WP 1 - Introducing Imagine and co-laboratories into local learning settings

Ed. Secundino Correia (CNO-PT)

Further contributors: Ivan Kalas (CUB-SK), Márta Turcsányi-Szabó (ELTE-HU)

WP 1. DEFINING LEARNING STRATEGIES FOR COLABS

Tools and methods for integrating Imagine into local learning settings: Developing strategies and tools for proper integration of the tool into teaching / learning processes in different settings (different levels of education, different countries and regions, different age groups and disabilities etc). This is the basis of developments and methodology to be used throughout the project.

1. *Contents*

2. *Introduction*

Each partners has produced an individual material **defining learning strategies for Colabs concerning their local settings**. These summaries reflect the preliminary situation and call defined by partners that lead to the aims and scope specified. See references:

ELTE-HU: WP1_HU.doc

CUB-SK: WP1_SK.doc

CNO-PT: WP1_PT.doc

OEIiZK: WP1_PL.doc

3. *Aims of the CoLabs project related to the purpose of this report*

The main aims of CoLabs project were to provide infrastructures and learning tools (co-laboratories) for collaborative work and to provide answers for the following guiding research questions: with whom, how and what kinds of knowledge should children learn at distance and how best can they be supported in this learning.

A major challenge of ICT and ODL in the 21st century is to find ways to support children in building and testing models collaboratively across and beyond European cultures. They will not just talk to each other over the Internet or simply share information, but they will be engaged in a long term plan, constructing and debugging. Communication plays an important role in collaboration, thus the elements, ways, methods and forms have to be mastered in order to make self-expression easier. The need for new multicultural, multilingual and multimodal approaches to computing, learning and communication is crucial.

The project is focused on:

- Production of active web materials that will provoke children, teachers, tutors and parents to act collaboratively on a network learning environment;

- Research of collaborative e-learning models, through the use of computer based networks.

Our basic philosophy for the design of the pedagogical framework is to engage Logo philosophy, embedding "constructivism" and "learning by doing" to be used with the developed tools for multidisciplinary creations and self-expression. Developed tools need to be open, flexible, extendible, modifiable "by the children themselves", so that their motivation and interest would convert into an exponential growing creation curve. This involves more talents and skills than any single educational program. The rich active web materials shall offer to the students the possibility to discover and develop their reasoning capacity, memory, critical, moral and esthetical senses, and shall also promote their individual fulfilment in harmony with the social solidarity values.

The form of the community learning within our project based on individual and group-learning can be described as "collaborative learning" as a personal philosophy of intra-group interaction imposed on not too well structured domain, where each member equally contributes whilst problem solving. One of the main stimuli of our project is the belief that collaboration and communication create new relations between children and teachers and support better understanding between nations and countries.

4. *Defining Concepts*

There are several misconceptions about collaboration, cooperation and creativity. First we have to distinguish between cooperation and collaboration.

By cooperation or cooperative work, we mean an activity where each member of the group is responsible for a portion of the problem solving task. Normally cooperation is more teachers centred. Tasks, resources and roles are clearly assigned by the teacher and the final work mainly results by the sum of all individual contributes. Individual accountability and well-structured activities are essential elements on cooperative strategies.

By <u>collaboration</u>, we mean the mutual engagement of the participants in a coordinate effort to solve together the problem. Collaboration empowers the learner and is more learners centred.

4.1. Cooperative Learning	4.2. Collaborative Learning
Teachers focused	Learners focused
The teacher defines the specific goals for the students to achieve and all the work that has to be done.	Students make their own goals and the teacher helps learners to achieve them.
The problem (task) is divided in several parts and each member is responsible for a portion of the solution.	All the team is engaged at the same time in solving the problem. The interactive process is fundamental for this achievement.
Individual responsibility.	Group responsibility.

"Collaboration is a philosophy of interaction and personal lifestyle whereas cooperation is a structure of interaction designed to facilitate the accomplishment of an end product or goal." (PANITZ, 1996)

A group can be told to write a story being each of them assigned to write one page individually on each one computer. At the end we will have a story written in a cooperative way.

If instead we have five children, which decide to write collaboratively a story, they may agree that one of them will be the narrator and each of the others a different character. If the tool enables them to write in the same page, reacting each other in real time, at the end we will have a story written in a collaborative way, although things are not so simple at all. Several times both approaches can mix and overlap.

4.3. Other important concepts

There are other important concepts we should face.

