

DEVELOPMENT OF ENTREPRENEURIAL COMPETENCES THROUGH E-LEARNING:AN EVIDENCE OF SERBIA AND TURKEY

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INTRODUCTION

Entrepreneurship is a crucial tool for development of every country. At the same time, e-learning is recognized in a lot of countries as a catalyst for national development. In line with this, it is necessary rapid development of e-learning and its modalities which would be geared towards practical skills in business enterprises and entrepreneurship competencies necessary for self-reliance and national development. In this context, delivering learning content anytime anywhere is a goal that underpins the e-learning paradigm. In addition, based on new

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technologies, e-learning can support creativity and assists students in developing their individual potential. Namely, emphasis should be focused on the individual needs of students and personalized training programs. Computer-based educational techniques have been considered as our best hope for individualization (Croy 1998). The different levels of interaction and collaboration characteristic of new technologies facilitate personalisation of learning paths (Ferrari, et.al. 2009). Namely, the development and implementation of student-centric technology will bring a need to shift to student-centered pedagogy and the ownership of learning by learners, a quality that is indispensable for fostering creativity (Woods 2002). However, personalisation of learning content delivery requires system adaptivity supported by using a suite of collaborative intelligent agents. Agent's roles in e-learning are not only to personalize the learning programs but also to create real-life business situations used for the purposes of training. The goal of a business simulation is of particular importance for the development of competencies for existing or potential entrepreneurs. Besides, intelligent agents perform specific tasks on the behalf instructors and other members of the educational community. Due to the vast possibilities of their application, scientists examine new modalities of their use. Some of these options will be analyzed in this paper as well. We will try to implement them in the education system in Serbia, where the e-learning is in infancy. Our proposals should help students in getting knowledge faster as well as better interaction between them, professors and business environment.

THEORETICAL BACKGROUND

Competency is the capability of an individual verified by a written document and stating the fact that this individual is capable of doing a certain job. It is important to point out that, in the course of his/her education, the individual develops his/her competence in accordance with the standards set for that job (Radović-Marković 2011). Researchers define entrepreneurial competence as an ability to effectively interact with the environment (Johannisson 1991; Skinner 1995). To become an entrepreneur requires an ability to adapt to uncertainty; this ability is of critical importance for entrepreneurship, as it allows entrepreneurs to become dynamic, flexible and self-regulating (Haynie & Shepherd 2009).

In addition, gaining entrepreneurial competence requires entrepreneurs to attain the ability to utilize the resource needed to be able to do so successfully (Chandler & Hanks 1994; Erikson 2002; Johannisson, 1993). Namely, the competence becomes crucial for business success (Radovic-Markovic 2011). In our opinion, the competence of entrepreneurs are acquired not only through experience, but also through a process of education. Namely, while entrepreneurs often learn and gain experience through practice and from their role models in business, without education they will not be able to test their ideas and easier turn them into reality. Besides, education develops their creativity and skills that are important for rapid decision-making in a business environment that is constantly changing. Hence, the entrepreneurship education programs can be of relevance to develop entrepreneurship competencies.

In literature it has been compared online learning to face-to-face learning from a different point of view.

Thus Hoben et al. (2002), explored the effectiveness of online tools such as discussion boards and chat rooms while Spatariu et al. (2004) addressed evaluating effective online instruction .Graham et al. (2001), McCombs (2000) and Wentling & Johnson (1999) assessed the value of online courses in specific fields of study. In particular, the use of virtual worlds to reach remote, distance, and online learners is creating new opportunities for face-to face engagement and motivation with difficult-to-reach groups. Draves (2002)provides a list of reasons why he believes the Internet enhances learning,including such advantages as being able to learn at a peak time of the day,learning at your own speed, accessibility too much information, an ability to track personal progress, and the capability to test personal learning efforts.In addition, the e-learning students were in an environment where professors respond to their needs on demand (Radovic Markovic 2007).However, most learning environments neglect the learning services and pedagogy aspects of e-teaching. Hence, its development has lagged behind the massive investment in hardware and teacher training in using ICT (Newton & Rogers 2001).According to some researchers , e-learning pedagogy should incorporate the form of learning pedagogy but goes beyond it to include a deeper study into the incorporation of instructional strategies that take into account of real-time personalized learning content-to-learner adaptability (Teo et. al. 2005). Entrepreneurship education programs can be of relevance to develop entrepreneurship competencies. The importance of entrepreneurial education can be confirmed by the lot of changes that take place in modern societies.In line with this, a great number of researchers argue that entrepreneurship education can be quite beneficial in developing innovate problem solving approaches as

well as fostering creativity, freedom in learning, logical thinking and adaptivity to changes among individuals (Radovic-Markovic 2012; Dunchev 2012). Therefore, policy makers foster entrepreneurship education and entrepreneurship competencies development as an engine for change and a vital precondition for sustain economic growth (OECD 2009).

