

 <p><b>e-KNOWNET</b></p> <p>Network for ICT-enabled non-formal science learning</p> <p><b>Grand Agreement Number: -2007 – 3610 / 001 -001</b></p> <p><b>Project Number - 135515-LLP-1-2007-1-GR-KA3-KA3NW</b></p> <p><b>D.2.6: Synthesis Report</b></p>	<p>Title: <i>Synthesis Report</i></p> <p><b>Version: 1.0</b> <b>Date: 18/11/2010</b> <b>Pages: 27</b></p> <hr/> <p><b>Responsible Author(s):</b></p> <p>OCC/UPF (P5)</p> <hr/> <p><b>Co-Author(s):</b></p> <hr/>
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<p>Summary / Contents: Synthesis report on all findings of WP2 (Cooperative study in the field of ICT)</p>	

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## Table of Contents

<b>1. INTRODUCTION.....</b>	<b>4</b>
<b>2. MAPPING AND BEST PRACTISE STUDY .....</b>	<b>5</b>
<b>Websites Analysis (methodology).....</b>	<b>5</b>
<b>Data Analysis and Conclusions.....</b>	<b>6</b>
<b>3. FIELD STUDY.....</b>	<b>8</b>
<b>Methodology and problems.....</b>	<b>8</b>
<b>Results and analysis.....</b>	<b>9</b>
<b>Experts meeting and conclusions.....</b>	<b>11</b>
<b>4. STUDY VISITS.....</b>	<b>13</b>
<b>5. PEER-TRAINING WORKSHOPS.....</b>	<b>15</b>
<b>ANNEX 1.....</b>	<b>20</b>
<b>ANNEX 2.....</b>	<b>23</b>

## 1. INTRODUCTION

This synthesis report aims to summarize everything that has been done from Work Package 2 by the P5 (OCC-UPF). The main tasks in WP2 were the four listed above (on the table of contents) : Mapping and Best Practise Study, Field Study, reports on Study Visits and reports on Peer Training Workshops. All this tasks have been presented, in their turn, in project meetings during this three years. In this report, we are going to briefly present all the findings that can be extracted from WP as well as the methodology followed in the studies, specially in the mapping and field studies. Annexes and graphics are not part of this report as they can be found in the complete reports of each study.

The aim of the WP2 of the e-KnowNet project – titled Cooperative study in the field of ICT – is to give a contribution to overcome this lack of studies in the field of informal learning in new media. In particular the activity carried on inside the WP2 has the objective to analyse and investigate in depth one of the most innovative and at the same time most spread media, which is the internet. The output of the study will help to better understand the current situation concerning the use of ICT-enabled contents which are contained in websites which have the specific objective to educate through informal contexts.

The Mapping and best practise study was carried out during the first year and a half. The Field Study was a little problematic as it was very difficult to get answers from the Questionnaire. It was carried out from mid 2009 to the summer of 2010. Reports in study visits and workshops were delivered after the visits and workshops took place during the 3 years of the project.

## 2. MAPPING AND BEST PRACTISE STUDY

The study took into consideration not only the websites themselves, but also all the actors which are involved in their creation and maintenance, and the relation between them. Its aim was to analyze the current situation by trying to understand correlations between stakeholders, networks, agencies, web examples, etc. It took into consideration various case studies and different strategies of direct flows from a very specialized field (the scientific community) to the general public. And it also tried to understand, again through the use of case studies and on field research, which are the users needs which are been satisfied and which are the ones that are still underestimated, taking into account the great differences that characterize the different publics and targets which are reached by the website.

In this part of the study, an analysis of a long list of case studies of interest for the project was presented, and a questionnaire that has been used to carry on an in-depth analysis (Field Study research).

Here, we show the *main analysis and conclusions* extracted from the study:

### **Websites Analysis (methodology)**

We tried to focus especially on website which not only make use of innovative ICT or present digital collections, but also on those webs which were helping to diffuse new scientific knowledge coming from research centres to specific educational sectors. We also paid lot of attention to find websites and portals which are directed to all the different targets of interest for the e-KnowNet project: secondary and tertiary education, adults).