One of them is **Group memory** as a self-organized distributed cognitive system in which individuals allocate different functions to different tools. CoLabs Portal is an example of Group memory, but basically all interactive web-based systems can be envisaged as a kind of group memory, not only because they are an organized repository of resources seen as belonging

to everyone who contributed, but also because each member of the group can view and use it as an external memory for progressing in learning. And if, for any reason, this group memory disappears, we feel ourselves deprived of something we have built together and that belongs to our learning landscape.

It seems that we are constructing **intelligent self-organized distributed networks** that are much more than the sum of the individual contributions. And nowadays not only researchers, but also children are empowered by this feeling of belonging to a self-organized distributed network.

All this contributes to the emergency of **learning communities**. Following Wenger, a learning community can be defined by four fundamental concepts for a social theory of learning (Wenger, 1988):

- **Meaning**, translating the capacity and need to found an individual and collective meaning to our life; we learn on the context of clarification of our life project.

- **Practice**, expressing our shared vision of resources and aims that keep us involved in action; we learn by doing in interaction with others.

- **Community**, acting in an environment and being recognized and valued; we learn by constructing a feeling of belonging.

- **Identity**, emerging from the fact that learning transforms ourselves on the pathway of our personal history; we learn by constructing our own identity.

In order to the emergency of Learning communities, the balance between shared practice, mutual engagement and group memory it is crucial. We also have to considerer four dimensions represented by four dualities: The participation / reification dimension; the planning / emerging dimension; the local / global dimension; the identity / community dimension.

So we are aware that our CoLabs project deals not only with ICT and ODL sets of Learning, but is strongly committed to the construction of a better citizen in a better world.

5. *Learning Theories*

Learning is a task that every human being naturally does during his entire life. It is something easier to do at the beginning, but as the time elapses, it turns more complex. It happens because we make relationships with friends and their families, neighbours, teachers and all the people we interact with.

During all the stages of our life, we create new relationships that give us some knowledge about people, things, life, solutions, everything.

These networks that we build during our life provide us the skills we need to accomplish all the aims that life offers us.

So, learning together is something that every human being is continuously doing:

1. We ask questions when we have doubts.

2. We analyze things that we find and try to understand them.

3. When we have a problem, we ask others how to solve it.

4. We tell others how we solved similar problems.

5. As members of a family, we work together to solve small and big problems.

So acting together to achieve knowledge is something we do because we need it! Our evolution is made with group effort.

Using Logo-like philosophy of **socio-constructivism** (as originating from Piaget and adapted by Papert and Logo community), *"learning by doing"* instead of having learners just hearing and seeing what should be done, they explore the topics, exert critics of the problems, develop plan for solutions and debug models until application suits their needs. At the same time, they communicate their ideas all through the process. Communication is of great importance in the process, where ideas, theories, messages, knowledge, critics can be exchanged in order to improve the process.

Learning through a collaborative process (according to the "Zone of proximal development" by Vygotsky) is effective, since all participants possess stable knowledge chunks and are able to compensate and develop the areas of those who lack a missing link in

that direction, thus individuals contribute to each others development. In this case, teacher and students are at the same level of participation.

Vygotsky (1978) defined the "zone of proximal development" as "...the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (DILLENBOURG et al, 1996, p. 6)

"These researchers [Doise & Mugny] borrowed from the Piagetian perspective its structural framework and the major concepts which were used to account for development: conflict and the coordination of points of view (centrations).

This new approach described itself as a socio-constructivist approach: it enhanced the role of interactions with others rather than actions themselves." (DILLENBOURG et al, 1996, p. 3)

Technology and tools can make the difference, because "(…) the environment is an integral part of cognitive activity, and not merely a set of circumstances in which context-independent cognitive processes are performed. The environment includes a physical context and a social context." (DILLENBOURG et al, 1996, p. 6)

The way how we co-designed our co-laboratories with children, parents and teachers reflects our belief in the potential of emerging learning communities supported by ICT and ODL.

6. *Ways of originate collaboration by the use of computers*

In our approach for the use of learning strategies for the Colabs project, we have to compare the traditionally used (teacher centred) *teaching*, the modern (learner centred) *learning* process that reflects on the deficit of the 20th century educational practices in schools in contrast with the innovative models encouraged and the pos-modern (group context centred) *learning webs*:

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- **Teaching** at present is more or less based on the traditional "instructional" teaching model, where the teacher transfers knowledge (that is the image of the knowledge within the teachers) and the learners have to absorb that image as knowledge. In this model, knowledge happens when learner's image is made equal within the teacher's image. Learners are mainly passive receivers, where differentiation is quite impossible, the learning process is difficult to track and is not very effective.

