



## Eegs: E-Learning Exercise Genexis System

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### Abstract

*The use of ICT in education and training has been a priority in most European countries during the last decade. A small percentage of schools in some countries have embedded ICT into the curriculum, and demonstrate high levels of effective and appropriate ICT use to support and transform teaching and learning across a wide range of subject areas. The last report published by European Schoolnet shows how the ICT can support the change in teaching and learning, improving sensibly the learning results of students. It is already difficult to change the traditional educational practices with ICT, and in each region and country, the educational institutions use their own e-learning platform, by developing autonomously contents and functions: this situation creates a sort of isolation which does not allow the reciprocal dialogue among schools, educational systems and teachers. Although it appears to be recognised the value of ICT in education, difficulties nevertheless continue to be experienced within the processes of adopting these technologies and only a minority has so far embedded ICT into teaching. For this reason, it has been submitted a project in the framework of Lifelong Learning Programme which aims to create a useful tool by providing an attractive, engaging and simple learning and teaching environment that reflects the modern internet-saturated life. Genexis is an online e-learning solution based on exercise generation; it makes teaching and learning more productive and less frustrating, benefiting everyone involved in the education and training process. The project aims to create a method for teachers on how to use GenExis together with existing ICT solutions and how to exchange with ICT based contents with other schools by using GenExis: the use of ICT will have a deep impact and implications in education, as it brings new skills to learning.*

### 1.Introduction

The use of ICT in education and training has been a priority in most European countries during the last decade, but only a small percentage of schools in some countries have embedded ICT into the curriculum, and demonstrate high levels of effective and appropriate ICT use to support and transform teaching and learning across a wide range of subject areas. Most schools in most countries, however, are in the early phase of ICT adoption, characterised by patchy uncoordinated provision and use, some enhancement of the learning process, some development of e-learning, but no profound improvements in learning and teaching. Most of the reviewed studies show that ICT impacts on competency development – specifically team work, independent learning and higher order thinking skills – that are not yet recognised by many education systems. These competencies should be formally included in the curricula and ways of assessing them explored. They are important outcomes of a new and changed educational context. New approaches to teacher training should be much more related to the concept of lifelong learning, knowledge sharing and peer learning. To be confident teachers must be able to upgrade their ICT skills and gain more pedagogical knowledge and this in a much more active way than previously. Teachers have to become active shapers of their own learning process which requires a professional environment and culture that allows teachers to do so. An experimental approach using ICT in everyday practice is an important factor in increasing teachers' pedagogical competence. According to Eurobarometer, 90% of European teachers are using new technologies for lessons; but they are using by themselves, in an independent way (they usually use incompatible software and tools). The learning materials used by teachers are offline educational materials as CdRom. Only 59% of teachers are using pedagogical materials provided by online sources and 56% are consulting documents available on some database and schools network. A second important issue for ICT consolidation is the focus on content and support services in schools. The value of access to good interactive digital content is essential for the successful implementation of



ICT. The lack of access to appropriate digital content, related to copyright issues and costs of licenses was identified as a major barrier for ICT use in schools and more actions and solutions are needed on national and European level.

To tackle this problems, it has been submitted and approved a project within the framework of Lifelong Learning Programme – Leonardo Da Vinci – Transfer of Innovation which aims to create a useful ITC tool able to provide an attractive, engaging and simple learning and teaching environment that reflects the modern internet-saturated life.

## 2. Type of transfer

The aim of the project is the transfer of an e-learning portal so-called Genexis. The portal has been developed in Latvia and is conceived for the development of training courses ( and the innovative system of generation, control and verification of exercises) for vocational schools in the following sectors: Economics and financial, Mechanics and Mechanics Design, Electrotechnics. The portal has also a kind of educational regarding physics, mathematic and chemical matters. The transfer includes the implementation, the development of functions and teacher training of some technical schools placed in the partners countries (Italy, Greece, Spain, Turkey and Sweden). Through this project, it will be the transfer of innovative technology of Genexis functions to the educational system of partners countries, and operative technical elements to the teachers of selected schools in order to facilitate the usage and the adoption of it within the educational and training programmes.

The innovation transfer on testing and implementation of new functions and contents in the selected schools placed in partner countries will proceeds along the following phases: A) identification of pilot schools and sign of agreement with school directors in order to begin the testing (each school will have a deep involvement of teachers and learners); B) realisation of training activities for teachers on the usage of Genexis system and implementation of new educational contents within the portal; C) Genexis institutionalization: during this phase the adoption of the system within the pilot schools will be produced; it will be also pointed out the advantages and satisfaction level, by stimulating this decision through the fact that all the update and the usage technical manuals will be available in the lifespan of project and in the future (downloading on line material, translated in all partners language, from project website which will be active also after the end of activities).

