RURALENTER: CAPACITY BUILDING THROUGH ICT IN RURAL AREAS

Dirk Burkhardt[1], Frédérique Frossard[2], Mario Barajas[2], Marion Obermüller[3], Moises Monika[3], Kawa Nazemi[1]

[1] Fraunhofer Institute for Computer Graphics Research (GERMANY)
[2] University of Barcelona (SPAIN)
[3] Federal Ministry for Education, Arts and Culture (AUSTRIA)
dirk.burkhardt@igd.fraunhofer.de, frederique.frossard@ub.edu, mbarajas@ub.edu, marion.obermueller@gmx.at, moises.monika@gmail.com, kawa.nazemi@igd.fraunhofer.de

Abstract

The requirements on today's employees have been changed in the past. Today the western world needs significant more well educated employees, often named as experts. To be attractive for the job market the employees have to stay up-to-date and to improve their skills continuously, so lifelong-learning becomes important for the business carrier. But especially this advanced learning becomes difficult for people in rural regions. The existing strategies like improving skills on adult education centres is not appropriated for the rural population because of e.g. traveling costs. To solve this discriminating circumstance is the main goal of the RURALeNTER project. The project aims to develop a new approach how advanced education can be provided to the rural population by using modern technologies over internet. The effective use of specifically to the requirements of rural population developed internet tools enables even for beginners the possibility to be similar effective as the advanced training that is provided in urban regions in the traditional form. The resulting approach was tested and used amongst others in Spain, Austria and Romania.

Keywords: e-learning, learning strategy, learning in rural areas, learning of adult populations.

1 INTRODUCTION

The today society, especially the western world, is stamped by "lifelong learning". This is because of the increasing technological development primary in the Information Communication Technologies (ICT). These technological developments are the basis of creating new effective and efficient systems that allow a higher productivity or quality and decrease the production cost, which is necessary for stable companies. One aim of these new technologies is to provide more possibilities for the "common" user, so they are able to stay informed about sociological and sociographical changes in an easy and cost reduced way over the internet. So ICT allows a wide range of possibilities, also for providing educational technologies. In this context ICT can contribute to achieve universal education across country borders, by transferring education and training, and offering improving conditions for lifelong learning. So ICT allows encompassing adults that are not participating to the formal education process, and improving their professional skills (UNESCO, 2009), because skills are today the main factor for wealth in a society.

In the past the focus led more in the education of the youth, but because of the demographic changes in most of the European countries, this is not sufficient anymore. Next to well-educated young adults, also the middle-aged adults are highly relevant for the advancement of a society. But for the older population a different and specific approach is required, because the established ways of education like they are known from schools are not so effective for these people.

For this education another challenge has to be faced in the learning environments. There exist too many differences between educational strategies for urban and for rural areas[1]. The education in urban regions is often not such a big deal, because here you find organisation like adult education centres, where adults of all ages can learn new skills or bring their knowledge in special disciplines up-to-date. In difference to urban regions, rural areas do not have such organizations. In rural areas the only bigger access to information is often the internet. So for offering a similar education opportunity like in urban regions, a new approach is required, preferable by using IC Technologies, because here it does not matter, if you are using them in urban or rural areas.

ISBN: 978-84-615-3324-4

The European project RURALeNTER has investigated in its research work ways for conveying knowledge through established ICT methods especially for adults and elderly population in rural area. This paper will introduce the RURALeNTER project and the research results, on which researchers of seven European countries are involved in different roles, to create an approach for providing lifelong learning in rural areas. The out coming approach was tested and evaluated compared to others in Spain, Austria and Romania. The goal of the project is to try and provide an approach for adult education in rural areas. This approach is supported by developed central IC Technologies to provide an information exchange between the adult people, but also with their contact person/trainers.

2 SCOPE AND STRUCTURE OF THE RURALENTER PROJECT

The project consortium consists of seven partners from six countries which are member of the European Union and one European associated partner. The project is managed by Ellinogermaniki Agogi, a greek private educational institution. The Austrian partners are the Federal Ministry of Education, The Arts and Culture (BMUKK) and the consultant company “die Berater”. From Belgium the audio-visual and information technologies company (ATiT) is contributing their specialisation in the integration of information and communications technologies in training, education and culture sectors. The German Fraunhofer Society (FhG) as expert for applied research is participating as technology partner. Furthermore INNOVATE4FUTURE, the centre for advanced educational solutions and the University of Barcelona (UB) from Spain are also partners of the RURALeNTER project. As European associated partner Ynternet.org Foundation from Switzerland enriches the consortium of the project with his experiences.

