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**Article**

## Lifelong Learning and Employability in the Danube Region Countries: Influences and Correlations

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LIFELONG LEARNING AND EMPLOYABILITY IN THE DANUBE REGION  
COUNTRIES: INFLUENCES AND CORRELATIONS

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**Abstract**

A continuous challenge for education and lifelong learning is to assist individuals in acquiring skills and knowledge for successful work life, especially after the financial crisis which influenced negatively the employment growth in all European Union countries. The paper focuses on finding correlations between employability and lifelong learning in the Danube Region countries of the European Union and more explicitly in the ex-communist ones of this region. As research instruments, two online questionnaires were built based on a thorough literature review and a set of structured interviews and filled in by 390 IT students and 55 IT professors.

The surveys' results revealed a clear positive correlation between the level of education and the opinion about the importance of obtaining a job as a result of the educational endeavors. A special attention in the survey was given to social networks, which were acknowledged as modern facilitators of lifelong learning activities. The conclusions of the current study are particularly important in the Romanian context, as the employment rate of recent graduates is in a decreasing trend, but also for all the Danube Region ex-communist countries, which have to boost their employment rates as well, to assure their economical growth. Identification of factors stimulating employment of young people according with their education contributes at the sustainable economic growth of these countries, at the growth of graduates insertion in the labor market and at the diminution of labor migration.

**Keywords:** lifelong learning, employability, social networks, social platforms, feasibility study.

**JEL Classification:** M51, O57, R15

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## **Introduction**

The Danube region includes 14 countries: nine EU member states (Austria, Bulgaria, Croatia, Czech Republic, Hungary, Germany, Romania, Slovakia and Slovenia) and five non-EU member states (Bosnia and Herzegovina, Moldova, Montenegro, Serbia and Ukraine). Each country has its own particularities regarding the economical, industrial and educational systems.

The Danube region is an important area of the European Union (EU) as it covers a fifth of the EU's surface and it includes over 100 million inhabitants. Nowadays, most countries in the Danube region are facing all kinds of challenges, such as environmental protection, rapid development of IT and communications, migration flows and other demographic changes. Some challenges and events, such as the financial crisis that has hit Europe in 2008-2009, caused the rising of unemployment, the decrease of industry and the fall of gross domestic products (GDPs) in this region.

According to the European Institute of Cross-border Studies, CESCO (<http://institute.cesci-net.eu/>), there are significant differences between countries in the Danube region in terms of employment (CEISCI, 2014). Relatively high employment rate (about 72%) are recorded in the countries of the western part of the region, namely in Austria and Germany, while in the case of Croatia, this indicator barely exceeds 50%. In Slovakia, Romania, Bulgaria and Hungary, the employment rate fluctuates around 60%, while in Slovenia and the Czech Republic it is at about 65%. The aging society is an important factor that caused the decline in the number of active people contributing to a phenomenon and outside the Danube region. This phenomenon affected both the educated and skilled workers drawn mainly from Romania, Bulgaria and Serbia (CEISCI, 2014). The existence of black economy also has a negative effect on the employment rate of labour. Since 2009, following the financial crisis, it was a halt in the rate of employment of labour in Austria and Germany and a decline in most countries in the region.

Regarding employment in the Danube region, there are differences based on gender and education level. Employment rates for men are generally bigger than women, but the extent of disparities between different countries considered. Between 2005 and 2012 the share of university graduates in employment recorded a rising trend. This is confirmed especially Germany, where, thanks to innovative service-based economy, the rate of graduates was over 30%, unlike some regions in Romania, where it was located even below 15%. A possible explanation for recording an occupancy rates so low lies in the fact that Romania still occupy rural areas increased weight in the activities covered by statistics.

The paper discusses about the employment challenges which have to be overcome in the Danube Region countries and especially in the ex-communist ones and the role of lifelong learning in this endeavor, especially when it is facilitated by social networks. To highlight the differences between the considered countries, the authors calculate specific indicators of employment for EU countries (nine of 14), respectively for the other seven countries in the region. The average values of the indicators were compared with the EU average, and values registered in Romania. Thus it has come to identify specific causes, which allowed understanding the phenomenon investigated. It notes, for example, that lifelong learning is facilitated by the existence of social networks.

The analysis is also sustained by the information obtained via two online questionnaires delivered to IT students and professors from these countries and consists in identifying the dependencies between various variables and determining correlations via a regression model. Econometric modeling allows authors to identify some dependencies and correlations between different variables specific phenomenon investigated. Research findings, translated into the strategies in this region may lead to improve the position of this region in Europe, but especially in economic and social development of each state.

