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SP4CE – STRATEGIC PARTNERSHIP FOR CREATIVITY AND ENTERPRENEURSHIP SUCCESSOR OPENINN

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Summary: The project SP4CE is addressed directly to aims and needs identified in Bruges Communiqué on enhanced European cooperation in vocational education and training (VET)[1]. All project results and project actions will be connected with promoting take-up of innovative practices in education, training by supporting personalised learning approaches, collaborative learning and critical thinking, strategic use of information and communication technologies (ICT), open educational resources (OER), open and flexible learning, virtual mobility and other innovative learning methods (MOOC, Gamification). Project consortium will use experiences and approach from former Lifelong Learning good practices. In the article the main achievements of OpenInn project (511583-LLP-1-2010-1-SK-KA3-K3MP) coordinated by Technical University of Kosice are introduced. The objectives and expected results of the SP4CE project (2014-1-PL01-KA200-003341) coordinated by PIAP are presented. Finally the concept of developing SP4CE learning portal based on experiences gathered in OpenInn project is described.

Keywords: creativity, entrepreneurship, collaborative learning, education.

1. INTRODUCTION TO OPENINN

OpenInn [2] stands for a knowledge generating house and e-Assessment model. OpenInn project provides a new pedagogical and organisational model to communities and individuals through the use of an online ideation tool. This model enhances learning in formal and informal education, and supports innovative assessment. The project is geared towards students, teachers and managers, and builds on a person's own interests to strengthen their creativity and self-confidence. OpenInn has developed a web 2.0 prototype tool (Knowledge Generating House) and a pedagogical guide (the e-Assessment model) to involve schools in real-life innovation processes for lifelong learning.

OpenInn offers a new perspective linking education with the corporate world of "open innovation". The project has produced quality textual and multimedia resources in 9 languages that support the independent learner/trainer and enhance open innovation, assessment and creativity. There is a clear coherence between the textual resources addressing the pedagogical model and the technological tool „Knowledge Generating House" (KGH) for open innovation in education. The approach is to be integrated into the partners' own educational interventions.

Nine institutions, Technical University of Košice from Slovakia, Univeridade do Porto (Portugal), Università delle LiberEtà del Fvg (Italy), Petko Rachov Slaveikov Secondary School (Bulgary), Aarhus Social and Health Care College (Denmark), Bremen Institut für Produktion und Logistik GmbH (Germany), TREBAG Vagyon –és projektmenedzser Kft. (Hungary), Fondo Formación Euskadi (FFE - Spain), LiNK MV (Germany) decided to promote and prepare the project OpenInn with following aims:

- bridge the implementation gap in the use of ICT in a creative way to support learning and social coherence linking together different sectors;
- support the evolvement of a stable positive self-esteem both for learners and for facilitators in the learning environment. By reassuring the self-esteem through autonomous learning, it also generates inner motivation for learning;
- increase opportunities for exploiting intellectual capital of young talents and groups at-risk;

- produce a comprehensive e-Assessment Model containing the theoretical concept and didactics for creativity, with topics including: ways to support the learner to introduce new ideas, evaluating and rewarding creative results, methods for giving instructions to reach innovative solutions, providing autonomy for creative expression both for not-yet ICT users and advanced level users in their specific sectors;
- create the "Knowledge Generating House" as an innovative social network for exploring creative potentials.

Users could use the KGH platform looking for ideas expressed by others and by exploiting their own inner potentials as well. This generates a new learning experience, where not only young talents, but groups at-risk from falling out of educational system can be actively engaged in creating and inventing. By collaborating with others, they can attain new perspectives for understanding a case and developing it, and by the new perspectives they are able to understand themselves better. This reassures their self-esteem and makes the base for exploring their inner potentials.