The approach for rural learning were tested and used amongst others in Spain, Austria and Romania.

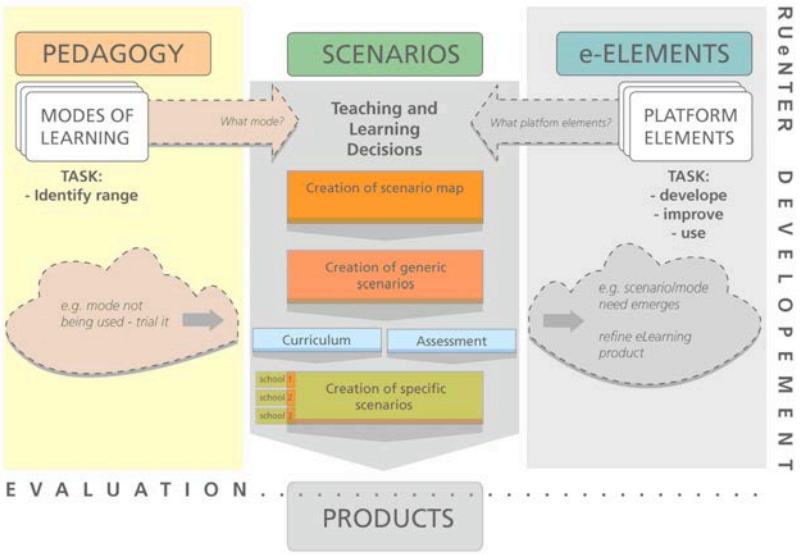

Figure 1. General project scope of RURALeNTER

Like it was described, the project aims to develop a new approach for supporting learning of adult people in rural areas over the internet. For the understanding of the needs and requirements for such an approach, the first step of the projects was an analysis for the needs of rural users. This includes an analysis of the technical situation of rural areas, an analysis what is necessary for these people for increasing the professions of the people to improve their chances for the employment market. But also the individual expectations of the rural users have to be considered. These analyses were made in workshops in Spain, Austria and Romania and are representative for most European rural areas. The results were merged to get a single requirements document.

In the next workpackage the learning content has to be designed and developed relating to requirement analysis. The content is specially developed for the defined target group, the rural population, and designed to be distributed over the internet. So the materials are easy descriptive and enriched with multimedia elements so that it becomes attractive for the users.

The workpackage Portal and Social Networking Tools Development is the most technical part and has the goal to develop an easy understandable learning portal that provides the learning material. Furthermore it has to be designed as contact point for questions and discussion of the users. This supports a community learning over the internet.

For evaluating the learning strategy and the developed materials and technologies, the workpackage Training Implementation and Validation aims to validate the developed approaches practically. It offers a feedback from rural users that allow an evaluation against the project goals and objectives in a final step.

3 NEEDS ANALYSIS OF RURAL USERS

A study was conducted in four countries (Austria, Greece, Romania and Spain) in order to analyse the situation of rural areas regarding lifelong learning opportunities and ICT services deployment.

First, three focus groups were organized in three EU countries (Greece, Spain and Romania) with different training institutions (e.g. Chamber of commerce, training providers, telecentres, etc.) in order to gather analyse the current level of ICT awareness, as well as the training needs of the adult population. In order to obtain data on a broader level, national surveys in four countries (Austria, Greece, Romania and Spain) collected the point of view of 45 stakeholders linked to the rural world, and enabled to analyse the status of adult education in rural settings. Finally, a desktop research was conducted in the same countries, and provided comprehensive reviews of the characteristics of rural areas and populations, as well as ICT deployment and life-long learning status.

As a result of the study, a set of training needs in adult rural communities was identified. The main training needs are related to digital literacy (acquire basic ICT skills) and Internet awareness (become aware of the possibilities offered by e-government, e-administration and social networking tools). Regarding professional development, rural adult communities need to acquire skills on how to look for job opportunities on the Internet. Moreover, the surveys enabled the formulation of more specific needs in each country, such as access to flexible learning opportunities, specific goal-driven scenarios, and training for trainers on social networking tools, all of which appeared be adaptable to the reality of other countries.

Furthermore, the study pointed out opportunities (such as the diversification of the economy) and constraints (such as unemployment and progressive ageing of the populations) that characterize rural areas, and that should be taken into account in order to develop successful training programmes. As a result, a set of recommendations was provided, regarding the way lifelong learning initiatives should adapt to the identified characteristics of rural areas.

