

IRRIGATIONS: INNOVATIVE, VIRTUAL, AUGMENTED REALITY & EDUTAINMENT BASED, VET HANDBOOK AND eLEARNING FOR THE TRAINING IN ADVANCED IRRIGATIONS

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Abstract

The paper presents part of the results of the EU Commission, Leonardo da Vinci Project: LDV/ToI/2013/RO/030.

The project achieved by entities from authors of the Handbook: Romania: IPA SA project proposer, writer and coordinator, Spain: University of Cordoba, Italy: 2 Partners, University of Naples and CREA/Council for Research in Agriculture and in the Agricultural Economy), USAMV Bucharest, and entities which have presented the lessons with the view of the lessons assessment: USAMV Bucharest, CCIAGR/Chamber of Industry, Agriculture and Commerce, Giurgiu), Agricultural Collegiums Sandu Aldea Calarasi, Agricultural Collegiums Viaceslav Harnaj, Bucharest, Faculty of Agronomy and Horticulture of University of Craiova, is destined for the training of farmers, technicians, people interested in the creation and development of the own irrigations.

The project has generated: (a) the printed, (b) on DVD, (c) on special digital application on DVD (d) on WEB Handbook: Innovative irrigations for All, pdf. 2200 pages.

The handbook, of 38 lessons, was converted, by IPA SA in the advanced eLearning format in HTML5. Also are elaborated 2 Occupational Standards (drafts) in irrigations.

The project has developed advanced eLearning support for the quick and efficient knowledge and skills transfer, based on over 100 Virtual Reality, 3D, Dynamic Images.

These Dynamic Images h create efficient animations, Augmented Reality products, developed by IPA SA, as SAREL system: Special Augmented Reality for eLearning and other AR tools.

Special development, such as celebrities from dedicated novel (lampoons), contributes at the Edutainment support.

The lessons have been successfully tested on the sample of over 500 interested people.

The action and developed materials add contributions at the re-launching of irrigations in Romania.

Key words: irrigations, water, soil, irrigations agronomy, equipments, water, soil, irrigations agronomy, training, Virtual Reality, Augmented Reality, Edutainment.

INTRODUCTION

THE ANDRAGOLGY ASPECTS AND THE IMPERIOUS NEEDS OF THE ACCELERATING THE SPEED OF UNDERSTANDING AND OF THE KNOWLEDGE APPROACHING

The today psychology and andragology, science of the mature behaviour, indicates that the first focus in the adult training behaviour may to be achieved under the restriction of the person immediate gain.

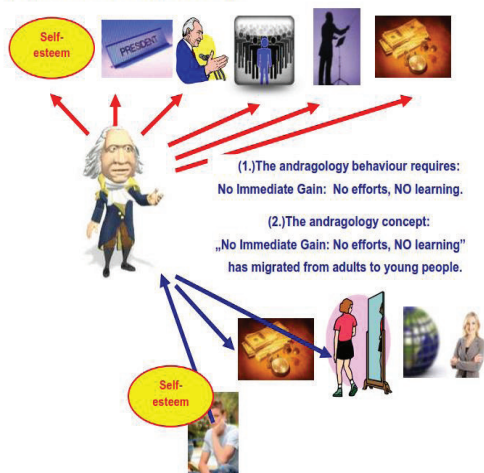
First andragology requirement: nothing efforts without gain (respective without immediate gain)!

Therefore, taking into consideration that the audience is focused also to the disadvantaged people, slow learners, possible ESLs, the special attention is given for the quick and efficient skills and knowledge transfer.

This requirement has leaded at the intensive integration of the innovative and advanced tools, especially of the imagery, animation, Edutainment and eEdutainment procedures, based, first, on the Virtual Reality and Augmented Reality.

The following image illustrates the trend of migration of the andragology concepts towards to young people.

No immediate GAIN No efforts ! No learning!



THE IRRIGATIONS REQUIREMENTS

On the other hand, the situation of irrigations in Romania requires the strong improvement of the knowledge and skills in irrigation, training in irrigation, the approaching of the new, efficient, environment compliant, irrigations' procedures.

We remember you, that, if in 1990 were 4 million ha irrigated and 8 million ha planned to be irrigated, now are irrigated under about 0,4 million ha, respective under 1/10 of the initial surface.

THE I4ALL PROJECT

The Project title is:

Advanced Edutainment based VET/eVET products, destined to the large amount of farmers and to disadvantaged: slow learners, poor people, and focused to innovative training content, procedures, best practice& equipment, for irrigation.