The project aimed at implementing the Open Innovation concept in the educational sector to develop a new learning paradigm which exploits the potentials of ICT for learners above 15 years. There is an importance of leaving the model open for more sectors of the educational field because the field of use can still be a process of evolution depending on the end users. This concept was targeted to the primary target group which consists of talented youth in higher and secondary education. The secondary target group are persons at risk of falling out from the educational system in secondary, higher education, vocational training and adults who wish to further explore their capabilities. The tertiary target group are teachers and facilitators of talented youth and groups at-risk in secondary, higher education, vocational training or adult education institutions. The OpenInn project results could be used in the long-term perspective for the students with a specific research or scientific interest, experts, SMEs, managers of large enterprises, non-profit organisations and groups that need more support in order to be able to use the portal for enhancing creativity.

As was mentioned above, main outcomes of OpenInn project are presented in OpenInn portal (see Figure 1) and includes "The Guide to Creativity (an e-Assessment Model)" which is a complex electronic educational material serving as a "guide" for teachers using KGH, respectively for teachers interested in innovation trends in education and in innovative didactics for enhancing creativity. The Knowledge Generating House represents on-line ideation tool. The Demo video and video guide to OpenInn portal and Knowledge Generating House serves as promotional tools but also as help for perspective users altogether with "OpenInn Guidebook" user manual for the Knowledge Generating House with explanations of all features developed and "OpenInn project website" with all information about the project, partnership, activities done, etc.

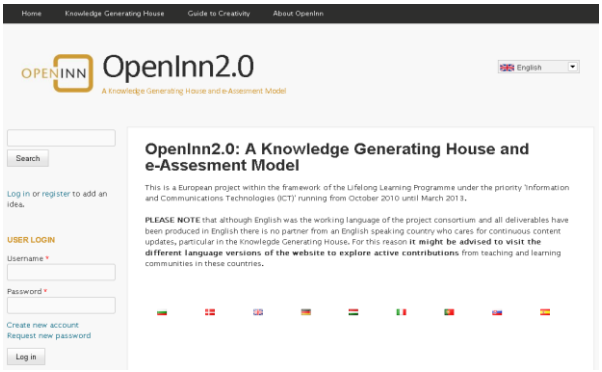

Figure 1. Introduction page of OpenInn portal

The portal is multilingual – all information is available in nine languages: Bulgarian, Danish, English, German, Hungarian, Italian, Portuguese, Slovak and Spanish.

The "Guide to Creativity" presents on-line material for teachers and also for managers interested in innovation trends in education and in innovative didactics for enhancing creativity. The material is divided into modules containing ways how to support the learner to introduce new ideas, ways how to evaluate and reward creative results, methods for giving instructions to reach innovative solutions, providing autonomy for creative expression both for teachers who are not-yet computer users to those who are advanced internet users. Every module consists of the self-learning material "Pedagogical background" that provides the reader with a comprehensive theoretical background about the Open Innovation principle and its possible usage in the field of addressing and assessing creativity in an educational context. The ICT Tools section provides a list of ICT tools, their descriptions and ways how they can be used in an educational context. Every item contains three sections based on the level of a potential user's digital literacy: without the necessity to use ICT tools; using basic level ICT tools; using innovative and advanced level of ICT tools. The Practical examples section presents a collection of particular scenarios describing how to apply ICT for teaching and learning to increase creativity. The 25 scenarios were developed for different educational contexts as well as for the different digital literacy of the users. Rather than a consecutive order the scenarios are presented as single independent items, assigned to two different categories: kind of educational sector (secondary school student, vocational student, university student, and adult learner), level of ICT skills (non-ICT user or beginner, basic ICT skills, advances ICT skills). The Resource library contains more interesting teaching and learning material about enhancing creativity not used in the previous sections.

The Knowledge Generating House (see Figure 2) supports the development of new ideas and online brainstorming. KGH also offers commenting and voting the ideas. These activities are divided into place for collaborative learning ('Innovation e-Learning Rooms' for brainstorming and mind-mapping), space for uploading documents (like academic studies, thesis, portfolios) and individual 'creativity assessment' (based on the level of activity, provided ideas etc.).