The concept of entrepreneurial education is relatively new and its implementation has been progressing, since 1960s (Dunchev 2012). The recent theoretical approaches in the field of entrepreneurship suggest that students must be taught entrepreneurship skills through case studies. According to their opinion, the case studies are a sufficient educational ingredient that establishes a high degree of synergy between theoretical and practical framework (Glabdach and Sassmannshausen 2011). In particular, a more recent empirical studies take into account individual needs of the learners (Radovic-Markovic 2012). In this context, in our research our intention was to show that the modern business environment should be accompanied by the change in educational environment and to call for a new entrepreneurship education strategy adopted to individual needs of students. Namely , entrepreneurial education is facing to diversity within teaching strategies, learning styles and curricula (Henry et.al. 2003).) In addition ,in Serbia ,our research showed that the conventional educational concepts do not provide the educational curricula development in the field of entrepreneurship, meant to facilitate self-employment, the issues of closer connection of educational institutions with manufacturing and other types of organizations as well as a business environment (Radović-Marković 2011). According to other recent research (Liarokapis et. al. 2011), the

introduction of virtual environments into higher education has the potential to bring a positive change in the learning experience. The online learning environment is quite different from a traditional classroom. Namely, appropriation of technological platforms requires new approaches for learning style. The e-learning takes into account four related dimensions (Cohen and Nycz 2006):

1. Learning theories
2. Psychological dimensions and demands of the learner
3. Technology (ICTs)
4. Content to be learned

Various online applications could be used to empower teachers to become innovative in their teaching, as well as students to develop their creative skills and learn creatively. At the first place, it means that the online courses require participants to take on new and different teaching as well as learning behaviors. In addition, an e-learning content differs from other educational materials, i.e. it can be disassembled as individual learning objects, tagged, and stored for reuse in a variety of different learning contexts (Harris 2005). In e-learning the role of the teacher is not only to be a presenter of knowledge, i.e. e-learning requires from teachers to adopt program. The teachers are supported by the new ICTs which offer new opportunities for teaching. Adding distance entrepreneurship courses to existing offerings will increase the number of alternatives that students can choose from. Certainly, students can individualize their own education through their choices (Croy 1998). If their alternatives can be expanded then individualization can be increased. In addition, we can soon expect that the students could learn with

software that is developed for their kind of intelligence and learning style (Christensen et al. 2008).

Of a key importance are intelligent agents which can help students in learning, i.e. the intelligent agents are one of the most useful tools with various functionalities and usages in e-learning. Therefore, a lot of research has been done focusing on adoption of intelligent agents to integrate e-learning systems and support e-learning pedagogy. Namely, intelligent agents have received considerable attention by scientists over the last decade because their great potential for addressing the limitations of current e-learning systems by supporting learning processes. Hence, we can find in literature in the areas of intelligent tutoring systems, virtual mentors, and adaptive hypermedia a lot of techniques and tools that can provide improved learning outcomes (Brusilovsky 2000; Melis et al. 2006; Zhang 2004). They target and deliver just-in-time learning materials required by the individual learners (Gregg 2007). According to Gregg's opinion software agents can be used to support instructors and domain experts with both course design and delivery as well as individual learners by personalizing course materials based on learning objectives.

IMPORTANCE OF ENTREPRENEURIAL COMPETENCIES

Researches show that there is a strong relation between education level and entrepreneurship (Celik 2006). Especially higher education is of key importance for entrepreneurs. Education, in one hand, encourages entrepreneurship and sets the substructure of entrepreneurship culture; on the other hand, it develops qualities and competencies of

entrepreneur when he sets up a company. (Tusiad 2002). Researches show that the youngs who have education for entrepreneurship are tent to be an entrepreneur (Ibicioglu et. al.2009).Serbia and Turkey are pretending to have a dynamic economy.Therefore ,the both of them have to permanently work on improving the competences of its workforce.The Serbian work force is slow to adjust to the changing economic situation. As a result, the demand for skilled employees is increasing faster than the supply (Radović Marković 2010a). The skill gap can easily explain this statement due to inflexible labour market and missing programmes for specific knowledge and skills. To solve this problem, career counselling and identification of competences and qualifications for an active employment policy should be targeted (Radović Marković 2010b).

Distance Education has been actually applied in Turkey since 1982 (Ruzgar 2004). Thousands of students today earn university diplomas studying at a distance. On the other hand, problems of organization, technology, and perceptions remain to be addressed (Isman 1997). On the other side, Serbia does not have extensive experience deploying online studies and virtual faculties. Besides, there is no synergy between scientific and educational institutions and the environment. There is the similar situation in Turkey.In other words, the communication between universities, public and private sectors flourished.Therefore, the modern business environment should be accompanied by a change in educational environment. Consequently, it is necessary that permanent adjustments between these two environments should be made that will be beneficial for both individuals and the society (Radović Marković 2012a).

CHARACTERISTICS OF MODERN AUTOMATED SYSTEMS AND AGENT-ORIENTED SOFTWARE SYSTEMS

➤ *Modern Automated Systems*

Making of high-quality software for complex systems represents very hard and comprehensive task. Development of such software in areas such as telecommunications, managing business processes in industry and business processes in education, represents the most complex project tasks. Their goal is automation of the process. In that context, a broad spectrum of paradigms is thought out through software engineering. Each successfully developed phase makes engineering process easier for performance and construction of complex applications.