### **1. Lifelong learning and employability of graduates in literature**

In order to support the cooperation between these countries, the European Commission adopted in 2010 a macro-regional strategy, called the EU Strategy for the Danube Region (EUSDR). This strategy aims towards creating synergies between existing policies and finding innovative ways for achieving steady sustainable economic growth and development, while meeting the regional ecological, socio-economic and transport needs. Also, the strategy refers to the targeted investment as efficient into assuring the quality of both training and education, as well as to the development of human resources through science and research (EUSDR, 2015).

High rates of unemployment have become a structural problem in many countries. This situation denies opportunities for millions of people to bring their contributions to society. Also, the weak labour market integration of citizens represents a significant loss to economic development (UN, 2012). A persistent challenge for education and lifelong learning is therefore to assist people in learning skills for successful work life. In a lot of countries, key challenges are to increase employability of youth, as they represent a precious resource but also a vulnerable group (Haché and Cullen, 2010). The value of young people was enhanced in the context of an ageing society and by the economic and financial crises from 2008-2009.

A high importance was given to developing their ICT skills, as they might significantly improve quality of life in general, e.g. usage of social networks was found to increase several indicators of social inclusion of young people (Dascalu et al. 2014; Dascălu et al., 2015; Bodea, Dascalu și Lipai, 2011). Several European Union initiatives, such as: “i2010 – a European Information Society for Growth and Employment initiative” and “e-inclusion: be part of it” and also EU Education and Training policies, envisage particular actions to make ICT accessible to everybody in the knowledge-based society.

Hillage and Pollard (1998) define employability as the ability to gain initial employment, maintain employment and obtain new employment if required. Nevertheless, in the current study we consider employability as representing “a set of achievements (knowledge, skills and attitude) that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy” (York and Knight, 2006). Employability doesn’t mean the acquisition of a job, but the capacity of the worker, in our case the graduate, to optimally function in a job. Many factors (e.g. work experience, curricular and extra-curricular activities) may conduct to an increased level of employability, but none is a sufficient condition to guarantee that (Plăiaș et al, 2011).

Various key skills are listed as directly connected to employability level, e.g. skills of communication, numeracy, the use of information technology and learning how to learn

(NCIHE, 1997). In the 1980s the attention was given to generic or “transferable” skills (the ones letting people to succeed in a wide range of different jobs and tasks) (Training Agency, 1990). In our days, the focus shifted to transversal skills or to the so-called “21<sup>st</sup> century skills”. Among them, we mention: communication, team working, critical thinking, problem solving, leadership or managerial abilities (Pelău et al., 2011). But employability goes beyond the simplistic notion of key skills; it is related to a mix of personal qualities and beliefs, knowledge, as well as practical experience.

Strongly connected to employability is lifelong learning (LLL) - the ongoing, voluntary and self-motivated pursuit of knowledge, for either personal or professional reasons. Commission of the European Communities defined it as “all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective” (Infed, 2015). Nowadays, lifelong learning is the combination of the two previous concepts and implies that learning takes place throughout life, not only during childhood (IGI-Global, 2015). It brings many personal or professional benefits, such as: social inclusion, active citizenship, personal development, self-sustainability and better employability. One of the main reasons that make LLL spreading more and more nowadays are the new technologies and the way they impose changes in transferring information, collaborating and communicating with others.

Even if many employability factors lie beyond the scope of education and training policies, the qualitative education and training (either formal, non-formal or informal) are considered as main contributors for developing the required skills for workplace and facilitating the job gain and retention. The education's support for employability can be seen in three distinct stages (Garrouste and Rodrigues, 2012):

- “*Preparation for employment*” refers to the fact that all young people should be equipped, when graduating their initial form of education, with key competences and the necessary motivation and knowledge related to the labour market, allowing them to perform in their future careers.

- “*Transition from education to employment*” refers to career guidance and counseling, which can be enhanced through the development of qualification frameworks which are transparent and understandable to potential employers.

- “*Stay in employment and progress in career*” relates to the capacity of education and training systems to update and upgrade continuously the knowledge and skills of workers, which become adult learners; these educational systems should be open and accessible.