After collecting the websites time was dedicated to study their provenience and their characteristics, in order to prove if they could be considered representative of the wide range of variables that should be considered in the project. A classification of the websites

was realized, by structuring their representativeness on two axes: one representing “From whom” they had been realized, and the other representing “To Whom” they were directed. In order to gather data about each website which would have been used to analyse their features and structure, a list of information was organized in a common table. For each programme it was considered of importance to know the identity of its creator, the main user communities served, the type of ICT used, the education applications presented, the learning need which were (or were not) being met, the key stakeholder or representative organization involved, the type of knowledge presented and, when the case, the non-formal intermediary organizations involved. The main language of the webs selected is English, even if some webs in other languages were also included.

The characteristics which are described for each website have also been chosen according to the aims of the workpackage. In particular, in order to focus on ICT it has been analysed for each website whether it included not only community tools (such as the possibility to provide feedbacks and interact with other users) but also ICT-enabled technologies, such as the possibility to build social networks or learning paths.

### **Data Analysis and Conclusions**

In general, no website dedicated to informal learning, making wide use of ICT-enabled contents, dealing mainly with new scientific discoveries and aimed to the general public (adults and young adults) could be found. There were websites that complied with one or more of these characteristic at the same time, but in general it can be said that they always tended to address one specific target, either children or adults, which confirms that children need a different representation of scientific contents than adults. These websites always included basic knowledge and scientific contents on the subject they present, and are rarely dedicated to new scientific discoveries, which are presented always and only in the form of news. Finally, it seemed that the use of multimedia products is still quite low, especially in smaller websites that do not belong to big research centres or institutions.

Let's see in details the results coming from the data analysis:

Most of the websites analyzed are either private (36%) or public owned (32%), and a good percentage of them is hosted by science centres (18%). 3 of them are founded by the European Commission. Privately owned websites with science education materials seem to be more common in the UK and in USA.

The most addressed user communities are students of various levels (elementary, middle and high levels, 44%), and educators (31%) – usually both of them being addressed in the same websites, which offers materials for teachers and students. Very few of the websites analyzed (17%) offer materials in a format and style which is intended for adults. In some websites there were learning materials directed to the scientists, mainly aimed at improving their communicative skills. The most commonly ICT contents used in the websites analyzed are videos (29%) and animations/simulations (20%). Podcasts are also quite diffused (13% of websites), along with games. (10%). The use of the most innovative tools, such as blogs, wikis and collaborative tools is still very low (7 and 4 %). Also the use of community tools is very low (mainly forum and newsletters, 3%). Finally, .pdfs are still in use (4%). Webs that show good informal learning materials, along with a high use of ICT-enabled contents, often lack of community tools to allow users to share experiences, comment, etc. In this way the learning experience, even if funny and attractive, keeps being solitary or only inside the group of classmates. Some websites do not directly host educational material, but constitute a gateway or a search engine (library) to smaller websites that provide such type of materials. Several websites even if they offer very good learning materials, they are presented with a very basic graphic and sometimes are hard to navigate. Very few websites focus not only on scientific information, but also on the social aspects of it. Most of the websites that offer materials for students are intended so that they are used in class or, in general, in collective situations with students and educators. Less material can be used by the students alone at home, without guidance. Only one website offers materials that are produced directly by scientists (webcasts), without the intervention and production of a specific team dedicated to science education. Most of the private websites ask for a payment in order to be allowed to use their materials.

In general, the use of ICT-enabled technologies and of good images could be bettered. Sometimes good ICT contents are not at all accompanied by explanatory texts or links to

other external materials. In other occasions, hands-on experiments suggested or simulated in the webs are very complicated to reproduce at home. Most of the websites (62%) do not refer to or concentrate on new results and findings coming from the scientific academy. Just in a few cases these results are presented as a piece of news (19%), but not as educational materials (which are mainly on basic scientific knowledge).