Modern automated systems are characterized by the following properties:

- **Automated systems are complex and distributed systems.**
- **Automated systems require different views of the system operation**–Automated systems require different approaches that have to be in the function of problem solving. Among them the most important is engineering approach, approach of people from production process and managing, etc. All of these different approaches offer different views of structure, data and functionality of automatic systems.
- **System automation requires flexible and adjustable software** –Software changing can

relate to data, structure or working sequences of the system.

These characteristics can be compared to general characteristics of complex and decentralized systems (Figure 1). It shows that complex systems have a large number of parts between which many interactions exist. Because of its complexity these systems often take the form of an organizational structure. Relations between systems are different and they change over time.

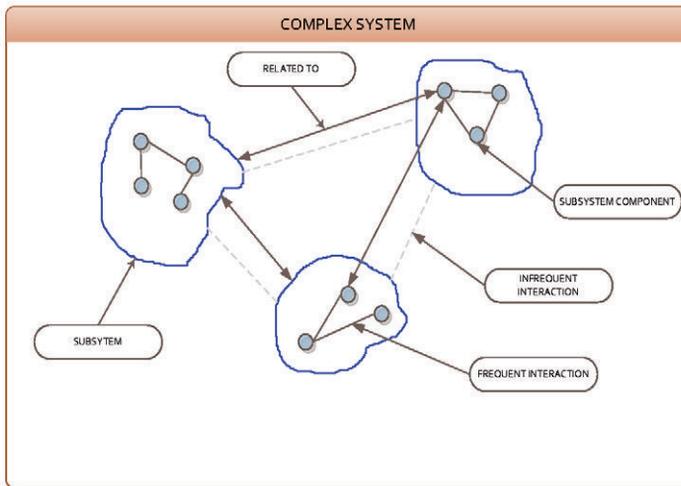


Figure. 1: Complex System
Source: Jennings, (2001)

➤ *Agent-oriented Software Systems*

Agent-oriented approach is a modern way of systemic decomposition in software engineering (picture 2). It illustrates how connected parts of complex systems are reproduced in the system “which is based on

agents". Subsystems and their components are mapped in agents and agency organization. Interaction between a subsystem and its components is mapped in cooperation, coordination and negotiation mechanism, and "relations between them are mapped as an explicit mechanism for introduction of organizational relations" (Wagner 2003).

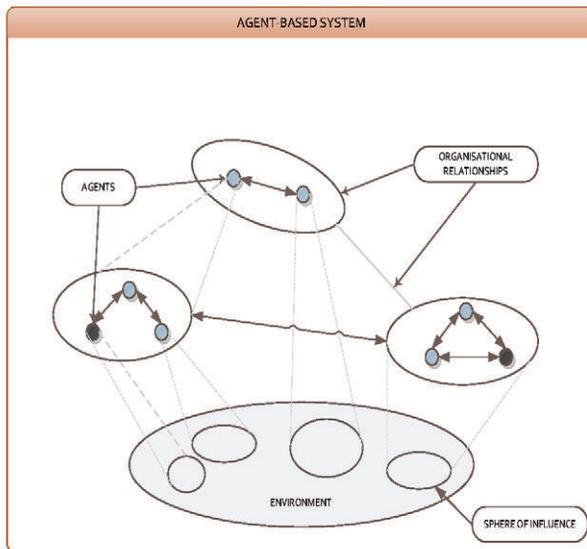


Fig. 2: Agent-oriented system
Source: Jennings, (2001)

In agent-oriented software system, manifold agents enable decentralized problem solving, control from different locations, viewing a problem from various perspectives, etc. Also, through the highest level of interaction, system of agents provides mechanisms for creating flexible organizational structure. With these dynamic effects "from the bottom to the top", coordination is done and there is a possibility that changing the area can lead to dynamic adjusting of software. Having in mind possibilities that it offers, it can be concluded that agent-oriented concepts are

more suitable for fulfilling demands of modern automated systems than other software systems.

We have designed an architecture using web service based on intelligent agents providing students to use educational services of each other in e-learning networks. Thus we proposed opportunity for empowering the learning skills and experience of individual learners, instructors or teachers and business environment through user-agent interactions.

THE USE OF AGENT-ORIENTED SYSTEM IN E-LEARNING

The concept of andraversity/televersity at e-learning and life-long improving, suggests five principles which could be used by an institution that wants to use this model as untraditional. In the principles of andraversity/televersity the following are included (Lee 2001):

- 1) Innovative structure and system, where industry/business and college can share academic goals and work together on strengthening teaching and learning, both inside and outside the campus, through digital and electronic learning methods.
- 2) Educationally opened system, which means flexibility of teaching plan and programme, as well as various forms of education.
- 3) Decentralized system, where both individual academic units that are formed at the campus and at the private sector, are equally responsible for delivery of various educational programs in their domain of interests and competence, no matter of their location and areas of interest of their students.
- 4) Connection of models on the community level, where the part of technical/professional education at university level has to include

appreciation of detailed information and industry needs. That includes joint running of educational and research activities.

- 5) Formation of telecommunication structure that uses different kinds of tele-electronic technologies for connecting industrial/business location to faculties with the aim of offering virtually-educational services.

