Towards a Smart University through the Adoption of a Social e-Learning Platform to Increase Graduates' Employability

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Abstract. The current paper proposes the improvement of the smart university model, defined as a set of highly technical interrelated elements, by implementing a social learning platform within the university ecology. This platform should permit the collaboration of various stakeholders – students, professors, university representatives and companies and should increase the visibility of the most meritorious graduates. In this paper, the research methodology applied to check the feasibility of the concept is presented, as well as the results obtained from the various structured interviews and online surveys conducted mainly in Danube Region countries.

Keywords: social learning; employability; smart university; university ecology

1   Introduction

The multitude of online resources, the easy access to them, as well as the raise of new technologies, such as highly cognitive computing systems, big data, social and semantic web, virtual reality reshaped the learning processes, stimulating new paradigms of learning, e.g. lifelong learning, ubiquitous learning, learning at work or learning at home [1]. The widely spread of these learning paradigms has a great impact on formal learning as well: the model of smart university was introduced,

as a set of elements which "accelerate the knowledge acquisition", elements which are based on cutting edge technologies [2]. A so-called smart university has to sustain opinion mining, in-depth analysis of various stakeholders' needs, creation of a strategic vision that can be structured based on goals and quantified in key performance indicators, prioritization of goals and alignment to well-known standards of competences, such European e-Competence Framework (ECF), all sustained by monitoring and analytics tools [2]. The final purpose of a smart university is enhancing universities' efficiency, facilitating the rapid growth of knowledge [2]. In a study made by UNESCO [3], education efficiency is divided in internal efficiency, which "measures the output and outcome of the education system" – the set of competences acquired in university and external efficiency which measures the extent to which those competences become economic and social benefits. More concrete, private and social rate of returns of education and statistics related to graduate unemployment are considered indicators for quantifying educational efficiency. We embrace the model of smart university, as a set of highly technical interrelated elements, but we go further and state that the ultimate goal of the model should be to increase students' employability, by facilitating their continuous interaction with possible employers. In order to implement such a model, a social learning platform should be introduced within the university ecology – its concept was presented by us in a previous study [4]. In this paper, we debate the results of a research conducted to test the feasibility of the concept using mainly the Danube Region (DR) countries. The methodology of the research, the results and their interpretation are further described, in the context of IT-supported solutions for enhancing the graduates' access to labor market.

2   IT-supported solutions for increasing the graduates' employability

Socializing e-Learning. Learning management systems (LMS) are not a new tool anymore. Students are more communicative on social networks than on a LMS forum, thus many universities have made pages on the most used social networks or, even more, develop their own customized social networks, which facilitate not only the access to learning material, but also the knowledge exchange [1]. Virtual learning communities (VLC) are also well-known IT-supported solutions for learning which highly exploit social interactions between users [6]. The positive correlations between the learning process and the social presence in a community of practice, which is an instantiation of VLC, are highlighted in [7]. Many users of social e-learning instruments are aware of the value of "learning by interacting" and find social networks, VLC or LMS with social media integration as opportunities not only to increase one's knowledge, but also to make their competences visible to others, including potential employers [4].

  Socializing e-Recruiting & Job Searching. Society for Human Resource Management, the largest Human Resource membership organization, ran a survey

with more than 400 human resource professionals during November-December 2015, with the purpose of finding about the methods applied for recruiting and screening job candidates [8]. The role played by social networks is tremendous: 84% of the companies currently use them and 9% of companies plan to use them in the near future, while only 56% of the companies used social media for recruitment in 2011; the following social networks are considered to be the most powerful online recruiting channels: LinkedIn (96% of companies used LinkedIn and 73% of them declared it as the most effective social media site), Facebook (66% of companies used it) and Twitter (53%). A wide range of social media-based recruiting tools are also available [9]: Jobvite,Talent Xray, Workible, Lippl, Facebook Marketplace, BranchOut, which turns Facebook into LinkedIn by overlaying employer information on top of users' Facebook interface. More recent studies, such as [10] and [11] are focused on the applicant personality in an online recruitment system and claim that already existing e-recruitment platforms are not assessing personality traits.

   Although there are numerous attempts to exploit social technologies both in learning and in recruiting/searching for a job, they are not always directly correlated with each other or to a university environment. We claim that embedding them into the learning ecology of a university will increase the employability level of students/ graduates and, consequently, the efficiency of that university, making it smarter. In order to test the validity of this concept, we conducted a transnational research, focusing especially on countries from DR.