Finally, most of the websites deal with general science, while just a few of them are specialized in a specific field. Mainly websites on hard sciences (physics, chemistry, mathematics, etc.) were analyzed, leaving aside other areas (such as biology, medicine, environment, etc.), due to the attempt to find case studies which could be more comparable with the final product of the e-KnowNet project (a web portal on photochemistry).

### **3. FIELD STUDY**

During this part of the project, a field study was carried on in order to gather deeper information on the dynamics which lay behind the websites analyzed. At the beginning some websites were selected, out of the full list of the mapping study, and a questionnaire was sent to their producers. The questionnaire, which was developed in autumn of 2008, was evaluated and supposed to be an efficient tool to reach the objectives settled for the Field Study.

#### **Methodology and problems**

In order to collect data for the Field Study, a Questionnaire was designed and approved by the e-knownet consortium. This Questionnaire was sent to all the websites webmasters or editors of the mapping study although it was planned to make a selection of the sites analysed.

After sending all the questionnaires it was found that it was very difficult to collect answers from people that were not part of the project or a close contact. The main problem

we faced was exactly the lack of answers to the questionnaire. Then we looked for all the producers or web masters of the twenty websites analysed on the mapping study, but some of them did not have an email address or a telephone number were that we could contact with. Several emails were sent, we tried to find the proper person to answer it, we offered them to answer it on the phone, and finally after all the effort we can count on ten answers.

As ten answers were not enough for achieving proper conclusions, it was proposed to find a group of experts that could comment and analyse the questionnaire, some websites and their own expertise. This meeting took place successfully in Barcelona on June 7<sup>th</sup> and provided us with some more data and feedback for the analysis.

The last problem faced was that as it was an open questionnaire it was difficult to present the results using quantitative tools and graphics, but they have been used in some of the questions.

### **Results and Analysis**

A total of 6 questionnaires (*see questionnaire in annex 2*) were gathered in the Pilot Study (countries: Italy and France). After that and in the Field study 4 more questionnaires were collected from CERN, Science Blog, Media Lab, and Science Museum of London.

In 5 out of the 6 first cases analyzed the persons contacted and who answered the questionnaire asked about an explanation of the meaning of the term “ICT-enabled contents”. Even if they work daily on such type of contents and in their teams are composed by experts in science education, informatics, science communication and e-learning, most of them have affirmed that “ICT-enabled contents” is not a term they commonly use to refer to what they work on. When asked about how usually they referred to when talking about such type of materials, the most common answers were: “multimedia”, “new technologies” or “new media”. Later on, this issue was explained to the contacted persons and the problem was solved.

The analysis will carry on following the same structure of the questionnaire in order to be accurate and clear. In the following graphics and results all the questionnaires are taken into account (pilot study questionnaires and field study questionnaires).

Regarding:

#### *Contents production*

In general, and as it was expected, all the participants participated on the production of ICT-enabled materials. 3 out of 10 worked for society in general, 4 out of 10 had teachers and students as a target audience, and 3 out of 10 developed materials for high education and scientific community.

Another important question in this section is the contents topic. In the answers we find several topics, but the most common (3 out of 10) is Physics. The major educational purpose was complement knowledge or access to audiovisual resources and the most common enabled tool were videos, slides and games. The community tools are blogs, email and chat. Some of them produced materials on discoveries of their research centre, but some others developed easier materials for kids or students.

#### *Networking*

Half of the participants tend to cooperate with other departments or institutions; if they did it was usually with universities, long learning centers and museums. All the questionnaires answered by producers agreed that if there was a problem with the scientific community it was to find a common language. In general, the questionnaires answered by scientists showed that the main problem was to find money for those kinds of resources and learning how to write for the general public understanding. They also pointed that it would be very important to make young people to be curious to know more about the scientific topics.

