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E-LEARNING IN ICT AND AGRICULTURE

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***Abstract**: LaProf was a multilateral project that aimed at promoting language awareness to immigrating workforces in two particular sectors, ICT and agriculture. The main goal was to provide free access to online language learning resources that would help candidate immigrants get more familiarized with the terminology and cultural issues in their sectors, through developing and disseminating a number of language learning exercises. The main idea of the project was to encourage ICT teachers living in Estonia (and Baltics in general) to learn Finnish and give them assistance in an overall immigration process to Finland by increasing their knowledge about working environment and culture of the target country. Accordingly, LaProf aimed to teach Greek and cultural issues to agricultural specialists living in Romania, who want to move and work in Greece. Significant attention was given to encouraging the learning of under-representing European languages (Finnish and Greek) as foreign languages in order to help European citizens from Estonia and Romania to understand better the working environment and culture of the targeted countries (i.e. Finland and Greece). In addition, the instructions of LaProf language learning exercises are translated into widely spoken EU languages (English and French) as well as into Hungarian, Romanian, Estonian and Russian, which are notably less widely used and taught languages in Europe. LaProf developed and promoted language learning methodologies and resources that motivate the particular categories of language learners, in order to enhance their capacity for language learning. As the main output 656 interactive language learning exercises were developed for its clearly defined user groups. A series of piloting tests were applied to a specified target group, the final outputs being thus optimized to the maximum. The targeted learning resources are focused on language learning of the targeted languages, but also reflect the embedded cultural context of the destination countries and sectors.*

***Keywords:** ICT, agriculture, e-learning, digital and learning resources, pedagogical and technical guidelines*

I. CHAPTER I

LaProf project aimed at supporting migrating workers in specific sectors: Information and Communication Technology (ICT) as well as Agriculture. For this purpose, free access to language learning exercises and a cultural preparation process were provided that would help the migrating workforce to get more familiarized with the terminology used in their destination countries for their sectors.

A number of language learning exercises through online environments was developed: the *LaProf Web portal and LaProf Wiki Page*. In this way, LaProf aimed at encouraging innovation in the development of effective and high quality language learning and teaching tools for the particular sectors of teacher and vocational education [16]. In addition, it aimed to provide a wider variety of language teaching materials for the targeted user groups of LaProf, by especially focusing on language exercises for under-represented languages (Greek and Finnish) [15].

More specifically, LaProf project had the following objectives:

a) Necessary language competencies and learning needs of the two targeted user groups were studied: IT teachers from Baltic countries (mainly Estonia, but also Lithuania and Latvia) that want to work in a Nordic country (with a focus on Finland), and agricultural professionals from Eastern Europe countries (with a focus on Romania) that want to work in a Mediterranean country (with a focus on Greece);specific questionnaires were administered to respondents from these two groups and analysed.

b) The requirements of the Common European Framework of Reference for languages (CEFR) of the Council of Europe were studied in order to design a language learning framework that would set up the basic guidelines and directions about how/what the targeted users should learn so as to serve vocational competences in a foreign country. The model adopted was a blended learning approach [19].

c) A pedagogic strategy was developed so as to embed the solutions in the immigration preparation process and embedding the acquisition of cultural competencies in the language learning process;

d) Language learning exercises were designed and implemented that would help targeted users learn the terminology of their sectors in both the languages of the destination countries (i.e. Finland and Greece). The exercises are available also in English. The instructions to the exercises are in six different languages, Estonian, Russian, Hungarian, Romanian, French and English [17];

e) The LaProf language learning approach was evaluated through a number of carefully designed evaluation and validation activities, that involved sample groups of actual learners;

f) The LaProf language learning material and methods were promoted to relevant communities, and they were used as the basis for the formulation of a set of policy recommendations to language teachers, professional associations and decision makers that deal with both language learning, and teachers' education, as well as with vocational education and training around Europe.

The category of migrating workers or people who plan to migrate in the targeted areas was thus supported. The approach combined existing and new materials specific to the sectors of ICT and agriculture with a clear pedagogic approach and guidance.

The targeted users were supported in the acquisition of vocational language and cultural aspects mainly by the *Language Learning Exercises Core exercises.* These specifically designed exercises in the form of two modules, (ICT and Agriculture), each consisting of 5 units prepared for level A2 were used to achieve certain language competencies in the targeted languages and fields (ICT and agriculture) [13].

