Student-centered e-learning approach

Project InoLearn4BEEs – Case for Business & Engineering Entrepreneurship education

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Abstract: *The subject matter of the present paper pertains to the student-centered learning (SCL) at universities in particular. The objective of the paper is to present the SCL method and tools in the context of e-learning, as well as the benefits of international co-operation in this respect. Empirical studies were conducted by means of a case study. The case of the InnoLearnInEEBs project was examined. The results of the study may be used as an example of a good practice in the delivery of international didactic projects.*

Key words: *Student-Centered Learning, SCL, e-learning, students, higher education institutions, methods and tools of e-learning, international cooperation, entrepreneurship education, project case*

JEL Classification: *I23, D83, O15, L26*

I. Introduction

Under the conditions of globalization and knowledge-based economy, non-material resources, i.e. knowledge, skills, information, and relations with the surrounding environment, become increasingly significant. Therefore, the education of university students ought to focus upon such a knowledge transfer that supports young people in developing competences required for independent operation on the market (Sursock, 2015). In such a context, the development of entrepreneurial competences, i.e. those associated with openness to opportunities, flexibility, creative thinking, decision-making, team-working, and ability to cope with difficult situations, is gaining importance. Students ought to develop such competences in the course of their studies. They can be supported by student-centered methods and tools, especially e-learning.

II. SCL in higher education

The issue of Student-centered learning (SCL) appears in the literature of the subject and practice of educational institutions as an opposition to Teacher-centered education (TCE). The traditional approach to education makes a premise that "one teaching style fits all". Nowadays, however, a number of adverse consequences of using this type of instructional approach are underlined. The teacher-centered approach is ill-fit for a growing number of diverse student populations. This is because, at every stage of education, schools

face diverse needs of the recipients of the educational service. In addition, globalization and technological progress offer several alternative teaching methods (Brown, 2003). Classroom teachers face new challenges: legislative mandates for school renewal, diverse student needs, technological advances, and school violence (Walker, 2005). These issues prompted the researchers to look for an alternative.

At present, the literature on the subject features the term Learner-centered education (LCE).

Learner-centered education denotes mixed individual and shared-experience learning. It requires a community of students to make choices within a responsive, carefully structured, and guided learning environment. This teaching focuses mainly on the knowledge students expect and the steps they can take in order to acquire it. The basic assumption about LCE is that adults learn by being active participants in the learning process. In addition, adults learn in various ways and are themselves at different stages of learning. They also progress through the process at different rates. LCE allows to provide a flexible and multi-faceted approach to meet the different needs and conditions of learners in higher education (Hubball, Poole, 2003, pp. 11-24).

In Student-centered learning (SCL) approach, the student is responsible for his/her own learning progress. Therefore, the aim of SCL is to satisfy the students. SCL allows students to focus upon their own interests and educational needs. Additionally, SCL may allow a change in the approach to education, in which the students will learn throughout their life. During education, students look for problems and try to solve these by themselves (Boud, 2012). To be successful in problem based learning, students must take the responsibility for their learning. English and Kitsantas (2013) claim that students should be supported by their teachers in setting goals, monitoring, reflecting, and sustaining their motivation during the whole learning process.

The literature on the subject emphasiz-

es the high impact of the Student-centered environment on learning outcomes (Brooks, 2011; Çubukçu, 2012; Hannafin et al., 2014; Falchikov, 2013). Hannafin and Land claim that the foundations of learning can be found in psychological, pedagogical, technological, cultural and paradigmatic aspects. First, from the psychological point of view, the learning process is based on how we think and learn as individuals. Secondly, the subject of pedagogical influence on the learning process is seen in the methods, activities and structure of the learning environment. Thirdly, the technology basics show how technology can be used to create the basis for a learning environment. In addition, the cultural functions play an important role in society as they influence the design of teaching systems. There is a growing emphasis on technology, which is why schools and universities have access to computers and educational software. A pragmatic problem is the limitation related to access to hardware / software or financial problems that limit the influx of innovations. Therefore, the integration of all these five aspects is essential in designing an effective learning process (Hannafin and Land, 1997; Hannafin et al., 2014).