Including employability within the curriculum is viewed as best practice to promote employability among higher education institutions. Yorke and Knight (2006) have identified several ways in which employability can be developed through curricula:

- Work-based or work-related learning in parallel with the curriculum.
- Work-based or work-related learning partially incorporated within the curriculum
- Employability-related module(s) within the curriculum
- Employability in the core curriculum

- Employability through the whole curriculum: each student has to prove one's abilities in both general education and specialized subjects, such as: effective citizenship, social interaction, communication, problem solving, analysis, valuing in decision-making, global perspectives, and aesthetic responsiveness.

Nevertheless, Lowden et al. (2011) underlined that there still is a lack of systematic practice to promote employability across higher education institutions and made a set of recommendations:

- Professors should be prepared to adapt the content of their courses and the way they deliver them, based on the employers' suggestions.
- The design of the degree courses should be mapped to the business needs and emerged from a solid partnership between universities and companies.
- Employability should be deeply embedded in the academic institutions' strategic planning.
- A structured approach to internships, placements and work-based learning opportunities of significant duration.
- Careers services in universities should be given more power to develop employability activities within faculties.
- Partnerships between universities and companies need to be effective, equitable and sustained.

Vocational education and training (VET) are among the most valuable practices of increasing the graduates' employability: Brunello and Rocco (2015) investigate the effects of VET on adult skills and labour market outcomes by using the PIAAC survey. The results are encouraging on some aspects and not so good on others. Still, vocational competencies and skills are considered as important as the academic ones, according to the global vision for VET in Europe 2020, which was described by the European Ministers for Vocational Education and Training, the European Social Partners and the European Commission in the Bruges Communiqué in 2010.

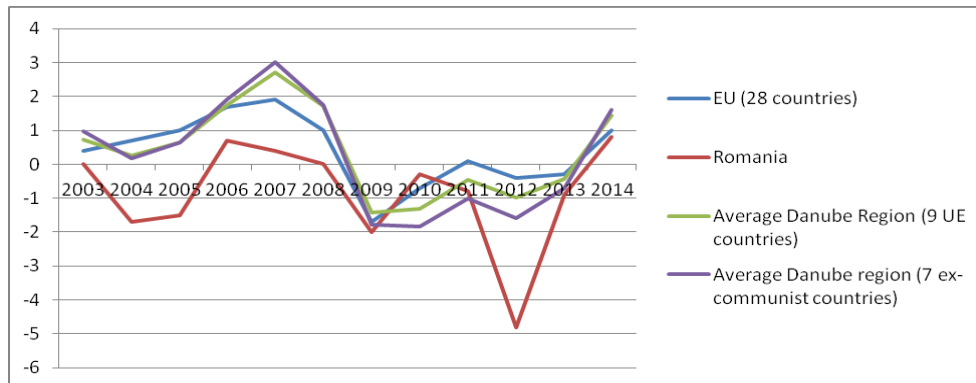
## **2. Employment challenges in the Danube Region**

A comprehensive socio-economic assessment of the Danube region was performed in the framework of EUSDR, Priority Area 8 - Competitiveness. The results of the assessment were published in 2014 and 2015 (ZEW, IAW and wiiw, 2014; Müller and Hannes, 2015). In order to analysis the socio-economic performance disparities between the states from this area, the following sub-regions of Danube region were defined: area 1 (Bavaria, Baden-Wuerttemberg and Austria), Area 2 (Hungary, the Czech Republic, Slovakia and Slovenia), Area 3 (Romania, Bulgaria and Croatia), the accession Countries (Serbia, Bosnia and Herzegovina and Montenegro) and the neighboring countries (Ukraine and Moldova). For each sub-region data was collected and the comparative analysis between sub-regions was performed.

The authors decided to structure differently their data analysis. The following country groups were defined and compared: all EU countries (28), the EU countries in the Danube region (Romania, Bulgaria, Croatia, Germany, Austria, Czech Republic, Slovakia and Slovenia), former communist states EU Danube region (Romania, Bulgaria, Croatia, Czech

Republic, Slovakia and Slovenia) and Romania distinctly. To conduct this research, the authors relied on the Eurostat database.

A first aspect investigated was the annual percentage change in employment (figure no. 1).



**Figure no. 1: Employment growth, as the annual percentage change**

As seen in the figure no. 1, the decrease of employment growth started before the financial crisis, which became even more severe during the crisis itself (2008-2009). The trend was registered in all EU countries, including the Danube Region ones. Immediately after the crisis, a slight tendency of improvement could be noticed. Romania respects the general trend, with a moderately lower decrease in employment growth than the other EU countries during the crisis, but unfortunately with a sharper decrease between 2011-2012. Starting with 2013, the employment growth goes on a similar ascending trend for all EU countries. The 7 ex-communist states experience the same transformations regarding the decrease and then the increase in employment growth specific to all EU, but, in average, the fluctuations were lower than the EU average.