Generally, a picture has emerged of the importance of promoting diversification of the rural economy, by providing training resources related to different professional sectors, such as agriculture, services and tourism. Training initiatives should adapt to the specificities of rural communities, by promoting digital literacy, encouraging the entry of rural women into the labor market, and organizing flexible programs that take into account the rhythms of life and work of rural populations.

4 DESIGN AND DEVELOPMENT OF ADEQUATE LEARNING CONTENTS

The general goal of this workpackage is to study training strategies that combine traditional forms of learning with e-learning content (blended learning models) and to identify what type of e-learning content may support such strategies for the training of adult rural population. After this phase, it will identify which training content should be provided to the adult rural population of the project (the training curriculum), develop/collect the necessary content in a digital format, and describe/publish it in the RUeNTER Portal.

The determining of adequate e-learning comes along with a widespread review of blended learning models for education and training, which have been previously applied in training ICT. Thus, it will become possible to identify relevant requirements for the digital ICT training content of the project, so that it facilitates the implementation of such models.

An optimal learning model also includes a fitting training curriculum. The identification of an adequate training curriculum is also part of this workpackage. This will be dealing with introducing ICT topics and benefits, and presenting then a series of selected ICT services as regional case studies.

With the knowledge of the described aspects, the digital training content was developed, which covers the topics of the curriculum, available in one of the languages used in the project. For a better understanding of the content, they are enriched with multimedia elements. Digital training content objects are described with educational metadata and are be published/indexed in the RUeNTER Portal. Thereupon a series of proposed training scenarios was designed that will be inspired from the blended learning models and will take advantage of the developed digital training content. These will have to be specific for each group of adult rural population of the project.

5 PORTAL FOR SOCIAL NETWORTKING AND CONTENT PROVIDING

The Fraunhofer IGD is mainly responsible for the development of the RURALeNTER web-portal. Next to the technical challenges, it is necessary to conceptualize an adequate interface for users to the portal, to ensure an easy access to ICT services and contents also for inexperienced ICT-Users.

For achieving this goal, a concept for facilitation by simplification and user experience was developed [2]. The simplification comes along with the functionality reduction, but this reduces the possibilities too. To avoid this side-effect, a role-based approach was realized. The integration of 4 hierarchical roles enables the possibility, that with every higher role the functionalities increase too. The lowest role is that of an unregistered visitor, which just have read access to the courses and the learning materials. A registered visitor gets also the possibility to write comments and get in contact with other portal users. The role of trainers has further functionalities for adding and organizing courses and course materials. The highest role is defined for administrators. They can also change general portal configurations. But simplification addresses also the entire website navigation and the way to provide the content. The identified users that are addressed with this project are often computer beginners. To offer them a website which they are able to use and understand must be easy and clearly defined. So the menu is reduced to a single item, and there is also just one content area. The navigation structure which is displayed to the learners (rural users) is flat so it does not become too difficult to understand the page structure.

