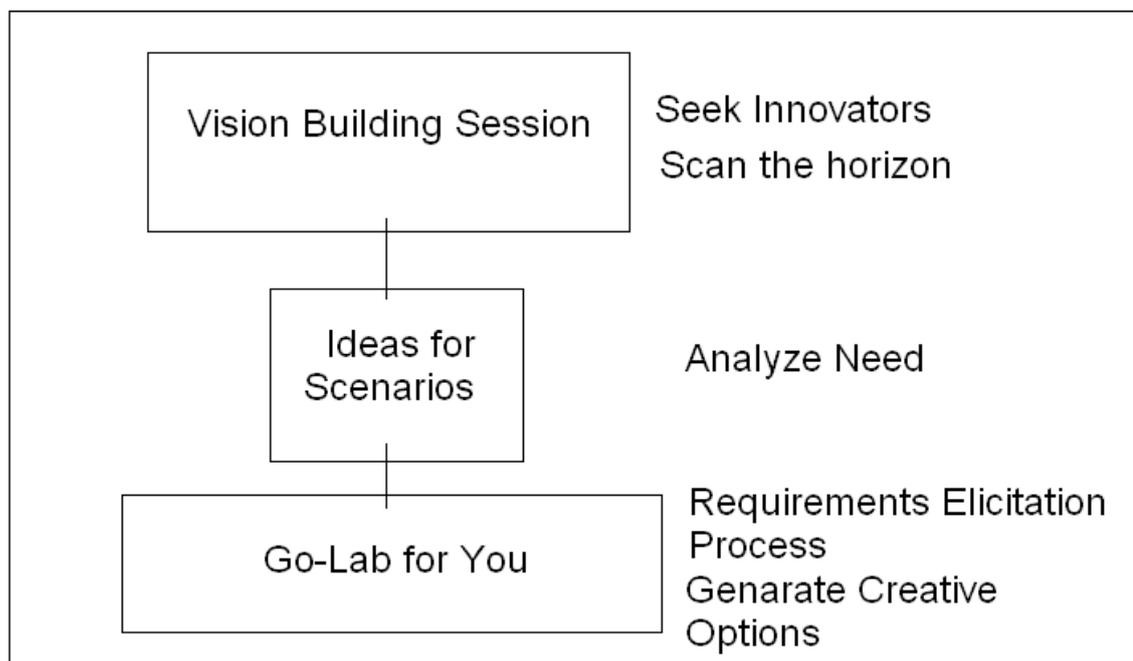
The proposed format is a half-day workshop articulated in 3 phases sessions:

Phase A :	<ul style="list-style-type: none"> • To introduce the project and the participants • To introduce an example - “best practice” in the application of remote labs • To explore the future (brainstorming, open discussion, space for provocatory and divergent hypotheses)
Phase B:	<ul style="list-style-type: none"> • To design their own scenario
Phase C:	<ul style="list-style-type: none"> • To discuss key issues to be considered further and inputs for project development • To enlarge the national stakeholders constituency: identifying institutions, schools and people who should be involved to join the Community

On average 25 participants are expected in each workshop, but what is really important is that a growth in the number of participants can be observed between VW1 and VW2 in each country. A threshold level of 15 participants should be achieved already in the first VW1, while the participation of more than 40 stakeholders is not recommended in this kind of workshops.

The schemes below introduce the general structure and detailed guidelines of the visionary workshops

Visionary Workshops



Detailed guidelines on the proposed three-step scheme for the organisation of the Visionary Workshops

Phase A - Vision building (1 hour)