#### *User communities*

In the design and production of different ICT-enabled materials for children and adults most of the participants agreed that the main difference is the language used in the materials. Also, young people are more at ease with uploading and downloading user generated content, therefore even the type of activities designed to obtain feedback on the

level of knowledge might be quite different (ie. Production of a short digital animation or of a short video might be easy for a young user and quite impossible for a less IT-skilled one, who might prefer a multiple choice test with pre-designed answers to simply click). The contact person from CERN thinks that any person above 15 years old should be considered as an adult. Finally, the most common feedback they got came from blogs, email, social channels, etc. They rarely (1 out of 10) realized pilot versions of the ICT-enabled materials because the budget often did not allow to.

As a **conclusion** it could be highlighted that:

- There is a huge variety of topics in websites that use ICT-enabled materials for e-learning purposes.
- The target audience is always taken into account and differs from one website to another but basically they look for general audience, scientific community, teachers and students.
- The most common ICT enabled tools are videos, games, slides and posts.
- In general, and regarding to user communities it has to be taken into account that the age is a crucial issue in web design, language and content.
- Most of the producers of ICT materials cannot carry on a pilot study as it does not fit in the budget.

### **Experts meeting**

As a solution of the problem of lack of answers to the Questionnaire, it was approved that a meeting with experts could be carried on in the Science Communication Observatory in Barcelona. We invited four experts that worked in several institutions that have websites with ICT-enabled materials. One of the experts, Cristina Ribas is also professor in Internet based Journalism at University Pompeu Fabra. In the meeting we analysed the questionnaire and talked about Science, education and Internet. It was a very successful meeting as we can extract some recommendations that can be implemented in the next workpackage.

First of all, the evaluation of the Questionnaire was not very positive, as it was considered very long and not likely to be answered by people that do not have a real knowledge and relation with the project. On the other hand, they found that the questions proposed were interesting.

It was taken into account that e-Knownet website has to fit in one particular kind of website and in order to satisfy the target audience. This “target audience” has to be also very clear and this question was also discussed during the meeting. Depending on the audience, the interaction –that was one of the questions of the Questionnaire- with the scientific community will be different. The scientists should have easy tools and recommendations if they are supposed to upload contents for non-expert people. Without any doubt, there are several key points that should not be missing in a web portal as e-Knownet regarding interactivity. These points are related to User Communities and are very important to ensure that the site allows for two-way communication.

The feedback from the user communities, as it is highlighted in the Questionnaire Analysis, is something essential in any website. The experts told us about several “typical features” that a successful website had to **take into account**:

- Spend one second per line of text
- Read the left side more than the right side
- Read more frequently short paragraphs and introductory paragraphs
- Are encouraged to read by excerpts
- The first words of headlines are crucial
- Look at a minimum of five headlines on a homepage

That of course affects directly the content of the portal and has to be seriously taken into account in order to show the contents in an interesting way for the audience.

As a **conclusion** of the meeting, the experts encouraged all e-Knownet partners to develop a very interactive website and to provide the content producers with easy tools in order to

facilitate the scientists task and help them to upload materials: remember without them the portal will not be operative.

#### 4. STUDY VISITS

Study visits are supporting activities for knowledge sharing among partners, organized as part of Workpackage 2 – Cooperative study in the field of ICT-enabled diffusion of scientific knowledge in Europe (WPL: Science Communication Observatory - Universitat Pompeu Fabra). The main objective of study visits is sharing of specific expertises between the partners participating in the project.

The study visits were organised to provide participants with:

- Share of expertise in several fields such as:
  - Creation and management of an interactive exhibition on science and technology.
  - Problems and difficulties to be faced when dealing with a variegated public, including school groups, families, adults and teachers in an interactive exhibition on science and technology.
  - Use of technology inside an interactive exhibition on science and technology.
  - Interaction of e-learning experts with the university scientific community during the process of materials production.
  - Acceptance and diffusion of e-learning materials between the scientific, academic and student community of a university.
  - Handling difficulties in the interaction between scientists, communicators and educators.
  - Production of ICT enabled materials for the diffusion of new scientific knowledge through direct interaction with scientists in a research laboratory.