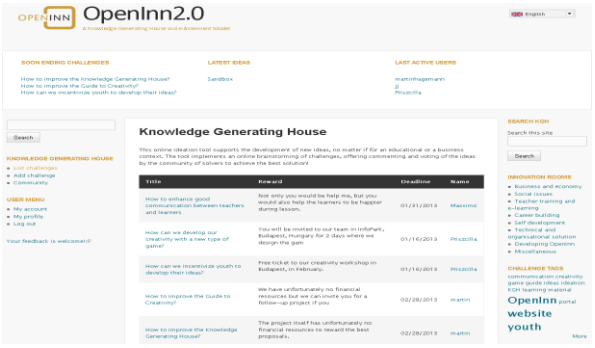

Figure 2. Knowledge Generating House home page

OpenInn pilot testing was concerned on testing the functionality and quality of every part of the OpenInn portal. In connection to target groups and main objectives of the project, the partnership decided to provide tests with three pilot-group tests with the portal - 2 pilot-groups within the range 10-30 students/learners including one teacher/facilitator and one pilot-group only for teachers within the range 5-20 persons. Besides 25 national pilots done in Danish, German, Italian, Portugal, Slovak, Spanish language, there was realized one international pilot involving 4 partner-countries (Denmark, Hungary, Germany and Bulgaria) in English, so that students were able to use the portal online with peers from other countries. Together in the pilots participated 357 persons involving different education level institutions, based on project's target groups: secondary schools, vocational schools, universities and adult education institutions and with different ICT skills level - no ICT, basic ICT and advanced ICT. During the pilot testing users created 113 different challenges included to various Innovation rooms (Business and economy, Social issues, Teacher training and e-learning, Career building, Self-development, Technical and organizational solution, Developing OpenInn, Miscellaneous), added 165 new ideas to these challenges and 155 comments. 291 users took part on the final feedback, what represents 82% of all pilot test participants. About 80% users agreed or strongly agreed, that developed OpenInn portal is easy to use and navigate, has clear layout and format, has easy-readable content and has sufficient response time. Concerning OpenInn portal structure and functionality, the pilot tests participants appreciated sharing ideas with others and possibility to get opinion from other users. They also positively evaluated the overall layout, with the different areas visible in the top and menu to the left and the placement of different articles. Almost 75% of users agreed or strongly agreed, that KGH part is also easy to navigate, easy to add new challenges, ideas, votes or comments, easy to find existing challenges, ideas or comments. The majority of respondents marked as best feature of the KGH for the supporting creativity itself, the possibility to read ideas from others and sharing of the contributions and the simple way to add challenges, ideas, comments and votes and possibility of getting response from several different countries. The last specialized part of OpenInn portal - Guide to Creativity – and its subparts were evaluated only by teachers, what constitutes 28% of all respondents' feedback. The majority of them agreed or strongly agreed that all developed parts are clear and easy to understand, well and logically structured and suitable to support creativity in teaching and learning.

2. INTRODUCTION TO SP4CE

Project SP4CE [3] directly addresses the aims and needs identified in Bruges Communiqué on enhanced European cooperation in vocational education and training, especially "improving the quality and efficiency of vet and enhancing its attractiveness and relevance" and "Enhancing creativity, innovation and entrepreneurship". Experiences and approach from two LLP projects OpenInn which serves as a new Pedagogical and Organizational Model for communities and individuals to explore their innovative potentials by the use of ICT-tools proceeding the strengthening of their self-esteem and HIG[4] (The High Growth Coach) dealing with entrepreneurship support and creativity enhancement: Knowledge generating House and e-Assessment mode.

Project consortium consists of six partners from four EU countries:

- Project coordinator PIAP (Poland) is a research institute with established strong cooperation with industry and educational institutions.
- PRO-MED (Poland) is a private company and has rich experience from developing an innovative approach to teaching and learning based on e-learning and blended learning methodology.
- TUKE (Slovakia) is a technical university fostering links with institutions in private and public sectors.
- ASTRA (Slovakia) is a training company which has significant experience in conducting trainings for managers.
- TREBAG (Hungary) has rich experience in development of innovative training materials and methodologies including e-learning and implementation of technology.
- IDEC (Greece) has consulting experience in developing quality management systems.