The indicator employment rates of recent graduates (figure no. 2) presents the employment rates of persons aged 20 to 34 fulfilling the following conditions: first, being employed according to the International Labour Organization (ILO) definition, second, having attained at least upper secondary education (ISCED 3) as the highest level of education, third, not having received any education or training in the four weeks preceding the survey and four, having successfully completed their highest educational attainment 1, 2 or 3 years before the survey. The indicator is calculated based on data from the EU Labour Force Survey. The recent graduates experienced the same ascending trend in employment before the crisis, then a descending one during the crisis (2008-2009) and immediately after, as the employment growth in general. Unfortunately, the employment rate remained on an almost stationary trend after the crisis, for most EU countries. One could notice that the average employment rate in the ex-communist states of the Danube region is in a slight increase, whereas the Romanian employment rate of recent graduates is in continuous decrease – this fact underlines the issues related to the educational offer correlated to the poor absorption of labor market in Romania (Postelnicu, 2013).

Figure no. 3 highlights the fact that males were especially disadvantaged by the crisis in all EU countries (including the ex-communist states of the Danube Region), but, in general, females were and remained more vulnerable than males with respect to having a job and getting an education (Postelnicu, 2014).

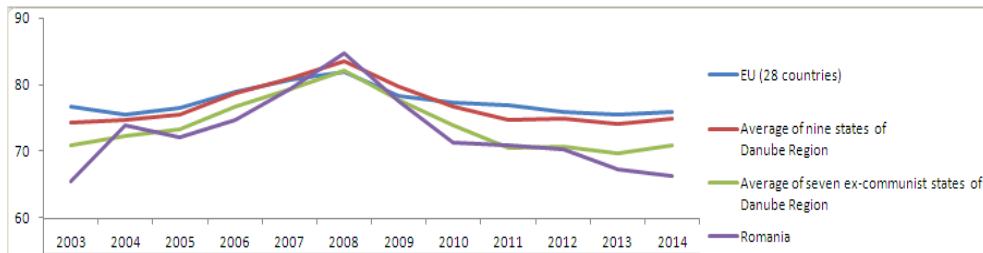


Figure no. 2: Employment rates of recent graduates

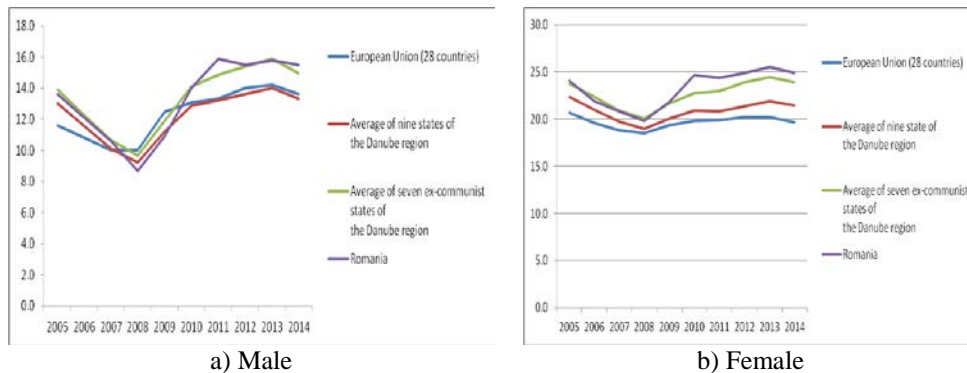


Figure no. 3: Young people, from 15 to 34 years, neither in employment nor in education and training

### 3. The role of the lifelong learning for increasing the graduates employability

According to the Directorate General for Education and Culture of European Commission (EC-DGEC, 2015), assuring graduate employability requires a strong (and strengthened) dialogue and communication between the higher education institutions and their staff and labour market actors (employers and other social partners) (EC-DGEC, 2015). On one hand, the higher education institutions have to respond to labour market needs, but on the other hand companies have to understand the mission of higher education, which is to prepare students with a solid educational background for long-term and not just for immediate business needs. Moore, Sanders and Higham (2013) identify employability of graduates as a focus within the Higher Education sector over the last 15 years.