II. CHAPTER II

2.1. Results and deliverables of the LaProf project

The main results of the LaProf project are the following:

(a) A language learning framework defining options and methodologies for candidate learners to become familiarized with the terminology and culture of their sectors in their destination countries, based on a series of carefully designed language learning exercises (such as the ones that Miksike has also produced, e.g. http://lefo.net/en/gtests.html?start=1&test=324&path=Fun%2F+Beginners, http://lefo.net/en/lmtests.html?test=315&start=1) [2,5]. This contains a pedagogic strategy to embed language learning in the immigration preparation process;

(b) An easily searchable online environment (the LaProf Web portal) allowing users to identify, retrieve and use language learning exercises in a digital format. It was developed according to relevant international standards of the learning technology domain;

(c) An online tool providing a place where producers of digital language learning resources for the targeted communities can upload their resources, describe them with appropriate metadata in English and in their languages, and which could make them publicly available via the LaProf Web portal for all interested users to find;

(d) At least 20 learning exercises/units that were translated into five EU languages (i.e. English, French, Romanian, Hungarian, Estonian) and in Russian, which were made accessible online through the LaProf Web portal. All resources were categorised with rich metadata describing their properties and characteristics (e.g. to which professions, regions or linguistic audiences they apply);etc.

One of the first stages of the project focused on designing a set of exercises whereby learners can get acquainted with both field-specific aspects and relevant culture and civilization elements. By means of an ongoing assessment and updating process, the project proposed high-quality products, flexible and readily adaptable to the needs of the beneficiaries [20].

Examples of exercise-generating formats are available at:

http://lefo.net/en/gtests.html?start=1&test=324&path=Fun%2F+Beginners. [4]

Additionally, a website was created in order to publish information on the working methodology, beneficiaries and final products of the project. This website can be accessed at http://laprof.language-learning-portal.eu/home.do

2.2. Piloting of the LaProf project

The learning exercises were piloted in two phases.

Phase A Pilot Learning Activities

The LaProf language learning materials have been implemented and evaluated in three different countries, Estonian, Romania and Hungarian. Professionally two different kinds of groups had participated in pilot learning activities, i.e. teachers and students. Phase A of language learning activities took place during April and May 2010 in Estonia. In Romania this activity was carried out also in April and May 2010 and it involved 30 undergraduate students in the field of agriculture and their language teachers from the University of Agricultural Studies and Veterinary Medicine Iasi. In Hungarian the Phase A pilot took place with two target groups: agriculture faculty students from the Sapientia Hungarian Private University from Miercurea Ciuc Romania and language teachers. The first group tried and evaluated the exercises at the university under the supervision of one LaProf team member. Their feedback was collected in two ways: the users' questionnaire, which was completed by the individuals after doing the exercises and through focus group discussion for getting more in depth feedback from the users. The methodology for the second group was the same. The total number of the respondents in phase A was 78 of which 59 were so called external evaluators (Romanian/Hungarian students and Estonian teachers) and 19 were so called internal evaluators (people involved in the project) [2,3]

PARTICIPATING NUMBERS

Activity	**Participating countries**					
	Number of participants in Estonia	Number of participants in Romania	Number of participants in Romania (Hungarian community)	Number of participants in Finland	Number of participants in Greece	Total number of participants
Phase A Piloting	13	46	12	-	-	59

Phase B Pilot Learning Activities

Piloting activities were organized with two LaProf core target group – learners in the field of agriculture who are interested in learning professional Greek and teachers connected with ICT and other ICT professionals who wanted to learn Finnish, as also seen in [10]. LaProf language learning materials for Greek were piloted in Romanian and Hungarian. Finnish language exercises were piloted in Estonian and Russian. In Romania, this activity involved users that had the appropriate level of Greek language, i.e. A2 (since the language learning resources piloted were for the Greek language). To maximize its efficiency in selecting the appropriate users, agriculture professionals that have previously participated in mobilities in Greece (post-graduate professionals), representatives of the Greek community in Romania and undergraduate students that participated in Work and Travel programmes in Greece (and thus have the minimal level of Greek) were targeted. Phase B of the piloting was focused on analyzing the content of the Language Learning Units rather that the structure, approach, and design of both the Language Learning Framework and the online hosting environment (as this was assessed during Phase A of the piloting). Piloting took place in October/November 2010. The total number of the participants was 63, however this number also included responses of the survey which were not fully completed. The current report speaks about 49 responses, which were 100% completed.