- **Learning** concentrates on the learners and how they individually map the image of the knowledge collaboratively through hands on experiences supplementing each other, debugging the developing models, coached by the teacher throughout the all process. In this model, knowledge evolves through experience in an active process, where learners are contributors themselves.

- **Learning webs** focus on collaborative learning achieved by a group of learners community (teachers are also seen as learners).

When using ICT on the learning context, different kinds of collaboration can emerge:

a) Peer to peer collaboration, when two or three children share the same screen in the same place;

b) Peer to peer collaboration in different networked computers in the same room;

c) Peer to peer collaboration in different networked computers in different places (rooms, schools or even countries);

d) Peer review collaboration, when a child or a group uploads a document to the web and then another child or group continues or changes it. And this process can go on iteratively.

e) Group or class collaboration if a group of children share a whiteboard or a screen, where discussing ideas and having a turn to give its own contribution to solve a problem. This means trying to understand others' point of view and reconstruct by interaction the own one.

f) Peer to group collaboration, when a group shares a whiteboard or a screen and a child can interact from his own computer on the same room or in a different place.

Our different co-laboratories cover all these different kinds of collaboration.

7. *Collaborative Learning in local networks and in the Internet*

The activities developed in Colabs project were based on previous experiences of the partners. Each partner took different complementary approaches concerning collaborative learning induced and embedded by developed co-laboratories.

Collaborative Learning can be defined as an aggregate of methods and techniques of learning used in structured groups, where each member of the group is responsible not only for its own learning, but also for the one of the group.

Strijbos (2000, *cit.* in Turcsányi-Szabó, 2003) distinguishes "co-operative learning" and "collaborative learning" based on the amount of pre-imposed structure, task-type, learning objective and group size. Our definition of collaborative learning is based on the one of Strijbos, where it is seen as a personal philosophy of intra-group interaction imposed on not too well-structured domain, where each member equally contributes whilst problem solving.

Collaboration is seen as the shared conception of a problem and a mutual effort to build and maintain further developments towards an assigned aim, though this can mean a more flexible and less predetermined developmental process.

The importance of Communication and Community for collaboration in virtual learning communities should also be mentioned. Interaction is a central concept in a virtual learning community, because full membership is participation dependent. The interactions between individuals precede the engagement of people, ideas and processes. Some extent of alignment must occur between engaged individuals, since personal and private purposes must be aligned with the general and public purposes of the community. This is, however, a dynamic process that results from the negotiation between personal and communal purposes and the repositioning of both as they shape each other.

The sense of isolation is the most important barrier over Distance Education, although virtual communities also act as bridges between academic activities and student social contact. This allows students to spend more time together as the formed groups can continue

outside the classroom, enhancing the quality of learning and engaging students more actively in classroom learning.

Brown (2001) considers the existence of three levels of community, achieved with the use of asynchronous communication:

1. Establishing online acquaintances;
2. Gaining acceptance, reflected in the opportunities to play an active role in discussions and getting satisfaction from the role played within the community;
3. The third level happens when students continue their relationships outside the virtual world to achieve camaraderie.

The use of learner-centered computer-mediated tools like the ones we purpose on CoLabs project looks to have a great potential on creating learning communities by the use of local and distant networks. Belonging to a virtual learning community, it is important not only because the sense of togetherness provided to learners, but also because the same medium can be used to keep students engaged on continued communication and on collaborative learning after school time.

8. *Methods and strategies towards Collaborative Learning*

Computer Supported Collaborative Learning (CSCL) was given birth through the investigations produced about Computer Supported Collaborative Work (CSCW), understood as a system composed by networks of computers that support workgroups within common tasks, providing an interface that allows collaborative work.

CSCL can be defined as a learning strategy where two or more students can construct their knowledge through discussion, reflection and decision making, where technological resources act as the medium for interactions.

The major differences between both concepts are listed in the table bellow:

CSCW	CSCL
Focused in communication	Focused in the contents of

techniques.	communication.
It is mostly used in the corporate environment.	It is mostly used in the educational environment.
Its main objectives are to facilitate communication and productivity in the workgroup.	Its main objective is to sustain effective collaborative learning.

Both concepts are based on the promise that computer systems and technology can support and facilitate group processes and dynamics, especially when users are physically apart.