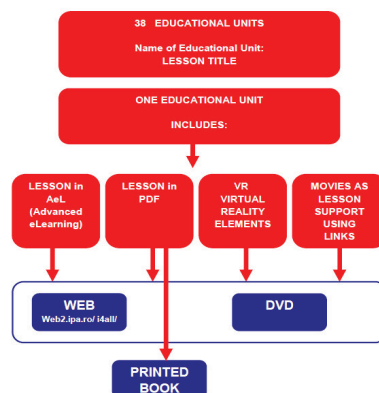
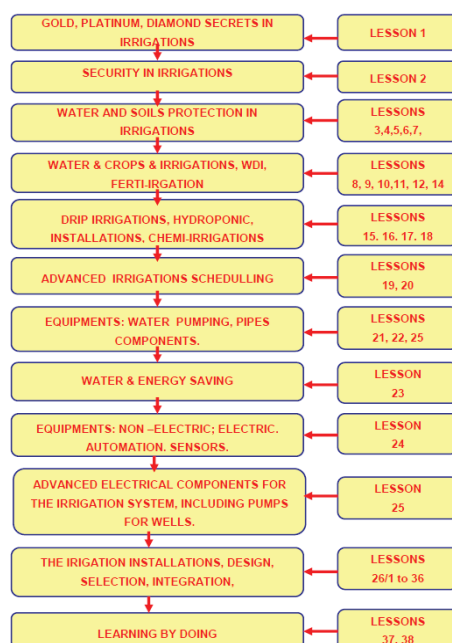
The main aims of the I4ALL Project were:

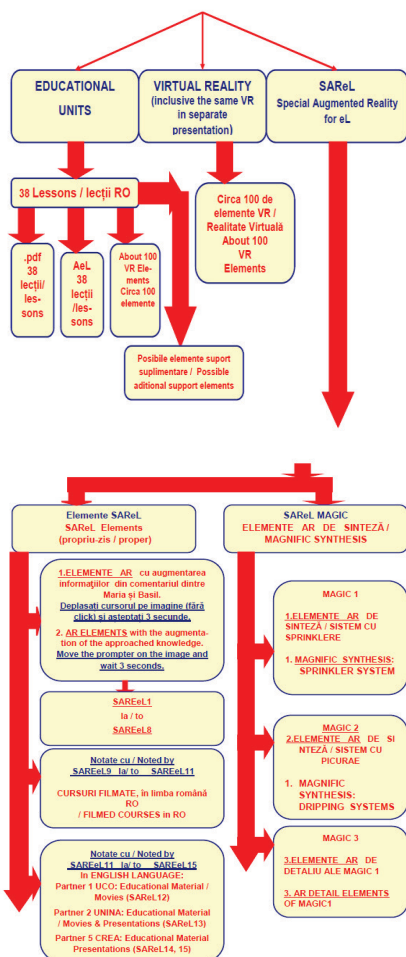
- (a) To generate advanced, edutainment, IT&C based, VET / eVET products, which to assure, competencies based efficient transfer of the knowledge & skills in innovative irrigations.
- (b) To encourage cooperation between VET and the world of work.
- (c) To respond to the users needs education requirements of the big amount of farmers, stakeholders, inclusive of disadvantaged.

(d) To create the way for forming of the irrigations workers, technicians, masters of water. The solving of the lack of training products.

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The handbook: "Advanced Irrigations for All" (2200 pages, 36 lessons) was developed, inside the project, on the basis of the achievement of (a) the EDUCATIONAL UNITS and (b) of the logic flux of knowledge as it is illustrated in the following image:





The following presentation will illustrate the mode of working of training. Despite the handbook has 2200 pages, the basic skills may to be accomplished, using VR, AR, in some hours. The web address is: **Web2.ipa.ro/i4all**
The 36 lessons, as you see, in this moment, are listed under the button: **EDUCATIONAL MATERIAL**.

WEB PRACTICAL PRESENTATION

Each lesson has, as you may to see at this moment, on the web:

- Own lesson, pdf. content, from which all the world bibliographic resources may to be accessed immediate, on-line.

- Own lesson, advanced eLearning pdf. content, which may to be manipulated quickly, simple and pleasant.
- Own lesson, Virtual Reality with many most important images and skills.

Also the educational material offers the possibilities, for instance on the web, of the training by the Augmented Reality as in the following, presented on the web, images.

Despite the handbook has 2200 pages, the learner has many ways to learn, the basic aspects, in time saving process.

For instance: for quick learning are intensive used the VR and AR images, and for details are used the deep presented aspects, included, for the specific topics, inside the eLearning lessons.

RESULTS AND DISCUSSIONS

The developments, through the project I4ALL, represent important steps in advance with the view of the irrigation re-implementation and for the irrigations approaching in the new advanced and very advanced mode, technologies, trends.

Some important steps in advance are constituted by the proliferation, dissemination, and, especially, application of the accomplished results.

Other steps in advance are generated by the 2 Occupational Standards developed, by the I4ALL project in the filed.

The developments through the project I4ALL represent only one of the important steps in advance.

Multiple other steps in advance are waited, and in this sense the authors look to the new cooperations with the view o the generation of new, advanced, innovative developments and applications.

CONCLUSIONS

The irrigations is necessary to be sustained by all the ways, one of these being the education. The positive handbook organisation and content, the VR, AR, eEdutainment, Learning by Doing, have proved the power of education in the critical present field: the irrigations.

ACKNOWLEDGEMENTS

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REFERENCES

Web2.ipa.ro/i4all, 2015 ISBN: 978-973-1704-30-2
Advanced Edutainment based VET / eVET products, destined to the large amount of farmers and to disadvantaged: slow learners, poor people, and focused to innovative training content, procedures, best practice& equipment, for irrigation. Editorial House: IPA SA, Bucharest, 2015, ISBN: 978-973-1704-30-2.