There are various ways of collaboration between higher education institutions and employers, e.g. through the careers services of the universities (which should have a proactive approach towards supporting the recruiting strategies of companies), through on campus job fairs and workshops, through internships and mentoring of students. Despite of the plethora of online CVs, companies encounter difficulties in finding rapidly employees having the skills they need: according to EURES and the European Commission, employers “have trouble understanding what skills a potential employee has, just by looking at their CV” (EURES, 2014). While the larger organizations have the resources to find ways of recruiting a full range of graduates; this is difficult for SMEs to achieve.



The Danube countries brought their contribution to the lifelong learning practices. It is worth mentioning the professionally oriented higher education institutions, such as the universities of Applied Science, which provide educational programmes oriented towards immediate needs of labour market and usually involving some form of work-based component. The prominence and attractiveness of professionally oriented higher education varies across countries, but also across sectors. German and Hungarian experiences with “dual” higher education (HE) studies were analysed by the EC-DGEC (EC-DGEC, 2015). The dual system consists in a new, but emerging programme format at tertiary level, which combines an advanced practical apprenticeship with a “school-based” theoretical programme. Some illustrative examples are: the combination between mechanical engineering courses and an apprenticeship in the automotive sector or the combination between a design programme and a goldsmith's apprenticeship. Both the German and Hungarian systems are distinctive in requiring students to follow two programmes (HE and VET) in parallel. The Hungarian model is a joint initiative between government, the HE sector and private business, whereas the Germany model is based on the business leadership. In both cases, key challenges have been to facilitate the participation of SMEs in the system and to ensure proper coordination between the (pre-existing) school and work-based courses. Romania and Slovakia also progress in early childhood education and in VET Acts innovation, such as optimizing the links between the educational system and labour market (EUSDR, 2015). *DAL-IVET* stands for *Development of Apprenticeship Learning in Initial VET* and represents a project started in 2014 in Romania, in cooperation with Germany. It allows young people to enrol in apprenticeships in order to train for qualifications in labour-market (DALIVET, 2014). Bulgaria, Czech Republic and Hungary are focused on reforming the higher education systems, in order to render it accessible for the disadvantaged or vulnerable groups and to align tertiary education with labour market needs (EUSDR, 2015; Postelnicu, 2014). In order to achieve labour stabilization in rural areas, Bucharest Academy of Economic Studies, Romania, and D. Tsenov Academy of Economics of Svishtov, Bulgaria proposed were partners within the *Romania-Bulgaria Cross-border Cooperation Program 2007-2013* and cooperated in the field of “human resources development - common development of skills and knowledge”. By researching and organizing courses, they educated and supported professional training agriculture and rural development specialists. Bulgaria amended the national VET strategy in 2014 (EUSDR, 2015). Montenegro acts towards increasing the popularity of LLL programs amongst citizens (EUSDR, 2015). Hungary is launching various programs for including Roma in the labour market. Their implementation is promoting innovation and job creation, but it's also the education system (EUSDR, 2015).

#### **4. Research methods for studying the feasibility of a Pan-European social platform to support lifelong learning and employability**

Two online surveys were conducted as part of a feasibility study regarding the implementation of a Pan-European Social Platform to Support Lifelong Learning and Employability. The work was undertaken in the framework of the START-SoPI project, partly financed by European Union and City of Vienna (<http://startsopi.ase.ro>). One survey was performed for the IT students/ young graduates and the other one was conducted for IT professors. The surveys were promoted mainly in the Danube Region.

The research methodology of developing the two surveys had several stages: first, a literature survey was performed, then some structured interviews were taken and only then the questions of the survey were constructed, based on the input from the previous two phases. Various stakeholders were identified before performing the surveys: students (graduates), professors, companies, recruiters, educational institutions/ universities, existent e-communities, public administration and so on. Only two of them were taken into account for the online surveys, as we considered them to be the most suitable to provide us input for the feasibility study: students and professors. In the future, companies and career services will also be questioned. We decided to focus on the IT sector for our surveys, so the targeted audience was formed by students and professors from technical universities. The online surveys were available for one month and were advertised on the project website, as well as on social media. Both online surveys contained demographical questions, dichotomous questions, multiple choice questions (with single or multiple answers), rating scale questions, but also open questions, structured in several sections.