CSCL can occur in different ways, namely:

- Collaboration using the same terminal, where two or more students work with the same computer;

- Collaboration on a local network, where two or more students work in different terminals in the same physical space;

- Collaboration in a network, where two or more students, or groups of students, work in different terminals in different geographical locations.

Informatics systems that support computer mediated communication and Collaborative Learning can be classified using a matrix of time and location of the users: synchronous (real time interaction), asynchronous (over time interaction) and at presence (same location), over-distance (different locations).

8.1. Computer Supported Collaborative Learning (CSCL) tools developed

We briefly describe below the developed co-laboratories. They reflect different approaches and offer different possibilities of ICT on learning sets. More detailed descriptions can be found in outputs 4, 9, 10.

CoLabs Portal has been implemented using PhP-Nuke and is used to hold activities and features in several languages (like a shared virtual learning space).

CHEK IT OUT! holds individual activities with **Games** to try out and experiment; required tutorials to master tricks in producing **Simple games**; exemplary work in the **Gallery.**

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COLABS region is a share and collaboration virtual space at different levels: **brainstorming** (using microworlds to exchange ideas, writing and comments), **creative tools** (various modalities of tools), **exchange games** (educational games easily modifiable, frame for developing further games within the Imagine course in the Tutorial), **word wide encyclopaedia** (starter set of words in different languages).

Creative Writing co-laboratory on reading and writing, maths, sciences, music and visual arts, for children aged 4-10 (nursery, primary) can be considered as MOO – Multi-user dimensions Object Oriented virtual space where users can interact with each other and with objects.

The interaction can be made in each page, and all users can see immediately what each other are writing or drawing, if they are in the same virtual learning space (same page or mode).

The creative writing environment, like a MOO, can be characterized by:

- Several children being able to connect and interact simultaneously in order to build together the same story, music scenario or solving a maths problem.
- Spatial organization, e.g. children, interacting with each other and the objects they create within pages.
- Real time communication actions being performed, by writing in cartoon bubbles, drawing, recording sounds, and including animated characters or objects.
- Asynchronous communication tools being included, like saving to the web a (unfinished) work that others will download and continue.

Fractions provides a series of explorative microworlds for lower elementary age to visualise and fiddle with fractions in different context, level and abstraction. This tool also provides an authoring tool for teachers to produce further explorative microworlds configured to different needs of individual children. The tool has been developed collaboratively by the Slovak partner that produced the fraction objects (Kalas, 2003) and the Hungarian partner that produced the authoring frame and exercises, following an internationally accepted curriculum for learning fractions guided by the UK partner with contributions from all other partners.

Maths Microworlds proposes a set of exercises, examples, problems and sample solutions, helping the learner of secondary level to become a good problem solver and to increase his understanding of mathematics and their confidence and enjoyment in using various mathematical ideas in the context of Visual Arts and Modelling, playing with hard Mathematics, exploring models of Random processes, exploring Polygons' properties, introducing Vectors in physics and analyzing the role of velocity and force (acceleration).

The main aim is to offer students a set of activities which enable them to experiment on the boundaries of mathematics and arts advised for secondary aged children. Random variable, expected value and other related notions are traditional topics in mathematical curriculum in some countries at the end of the upper secondary school. But they are regarded as extremely formal, abstract and difficult. So plenty of teachers simply avoid this part of the curriculum content. But if an environment which made it possible to do it and even without using the term existed, the situation is absolutely different.

8.2. How to use these tools collaboratively and what can children learn?

When co-designing and evaluating these tools, we kept in mind the following framework. Further explanation can be found on the documentation produced for each co-laboratory.

Individual learning:

- How would it be used for individual learning?
- What kinds of knowledge does it allow to actively construct?
- What kinds of other skills does it help develop?
- Does it improve the learners:
  - o self-learning abilities (and all meta-cognitive abilities)?
  - o critical and analytical thinking, problem-solving skills?

Group learning:

- How the above questions apply for group learning?
- Can it be assumed that it prepare the learners in a way to work in teams?
- How would it modify use and what benefits would it provide to be used in group learning?

- To what extent do activities need to be directed or rather left alone to emerge by learners?

- How could the methodology of learning be described and in what way (Expeditionary Learning, Group Investigation, Problem-Based Learning, Project-Based Learning)?

- What kinds of collaborations could emerge?

- What kinds of activities could challenge the zone of proximal development?

- How well can be activities integrated within classroom learning sets? Is there an advised alternative for more effective use?