- Understanding of the key concepts and theoretical framework underpinning the vision of each partner activities.
- Understanding of the means and methods at the basis of each partner activity.
- Visits “on field” to see how each partner is operating these methods.
- Opportunity to meet with other professionals and experts who work or collaborate with each of the partners, and share knowledge, experiences and doubts with these people gathering therefore new knowledge, opinions and contacts.
- Opportunities to actively participate (“hands-on”) in some of the activities carried on by each of the partners (i.e. creation of e-learning materials, school visits to a science exhibition, laboratory research, etc.) and learn from these experiences.

During the project, five study visits were held: Athens, Berlin, Paris (twice) and Barcelona. The main conclusions for the 1<sup>st</sup> year study visits were:

In general, all the study visits carried on during the project have shown to be of great interest for all partners in order to better understand the specific expertise of the colleagues and partners participating in the project. In particular, a deep view into the functioning of science centres, e-learning and science communication was given throughout the 5 study visits organized during the first year of the project.

In the case of the Paris study visit, as explained by the partners who participated in it, it was also very fruitful and a starting point for the production of the first e-learning contents about photochemistry. The CeDiS team explained how important it had been for them to work directly with the scientists in the production of the new materials. This was a great benefit for the production of the first pilot examples.

In general, all the visits were helpful to stimulate discussion on relevant topics of the project and to come to a better understanding of them. Future study visits should keep this same structure and purposes, and should be organized on the basis on the conclusions coming from these first experiences carried on so far.

## 5. PEER TRAINING WORKSHOPS

The Peer Training Workshops are part of a series of science communication workshops for scientists/researchers that are being organised and hosted by all partners organizations addressing their expert staff.

The workshops aim at enhancing awareness of the social context of life-long learning and will be covering a range of communication skills including the effective use of ICT mediated environments to communicate science, science communication in non-formal educational contexts, engaging in fruitful dialogue with diverse non-expert publics, communicating risk and controversy, using efficiently media interview techniques, etc.

This project covered 4 peer training workshops during the three years:

### **-1<sup>st</sup> Athens Peer Training Workshop**

The objectives of the 1<sup>st</sup> Peer training workshop were:

- To provide the trainees (expert staff of Eugenides Foundation) with theoretical knowledge and practical skills for enabling those to cooperatively develop scientific popularized texts for non experts.
- To exchange useful experiences and practices about the difficulties in communicating science to various kinds of audiences.

The most important conclusions of the 1<sup>st</sup> peer training workshop were the following:

- One has to have as clear picture as possible of the audience at which he/she addresses a popularized scientific text.
- Professionals working in different fields of science communication (e.g. a science centre, a planetarium, a library) being brought together to work as a team, can enrich the quality of a popularized scientific text by contributing their experiences from the way different people react to different kind of messages.
- One crucial and difficult issue that remains always to be resolved, while producing texts for non experts, is how far one could simplify the scientific content without betraying its scientific accuracy.

### **-2<sup>nd</sup> Barcelona Peer Training Workshop**

The objectives of the 2<sup>nd</sup> Peer training workshop were:

- To provide the trainees (professors, researchers and PhD students of the Communication Department of the Pompeu Fabra University) with theoretical and practical knowledge on the specific field of science communication (specificities, research areas, science journalisms, international projects, etc.) for enabling them to better understand the activities carried on inside the Science Communication Observatory and eventually collaborate in specific fields of activity.
- To exchange experiences, research strategies and practices in the development of research and activities in the field of communication.

The main conclusions of the workshop were:

The participation in the workshop was quite high, showing that there is a general interest inside the Communication Department towards the specific field of science communication. The discussion between OCC members and participants of the workshop was interesting and constructive, each side providing and sharing specific knowledge coming from their field of interest and research.

The workshop was officially presented by the direction of the Department to its members, and several professors participating agreed on the fact that such kind of activities should take place more often inside the university, and should be organized for all research groups inside the Department.

### **-3<sup>rd</sup> Paris Peer Training Workshop**

The objectives of the 4th Peer training workshop were:

- To teach the trainees (research scientists) how to present scientific work in a simplified manner, understandable by non-specialists
- To show how journalists work when they present scientific results.