Weimer identified five areas which should be modified while transforming from the teacher-centered to student-centered learning approach. These areas are the following: (1) the balance of power, (2) the function of content, (3) the role of the teacher, (4) the responsibility of learning and (5) the purpose and processes of evaluation (Wright, 2011). Weimer clams that moving towards student-centered teaching can provide a greater success both for students and teachers (by increasing their job satisfaction). Many authors present examples of the high effectiveness of the student-centered classroom for both parties of the learning process. Wright (2011) claims that students who can control their learning process and take responsibility for it, are more successful in completing their education.

III. E-learning in the field of entrepreneurship education

Currently, entrepreneurship is perceived as one of the most important factors influencing the process of economic development, e.g. by innovation, job creation and the stimulation of social wealth. Entrepreneurship education is gaining great popularity in the literature on the subject. Therefore, the main objective of the European Commission is to promote entrepreneurship learning. Learning in this area allows students to develop their skills, knowledge and attitudes, necessary to achieve their objectives. Young people with entrepreneurship education are more willing to set up their own businesses, which allows them to create new jobs (European Commission, 2016).

Although entrepreneurship education is becoming increasingly popular, it is challenging to develop quality entrepreneurship programs. Despite this fact, the literature on the subject emphasizes that entrepreneurial education influences subsequent entrepreneurial activity (Ruškytė, Navickas, 2017).

Entrepreneurship education should help students in their skills development as well as in the transformation of their creative ideas into entrepreneurial activities. Currently, entrepreneurial competences are perceived as key characteristics of young people, supporting personal development, active citizenship, social inclusion and employability.

The literature on the subject emphasizes the high importance of modern information and communication technologies being utilized for teaching and learning in the institutions of higher education (English & Kitsantas, 2013; Greitzer, 2002, Jethro, Grace, & Thomas, 2012; Rennie & Morrison, 2013; Noor-Ul-Amin, 2013). The role of the Internet in the global world is extremely high. Nowadays, the Internet has become one of the most vital means for opening access to resources for research and learning. Along with the growing importance of the Internet, e-learning is also gaining popularity. E-learning refers to the use of information and communication technologies to enable access to online learning resources. This tool supports the didactic processes with the help of ICT devices, such as PCs, tablets, smartphones, mobile applications, etc. In the literature on the subject, e-learning is also referred to as online learning, web-based learning, computer-assisted instruction, distributed learning or Internet-based learning (Jethro, Grace, & Thomas, 2012). Currently, with globalization and the increasing role of new technologies, it is difficult to imagine learning without the application of e-learning. This is especially valid for university students, who become the beneficiaries of tailor-made platforms enabling independent learning, team-working and exchange of information with teachers (Pollara & Broussard, 2011; Sarkar, 2012; Woolf, 2010).

IV. Study method

The subject matter of the present study pertains to student-centered learning (SCL) in higher education in particular. The aim of the study was to present SCL methods and tools in the context of e-learning and the benefits of international cooperation in this field. Empirical research was conducted by means of a case study. The case of the "InnoLearnInEEBs" project was discussed.

In order to carry out empirical research, the case study method was used as one of the fundamental methods of qualitative research. Case study involves studying selected complex objects with strong connections to the environment, by means of a variety of sources of information (e.g. documents, observations, interviews) (Baxter & Jack, 2008; Creswell, 2017).

The following research questions were posed:

1. What is the purpose of initiating international cooperation in the form of a didactic project?
2. What are the motives behind these initiatives?
3. What types of e-learning methods and tools are undertaken by the project partners?
4. What are the benefits of international cooperation?
5. What are the project results?