The questionnaire for students had four sections:

- data related to the interviewee profile: the country of provenience, information related to the study program in which the student is enrolled, whether he/she has a job experience and if positive, how he/she found that job, whether the student knows about career services provided by the university and whether he/she is active on social networks;
- employability as achievements gained in the university: information related to students' opinions about the extent in which the didactical activities support the students to get a job, what teaching methods should be used for increasing students' success in employment, whether they use a learning management system (LMS) in schools and what features of LMS are the most exploited, whether they keep in touch with professors and colleagues via a social network and so on;
- LLL activities: whether they consider obtaining a job more difficult than keeping one or vice versa, what kind of LLL activities are seen as more relevant for having success in employment, who has to take the responsibility to support the students to follow the LLL activities, whether social networks play a role in LLL activities;
- opinions about the intention to use a social learning platform to increase one's employability: whether such an initiative would be relevant for Danube region and what characteristics should be available in it.

The questionnaire for professors had four sections:

- data related to the interviewee profile: the country of provenience, information related to one's workplace and experience in university, whether the professor is interested in increasing the employability of his/her students, whether he/she were involved in LLL activities and one's knowledge about the career services available in his/her university;
- employability as curricular process: what teaching methods are used for developing the students' skills considered relevant for the success in employment and how these methods are seen by students, whether the professor is aware of the employment status of his/her students and how he/she found about it, whether the professor noticed any correlation between students' grades and their employment status and if he/she is willing to adapt one's curricula based on the employment status of the graduates, what LLL activities are considered as most relevant for students' employability and so on;

- the usage of social networks in didactic activities: whether they use a LMS in-class, whether they are willing to change it in the future, whether they consider a LMS suitable for LLL activities, whether they keep in touch with their students via social networks and if there is any correlation between students' grades/ employment status and activity in social networks;

- opinions about the intention to use a social learning platform to increase one's employability and whether they would promote such a platform.

The surveys' questionnaires were filled in by 390 students and 55 professors. All these answers were correctly registered and validated. Most of them( 98,5%) came from Danube Region countries. The collected data was divided in two panels (groups): panel 1 (the EU ex-communist countries from Danube Region, meaning: Bulgaria, Romania, Croatia, Slovakia, Slovenia, Czech Republic and Hungary) and panel 2 (the rest of the countries).

A two-steps data analysis was undertaken. The first step consisted in identifying the dependencies between variables, for which the Fisher test was used. The Fisher test is an exact test, due to the fact that the significance of the deviation from a null hypothesis (e.g., P-value) can be calculated exactly, rather than relying on an approximation that becomes exact in the limit as the sample size grows to infinity, as with many statistical tests. In the second step of data analysis, a regression model was build in order to identify factors that explain the relevance of the initiative for develop a social learning platform in the Danube region.

## 5. Results and discussion

### 5.1. Identification of dependencies between variables

The analysis of the dependencies of the variables revealed the following results:

a) The dependence between *gender* and *social\_networks*. The relationship between gender and the social networks' use in countries from the first group (panel 1) and from the second group (panel 2) was analysed. The p value for the first group was 0.05435 and for the second 0.02725. These p values (calculated using the Fisher test) show a dependence between those two variables, which can be interpreted as a difference between girls and boys in relation with social network presence.

b) The dependence between *country\_group* and *social\_networks*. The relationship between panel and using a social network (panel 1) and activity in an e-community (panel 2) was investigated. The p value for the first panel is 0.01197 and for the second panel is 0.0007295, which can be interpreted as a greater use of social networks in the countries in panel 1.

c) The dependence between *social\_networks* and *lifelong\_learning*. The relationship between using a social network and the opinion that social networks play an important role in lifelong learning activities was inspected. The p value is  $2.385 * 10^{(-8)}$ , which can be interpreted as a correlation between the use of social networks and individuals' appreciation for social networks with respect to lifelong learning. The most judgemental ones are those who do not use social networks.

d) The dependence between *importance\_of\_social\_networks* and *panel*. We analysed the distribution of answers to the question "Do you consider that professional social networks are more important than others when searching for a job?" for the countries in group 1 (first panel) and for those in group 2 (second panel). Most respondents chose "Yes" or "Maybe", fact that proves the importance given to social networks.

e) The dependence between *education* and *social\_networks*. The relationship between the level of education and use of social networks was analysed. The p value is 0.0006335. Interestingly, most educated students do not use social networks. The age factor might be an explanation to this result. PhD students tend to be older and are not as familiar as the younger students with new technologies.

f) The dependence between *education* and *job\_experience*. The relationship between the level of education and the answers to the question "Do you have a job experience?" was investigated. The p value is 6.328e-13. Along with the education level, the percentage of the survey participants who have job experience also increases.

g) The dependence between *education* and *importance\_of\_education*. 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 is 0.005218. Those who have a higher level of education believe that education has helped them in a larger extent to get a job. Figure no. 4 illustrates this dependence between the level of education and the importance of education for employability, as perceived by respondents.