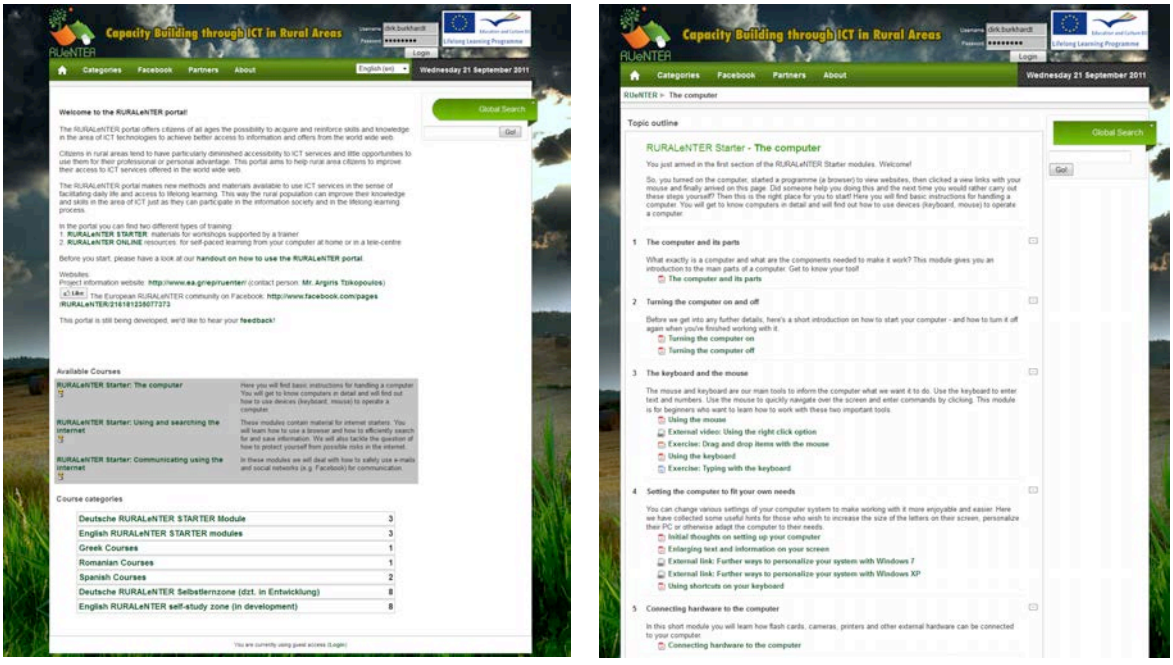

Figure 2. Screenshot of the RURALeNTER portal (left: frontpage, right: course view)

To support the learning process it is also necessary the technical system becomes attractive for the users. Next to technical aspects for usability, there are also subjective aspects like the emotional feeling during the use of a system. This emotional aspect is in focus of user experience. For supporting and regarding aspects that will ensure user experience, the development progress by Garrett [3] was taken to define the development process [2]. The progress starts by collecting the user

requirements and defining the entire goal of the website and finished with last phase, the visual design where the final presentation primitives like color, font, size etc. are set.

A special aspect is the integration of social-network tools. But to consider the fact that communication for people in rural areas is limited, it is an important feature. To discuss topics or just asking questions about unknown und not understood issues the only possibility is often to do this using the internet by asking other learners or maybe trainers. But in fact internal messaging services of portals are often used with formal speech, so that the problem is not named clearly. In consequence also the received answer does often not really helps. By integrating currently existing social-networking portals, e.g. the currently most famous social-network facebook, this communication gab can be decreased.

The final portal [5] regards most of the aspects that provides rural users an easy access to the learning materials. It also regards the emotional aspect, which generates a positive usage feeling.

The developed learning content of the workpackage Design and Development of Adequate Learning Contents is integrated into the final portal. The content is sub-sectioned in the courses by its logical order, so that it is similar with the cognitive learning and study habits and supports also the general learning process.

6 VALIDIATION BY TRAINING EVENTS

The validation of the RUeNTER portal, content, and training activities builds the basis for a sustainable implementation in the rural areas in Europe. To ensure a good validation of the different project cycles, two pilot periods were defined to collect feedback from the ICT-trainers and from the participants. The main objective of this procedure was to enable an in-depth analysis of required improvements and adaption needs of the RUeNTER training and portal

This approach aims to elicit appropriate education strategies in rural areas in different European regions as well as to investigate the learning impact on the adult trainees. The main aim is to optimize the final products for long-term implementation, and to bring the concept of lifelong learning to rural areas all across Europe.

The pilot training workshops are organized and carried out in order to assess the degree to which the training has been successful in meeting the needs of the rural trainees, to gain feedback on the usability of the RURALeNTER products and gather information on the exploitation potential to different local settings.

Based on the results of the “User Needs Analyses” a focus on face-to-face workshops or alternatively on blended learning methods (face-to-face workshops combined with complementary online training) was chosen. In order to ensure the comparability of the outcomes of these training events, *guidelines* for conducting these trainings and reporting templates for collecting data were developed by the validation WP-leader (BMUKK). The evaluation team (ATiT) of the project designed *pre- and post-training questionnaires* to assess the feedback of adult trainees on the success of the training in meeting their needs.

The second focus was to collect in-depth, qualitative data on the RUeNTER-portal and on the available e-content. The main objective is to gain information on specific, local implementation capacities. During *in-depth interviews* with randomly selected trainees and trainers this qualitative information is collected. As the piloting process is still in its final phase, selected preliminary results of the first validation period are available allow for first conclusions on the success and acceptance of the RUeNTER products.

First, the success of the RUeNTER-training goes in close alignment with its adaption to local needs and training prerequisites.

In Austria (training for the elderly) and Switzerland (training for migrants) the portal and the training materials were used under very specific training sessions and were developed to fit specific target groups’ needs.

Spain on the other hand, aimed to offer multi-part training courses in order to reach variety of potential target groups through the existing tele-center learning environment and infrastructure in Spain.

Accross all countries, a broad range of user-groups felt addressed by the RURALeNTER training offers. Data from 37 adults who attended the first pilot trainings in Austria, Spain and Switzerland are available by now. One common characteristic is the heterogeneity of the trainees.

