Enhancing Youth Entrepreneurship Skills and Competences in Agriculture with a Virtual Reality Platform

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Abstract. Entrepreneurship skills and spirit of youth can result in jobs creation, can produce wealth for society can also produce vital social capital. In our days, with the current high levels of youth unemployment in Europe, entrepreneurship is increasingly seen as a vital way for young people to be active in the labor market, get income and realize their potential. The Agrient project aims at producing an innovative educational platform and providing a systematic approach to train and support young people to run successfully their own agribusinesses. Several innovative open courses and training procedures will be designed to efficiently teach Entrepreneurship, focused on the Agriculture domain. The educational platform will utilize and use advanced ICT-based educational methods like 3D virtual reality. This will contribute in ICT-based innovative teaching and training as well as assessment. Teachers will be offered new and more attractive ways of teaching, through the 3D Virtual reality educational environment that will be developed. Learners will have the opportunity to learn more efficiently and improve their skills on agriculture and entrepreneurship by using advanced ICT technologies (like virtual reality), thus improving the overall quality of learning.

Keywords: Virtual Reality, agriculture, entrepreneurship

1 Introduction

The Agrient Project, which runs under Erasmus+, was commenced in February 2019 and is due to be completed in January 2021. The aim of the project is to establish a 3D virtual learning environment and multimedia learning materials providing access to training activities in the field of Agriculture entrepreneurship.

Agriculture entrepreneurship skills and spirit of youth can result in jobs creation, can produce wealth for society can also produce vital social capital. In addition, with current high levels of youth unemployment in Europe, entrepreneurship is increasingly seen as a vital way for young people to be active in the labor market, get income and realize their potential. The Agrient project aims at producing an innovative educa-

tional platform and providing a systematic approach to train and support young people to run successfully their own agribusinesses. Several innovative open courses and training procedures will be designed to efficiently teach Entrepreneurship, focused on the Agriculture domain. The educational platform will utilize and use advanced ICT-based educational methods like 3D virtual reality. This will contribute in ICT-based innovative teaching and training as well as assessment. Teachers will be offered new and more attractive ways of teaching, through the 3D Virtual reality educational environment that will be developed. Learners will have the opportunity to learn more efficiently and improve their skills on agriculture and entrepreneurship by using advanced ICT technologies (like virtual reality), thus improving the overall quality of learning

The rest of the paper is structured as follows: In Section 2, the 3D Virtual World developed and the technical aspects of it are presented. In Section 3, educational material and courses offered to the students are presented and explained. Finally, Section 4 discusses the learning methodologies and concludes the paper.

2 The Agrient 3D virtual world

As technology evolves it changes the human society. Over the past decades technology has changed the education domain as well. Indeed, the way that learning procedures are structured and delivered to students has changed completely, shifting from traditional blackboard approaches to more engaging and interactive ones. Recent approaches for more efficient and intensive learning are via digital, 3D Virtual Reality environments. A Virtual World environment offers to the student the ability to interact and experiment with items and constructions in a similar way he/she could in the real world. Over the last years, more and more universities use virtual worlds to create teaching programs and learning activities that emulate their real equivalents.

There are various Virtual World platforms developed to offer the ability to create Virtual Worlds. A very popular platform is the Open Simulator (OPENSIM) platform. OPENSIM is currently one of the most popular and mature multi-user virtual world platforms and is being used very successfully in many domains and especially in education. The Virtual World developed empowers the students to move around the areas of the virtual word, to talk with other students, to gesture, to manipulate items and constructions in a very natural way. In figure 3, a part of the Virtual Word developed is presented.

Inside the virtual world, trainers and trainees can communicate with instant messages. It is possible for teachers to create groups and invite their students to create working groups. OpenSim can also embed suitable communication software such as the FreeSWITCH server to allow voice communication. This communication can be in the form of the trainer speaking and being heard by any avatars that are near to him, or in the form of private calls with selected avatars or groups in the world.

The design and formulation of advanced 3D Virtual Reality educational procedures, can offer new, more efficient ways of teaching, suitable for the Agro-Entrepreneurship domain, and also assist young people in getting valuable knowledge

that will allow them to put their own ideas into practice and have successful businesses in the agricultural domain. In addition, young people already involved in the agricultural sector can get advanced training with innovative courses, improve their skills, their productivity and above all, the quality of their work. Regardless of the technological means utilized, the main objective of this project is to design a high-quality training course addressed to young people interested to follow entrepreneurship careers in agriculture. Eventually, it targets to enhance students' qualifications, expertise and skills, enhance their employability and assist them to design initiations and entrepreneur in the agricultural sector. The project will support self-learning as well as formal learning and all the contents of the learning environment will be available as Open Educational Resources (OER), translated in different European Languages. Moreover, the educational platform will also focus on informal, distance learning based on self-learning ideas, in order to support young people with fewer opportunities (e.g. living in isolated areas/in small villages and cannot get high quality training). The 3D virtual reality educational environment is going to be a learning platform that will be available from anywhere, so it is suitable for people such as youth in isolated areas and small villages that cannot move centers/institutions and get high quality of training due to geographical and economical issues. The proposed project intends to formulate an innovative educational platform, rich in a wide spectrum of advanced educational contents, that will provide efficient training procedures and most of all that it will be widely used on European level. Indeed, the consortium skills secures the high quality of the project and some of the partners possess the means to make it reach out and be promoted in a wide range of popular networks, be integrated into various procedures and have a strong impact on European level.

3 Courses formulation in the virtual world

The courses that will be created aim to assist young people and young farmers in formulating and successfully run their agribusiness. The agriculture sector is among the most important sectors in European level, that contributes significantly throughout the EU counties economy and it is necessary to assist young people to formulate efficiently initiatives and agribusiness. In this regard, the courses will address almost all core and main aspects of entrepreneurship in agriculture from the first stage of i) putting an idea into practice, to ii) finding possible fund opportunities, to iii) formulating an agribusiness, to iv) successfully managing and running the agribusiness and to v) expanding and improving the agribusiness. The courses will be the following:

- Strategies to put your idea into practice
- Agricultural startup formulation and funding opportunities
- Utilization of ICT Technologies in Agriculture
- Organic production and organic Agribusiness Formulation
- Crop Management and Resource Economics

- Fundamentals of Agriculture Accounting, Management, Finance and Marketing
- Quality Management & Business Excellence
- Agriculture Business Strategy and Policy
- Export management
- Regional and International development of Agricultural Enterprises

The courses will enable young people to successfully establish and grow their businesses, they will help young people manage risks associated with agricultural products, increase coordination between actors within target value chains and also demonstrate successful cases of agribusiness start-ups.

4 Discussion and Conclusions

In this paper, we present the Agrient project and explain its aims and its main outputs. The aim of the project is to establish a 3D virtual learning environment and multimedia learning materials providing access to training activities in the field of Agriculture entrepreneurship. Main focus of the paper was to present the underlying technologies that are used and the functionalities they offer too. The 3D Virtual World can support traditional learning environments by offering new ways of communicating and delivering learning material. The Virtual world platform is expected to be completed and available by September 2020 and we hope it will provide a useful supporting activity for agriculture entrepreneurship education in European level.

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