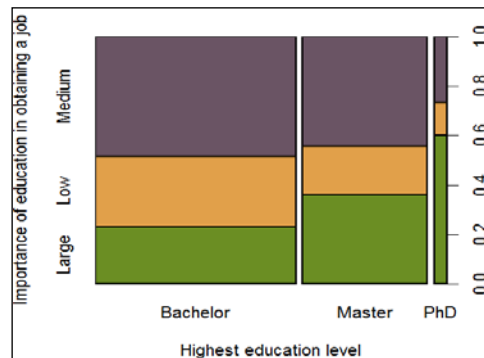


Figure no. 4: The dependence between education and importance of education

## 5.2. Regression analysis

Regression analysis was performed to identify the factors which explain the relevance of the initiative of developing a social learning platform in Danube region in terms of improving the employability of young graduates.

Based on the responses provided by teachers, a linear multiple regression model was built. The independent variables of this model are the following:

- Academic position (called *feature1*). This variable has the following values: Assistant Professor, Associate Professor, Professor, Professor Emeritus, Research Assistant, Researcher and Teaching Assistant.

- Perception of the interdependence between student activity and employability (*feature2*). The values of this variable are the following: No, Yes "Students Who Are Active on social networks have less employable than others," Yes "Students Who is active on social networks has more employable than others," Yes "Students Who have higher grades have less employable than others "Yes and" Students who have lower grades has more employable than others".

- Obtaining benefits by the university as a result of adopting a social learning platform (*feature3*). The values of this variable are: Yes and No.

- Interest in promoting the platform (*feature4*) The values of this variable are: Yes and No.

The dependent variable of the model is *Relevance of the development of a social learning platform to increase employability in the Danube region*.

The regression model is presented in cassette no. 1, table no. 1 and figure no. 5.

**Cassette no. 1: The analysis of the impact of varoavles: *feature1, feature2, feature3* and *feature4* on the variable *Relevance of the development of a social learning platform to increase employability in the Danube region***

Residuals:					
Min	1Q	Median	3Q	Max	
-1.0711	-0.3705	0.0000	0.3438	1.2520	
Residual standard error: 0.6158 on 40 degrees of freedom					
Multiple R-squared: 0.7368, Adjusted R-squared: 0.6447					
F-statistic: 8 on 14 and 40 DF, p-value: 1.038e-07					

**Table no. 1: Coefficients of the multiple regression linear model**

Coefficient	Estimate	Std. Error	t value	Pr(> t )	Significance codes
(Intercept)	2.5601	0.1962	13.047	5.37E-16	***
feature1Associate Professor	0.3231	0.263	1.229	0.226379	
feature1Professor	0.5635	0.247	2.282	0.027906	*
feature1Professor Emeritus	-1.4831	0.7134	-2.079	0.044085	*
feature1Research assistant	1.252	0.6402	1.955	0.057536	.
feature1Researcher	1.4399	0.6463	2.228	0.031577	*
feature1Senior Scientist	0.6849	0.4128	1.659	0.104878	
feature1Teaching Assistant	-0.2594	0.3023	-0.858	0.395911	
feature2Yes "Students who are active on social networks are less employable than others"	1.5114	0.6746	2.241	0.030679	*
feature2Yes "Students who are active on social networks are more employable than others"	0.8461	0.2252	3.757	0.000549	***
feature2Yes "Students who have higher grades are less employable than others"	-2.0466	0.7365	-2.779	0.008271	**

Coefficient	Estimate	Std. Error	t value	Pr(> t )	Significance codes
feature2Yes "Students who have lower grades are more employable than others"	-0.4358	0.3999	-1.09	0.282313	
feature3Yes	1.923	0.3578	5.375	3.57E-06	***
feature4No	-0.8419	0.4663	-1.805	0.07854	
feature4Yes	-0.7351	0.3363	-2.186	0.034719	*

As shown in cassette no. 1, there is a strong link between the *feature1*, *feature2*, *feature3* and *feature4* and the dependent variable. 73.68% of the variance in the dependent variable is explained by the model. The regression model is valid, given both the value of F-statistic, which is sufficiently large relative to the size of the data set, and the value of residual error (0.6158), which expresses in what extent the estimated values of the dependent variable will differ, on average, from the actual values.