#### Scientific research

- Type of audience

- Popularization and teaching
- Specific difficulties
- Techniques used
- Titles
- Choice of words
- Styles

These questions were illustrated by specific examples by insisting on references from the everyday life.

#### Relations between journalists and researchers

Description of the way that a journal and more specifically a scientific journal works

- Role of each person in the journal and sequence of the various tasks
- Who decides about what (content, headings, illustrations...)
- Observe with new eyes some well known journals
- On what occasion a journalist contacts a researcher
- Differences in the way of working between journalist and researcher
- How one should proceed so that the scientific message not to be altered
- How the results of the research may be known beyond a specific community

#### Differences between press articles and scientific articles

- Basic rules for writing an article about scientific results
- Introduction, limited number of messages, consideration of the specific audience
- Actualities
- Polemic aspects

The most important conclusions of the 4<sup>th</sup> peer training workshop were the following:

- One has to have to choose the right words avoiding those which have a specific meaning in science and different one in common language.
- Scientists have to react very rapidly in order to follow the publication schedule.

The workshop was very appreciated by young scientists (PhD students and post-doctorate). Some of them were informed of the possibilities to work in this field.

#### **-4<sup>th</sup> Berlin Peer Training Workshop**

The objectives of the Peer training workshop were:

- To provide the trainees (staff of the Center for Digital Systems (Freie Universität Berlin) of different working groups: E-Learning, Content Management, Audiovisuals, Web 2.0, Design, Virtual Archives, Open Access, Application Management) a practical introduction into the specific field of science communication and e-science for enabling them to better understand the activities carried on inside CeDiS and eventually collaborate in specific fields of activity.
- To exchange experiences, research strategies and practices in the development of research and activities in the field of e-science (including web-based science communication).

And the main conclusions were:

The participation in the workshop was quite high, showing that there is a general interest inside the Center for Digital Systems towards the specific field of (web-based) science communication and e-science. The discussion between CeDiS members and the DFG representative was exceptionally lively. Each side provided and shared specific knowledge and interests for further co-operations were expressed.

Many participants pointed out that the workshop topic and format were very interesting and productive, that they were able to connect the specific topics discussed to their work and that it opens up new horizons for future projects in the field of e-science including ICT enabled science communication.

**General Conclusions**

All workshops have shown to be very helpful and interesting in order to share knowledge and to create a common interest of science communication and life-long learning activities within the partners and general society.

They have also shown that it is important for the partners in order to discuss and contribute with each other in new experiments and exhibitions for the project. Each of the partners is expertise in one field, and participating in activities such as those is very enriching for all.

**ANNEX 1****Full list of websites analyzed**

La Cité

<http://www.cite-sciences.fr/cs/Satellite?c=PortailParams&cid=1193650334746&pagename=Portail%2FEDUC%2FPortailLayout&pid=1193650334746>

NASA

<http://www.nasa.gov/offices/education/about/index.html>

AthenaWeb

<http://www.athenaweb.org/>

ScieVee

<http://www.scivee.tv/>

Goalfinder

<http://www.goalfinder.com/>

Pollen

<http://www.pollen-europa.net/>

CERN Education

<http://education.web.cern.ch/education/>

Science Museum – Antenna

<http://www.sciencemuseum.org.uk/antenna/>

Science Friday

<http://www.sciencefriday.com/>

ScienceHack

<http://sciencehack.com/>

Mathenpoche

<http://mathenpoche.sesamath.net/>

Exploratorium

[http://www.exploratorium.edu/exhibits/f\\_exhibits.html](http://www.exploratorium.edu/exhibits/f_exhibits.html)

<http://www.exploratorium.edu/afterschool/activities/index.php>

CNRS Images

<http://www.cnrs.fr/cnrs-images/index.htm>

Fable Multimedia

<http://www.fable.co.uk/products.htm>

American Chemical Society – Education

[http://portal.acs.org/portal/acs/corg/content?\\_nfpb=true&\\_pageLabel=PP\\_EDUCATION&node\\_id=89&use\\_sec=false](http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_EDUCATION&node_id=89&use_sec=false)