The workshop shall be organized with the support of the National Educational and Training Authorities. The Vision Building Workshops could be integrated in existing large scale national events (like teachers conferences, exhibitions) or in the framework of existing training activities (usually organised at local level). They can also be stand-alone events, focusing on specific areas of interest. In such cases it could be designed around a specific event. Each Vision Building Workshop has to be designed/developed around a success story, which could be the story of an innovative teacher who is using online labs in his/her everyday practice. Such teachers have to be located (e.g., from the existing networks like Galileo Teachers, teachers participating to the CERN programme, teachers from the ESA network) to be invited to present their exemplary cases, how they integrated the technology, what changes they noticed in student learning and what benefits do innovative practices have over traditional practices. Following the presentation of the teachers the NC representative must coordinate a discussion on the story/ies presented in order to:

- highlight the potential of the use of online labs in school practice;
- identify the pedagogies used in the scenarios;
- develop the scenario/s into a workshop theme;
- construct a Q&A about problems/challenges and solutions;

- develop further themes emanating from the scenario that could be developed into other workshops.

The NC has to present a series of examples of additional online labs (also analysis tools, scientific archives) that could be used to support these ideas. These resources could be from the Go-Lab pool of online labs but also from other resources. The NC will ask the participants to design their own scenarios (based on their ideas and experiences).

Phase B - Turn ideas to implementation scenarios (1,5 hour)

After the Vision building session, it should be asked to participants to further develop their own scenario in teams allowing for collaborative evaluation in the topic of their interest, by using the online lab introduced as success story or another one they know

Phase C – Go-Lab For You (30 minutes)

Teachers are presenting their own scenarios with the use of online labs. National Coordinators shall coordinate the discussion on specific requirements that must be met in order these scenarios to be implemented in the school settings. NC presents a series of possible services that could be offered to schools. NC presents the overall plan of the project's implementation.

An example visionary workshop plan, along with a more detailed indicative list of questions, is included in ANNEX 2. However, the proposed organisation of Visionary Workshops is indicative and can be adjusted by NCs. NC could organise online workshops or adjust the duration of Workshops according to their time restrictions (from organising a multi-session Workshop in one day or extending it having a monthly duration, e.g., a Summer Course having a preparation phase of two months).

The outcomes and findings of the Visionary Workshops in each country will be reported to the WP6 coordinator at the end of M8. The participants of the visionary workshops will fill a questionnaire online and the National coordinators will consolidate a national synthesis report concerning the open answers, which will be sent to MENON.

3.4 Who is in charge

In principle VWs are organised by WP6 core partners in collaboration with National Coordinators; even when National Coordinators have no specific resources in WP6, their collaboration in organising the workshops (finding the venue, identifying and inviting relevant stakeholders in the country) is fundamental. WP6 main partners will guarantee the presence of at least two persons to run the sessions (in English) but the presence of the National Coordinator is also necessary along the half-day if English cannot be systematically used as a working language in consideration of the target groups. Other Go-Lab partners representing the WPs that are more directly interested in the results of the VWs are welcome to join, but WP6 core partners will guarantee reporting of the event.

3.5 Reporting

A short report will be produced on each VW by the core WP partners present at the event, if necessary with the support of National Coordinators to overcome possible language barriers. The report will contain a list of participants including their institutional affiliation and their contact

data, and will then clearly distinguish between Session 2 (short summary), Session 3 (detailed but concise report on points of agreement and, possibly, disagreement) and Session 4 (next steps and persons to be invited to the Community). Reporting should be produced within two weeks from the date of the VW.

4 Specifications of Practice Reflection Workshops (PRWs)

4.1 Aims of the workshops

- 1) To stimulate reflection and formative evaluation on pilot activities among participants and between participants and stakeholders representatives.
- 2) To identify positive and transferable results and difficulties in the implementation of the Go-Lab model.
- 3) To propose improvements in the subsequent phase of development, and to identify criteria for new schools to join the piloting and new stakeholders to join the community.
- 4) To contribute to Project Evaluation activities.

4.2 Where and When

Accordingly to the DoW five PRWs are to be organised in each of the 10 main piloting countries respectively in M13-M21 and M25-M33. In Bulgaria, Italy, Poland and Romania two PRWs are foreseen in the period M25-M33. These periods of time are proposed in order to align with the Phase A and Phase B of the Piloting.