### 2.1 Innovative results

Genexis is an e-learning portal developed by SIA Data Pro Grupa in order to solve two great problems of teaching and learning process: - inefficient consumption of teaching time on exercise creation and monitoring; - the lack of interest in study process among the students.

Unlike other e-learning portals based only on “just-in-time” and “just-for-you” principles, Genexis introduces also “learning-by-doing” principle. The difference lies on the fact that Genexis system has been developed and realised together with the teachers, in order to get out of the problems raising from the other e-learning platforms and simplify the system usage for all the users, without distinction of age and knowledge.

Innovation of Genexis regarding the other platforms:

1) Software use: the access is allowed only to the teachers, in order to avoid to the students to have previously the test solutions and exercises. Learners attend regularly their own courses, their exercises and have their scores only online.

2) Sharing library: it is a gathering educational contents. It is subdivided in items (Mathematics, Physics, English, etc) and sub-items (Arithmetic, Geometry, Algebra, etc). Within these items, there are the relative courses, with exercises and tests ( mathematical problems with many exercises). With own login and password, teachers can enter in their own library or in the library of other Genexis users, access to all platform courses, use them during the lessons, modify the courses according to their own needs and realise new ones. Except the learners, all the platform users can access to all library courses, apart from the holding organizations.

3) Exercises and tests: they are realised according to the teachers needs in order to have different typology of answers (tests, numbers, multiple choice). The monitoring and the correction of exercises is not only about the results, but also about the analysis and the development of all intermediate steps, according to “learning-by-doing” principle.



The combination of online courses with virtual communication tools will allow to perform completely virtual study course through internet. It will be possible for courses and schools to provide education through internet and attract student from different countries (at European level) which are more than any local market could provide on its own.

### 3. Aims and objectives

The main new objectives of the project are: introduction of a management system of ICT content in partner countries schools; creation of a school network which use the same e-learning portal and share the library content; providing the teachers with the technical skills for the system usage and the creation of new contents (curricula, exercises, examples) within educational and study programmes. Thanks to the technical features which allow the exchange and sharing of educational functions and contents, Genexis system allows to satisfy some specific needs, nowadays not solved by the introduction of ICT in the European schools: a) possibility of interaction of schools through the exchange of educational contents (from a system to another); b) possibility to exchange new developed functions (from a system to another) that will updated automatically other systems. In this way, Genexis system is a catalyst for innovation and social development and education. It does not concern the technology but the way in which learning can be enhanced by using ICT and made more accessible at all stages of life and the opportunity of modernization in the management of education systems (e.g., simulations, learning discovery, re-motivation of young people who have left school, learning outside the school area, flexible lifelong learning to bridge the digital gap). It is important to emphasize the role played by new technologies in education and knowledge within the Lisbon Strategy. Its goal is to make the EU the most advanced area of the world, through the development of knowledge-based economy, capable of sustainable economic growth, full employment and greater social cohesion. In particular, for the Lisbon Strategy it is important to reach the objective of lifelong learning, the use of new information technologies and communication, and the importance of historical knowledge for the formation of a new European citizenship. This kind of transfer is finalised to achieve the strategic issue of improvements of quality and innovation of vocational education and training systems, institutions and practices. As the transferred product an innovative e-learning portal, the project supports the development of innovative ICT-based content, services, pedagogies and practice for lifelong learning. The transfer implies teacher training courses, the realisation of educational contents in order to increase learner's learning, skills and competences of VET system.

### 4. Quality of partnership

The project has been developed by consortium represents a great range of practices and perspectives form private to national, composed by vocational training centres and university, and SMEs in Informatics services, coming from Italy, Spain, Greece, Sweden, Turkey and Latvia. The project intends to pool the best experience of the partners, completed EU projects, transfer already existing best practice within the consortium and develop new innovative approaches regarding the improvement of use of ITC in each area.

EEGS project has a:

- PROMOTER and CO-ORDINATOR: Docusys srl, Italian consultancy company aimed at helping business and vocational training centres;
- PARTNERSHIP composed by: SIA Data Pro Grupa, (Latvija) a group of companies with 15 years of successful work experience in the development of IT solutions; Fondo Formacion Euskadi (Spain), training company specialised in the management and coordination of local, regional and European projects; Solutions Quality Learning Ltd (Greece), specialized in the provision of integrated e-learning solutions addressed to enterprises and educational institutions offering them the best experience on e-learning.; Gazi University (Turkey), one of the deep rooted, institutionalized and leading universities in Turkey, with a highly qualified academic staff, leading in the field of science and high-technology; Swedish TelePedagogic Knowledge Centre AB (Sweden), well experienced in the development of e-learning services, with a vast experience in pedagogic unit improvement and methodology.

The project activities have been well structured according to the experience ad knowledge of each partner in ICT based training fields and European projects.