The project aims to establish a strong cooperation between project partners by exchanging of innovative educational practices for design and elaboration of innovative common tools for collaboration between students, enterprises and schools (teachers). Those tools will be available as ICT solution with WWW interface designed for use in three main target groups:

- Coaches (enterprises, industry)
- Mentors (vocational school, university, high school)
- Students (vocational school, university, high school)

Project activities will concentrate on developing relations between students and enterprises for identification of students' and enterprises' needs and supporting their collaboration through mentoring and consulting activities.
Developed portal will help companies find suitable young workers and students wanting to enter the labour market and will be based on a coaching and mentoring principles. The principle of the portal will be as follows: company willing to find new young workers (preferably students entering the labour market) submits a case (e.g. problem to be solved) from their area to the portal. This case is presented to the students from the different places who, if interested, will try to find solution for that problem.

Based on this, the company will select the students and give them coaches while mentors from the university or high school will supervise the process and guide the students.

Coach from the company will support and work with the chosen student who wants to solve the problem. That procedure will be a sort of preparation for the student for his working life and may possibly result in the employment in this company in the future.

To achieve that there is a need to train mentors and coaches so that training materials (handbook, guidelines, toolbox) will be prepared in order to show the companies that this approach can help them to find young people better suited for their needs. Training materials for enterprises will introduce the scheme of the coaching and mentoring to the company.

The main project's impact will be connected with influence to potential portal users: students, enterprises staff and teachers. Student will have an opportunity to learn about real enterprises activities and interact with coaches from enterprises which shall allow them to easier enter the labour market. Teachers will receive information about student qualification progress and actual enterprises needs, which is important for further training activities and developing training programs. Enterprises will receive required knowledge and possibility to recruit students with needed skills and competences. Project will also have an impact to partners and training activities, approach to training content creation and utilization of ECVET [5] opportunities in different use cases. Knowledge sharing as a part of partnership activities will allow to change partner strategy in a wider field of education.

SP4CE portal will be available in all partners languages and in English. Partners will launch and maintain their own instances, there will be also possible connection between the portals to ensure international availability of the results and to support possible mobility of young workers. Project parents and their work profiles and experiences guarantees high sustainability of project results after the project finish. Project main results will be available on European Commission open educational resources server. SP4CE project is cofounded by Erasmus plus programme.

3. DO NOT REINVENT THE WHEEL

During the realization of OpenInn project the Knowledge Generating House (KGH) was developed and implemented. The initial concept of KGH contained some general requirements:

- The Knowledge Generating House should permit the learners and facilitators to exploit their own creative ideas and enhance others'.
- It should enable the lace for collaborative learning ('Innovation e-Learning Rooms' for brainstorming and mind-mapping), the space for uploading documents (like academic studies, theses, portfolios), individual 'creativity assessment' (based on the level of activity, provided ideas etc.).

However, in order to obtain a concrete technical specification which was necessary to choose the technology on which the KGH should have been based on and to obtain a list of concrete functionalities preparation of KGH started from user requirements needs. Gathering user requirements involved all partners in order to make sure that the development of the KGH is in line with the whole consortium expectations.

User requirements were specified as concrete user's actions or interactions with the system. The potential end users were asked for usage scenarios. From these usage scenarios the concrete user requirements were derived. The entire list of user requirements were prioritized in three categories:

- MUST (necessary to implement to fulfil the main purpose of the system).
- NICE TO HAVE (additional features that would allow specific applications, e.g. required by one or two partners, medium effort needed for implementation).
- DELIGHTER (features for very specific applications, very complex and difficult to implement, to be considered only if MUST and NICE TO HAVE have been realised and budget still available).

The following types of users of the KGH were defined:

- Teachers/Professors/Trainers who provide access to the platform for their students as an ideation tool for all subjects and topics in education or using it among themselves for improving teaching methods and techniques.
- Pupils/Students who can use the platform and its content for generating creative ideas for their education/learning.
- Entrepreneurs/Managers as well as R&D staff who work on the development of new products & services or on the improvements of existing products and services. These users will provide a question or the scenario of a development challenge to be solved for the students.
- Young entrepreneurs.
- Engineers working not only in the R&D but also in the industry.
- HR professionals and head-hunters who have to recruit new staff.
- Administrators of the KGH.