4.3 Format

The proposed format is a full day workshop articulated in four sessions:

- | | |
|------------|---|
| Session A: | Short update of Go-lab project development internationally and in the host country, including its relation with the national context. |
| Session B: | Detailed reporting from pilot schools, focussing on achievements, difficulties encountered and solutions envisaged/applied, new ideas and new development emerging. |
| Session C: | Open discussion and synthesis of points of action proposed. |
| Session D: | Go-Lab future steps in the country: how to enlarge the group of piloting schools and the Go-Labs stakeholders community. |

An average of 25 participants is proposed but larger events are advised in countries in which many schools participate and in the third year of the project. In this case Session C should be run in parallel groups of not more than 30 participants. A more detailed and operational blueprint for PRWs will be defined at the Community Cluster Meeting scheduled in Bologna on 12th-13th February 2013.

4.4 Who is in charge

PRWs are organised by National Coordinators in collaboration with WP6 main partners. In practice the same distribution of roles as for VW will apply.

In some cases the support from WP6 partners might be provided through the use of virtual communication tools.

4.5 Reporting

A short report will be produced for each PRW, according to a format proposed by MENON, by the core WP6 partner representatives presented at the workshop. National Coordinators will be asked to collaborate when language barriers exist. Reports will be produced within two weeks from the data of the PRW.

5 Specifications of Summative Workshops (SWs)

5.1 Aims of the Workshop

- 1) To conclude the pilot implementation phase by producing a synthesis of achievements, difficulties and lessons learnt.
- 2) To present main results and reflections emerging from the pilot phase in view of further adoption of the Go-Lab model in national education systems.

5.2 Where and when

According to the DoW SWs are to be held -one in each of the 14 countries participating in large-scale Piloting- in the period M37-M40 (aligning with Phase C of WP7)

5.3 Format

The proposed format is a half day workshop divided into three sessions:

- | | |
|------------|---|
| Session A: | Short update on Go-Lab Project development at the international level and overview of pilot activities in the country, including institutional links established. |
| Session B: | Presentation of main lessons learnt by National Coordinator and open discussion with all participants. |
| Session C: | Closing Round Table on next steps to guarantee the adoption and mainstreaming of Go-Lab results in the national school system. |

The minimum number of participants for a SW is 25, but, if the conditions at the national level allow, the workshop may become a significantly larger event to discuss and summarise future developments that -in the meanwhile- may have been prepared at the national level.

5.4 Who is in charge

SWs are organised by National Coordinators in collaboration with WP6 main partners. In practice the same distribution of roles as for VW will apply.

In some cases the support from WP6 partners might be provided through the use of virtual communication tools.

5.5 Reporting

A short report will be prepared for each SW, according to a format proposed by MENON, by the core WP6 partners present at the Workshop.

National Coordinators will be asked to collaborate to overcome language barriers and, most importantly, to contextualise the contents of the report to the national policy debate in the field of science education.

6 Feedback collection and specifications review

This document is a draft produced to collect feedback from WP6 partners, and the Go-Lab Executive Board.

A new version, enriched by partners' suggestions and comments, will be produced by end of February 2013 after the Cluster meeting that will take place in Bologna on 12-13 February

On a six-month basis the specifications will be further reviewed on the basis of experience in running the different kinds of Workshops.

ANNEXES

ANNEX 1 - WP6 Activity timeline

ON line Survey				
Workshops				
Visionary M3-M8				
	Practice Reflection M13-M21			
		Practice Reflection M25-M33		
			Practice Reflection M37-M40	
				Summative M40- M45

ANNEX 2 - Example of a Visionar Workshop

1st Introductory Workshop on Go-Lab

Using web-controlled robotic telescopes for science teaching

Science Teachers Training Center of East Attica, March 9, 2013

The workshop titled “Using web-controlled robotic telescopes for science teaching” is taking place in Athens, Greece in the framework of the science teachers professional development programme of the Science Teachers Training Center of East Attica. The main objective of the workshop is to introduce the participants to modern ICT enhanced methods for science teaching, involving the direct use of a network of web-controlled robotic telescopes. This workshop is organized as part of the Go-Lab project, a project co-funded by the European Union that aims to develop a federation of online labs in order to make these tools more accessible, usable and exploitable by the interested user groups.