- In what ways does it help to move away from "teacher-centred" models of instruction and move towards more "learner-centred" and "community-based" models? What methods could be used for this?

- How do you see the role of collaboration during activities:
  - as scaffolding and appropriation – scaffolding by a more expert peer, and appropriation by a less expert peer?
  - as constructing productive individual cognitive conflict-disequilibrium driving conceptual change?

- Can such methods be effectively orchestrated at a distance? How might this be done?

Virtual learning:

- How the above questions apply in virtual environment, where part or all of those involved are separated in space and time?

- How do the roles of participants (both teachers and learners) have to change?

- What could be the locus of use: inter, intra or extra-classroom use, or other?

- Do the written communications in on-line discussions and chat serve the same function as "speech"?

- How could "virtual zone of proximal development" be challenged?

- What kinds of interactions could be identified and what could be their roles in the process?

- What forms of synchronous (real time) and asynchronous (delayed time) communications use those activities?

- What kind of effective strategies need to be used for students to optimize collaborative learning?
- What kinds of engagements could arise after a more prolonged use?
- What levels of community engagements could be attained (making on-line acquaintances, taking active roles and developing a sense of belonging, continuing relationship outside of the environment)?
- What kinds of alignments could occur within the virtual community? (Individuals align personal, private purposes with the collective public purposes of the community, but an individual's personal intentions can also alter the community and through a constant negotiation as the two work to shape each other.)
- How can the feeling of isolation be omitted? What is needed for that?
- What other extra elements are needed in the environment in order to attain successful learning?
- What kind of socio/cultural/historical context the group of learners should share (or should they) in order to attain successful learning?
- What specifics should be considered in case of use with communities of different language background (any in favour or against issues)?

Design of virtual environment:

According to Jonassen (1999), a model for designing Constructivist Learning Environments on the Web has several essential components:

- Problem context
- Problem representation
- Problem manipulation
- Related cases (to assist learners in understanding the issues implicit in the problem representation)
- Information resources
- Cognitive knowledge construction tools
- Conversation and collaboration tools
- Social/Contextual support (modelling, coaching, scaffolding)

The problem itself should drive the learning, so it is important to provide interesting, relevant, and engaging problems to solve.

Reconsider how these issues could be fulfilled while using the co-laboratory?

Research on collaborative learning

Research should involve three things: learning communities, the technology, and engagement in meaningful learning in the context of authentic activities. It should study how sharing information in these ways encourages useful discourse about the environment that, in turn supports learning, and how the responsibility for learning can be fairly meaningfully distributed within learning communities.

- What kinds of new forms of assessment could be used to provide evidence of learning?
- What functionalities exist to investigate that does not exist in face-to-face interactions, for instance the possibility for learners to analyze their own interactions, or to see a display of their group dynamics?
- What does on-line discourse analysis reveal about the collaborative use of the tool: who, how, why and when is language used and for what reason (as verbal structure, as cognition, as context, as action and interaction)?

More deeply understand of our approach can be found on several documents mainly in outputs 9, 12 and 13.

9. *Strategies to introduce Imagine and co-laboratories in the local learning sets*

The different partners followed different approaches in order to introduce co-laboratories in local learning sets.

The views can be read on the following documents:

- Defining learning strategies for Colabs – the Hungarian approach;

- <u>Developing strategies and tools for proper integration of Colabs into teaching / learning processes in Slovakia</u>;

- <u>Seeds for introducing "Creative Writing Co-laboratory" into learning sets – Case studies at Portugal</u>

Meanwhile some framework can be outlined. One important point is to involve local or national educational authorities, companies, teachers and parents' associations to encourage them to give steps in order to provide Web Based Resources Centres (WBRC) with meaningful CSCL tools suitable for different ages, contents and contexts. These WBRC should be enhanced with easy and transparent tools for teacher's exchange of strategies, processes, methodologies and good practices on the use of CSCL mind tools.

We have some good feedback (although in a very small scale) of something like this when providing Creative Writing co-laboratory with transparent new features on the File Menu: Save to Web and Load from Web. With these features, it is possible to save an activity to the web or download it, with the same transparency to the user as if saving to or open from the disk. The same applies to CoLabs Portal with its shared virtual space for uploading, downloading and chatting.