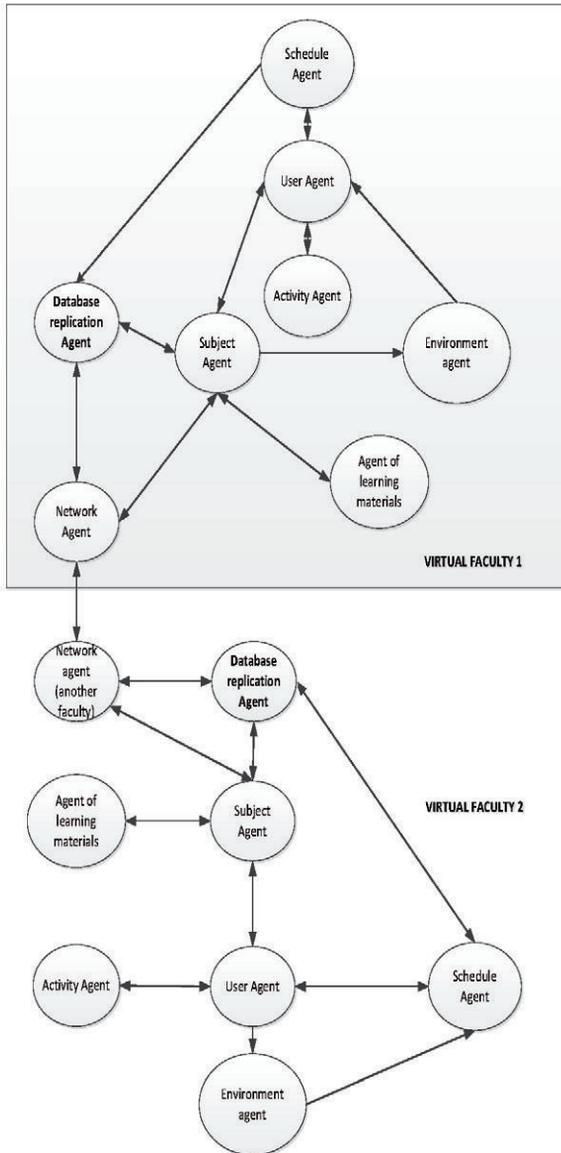


Fig 3: Agent- oriented virtual education
 Source: Authors

On the basis of the first three andraversity / televersity principles of education model, a solution for the realization of this model is given in Graph 3. One can observe a large number of agents, each with a role explained:

- **Schedule agent-** has a role to allow access to users and specific educational programs which are users interested in. This agent directly manages the user agent and the database replication agent.
- **User agent-** is an agent whose main role is to identify the logging capabilities of the individual, his role in the system (whether a student or a teacher logged in), what his rights are and what he has failed to complete since the last login unless it is his first login. On that occasion, the agent also activates activity agent.
- **Activity agent-** is an agent that records when a user logged in, when he logged out and how much time he spent in the system.
- **Subject agent-** has a role to know which faculty all the subjects that the user has chosen or needs to process belong to. This agent is also in correspondence with the agent of learning materials (if the subject is at the current faculty) which work together in the modification of user environment.
- **Agent of learning materials-** monitors what currently selected subject is and makes appropriate materials for individual learning modules available.
- **Environment agent-** for each user who has selected the appropriate subject with teaching material, a learning environment is being formed. This environment will display

teaching materials as the student progresses in learning.

- **Database replication agent-** transfers the basic information about the user who has chosen the subject from another faculty, and also shows the achieved success in that subject, thus completing the information on the students' progress.
- **Network agent-** is used for connecting systems from the list of available addresses. If the negotiations between network agents are successfully implemented, we can access to other faculty resources. The same agent is used in the case when it comes to database replication of students, whether the student has chosen the subject of some other faculty or wants to join the teaching process.

Any user who wants to use the system can use it from the moment when Schedule agent allows it and work in the appropriate study group, which is being provided at that time. The intelligent agents can effectively support a user's learning and training process. When logging in to the system, the User Agent is activated and it identifies the user, what his role in the system is, as well as what his last activity was in the case it is not his first login. As soon as the User Agent is activated, it sends a message to Activity agent to record all of his activities in the system, such as the date and time of the start of the login as well as the end of it when logging out of the system.

If the user is logged into the system for the first time, he chooses the subjects among the ones in the curriculum which Subject agent stores into the database as well as which faculty is a home faculty for the appropriate subject. Each of these subjects also has got a teaching material, which is arranged through

the modules and which is delivered by Agent of learning materials. If the student chooses the subject whose home faculty is not the holder of the education in that subject, at intervals Schedule agent activates Database replication agent whose role is to transmit basic information about a user of a selected subject, and after completing a certain course at another faculty to collect data on achieved results. For all selected items in the scope of the home faculty, working environment is formed through Environment agent, together with curriculum which is shown as a student progresses in the work. To exchange information about the student and his success at another faculty, it is necessary to have Network Agent, which establishes a connection with appropriate faculty which is on the list of possible links. The same agent is used to share information or to connect students because of the access to the resources of another faculty in order to learn appropriate subject. Since it is about a collaboration of faculties which have their own complex structure and in addition the application software does not have to be exactly the same (it is heterogeneous), the other faculty should be equipped with some of these agents. Firstly, it should have Network Agent which enables connection, as well as Database Replication Agent and User Agent.