3   Research Methodology

Based on the premises that social learning is a necessary element in a smart university, increasing its performance, in general, and the employability of its graduates, in particular, we conducted a transnational research, focusing mainly on DR countries, due to the strategic value of this European area [12]: see Fig. 1.
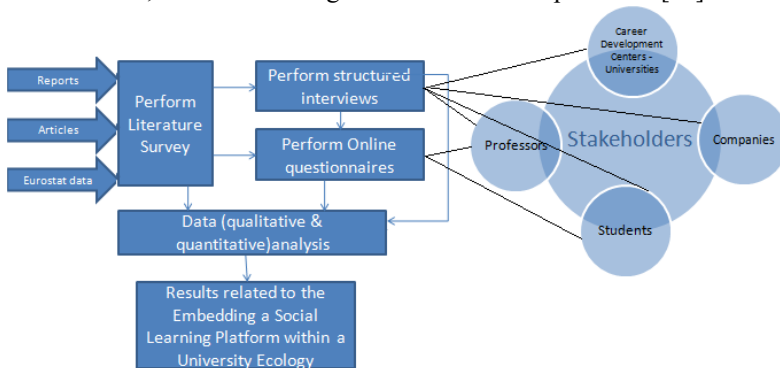

Fig.1. Applied Research Methodology

We limited our study to respondents from IT-related domains. All the structured interviews took place in parallel in Romania, Austria and Serbia, during February 2016, while the online surveys were advertised on social media and within internal networks of collaborators from DR countries from 1st of March 2016 to 4th of April 2016. In the end, we applied data triangulation between the responses received from several stakeholders, to obtain the features which will make a social learning platform to be accepted in the current university ecosystem.

4   Analysis of Research Results and Discussions

Structured Interviews. We had 21 respondents, from all groups of stakeholders – professors, students, representatives of a university Career Development Center (CDC) and companies from countries situated on different areas of DR and also having different development levels [12]. The interviews with students revealed the perceived importance of LMS and the wide extent of social networks in their learning activities. The professors acknowledged the importance of social networks, as a source of communication with their students and the benefits brought by a LMS. The representatives of companies enumerated their recruiting methods: online recruiting via LinkedIn, holding job fairs, college recruiting (student internships & scholarship programs), peer recommendations and the classic word to mouth, visiting universities for juniors or using enterprise social network (Yammer). CDC enumerated several activities they do for helping students (companies; presentations, workshops), but unfortunately they admitted they don't have enough visibility.

Online Questionnaires. The online questionnaire for students had 394 respondents, but only 391 were finalized and validated, while the online questionnaire for professors had 59 respondents. We had respondents from Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Romania, Serbia, Slovakia and a few from other DR countries as well (13).

  Most of the students who answered our questionnaire had a job experience related to their university specialization (88.9%). At the question "In what extent did the didactical activities support you to get a job?", almost half of the students chose 3 out of 5, almost 30% chose 4 and 5, while the rest chose 1 and 2 (1-not at all, 5- in a very much extent). 74.4% of the students stated that collaboration between universities and companies will increase their success in employment. Regarding their online presence, 82.1% of the students were active on social networks, from which 97.8% on Facebook and 54.8% on LinkedIn, but only 26.6% of them were members of a professional e-community. Professors are less involved than the students in social networks. Furthermore, only 24.8% of the students said they use a LMS in their classes, fact that it is surprising for the current period. Almost 90% of the students are convinced or almost convinced that the usage of a

LMS could be a potential improvement in gaining employability: the question is then why don't they use it, as so many LMS are available nowadays. On the other hand, 55.9% of the professors use LMS in their classes. When asked whether a social learning platform would have considerable enough benefits to the employability level in DR, 88% of the students said yes and 78% of them would like to have direct contact with companies through this platform, stressing once more the importance of companies-university relationship.

An important part of our research revealed the functionalities considered necessary both by the student and professors: direct contact of companies within the platform, virtual labs, advanced learning analytics, integration with university LMS, integration with other social networks, alumni monitoring. These features can't be sustained unless advanced technologies (e.g. social technologies, ontology-based recommendations, big data, virtual reality) are exploited.

We tried to identify dependencies between various variables in our research, thus we used the Fisher statistical test and obtained the following results: (1) The relationship between the level of education and use of social networks was analyzed: the p value was 0.0006335. Interestingly, most educated students do not use social networks (2) The relationship between the level of education and the answers to the question "Do you have a job experience?" was investigated: the p value was $6.328 * 10^{(-13)}$. Along with the education level, the percentage of the survey participants who have job experience also increases. (3) The relationship between the level of education and the answers to the question "In what extent did the didactical activities support you to get a job?" was inspected: the p value was 0.005218. Those who have a higher level of education believe that education has helped them in a larger extent to get a job.

5   Conclusions and Recommendations

The current paper presents the results of a research regarding the feasibility of a social learning platform concept, in which various users should interact. This platform should be integrated in the university ecology, using cutting-edge technologies, thus transforming it into a more efficient university, a smarter one, in which graduates will be in continuous contact with companies and their academic performance will be visible to possible employers. Most of the participants in our research were positive about the success of such a platform. We also noticed that although students ask for a stronger collaboration between universities and companies, they don't use or know the career services which are provided by universities. Thus, a reshaping of those services is needed and, maybe, a clearer integration of them into the university LMS. Students are very active on social networks, but not so active on LMS, thus using the current social networks or just featuring LMS with social flavor will increase the interests of students towards LMS. The perceptions of professors and students regarding activities which

increase the employability is slightly different, consequently an analytics module is necessary and a clear presentation of the analytics results, both for students and professors, is also mandatory. In order to implement all the functionalities considered useful both by students and by teachers, a mix of recent technologies is advisable. The participants in our study were mainly from DR, but we claim the study is world-wide valuable, especially for countries with a high unemployment rate.

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