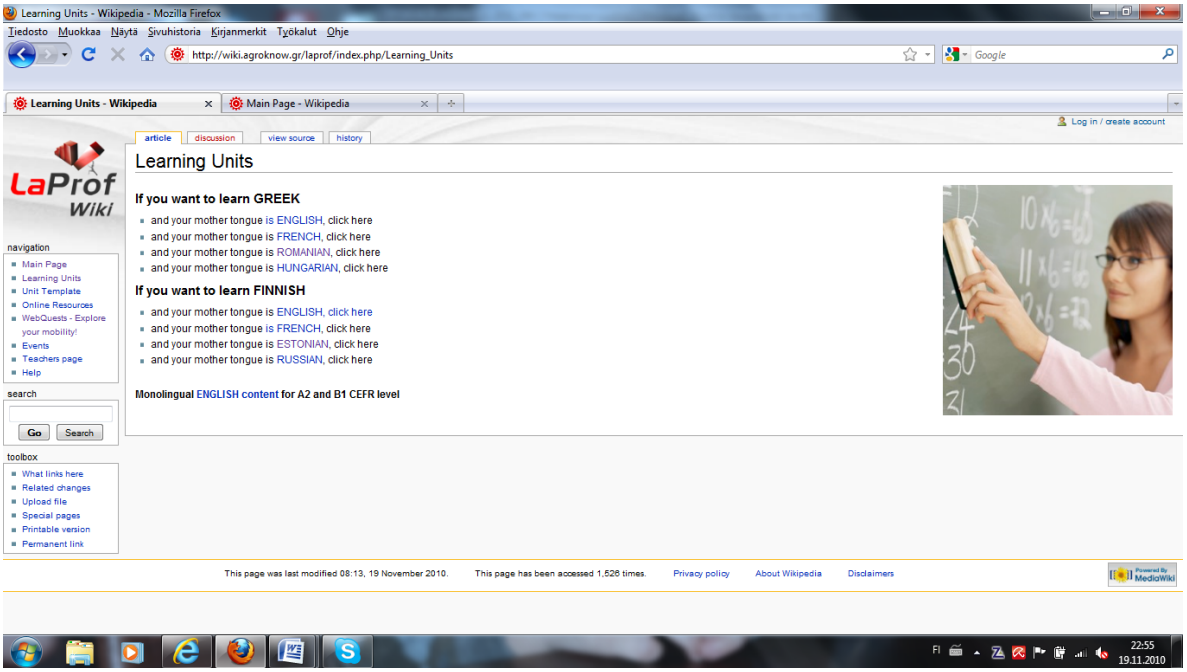

Figure 1. Language learning units [1]

Users can choose the topic and the language in which the instructions are by clicking the link (e.g. English version of Greek language learning activities in the field of agriculture). In the next step, users can choose the unit to be studied (see image 2).

By choosing the module and units users can go directly to the content and work on the exercises strictly connected with the chosen field. Users are free to choose which exercises they want to start with however it is advised to keep the suggested order as professional vocabulary is introduced, practiced and revised in the succeeding exercises [21,23].

In each learning unit, the content is divided into sections, each devoted to a different topic. In most cases, the sections are objectives, outcomes, exercises and glossary. Unit objectives describe goals for the section and outcomes intended educational benefits for the learner. Exercises are in the form of a reading, audio- or video-material with the main goal to introduce, practice, revise and check the target vocabulary in a typical context. The online glossary consists of the list of important vocational words translated into target languages.

Users follow the exercises with their own pace, choosing the right time and place [25]. They can concentrate on new items or those they find difficult; they can always repeat the exercise and check their score as this option is provided by LaProf platform.

Figure 2. Language learning units for agriculture [1]

PARTICIPATION NUMBERS

Activity	**Participating countries**					
	Number of participants in Estonia	Number of participants in Romania	Number of participants in Romania (Hungarian community)	Number of participants in Finland	Number of participants in Greece	Total number of participants
Phase B Piloting	21	42	9	-	-	63

The piloting activities offered access to a number of recommendations and testimonials valuable for the further use of the platform. A selection of what the students and tutors answered follows:

1. Students [11]:
   - *"It promotes individualised and self-paced learning processes.*
   - *"It can give more or less immediate feedback in the results of simple language exercises; it keeps the students' "score", as for example, the kinds of language tasks normally associated with programmes like "Hot Potatoes" or "Quiz Faber''. [7]*
   - *"It permits access to information in a non-sequential way, thus adapting to students' needs''.*
   - *''It provides the possibility to create and bring into operation new kinds of tasks, using multimedia and hypermedia tools " [6]*
   - *"It allows the student to assess his/her skill development and learning style because it doesn't require an immediate response to the tasks."*