This is valid for their professional background (from retired persons, to workers, administrative staff, unemployed persons, migrants and house-wifes) as well as for the different level of prior ICT competencies which range from absolute beginners to advanced users. The age-range of trainees is between 18 and 72 and the main motives to participate in the trainings were:

- To learn about computers and Internet (beginners)
- To improve ICT-skills for job use and to easier the daily life (low ICT-skills)
- To be independent of somebody else's assistance (beginners)
- To be interested in improving searching-skills (low ICT-skills)
- To learn more about the computer and Internet through practical workshops (basic-medium ICT-skills)
- To learn about specific topics such as safety on the Internet and e-Government (basic-medium)
- To get to know the ICT tools used by their children, communicate with the school and the other parents (basic-medium)
- To get to know a new online ICT-training platform (low-medium)
- To improve Internet-related competencies (medium, advanced)

One first conclusion of these differences in descriptive characteristics of the target groups and of the long list of participation motives is that there is a real need for the RUeNTER training in rural areas.

When the evaluation of the qualitative interviews, the questionnaires, that measure the learning impact will be finalised by end of this year, further implications will be visible and also published by the evaluation team (ATiT). Reports from first pilot training events indicate that the developed products are about to meet the needs of rural participants and can be used in a broad range of training settings. As pilot training sessions took place under different settings it can be assumed that the specific implementation strategies of different countries based on varying target-user needs was successful as a broad range of adult rural users responded to the specific training offers.

7 CONCLUSION

The RURALeNTER project aims to support especially rural adult people with prenominal less computer experience in advanced learning by using a learning strategy over the internet. This is necessary, because the rural population have less opportunities in contrast to people in urban regions, because they do not have equal possibility for improving their skills e.g. in adult education centres. But it is also important because of the rapid changes in the economy that makes advanced education indispensable, because most companies are working with modern technologies. The usage of such a system often forces high requirements to their users.

For enabling a similarly high level education also for rural adult people in this paper the RURALeNTER project is described, in which an approach is developed to support learning in rural areas. The learning strategy orients on the requirements on today's employees and also on the requirements of the rural population towards advanced learning topics and environments. The strategy is mainly driven by learning over the internet, which allows most rural people to use it. The content is specially designed and developed for the use of learning over the internet. Furthermore the aspects are described in easy understandable way and enriched with multimedia elements. The content is integrated into an worldwide available portal, the RURALeNTER portal. It is specially designed to support low computer experienced rural users. To achieve that, the portal is developed to regard different significant aspects, like a simple access to the provided learning materials and also to be emotional attractive for users to keep him motivated. In training activities the pedagogical aspects were tested in a practical environment. Therefore different kinds of participants were addressed like elderly or migrant people. During these training activities feedbacks and other relevant information are collected for evaluating the defined and specified approaches against the goals and objective of the project.

The results of the project are relevant for most challenges in education in rural areas. They can be a common approach also for commercial educational organizations which are interested to provide advanced education in rural areas. But in fact also learning strategies in urban regions can profit, because the strong orientation on the target groups offers a more detailed view on the real needs of users and how the learning process of these target users can be optimal supported.

ACKNOWLEDGEMENT

This work has been carried out within the project RURALeNTER 502695: Capacity Building through ICT in Rural Areas, partially supported by the European Community. RURALeNTER aims at the development of an innovative training program on the methodological approaches on how adult learners can integrate digital content available on the web. With this approach RURALeNTER aims to use the ICT capacity building for the preparation of the citizens of the knowledge society.

REFERENCES

[1] Gelb, E., Offer, A. (2005).ICT Adoption in Agriculture: Perspectives of Technological Innovation. http://departments.agri.huji.ac.il/economics/gelb-main.html

[2] Burkhardt, D., Breyer, M., Stab, C., Nazemi, K. (2011). Facilitate access to e-Knowledge for Adult People in Rural Areas. International Conference of Education, Research and Innovation (ICERI 2011)

[3] Garrett, J. J. (2002). The Elements of User Experience. New Riders.

[4] RURALeNTER project website: http://www.ea.gr/ep/ruenter/

[5] RURALeNTER portal: http://www.ruralenter.eu

Citation:

Burkhardt, Dirk; Frossard, Frédérique; Barajas, Mario; Obermüller, Marion; Moises, Monika; Nazemi, Kawa:
RURALeNTER: Capacity Building through ICT in Rural Areas.
In: Candel Torres, Ignacio (Ed.) u.a.; International Association of Technology, Education and Development (IATED):
ICERI 2011. Proceedings : 4th International Conference of Education, Research and Innovation.
Valencia : IATED, 2011, pp. 001348-001354