Of course we have to considerer that several schools (except, probably in the UK) have not yet speedy connections, which is a problem for upload and download of heavy files. We hope that soon all schools would have new broad band Internet connections to overcome this potential problem. But meanwhile the spreading of SPAM and virus pushes school administrators and network supervisors to adopt restrictions on web and network access, putting new obstacles on the transparent use of synchronous and asynchronous tools.

Another problem to be addressed is how to manage a possible exponential growth of available resources on the web, if everybody can easily upload and download files. The problem does not only concern quantity, but quality and validity of resources. This is another trend for future research.

Over the last two decades of the last century, we brought computers and Internet access to schools. At least two strategies were used: computer labs for an entire classroom and one

or two computers for each classroom. Both approaches failed in the main purpose of wide access to students for several reasons:

1. Computer labs are not user-friendly. You have to book or follow a schedule, they are not available whenever you (teacher or student) want or need to use them. And when this first problem of access is surpassed, there is another one: the software is not always proper installed and working, and precious scholar time has to be wasted dealing with technical problems.

2. When computers and Internet are brought to the classroom, you probably overcome some of the problems of 1, but you face new ones: You don't have enough computers for all the students and/or you fail new strategies for use one or two computers with the entire classroom. Eventually you can think of using a data projector, but probably you have to book it on advance and you are facing again technical and user-friendly problems like in point 1.

3. If you success to surpass all the technical and user-friendly problems of computer labs and computers in the classroom, you will probably face new ones concerning the use of available and proper software.

4. Another difficulty is teacher's awareness on the use of ICT. We will never succeed on extensive use of computer power and Internet access in schools if teachers don't have access to them on a daily basis both at school and home. This means to have there own personal computer, a concept forged on the seventies, adopted by companies, but not at schools, where the shared model of computer use was the most largely applied on the last three decades.

Nowadays we have two possible trends of spreading access to computation power and based on Internet interactions that can begin to make a big difference:

A. One of them is the (possible) dissemination of interactive whiteboards and data projectors on each classroom, in conjunction with broad band Internet access (This is happening in the UK, but not yet on the other countries' partners). In fact, it is not enough to have an Internet connection for each classroom. We have to assure that all

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students have access to it. Data projectors and interactive whiteboards can be very powerful tools on the hand of creative teachers for promoting collaborative and critical thinking based on a problem solving strategy, using suitable CSCL mind tools, like the ones provided by the CoLabs project.

B. Another possible trend can derive from the massive use of wireless laptops and new generation of palmtops and mobile phones. Its ubiquity and pervasive use can provoke complete new approaches for teaching and learning in and out of the classroom, extending student's learning experiences to an exciting, deep and more productive level of understanding.

But, in spite of having solved all the technical problems of wide access, we will be continuously challenged by the need of providing teachers and students powerful and user friendly mind tools for teaching and learning, adjusted to the new contexts and technologies.

We think that CoLabs Project gave a small, but valuable contribute in this direction.

All these aspects have to be explored and considered in graduation, pos-graduation and teachers' service training, in order to introduce Colabs results into local learning sets.

How to disseminate the use of CoLabs outputs in Universities and Higher Education pre-service training teachers is a challenge we face now. It is important to mention that almost all the partners have some influence at this level of pre-service training teachers and have used the outcomes, at least in some scale, in the courses where they have lobbing power. Workshops, Conference Presentations, Trainees supervising were other forms of extending the possible benefits of Colabs outputs. We also think that the transition to Bologna guidelines is an opportunity to the use of CoLabs outputs in the implementation of new methodologies on how we are preparing future teachers.

Another aspect of this challenge is the introduction of CoLabs outputs on in-service training teacher's sets.

Although lifelong education is nowadays something that everybody emphasises, in order to have sound effectiveness on new innovative practices on the last meters between teacher and students, this training should be for the teacher himself an engaging learning experience.

Much more important than to have a good receipt on how to do and proceed in class, the training must be a really innovative experience of learning. In order to use the new CSCL mind tools innovatively, teachers have themselves to suffer a really learning experience using them.

This can be achieved on study circles, collaborative learning workshops or joint learning projects. Traditional courses or conferences do not seem to be appropriate for this purpose.

To have access to this kind of training, it should be considered a right and a duty and should not be associated automatically with career progress.

Postgraduate courses should have a strong component of learning experiences with CSCL mind tools, complemented with preparing and creating course materials or, at least, proposing prototypes for new ones.

ALL PARTNERS ARE ENGAGED IN THEIR OWN COUNTRIES TO PROMOTE AND CARRY OUT THIS VISION ON THEIR PRACTICE.

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