- *"It offers the possibility to record, store and play audio/video information, thus providing a lot of advantages for oral communication." [14]*

2. Tutors:
   - "*Open programmes, unlike books, can be modified and extended". [22]*
   - *"Computers can be used together with other technological media such as videos, DVDs, tape cassettes and CDs." [8]*
   - *"Mechanical tasks are less necessary during classroom time so that the teacher can focus on more communicative language tasks."*
   - *"The exercises done by students can be printed or reported on at the end of each lesson. Sophisticated tracking programmes and "logs" enable the teacher to monitor his/her students' progress more easily in an ongoing manner." [18]*

2.3. Validation Activities

During the validation activities, LaProf language learning materials were evaluated in Greece and Finland by the professionals that were trained. The validation phase included also the evaluation done by language teachers in LaProf Summer School organized in Greece in September 2010 and LaProf Web Portal evaluation. In addition, LaProf language learning materials have been evaluated by two experts from the destination countries.

There are five learning units on both topics. The instructions for Finnish exercises are provided in Estonian, English, French and Russian whereas the instructions for Greek are provided in Romanian, Hungarian, French and English (see image 1). In addition, there is monolingual language learning content in the six languages of the project (i.e. French, Romanian, Hungarian, Romanian, Estonian and Russian, English).

PARTICIPATION NUMBERS

Activity	**Participating countries**					
	Number of participants in Estonia	Number of participants in Romania	Number of participants in Romania (Hungarian community)	Number of participants in Finland	Number of participants in Greece	Total number of participants
Validation	-	-	-	12	13	25

III. CONCLUSIONS

The use of tools that help teachers produce open educational resources (OER) is recommended [8,12]. These resources could be any type of teaching and learning material that allow learners and teachers to freely create and share their sources, but also to use and adapt others' resources for their own use [9]. This also means that users can bring modification to resources and re-share them with the community. In order to encourage the use of such resources, the LaProf project engaged with tools that allow the open creating and editing of resources, such as the LaProf Content Authoring Environment, a Wiki page available at http://wiki.agroknow.gr/laprof.

In the case of LaProf, the Wiki gradually shited from the internal use by the project members to a network of teachers that registered and started to produce content. Internally, the consortium used the Wiki to upload all the language learning resources in a multilingual framework. During the training events of the projects 22 teachers have registered on the Wiki. Following the training events, 12 additional teachers have expressed their interest in joining LaProf on the Wiki. At present a number

of 34 external teachers have accounts on the Wiki page. The Wiki Page collected 3161 visits from 96 countries and 6 continents. Also , two online environments were created: the LaProf Web Portal and the LaProf Wiki page through which the learners are able to search for and access all the above learning resources and methodologies, as well as a variety of 656 multilingual language learning exercises that have been translated into seven EU languages (English, French, Finnish, Estonian, Russian, Romanian and Hungarian). LaProf project developed online language learning resources which needed to be evaluated from two different viewpoints, i.e. the success of technical implementation from the technical viewpoint and that of language learning materials from the pedagogical viewpoint.

Secondly, in order to encourage the free use, sharing and editing of resources, a Creative Commons license, more specifically, Creative Commons Attribution - Noncommercial - ShareAlike 3.0 Unported (CC BY-NC-SA 3.0) http://creativecommons.org/licenses/by-nc-sa/3.0/ was used. All the LaProf resources are described in the LaProf Web Portal with this license, which informs users that they are free to copy, distribute and transmit the resources as well as to adapt them, as long as they attribute the work and not use it for commercial purposes. Additionally, if they decide to bring modification to the resources by altering, transforming or building upon them, they should distribute the results only under the same license or a similar license one.

2. Use of technologies that interconnect networks

In order to increase the accessibility to educational materials available on the Internet and produced by different initiatives, a connection should be created between educational Web Portals and promote the use of technologies that allow this. For example, in LaProf, the LaProf Web Portal was linked to the Ariadne network (http://www.ariadne-eu.org) and we will also connect it with the LRE Portal (http://lreforschools.eun.org/LRE-Portal). These harvest the content hosted in LaProf repository by the use of OAI-PMH. Any other external organization is able to harvest the content hosted in the LaProf repository by the use of OAI-PMH. In this way, the impact of LaProf project is significantly increased since its language resources can be found through different portals including those of connected Ministries of Education.

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