According to table no. 1, the variables which are significant for the correlation between variables are: *feature2* (Perception of the interdependence between student activity and employability), for values: Yes "Students who Are Active on social networks have more employable than others "and Yes' Students who have higher grades have less employable than others" and *feature3* (Obtaining benefits by the university as a result of adopting a social learning platform) for value Yes. The variables: Teaching Position variables (*feature1*) and Interest in promoting the platform (*feature4*) have small significance for explaining the perceived relevance of the development of a social learning platform to increase employability in the Danube region.

Figure no. 5 presents the residual values associated with the model. The visual examination of the residual values is a necessary step in the quality assessment of the linear regression model.

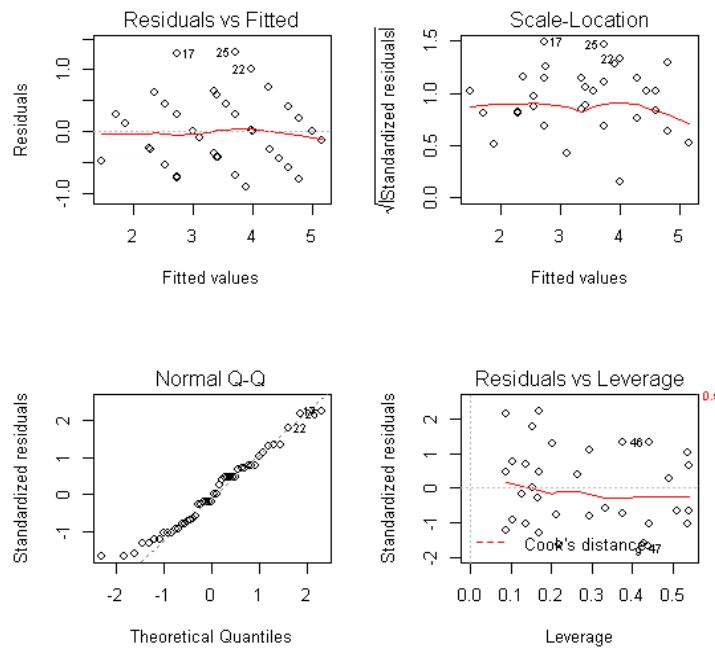


Figure no. 5: Graphical representation of the residual values of the regression model

It is interesting that it was not possible to build a regression model based on the students' responses. The explanation is that most of the students (88%), regardless the values of the associated characteristics, have considered as relevant the development of such social learning platforms to ensure the employability of young graduates in Danube region.

### **Conclusions**

The current study consists in a statistical analysis of the data obtained via two online surveys, which targeted IT students and professors, regarding the relationship between education, in general, and lifelong learning, in particular and employability. A special attention was given to social networks, as facilitators of both lifelong learning activities and activities related to job searching, as they are a wide-spread expression of new learning forms – social learning via e-communities and learning supported by innovative technologies (Bodea, Dascalu and Lipai, 2011).

The study compared the EU ex-communist countries with other countries, revealing the tendency of using social networks on daily basis in the countries from the first group. Also, another important finding was the clear positive correlation between the level of education and the opinion about the importance of obtaining a job as a result of the educational endeavors. Many young graduates consider that learning can take place in social networks and admit they are common consumers of social networks, facts which prove that a social platform to support lifelong learning would be an appealing product nowadays.

An important conclusion of the research is that a positive correlation exists between the level of education and the importance given to the educational activities in obtaining a job. Many graduates consider that learning can take place in social networks and admit that they are regular users of social networks, facts which prove that, nowadays, a social platform can support lifelong learning.

Both teachers and students consider the development of social learning platforms as relevant initiatives for the Danube region. Given the decline in the employment rate of graduates who have recently completed their studies in Romania, and its steady trend in ex-communist EU countries is fully justified to integrate recruitment facilities into the social learning platforms. Making a social learning platform, however, requires not only the expectations management of different categories of stakeholders, including teachers, students and companies that recruit young graduates as the most important categories, but also the risks management (Bodea and Dascălu, 2009; Purnuş and Bodea, 2013).

The research conducted by the authors highlighted the positive impact that learning platforms may have on increasing employability of young people in the Danube region and the advantage of using social networks for development and implementation of these platforms.

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