The National Science Digital Library

[http://nsdl.org/resources\\_for/](http://nsdl.org/resources_for/)

Curiosphere Tv - France 5

<http://www.curiosphere.tv/>

Try Science

<http://www.tryscience.org/home.html>

Shedd Aquarium

<http://www.sheddaquarium.org/sea/>

Franklin Institute Educational Hotlists

<http://www.fi.edu/learn/hotlists/interactive.php>

Pasco Chemistry

<http://www.pasco.com/chemistry/index.cfm>

**ANNEX 2**

**The questionnaire**

**General information**

**What type of Institution are you?** (e.g. university - research centre – media – science centre - producer of ICT-enabled contents - e-learning contents provider – other - please specify)

.....  
.....

**Please state your country:**

.....

**Please state your age:**

.....

**Contents production**

**Have you ever participated in the production of ICT-enabled e-learning materials?** (Give at least one example if possible)

.....  
.....  
.....  
.....

**If so, do you know which was your target audience?**

.....

**Which was the educational purpose?**

.....  
.....

**And which was the topic?**

.....

**On average, how much time do you dedicate to the preparation of a specific block of ICT-enabled e-learning materials and with how many people do you cooperate with?** (Give at least one example if possible)

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**Which ICT-enabled tool (or combination of tools - e.g. audios, videos, games, etc. - please specify) do you consider that works better in ICT-enabled e-learning materials used for informal education, and why?**

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**Which community tools do you believe that would better enhance the efficacy of ICT-enabled e-learning materials? (e.g. blog, forum, newsletter, etc. - please specify)**

.....  
.....  
.....  
.....

**Have you ever been involved in the production of ICT-enabled e-learning materials on new scientific discoveries? (e.g. coming from a research centre or a publishing agency)**

.....  
.....

**If so, were these materials intended for publication in a website that already included basic information about the topic of the discovery (e.g. basic knowledge on astronomy for a new discovery on solar fusion, etc.) or were they not related at all with contents of the web where they were published? (Give at least one example if possible)**

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.....  
.....  
.....

**Networking**

**Have you ever co-operated with other departments or institutions in the production of ICT-enabled e-learning materials?**

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.....

**If so, please specify with whom you collaborated.**

.....  
.....

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.....

*IF YOU ARE A PRODUCER:*

**Have you ever faced problems in the interaction with the scientific community or in the interaction with the institution/website/organization/media who ordered the ICT-enabled e-learning materials? If so, please give some examples.**

.....  
.....  
.....  
.....  
.....  
.....  
.....

*IF YOU ARE A SCIENTIST:*

**Have you ever faced problems in the interaction with the producers/organization/media who asked for your collaboration on the production of the ICT-enabled e-learning materials? If so, please give some examples.**

.....  
.....  
.....  
.....  
.....  
.....  
.....

**Have you ever asked a producer of ICT-enabled e-learning materials to help you or collaborate with you on the production of materials for informal education? If so, which was your target audience? And what was the topic?**

.....  
.....  
.....  
.....  
.....  
.....

**Do you think that it would be important to produce e-learning materials also on new scientific discoveries and not only on general information about each scientific discipline? If so, have you ever participated in such a production?**

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.....  
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.....  
.....

*IF YOU ARE A SCIENCE CENTRE:*

**Have you ever faced problems in the interaction with the scientific community or in the interaction with the producers who realized for you ICT-enabled e-learning materials? If so, please give some examples.**

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**User communities**

**In the design or production of ICT-enabled e-learning materials, which differences do you take into account when your user community are children (aged 15 to 22) or adults?**

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**Have you ever had any feedback from user communities on the materials produced? If so, please specify.**

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**Do you realize pilot versions of the ICT-enabled e-learning materials that you submit to evaluation by a selected group of end-users before releasing the final versions?**

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