V. "InnoLearnInEEBs" – project case

The Project entitled "Innovative Student-Centered Learning (SCL) Practices fueled with ITC-tools and university – industry cooperation towards reinforcement of Business & Engineering Entrepreneurship education ("InoLearn 4 BEEs")" was introduced under the initiative of the University Politehnica of Bucharest. The project leader invited the following five partners to cooperate:

- University of Ruse "Angel Kanchev"
- Technical University of Kosice
- Maria Curie-Sklodowska University in Lublin
- The Agence Universitaire de la Francophonie (AUF)
- S.C. AVANTERA srl

The project is financed in the framework of the ERASMUS + Programme, Key Action 2 Cooperation for innovation and the exchange of good practices, Strategic partnership in the field of education, training and youth. The project started on the 1st November 2017 and will be completed on the 30th May 2020.

The aim of the project is: "To improve digital and critical thinking skills of students in business and engineering entrepreneurship fields through developing, testing and improving Innovative Student-Centered Learning Practices facilitating intercultural and civic attitudes, based on exploiting the potential of ICT learning environment enriched with university – industry cooperation and international partnerships" (https://www.inolearn4bees.org/).

The following specify the main reasons why the partners started cooperation:

- benefits for students and teachers in the development of skills;
- possibility of developing new teaching tools, especially by the implementation of e-learning;
- the possibility of customizing pedagogical tools to be used in Business, Engineering and Entrepreneurship education;
- the improvement of Innovative Student-centered learning practices;
- the intercultural cooperation between universities and business partners;
- the possibility to benefit from the experience of other network partners;
- the long-lasting, sustainable academic cooperation of universities in the field of entrepreneurship education;
- the involvement of industry stakeholders in developing, testing and validating knowledge resources for e-learning experiences.

The objectives of the project include the development of an e-learning platform containing materials for students representing all partner universities, and the development of a Joint Methodological Guide for Student-Centered Learning. In order to achieve these objectives, an analysis of the present methods and tools applied in e-learning was undertaken. Due to the overwhelming availability of such solutions, only the most compelling ones were selected for presentation (Table 1). The review of methods and their applications is available in the Joint Methodological Guide for Student-Centered Learning to be developed in the course of the project.

Table 1. Selected methods and tools of e-learning

	The method/tool	Characteristic
1	Case Studies	Case studies allow the application of theoretical knowledge to real-life situations. They may serve to portrait typical business issues and practices, as a base of solution-building exercises, or as introduction to ethical or managerial dilemmas.
2	Classroom response system (CRS)	This is a system, applying software and hardware, in order to collect and present student answers to teacher's questions. CRS allows the teacher to activate students, increase their attention, check their understanding and needs, as well as allow for a safe space for discussion.
3	Digital labs and simulations	This tool enables students to simulate real phenomena by using online tools. Students can better understand correlations between certain decisions and their outcomes even in case of complex phenomena (e.g. running an enterprise).

4	Digital Textbooks	By using digital textbooks, students can explore the full functionality of interactive materials, by easy access via their personal devices, wherever they are.
5	Digital Timelines	Digital timelines allow for a better understanding of complex processes. Timelines may also be used to provide and display additional information (text, images, multimedia, hyperlinks).
6	Just-in-Time Teaching (JiTT)	In this method, students should prepare for classes, as well as complete and send assignments to their teachers. Students usually use online resources provided. The teacher can modify the lecture's content to focus on issues that require more time and attention.
7	Learning and Course Management Systems (LMS/CMS)	Those online systems allow to construct and manage course content. Additionally, the method allows for course customization, promotes group work and fosters students' innovation.
8	Podcasting	Podcasting lectures allow students to access them in case they have missed the classes, when they need to repeat the material, or for additional content. This kind of easy access supports students' individual learning process, which is especially important for students with disabilities.
9	Teaching with Blogs	Blogs can be easily used by teachers as online space for material presentation (including multimedia), as well as for discussion, activating students to provide post comments. Blogs can also be used by students to present their knowledge or their work results.
10	Test-enhanced learning	Tests in classes can help students to improve the retention of material. Small tests can take the form of frequent quizzes (even during every class), as well as help to summarize important parts of learning material. Test results provide feedback on learning process progress, both for students and teachers.
11	Visual Thinking	The integration of images and visual aids in teaching can help students in their learning process. Even the very complex information is easier to remember when presented in an attractive form. Sample techniques for utilizing visual learning can include the employment of images as metaphors, stories, schematic diagrams and data visualization.
12	Wikis	Creating a wiki by the group of students can constitute a collaborative task supervised by the teacher. Wiki enables students to learn actively by creating materials. Wiki can be a part of a mini research projects, as well as the standard course element.