➤ ***Entrepreneurship e-learning programs supported by intelligent agents***

E-learning is a current technological solution to the problem of finding the best match between the needs of a given set of learners to learn a given content, using a given set of learning tools or the delivery of education through various electronic media (Koohang & Harman 2005). It can be best understood in the broad context of using technology to meet needs for learning

(Cohen and Nycz 2006). According to Cohen and Nycz the most important aspects of e-learning are learning objects and the various software tools that aid in their development, storage, use in teaching and administration. They also explained that e-learning is often delivered using specialized intelligent agents that assist teachers to create their courses the student to use coursework, and the administrator to make previously developed coursework available for re-use. An agent, intelligent agent or agent-based system is a software-based computer system that has several properties such as; autonomy, social ability, reactivity, goal-directed, mobility and collaboration (Hussain and Khan 2005).

Recently, the research on agent-oriented programming has begun because the intelligent agent technique has developed rapidly. Hence, in literature we can find a great number of its definition. According to Tsai et. al. (2012) the definition of intelligent agents following three characteristics of an agent:

- (1) Autonomous: an agent can control its inner states and act based on its experience.
- (2) Interactive: an agent can communicate with its environment and other agents to complete missions given by users.
- (3) Adaptive: an agent can respond to its environment and other agents, thereby determining its actions based on its experience.

Mentioned characteristics can be extended according to some scientists (Bowen 2007), including in more detail their opportunities outlined below:

- Search for information automatically
- Answer specific questions
- Inform student when an event (e.g., an article has been published, your favorite book is on sale, the

road you travel is under construction, your name has been mentioned on the web) has occurred

- Provide custom news to student on a just-in-time format
- Provide intelligent tutoring
- Provide automatic services, such as checking web pages for changes or broken links.

Through the online entrepreneurship programs, learners can complete projects whether at work, home, or selected locations. On many occasions, a busy executive, managers or entrepreneurs may not be able to leave the office, and yet, assignments, term papers and even research projects have to be finalized somehow; the magic of getting the assignments complete may be made possible through the online mode. Where programs are completely in online mode, all class lectures, assignments, tests and instructions are delivered through the Internet. Some programs have voice and/or video assisted delivery, and may also include PowerPoint and iPod presentations. That is the main reason that Internet service provider, a browser, and a computer with plenty of random access memory (RAM) are needed prior to an online course commencing to receive lectures from anywhere and anytime.

➤ ***Methodology***

The questionnaire is designed to investigate the concepts of "e-learning"/"distance learning" and "entrepreneurship", from the stand point of view of students in this field. This Questionnaire is applied to Anadolu University, Faculty of Economics, Turkey²⁵

²⁵ Conducted by professors Ugur Demiray and Emine Demiray in 2012..

and Belgrade Business School ,Serbia²⁶. The sample of students who participated in the survey is approximate for both countries (205 respondents were from Turkey and 200 respondents from Serbia). The ratio of the respondents' in Turkey is 65:35 (female and men respectively), but in Serbia are 72:20(female and men respectively). The highest percentage of women (71%) in Turkey are between 21-23 years old. On the other side ,the highest percentage of women (65%) in Serbia are aged between 19 to 22.

Our research included nine questions as follow (Radovic-Markovic 2012 e):

1. Do you intend to run your private business as soon as you graduate?

A) Yes

B) No

2 Why do you like to be an entrepreneur?

A) This is the only way to get a job

B) I can earn more than working for someone

C) I have a good business idea which wants to realize

3. Do you have any role model among successful entrepreneurs?

A) Yes

B) No

4. Is it necessary formal education for entrepreneurship?

A) Yes

B) No

5. Do you believe that distance learning would be a good solution for future young entrepreneurs?

A) Yes

B) No

²⁶ Conducted by professor Mirjana Radovic-Markovic and Dusan Markovic in 2012.

6. Would you like to attend one of these distance learning programs?
- A) Yes
 - B) No
7. What would be the most important in selecting such a program, and ways of learning?
- A) Acquisition of knowledge
 - B) The faster and easier way to graduate
 - C) Flexibility in studying
8. What do you think is crucial to be successful in the entrepreneurial career?
- A) To be highly motivated to succeed
 - B) Have the innovative ability and has original business ideas
 - C) Having good business contacts
9. Do you believe that application of an agent based Intelligent System (ABIS) can enhancing e-learning in Serbia in the field of entrepreneurship education?
- A) Yes
 - B) No
 - C) I do not know

➤ ***Research Findings***

The research findings are presented according to the aforementioned research questions.

Twenty-nine percent of respondents from Turkey (29%) are answered "Yes" to the question and 71% said "No". Only 1/3 of responders are intending to start up a business after graduation . Although young people in Serbia are generally preferred to employ primarily in state institutions, but to start their own businesses, this study showed different results. Very interesting is the opinion of the respondents from Serbia ,i.e. about 90 % respondents are really ready to launch their own businesses as soon as graduate . The explanation lies in the fact that the respondents

attend business studies. Certainly the results would be different if made the same question to students from technical university or college.