Background information and objectives

An abundance of digital resources tools and applications is currently available for science education. Although such resources are of high quality, there are significant barriers in finding it, retrieving it and using/ reusing it efficiently. Therefore, a two-fold effort is in progress, both within the Go-Lab initiative and within similar projects: on the one hand, digital services must be built that will make the content more accessible, usable and exploitable and on the other hand, the major user groups must be educated concerning these emerging services. The workshop’s objective is to introduce the participants to the existing services of digital educational content concerning astronomy and robotic telescopes. To that end, the main axes of the presentation are a) a network of robotic telescopes b) a series of analysis tools and c) a series of simulations that represent natural phenomena. The intended outcome is to inform the participants on the above services and allow them to utilize them in their everyday educational practice in science teaching. At the same time the Go-Lab consortium invites interested teachers to join the process of the development of a major portal that will organize these tools and resources under an integrated approach in order to make it easier for teachers and students to retrieve such resources on the web.

Outline of the workshop

The workshop is structured in three parts. During the first part two Galileo teachers are presenting innovative scenarios that they have implemented in their classrooms by using the specific online labs. A description of the labs is given by the teachers. During the second part participants are asked to design their own scenarios using the same tools. The two Galileo teachers and the NC are supporting their colleagues in the process. Finally, a brainstorming session in teams aims to answer specific questions related to the user requirements for the Go-Lab portal which aims to organize these resources and at the same time to create spaces that support the development of inquiry scenarios with the use of online labs. More specifically, the structure of the workshop is:

Part A: Introduction to science teaching using web astronomical tools (1 hour)

1. The value of astronomical observation as a large-scale science laboratory

2. How long does a Day last on Jupiter? (Presentation by George Papamichalis, teacher at the 1st High School of Pallini)
 - Description of the educational scenario
 - Using the Remote Telescope to collect data
 - Examples of applications for data analysis (using Salsaj to analyse images)
 - Presentation of the results
3. Galaxy Crash (Presentation by Margarita Metaxa, teacher at the 1st High School of Pallini)
 - Description of the educational scenario
 - Using the Remote Telescope to collect data
 - Simulation of the Galaxy Collision (With Galaxy Crash software)
 - Analysis of the results
4. The “search and retrieve” problem (presentation by George Mavromanolakis, Go-Lab NC in Greece)

Part B: Participants are developing their own scenarios using the proposed online labs (1,5 hour).

Part C: Designing the Go-Lab Portal (0,5 hour)

This part of the workshop will take place in small teams of 5-6 people. The teams, at the end of the session, will present their collaborative answers to the following questions:

1) Are you currently using online labs in your school? If yes which online labs are you using? And how often?

-----INPUT FOR WP1

2) Are you collaborating with other teachers in the framework of these activities or are you working on your own?

-----INPUT FOR WP1

3) Would it be useful to have access to online labs/activities that have been realised by other teachers, or do you prefer to create your own? Would it be valuable to co-design such activities with the collaboration of experts (e.g. researchers) and teachers?

-----INPUT FOR WP1&WP3

4) Is it easy to locate such online labs (as the ones presented) on the web? Would be valuable to create a repository with such resources? If yes how these online labs would be organised in order to support easy search for you?

-----INPUT FOR WP2&WP3

5) In looking at how online labs can be implemented in the school curriculum, what are the most important problems you envision? Describe your main ideas.