Finally KGH portal was built for four types of users such as student, teacher, researcher and administrator.

The KGH portal supports the following type of content:

- User profiles (student, teacher, researcher).
- Ideas in written form.
- Comments on ideas.
- Voting and ranking of an idea.
- Documents that further describe or support an idea such as texts, graphics, mind maps, videos, web links.
- Other help material for teachers and ICT beginners explaining them how to use the platform.
- Documents that partially or wholly creates intellectual properties (theses etc.).
- Access to different supporting methods supporting innovation or knowledge generation, as well as facilitate the learning process on innovation.
- Former connections (with idea name and details) between users (on the user's profile).
- Company profiles (this would facilitate for users and companies to find each other based on the common interests).
- Supporting reuse of existing material.
- Link to Facebook and other web 2.0 sites (social bookmarking, Twitter etc.).
- A blog or a wiki (possibility for students to write a blog about their ideas, ways of dealing with them and for a teacher/manager it is a nice and easy way

of controlling the progress and activity of the students).

The following user actions were defined:

- Keyword search over the challenges (description text/tasks and tags), resources (title/description and tags).
- Viewing challenges and provided ideas of open 'ideation rooms'.
- Rating ideas (without login).
- Recommend ideas (generates e-mail).
- Bookmarking a resource or 'ideation room' with one or more social bookmarking tools.
- User registration (with real name).
- Login (with real name only).
- Logout.
- Post ideas.
- Comment ideas (for registered users).
- Create a public or private 'Ideation room'.
- Invite other users (incl. not registered users) to join his/her public or private 'ideation room'.
- Send private messages to each other.
- Upload content (resources) to the 'Resource libraries'.
- Saving results of an 'ideation room' in printable form.

Additionally the more complex actions were formulated:

- If a person opens an ideation room for idea development, he/she could automatically get a menu on suitable tools (like a game to which they have free access, or a software), methods etc. from which he/she can choose, if he wants.
- The user should be able to choose one of these tools, and then depending of element, get a suggestion of theories, concepts, tools, and methods he/she could use.
- Tagging of key elements in graphics, pictures etc.
- System should generate e-mail alert when there is something new.
- System must be multilingual (Danish, Slovakian, Hungarian, German, Spanish, Portuguese, Bulgarian)
- Request permission from the author to comment on a private ideation room's content.

In order to avoid reinventing the wheel' SP4CE portal in 5 languages will be created according to the Open Innovation concept which will host the Knowledge Generating House with Innovation e-Learning Rooms: online spaces for brainstorming and mind-mapping: generating & publishing ideas and making solutions to the published problems and questions, online collaboration spaces for mentoring and coaching, repository of accepted and/or implemented solutions.

The learning portal SP4CE will provide the space for:

- Problems to be solved, questions to be answered (these can be published by anybody; within the project the enterprises will publish them).
- Creation of the teams which want to work towards the problem solution (discussion room, blog).
- Work for teams or individuals to develop the solution.
- Mentoring and coaching (teams' support provided by mentors and coaches and communication with them).
- Presentation of developed solutions.
- Publishing of the chosen solution.

The SP4CE portal will be designed for representatives of three target groups: enterprises, students, schools (teachers).

Each target group will have defined roles and access policy. It will be designed and developed to support creative collaboration of portal users. The portal will be available in all project partner languages (Greek, Hungarian, Polish, Slovak) and in English.

The portal developers have just started discussion about concrete user requirements and functionalities.

It should have been underlined that experiences gathered by Polish partner in the MOOC course Moodle for Teachers (M4T EVO 2015) will be implemented in SP4CE portal.

4. SUMMARY

The SP4CE project consortium has just started the portal preparation (see Figure 3).