On the second question ,the third option is the most important by 50 % responders from Turkey (“I have a good business idea which want to realize”) . However, this opinion is not shared by respondents from Serbia. For them is of key importance „ to earn more if they work for themselves“(45%).

Sixty-six percent of all respondents (66%) from Turkey are answered “Yes” to the third question .It can be concluded that the most responders from Turkey have a role model among any successful entrepreneurs. But, the responses from Serbia were quite different. The most of respondents (50%) are answered “No” and 42 % respondents said „Yes“. The reason that young people in Serbia do not have role models or to a lesser extent than in Turkey can be explained by the fact that private businesses have a shorter tradition here. Moreover, there is a much smaller number of true role models, given the high level of corruption that enabled the successful unethical businesses.

Fifty-seven percent of all respondents (57%) from Turkey are answered “Yes” to the question four and fifty percent (50%) from Serbia. It shows that in this case there are no major differences between the two countries.

Forty-four percent of the respondents (44%) from Turkey answered “Yes” to the question five ,while 56 percent of responders (56%)from Serbia said“No“.Women are mostly not believed that distance learning would be a good solution for future young entrepreneurs. They share equally the same opinion with men.

Thirty-one percent of the total number of respondents (31%) from Turkey answered “Yes” to the question

six , while 69 percent respondents (69%) answered “No”.On the other side, respondents from Serbia almost said “Yes”.Probably ,the reason for such a large number of respondents who gave a positive answer can be found in the fact that, first of all, the students like to see how e-learning works in practice because it is still not too much applied in Serbia.

Regarding the question seven , “Acquisition of knowledge” is marked by 44% from Turkey and 25% from Serbia. The second option which designed as “The faster and easier way to graduate” is marked by 29% from Turkey and 27% from Serbia. The third option which designed as “Flexibility in studying” is marked by 27% from Turkey and 48 % from Serbia. There are no significant differences between respondents’ divided by gender for this question for the both countries.

It should be noted that the top priority for respondents from Serbia in selecting some e-learning program is „flexibility in studying“, while for those from Turkey is an „acquisition of knowledge“ as the most important (Radovic-Markovic 2012 e).

In Question 8 is asked as “What do you think is crucial to be successful in the entrepreneurial career? “, the first option in this question which is designed as “Have the innovative ability and has original business ideas” is marked by 58% from Turkey and 22% from Serbia. The second option which designed as “Having good business contacts” is marked by 26% from Turkey and 70% from Serbia. The third option which designed as “To be highly motivated to succeed” is marked by 16% from Turkey and 6% from Serbia.

As many as 90% of respondents from Serbia believe that the distance learning would be a good solution for future young entrepreneurs. Women and men equally mostly believed that distance learning would be a good solution for future young entrepreneurs.

In Question 9 is asked as “Do you believe that application of an agent based Intelligent System (ABIS) can enhancing e-learning in Serbia in the field of entrepreneurship education?”, our respondents in the both countries shared similar opinion. Namely ,45% from Serbia and 49% from Turkey selected answer as “I do not know“. This can be explained by their lack of knowledge of the application of agents in education.

The findings on students’ perception regarding the most appropriate direction for the educational strategies to be developed in order to reach the above mentioned goal, i.e. to encourage the creativity and entrepreneurial abilities of students show that the new educational strategies should encourage creative abilities and original thinking, individuality and freedom of learning. It is showed by regression

$$y = 2,4167x^3 - 10,5x^2 + 10,083x + 5$$

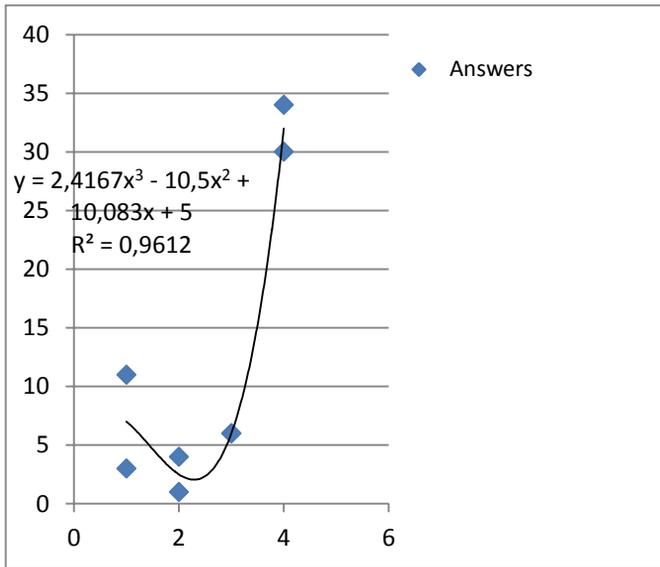


Fig. 4: In what direction the educational strategies should be developed?

Source: Radovic Markovic, (2012d)

Our research shows that education based on freedom of learning and teaching helps to foster creativity. Accordingly, the existing education system should be redefined as well as educational programs for entrepreneurship (Radovic-Markovic 2012).