-----INPUT FOR WP2&WP3

6) How does the school as an institution allow the use of such tools? What are the limitations of the current school practice for implementing such methodologies? (Classrooms with a large number of students, not well equipped labs, large time investment, lack of resources and materials, the limitations of the curriculum organisation, schools pressures, lack of professional development support, etc). How could we overcome these difficulties?

-----INPUT FOR WP1&WP3

7) What is the status of teacher training programmes on the use of online labs (simulations, analysis tools etc)? Are there clear methodological approaches?

-----INPUT FOR WP1&WP3

ANNEX 3 - Example of a Practice Reflection Workshop

Purpose:

These workshops will aim to answer the following questions:

- Are the initial objectives of the proposed Go-Lab approach being met?
- Is the proposed organisation scheme of the online labs useful for the teachers practice?
- What is the impact of the project implementation in schools (along with other activities) on the individual teacher? On the school?
- What are the necessary changes (both pedagogical and technical) in order to develop a more suitable environment for experimentation?

Participants:

Teachers/teacher trainers/curriculum leaders who have been involved in several different Go-Lab activities (training/implementation) in WP7.

Time: 3 hours

Workshop outline:

Introduction to the workshop 10min	Brief update on the Go-Lab project developments and the aims of this workshop
Case study presentations 60min	<p>Who:</p> <p>Approximately 5 participants who have been chosen in advance and who have each been involved in different activities as part of WP7</p> <p>What:</p> <p>Each of the chosen participants will present a short (5-10 minute) case study of their involvement in the Go-Lab activities.</p> <p>This case study should include:</p> <ul style="list-style-type: none"> • The activities undertaken • The impact of the use of the Go-Lab portal and Go-Lab scenarios on the teachers and students • The impact or potential future impact of the proposed environment and activities on the school and curriculum • The challenges – those that have been overcome and those which still need addressing <p>Whilst listening to the case studies, the rest of the group work together in pairs or small groups to see whether themes are emerging from the case studies e.g. do many of the case studies refer to teacher role?</p>

	<p>Student engagement? Subject knowledge?</p> <p>At the end there will be a group discussion of the emerging themes.</p>
<p>Theme analysis 20min</p>	<p>The themes that have emerged from the case studies should be recorded centrally on using large pieces of paper or an online collaborative document such as primarypad.com</p> <p>Participants will then work in groups to add examples from the case studies and importantly from their own Go-Lab experiences that illuminate the emergent themes.</p> <p>For example:</p> <p>One theme might be the <i>Teacher Role (or the profile of the effective Go-Lab user)</i>. Participants would then briefly record their experience of impact of the Go-Lab activities and activities on Teacher Role either by typing into the collaborative online document under that heading or writing on a sticky note which they then place onto the large piece of paper designated for that theme.</p> <p>In this way, all participants' experiences are documented.</p>
<p>Break 15min</p>	<p>Coffee break</p>
<p>The GoLab teacher 50mins</p>	<p>Working in small groups of approximately 3 or 4, participants consider the Go-Lab science teacher.</p> <p>Using either pens and paper or a free online poster building tool such as www.glogster.com, participants work in their groups to create an annotated poster representation of what it means to be a Go-Lab science teacher.</p> <p>Once all the posters are complete, groups should share their work with each other.</p> <p>Again, the whole group should consider and discuss whether there are themes that emerge from the groups' posters.</p>
<p>Final discussions and recommendations 25min</p>	<p>In a group discussion, the facilitator will refer back to the case studies and highlight some of the challenges that were described as well as reflect on the emerging themes for both the impact of the GoLab approach and activities and the Go-Lab Science teacher.</p> <p>The final activity will then draw on the participants' professional knowledge to consider some recommendations for the further implementation the Go-Lab scenarios.</p> <p>Participants should again break into groups to consider their top 5 recommendations.</p> <p>Specifically, these should highlight approaches that would address and begin to overcome on-going challenges and further support teachers to become an effective user of the Go-Lab environment.</p>