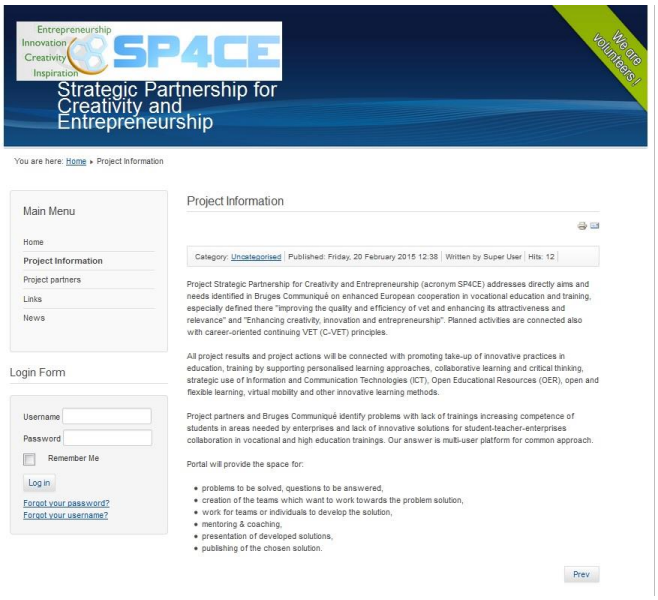

Figure 3. Introduction page SP4CE portal

TUKE is a leader of this task. PRO-MED as software developer is responsible for initial development, portal functionality and graphic concepts. PIAP is responsible for analysis of all target users' needs, portal policy and testing condition definitions.

During the testing phase consortium partners plan to engage students and teachers from Gdansk University of Technology.

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Erasmus+

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5. REFERENCES

1. The Bruges Communiqué on enhanced European Cooperation in Vocational Education and Training for the period 2011-2020: http://ec.europa.eu/education/brugecomm/, 19.03.2015
2. A Knowledge Generating House and e-Assessment Model web page: http://openinn.eu/, 19.03.2015
3. Strategic Partnership for Creativity and Entrepreneurship web page: http://www.sp4ce.piap.pl/, 19.03.2015
4. Project The High Growth Coach page: http://www.exponentialtraining.com/about/eu-projects/high-growth-coach/, 19.03.2015
5. Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET):http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009H0708%2802%29 19.03.2015

SP4CE - PARTNERSTWO STRATEGICZNE NA RZECZ KREATYWNOŚCI I PRZEDSIĘBIORCZOŚCI KONTYNUACJĄ OPENINN

Projekt SP4CE jest odpowiedzią na cele i potrzeby zidentyfikowane w komunikacie z Brugii w sprawie ściślejszej europejskiej współpracy w dziedzinie kształcenia i szkolenia zawodowego w latach 2011-2020. Wpisuje się on zwłaszcza w dwa cele strategiczne wskazane w tym dokumencie: „Poprawa jakości i efektywności kształcenia i szkolenia zawodowego i podnoszenie jego atrakcyjności i adekwatności" oraz „Zwiększanie kreatywności, innowacyjności i przedsiębiorczości". SP4CE ma na celu ustanowienie ścisłej współpracy między partnerami projektu poprzez wymianę nowoczesnych rozwiązań edukacyjnych i opracowanie innowacyjnych narzędzi ułatwiających komunikację i wspólne działania studentów, szkół i firm (organizacji biznesowych). Narzędzia te będą opracowane jako aplikacje internetowe z dostępem poprzez interfejs WWW, zaprojektowane do użytku dla trzech głównych grup docelowych: trenerzy (przedsiębiorstwa, przemysł), doradcy (szkoły zawodowe, uczelnie wyższe), uczniowie (szkoły zawodowe, uczelnie wyższe). W projekcie będą wykorzystane rezultaty, doświadczenia i podejście z dwóch projektów zrealizowanych w ramach programu Lifelong Learning. Z projektu OpenInn wykorzystany będzie nowy model pedagogiczny i organizacyjny dla grup i pojedynczych osób do odkrywania ich potencjału innowacyjnego z wykorzystaniem narzędzi ICT oraz wzmocnienia ich poczucia własnej wartości. Z projektu HIG zostaną wykorzystane doświadczenia dotyczące wsparcia przedsiębiorczości i zwiększenia kreatywności przez dedykowane rozwiązania „Knowledge Generating House" i „e-Assessment mode".

Słowa kluczowe: kreatywność, przedsiębiorczość, wspólne uczenie się, edukacja.