If Serbians or citizens of other nations become more familiar with the techniques, potential learners as well as educators may be able to effectively discern the pros and cons of how e-learning would enhance and improve education (Radović-Marković and Bodroski-Spariosu 2010). Hopefully, recently a number of studies have been done in Serbia in order to investigate the different aspects of e-learning, especially in the field of business and entrepreneurship (e.g. see, Radovic-Markovic 2007;

Radovic Markovic et al. 2009; Radović Marković and Bodroski Spariosu 2010). Building a more inclusive distance learning environment in Serbia involves making technological choices built on flexibility and an ability to respond quickly to changes in constantly evolving technology and informational resources. Collaboration, involving teachers, mentors, and instructional designers who truly represent hard to reach learners, and a willingness to invest monies in developing a cyber-infrastructure that reaches all learners regardless of where they live will be crucial (Radović-Marković 2012b).

CONCLUSION

E-learning is now an essential component of education in many countries. It has changed the face of education, training and vocational learning forever. It means that online learning environment is quite different from a traditional classroom, in which one had limited interaction and almost unlimited access to learning resources. In other words, online courses require participants to take on new and different teaching and learning behaviors which are quite different from the old ones. New technologies also can improve communication between students and teachers. They allow each student greater diversity for learning, enhance interactivity between individual students and individual teachers, provide a space for personalized, flexible learning beyond the classroom walls and allow students to live locally whilst learning globally - through the use of external resources accessed via the world wide web. In addition, the use of different learning materials and various resources allows students with various principal learning styles to understand information in the most effective way. Also, the use of intelligent

agents as a support to online studies intended for entrepreneurs would provide significant resource savings. On one hand, it would allow students an easier access to information, literature as well as testing their knowledge and ideas. On the other hand, it would reduce teachers' administrative duties which would be performed by intelligent agents and it would give them more time to devote to each student individually and develop their potential entrepreneurial ideas, talents and skills.

In addition, the Internet enhances learning, including such advantages as being able to learn at a peak time of the day, learning at own speed, accessibility too much information, an ability to track personal progress, and the capability to test personal learning efforts. The online education also fosters self-motivated education, giving precedence to the autonomy of the learner. This improves access by increasing the number of available courses and thus number of students served.

Although there are differences between the results obtained for Serbia and Turkey, the both of them should apply more effective learning strategies. Furthermore, it is necessary to explore how to make e-learning more popular and more accessible for students and to identify their needs and tailor a programme to meet them. Namely, everywhere in the world the existing education system is being redefined and educational programs that have to closely relate to entrepreneurship are being improved. If Serbs and Turks become more familiar with the (ICTs) and their implementation in learning and teaching entrepreneurship in high education, potential learners as well as educators can expect the benefits from them (Radovic-Markovic 2012 e). In line with this, it can be concluded that an agent based

recommendation system should help students in getting knowledge faster as well as better interaction between students ,professors and business environment.

Finally ,with new technologies in hand, the process of learning in the classroom can become significantly richer as students have access to new and different types of information and can combine face to face learning with e-learning opportunities. This combination provides them a lot of opportunities to learn more new things in a quite different environment. Unfortunately, according to our key findings these opportunities are not exploited enough in Serbia.

REFERENCES

- Bowen ,E.**(2007). Intelligent Agents:What They Do and How They're Changing Online Learning, TELECOOP Conference , April 11-13, 2007. <http://www.elearningcolorado.org/conference/materials/BowenIntelligentAgents.pdf>
- Brusilovsky, P.** (2000), "Adaptive hypermedia: from intelligent tutoring systems to web-based education (invited talk)", in Gauthier, G., Frasson, C. and **VanLehn, K.**(2007),(Eds), Intelligent Tutoring Systems, Lecture Notes in Computer Science, Vol. 1839, Springer Verlag, Berlin,pp. 1-7.
- Chandler,G.&Hanks,S.**(1994).Funder Competence,the Environment and Venture Performance.Entrepreneurship Theory and Practice, 18(3),77-89.
- Dunchev, B.** (2012), "Measuring The Impact of Entrepreneurship Education At Aarhus School of Business and Social Sciences",Aarhus School of Business and Social Sciences, University of Aarhus
- Draves, W.** (2002). How the Internet is changing how we learn. Paper presented to the Seventh Annual Teaching on the Community Colleges ,Online Conference, May 21-23,Retrieved May 30, 2006.
- Erikson,T.**(2002).Entrepreneurial capital: the emerging venture's most important asset and competitive advantage. Journal of Business Venturing, 17,275-290.
- Graham, C., Cagality, K., Lim, B.R.,Craner, J., & Duffy, T. M.** (2001). Seven principles of effective teaching: A practical lens for evaluating online courses,Technology Source . Retrieved October 27, 2005.