Source: *Ben-Zvi & Carton, 2007; Boettcher & Conrad, 2016; Boulos, Maramba & Wheeler, 2006; Brandenburg & Wilson, 2013; Eady & Lockyer, 2013; Greitzer, 2002; Jethro, Grace & Thomas, 2012; Kelly, Lesh & Baek, 2014; Khairnar, 2015; Luna Scott 2015; Podcasting (Wikipedia entry).*

As regards the project results, the following tasks are to be realized:

1. Design, develop and review Methodological Guide for Student-Centered Learning
2. Design, develop, implement, test and adjust the Ino-Toolkit with intercultural SCL resources
3. Perform e-learning activities needed to use the e-platform with intercultural SCL experiences
4. Perform related survey research needed to develop Best Practices Handbook for Intercultural SCL
5. Involve relevant stakeholders from business and socio-economic sectors in the process of developing, testing and validating the student-centered learning practices
6. Disseminate the project results among a wider intercultural audience
7. Design the functionalities of the e-platform with intercultural SCL experiences

The "InoLearn 4 BEEs" project assumes the implementation of the following Intellectual outputs:

• Joint Methodological Guide for Student-Centered Learning
• Innovative Toolkit with Intercultural Student–Centered Learning Resources
• Innovative digital platform for Intercultural Student - Centered Learning (e-platform with intercultural SCL experi-

ences)

• Best Practices Handbook for Inter-cultural Student – Centered Learning

VI. Conclusions

The international cooperation of universities is very important and can be favorable for all parties of the consortium. There are many benefits of such cooperation, especially exchanging the experience with other network partners and creating new, joint, didactic and research activities (Schulte et al, 2013). Joint projects contribute to enhancing the quality of teaching, defining and developing a European dimension, furthering innovation, as well as exchanging methodologies and good practices. That is why the European Commission supports such kinds of cooperation in many fields. There exist several different supporting programs for university cooperation. The ERASMUS program is an important initiative for the networking of universities in particular. The aim of the ERASMUS program is to promote European cooperation and innovation in specific subject areas (European Commission).

The present paper discusses the cooperation of six partners from East Central Europe in the framework of the "InoLearn 4 BEEs" project. The partners have faced several challenges when delivering the project. At present, it is difficult to assess the final outcome of the project. However, so far, the majority of actions scheduled in the project have been delivered successfully. The e-learning platform was developed. It contains materials for students. Several syllabuses were developed and courses were modified in keeping with the student-centered approach. The partners were also able to engage both the participants of the didactic process (students and teachers) and partners from the environment- entrepreneurs and representatives of institutions. Several project meetings were held, a platform of information exchange with the community was established. In addition, trainings for teachers concerning the application of new ICT in teaching were held.

Project partners plan to complete the project and meet all the scheduled deadlines and outcomes. It is estimated that the number of participants will far exceed the scheduled number. The project is to be completed in May 2020. However, this will not mark the end of the cooperation between all the parties involved. So far, several other joint initiatives have already been realized, e.g. cooperation in the field of research, which was not the objective of the project. We believe that the project constitutes only the beginning of long-term cooperation of our institutions.

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