- Gregg, D.** (2007), E-learning agents, University of Colorado and Health Sciences Centre, Denver, Colorado, USA www.emeraldinsight.com/0969-6474.htm
- Harris, J.** (2005), "E-learning strategy: repurposing content", Chief Learning Officer, October, pp. 24-8.
- Haynie, J.M., & Shepherd, D.** (2009). A Measure of Adaptive Cognition for Entrepreneurship Research. *Entrepreneurship Theory and Practice*, 33(3), 695-714.
- Hoben, G., Neu, B., & Castle, S. R.** (2002). Assessment of student learning in an educational administration online program. Paper presented at the 2002 Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Hussain, N. and Khan, M.** (2005). Enhancing E-Learning through Web Service and Intelligent Agents, College of Computing and Information Sciences, PAFKIET, Karachi, Pakistan.
- Ibicioglu, H., Baysal, H., Ozkul, A.** (2009), The role of high education in entrepreneurship training in respect of transition economies: Albania Sample, University of Suleyman Demirel, Isparta, Turkey.
- Isman, A.** (1997). Diffusion of distance education in Turkish higher education, *Educational Technology Research and Development*, Volume 45, Number 2 (1997), 124-128.
- Jennings, N.** (2001). An agent-based approach for building complex software systems. *Communications of the ACM*, 44(4), 35-41.
- Johansson, B.** (1991). University training for entrepreneurship: Swedish approaches. *Entrepreneurship and Regional Development*, 3(1), 67-82.
- Lee, H. C.** (2001). The new era of televersity and andraversity in the campusless society: the virtual university and its implications in Korea. U H. J. Molen

(ed.), *Virtual University? Educational Environments of the Future* (str. 117-131). London: Portland Press.

Liarokapis, F. , Doulamis, A. and

Vescoukis,V.(2011), Third International Conference on Games and Virtual Worlds for Serious Applications, VS-GAMES 2011, Athens, Greece, May 4-6, 2011 IEEE 2011

McCombs, B. L. (2000) Assessing the role of educational technology in the teaching and learning process: A learner-centered perspective. The Secretary's Conference on Educational Technology

Melis, E., Gogvadze, G., Homik, M., Libbrecht, P., Ullrich, C. and Winterstein, S. (2006), "Semantic-aware components and services of ActiveMath", *British Journal of Educational Technology*, Vol. 37 No. 3, pp. 405-23.

Newton, L. R. & Rogers, L. (2001) *Teaching Science with ICT*, London, Continuum.

Radovic Markovic, M. (2012). *Impact of Globalization on Organizational Culture, Behaviour and Gender Role*. IAP, Charlotte, NC, US.

Radovic Markovic, M. (2012a). *Female Entrepreneurship: Theoretical Background*. (Working Paper)

Radovic-Markovic,M. ,et-al, (2012b). *E-Learning in Business and Entrepreneurship: An Evidence of Serbia, Iran and India*, in Conference Book, "Education,Employment and Entrepreneurship" ,Faculty of Business Economics and Entrepreneurship,Belgrade ,Serbia (forthcoming).

Radovic-Markovic ,M.,et-al, (2012 c). *Fostering entrepreneurship in higher education through e-learning:a case study of Serbia and Turkey*, in Conference book "Education,Employment and Entrepreneurship" ,Faculty of Business Economics and Entrepreneurship, Belgrade ,Serbia (forthcoming).

Radovic-Markovic,M.,et-al,(2012d).Freedom, Individuality and Women`s Entrepreneurship Education ,In conference book „Entrepreneurship Education-a priority for the higher education institutions“ ,Medimond ,Bologna ,Italy.

Radovic-Markovic ,M.,et-al, (2012 e). Fostering entrepreneurship in higher education through e-learning:A case study of Serbia and Turkey,Conference Proceedings ,Employment,Education,Entrepreneurship“,Faculty of Business economics and Entrepreneurship,Belgrade,Serbia

Radović-Marković, M. (2011). Critical Approach towards the Employment Analysis in Theory Methodology and Research in Conference Proceedings: Influence of the Humanities and Social Sciences on Business and Societal Change, Naujosios Kartos Mokslo ir Verslo Klasteris. Vilnius, Lithuania. pp. 156-166.

Radović-Marković, M., & Spariosu-Bodroski, B. (2010a). Education in Serbia: Inclusive and e-learning opportunities. Serbian Journal of Management, 5(2), 271-281.

Radović-Marković, M. and Kyaruzi,I.(2010 b),” Women in Business: Theory,Practice and Flexible Approach“,Adonis and Abbey .Ltd.,London ,pages 162 .

Radović-Marković, M., Nelson-Porter, B., & Omolaja, M. (2009). The new alternative women`s entrepreneurship education: e-learning and virtual universities, Journal of Women`s Entrepreneurship and Education, 2(1/2), 1-12.

Radovic Markovic, M. (2007) Special benefits of E-learning for women: Sample of program entrepreneurship. Achakra, Priscilla.Gender and informal Economy: Developing developed and transition countries, Lagos, ICEA and Prenticeconsult, 156-166.

- Ruzgar,N.** (2004), Distance Education in Turkey, Turkish Online Journal of Distance Education-TOJDE April 2004 ,Volume: 5 Number: 2.
- Skinner,E.A.**(1995).Perceived Control,Motivation and Coping (Vol.8).Thousand Oakas.Sage Publications.
- Teo ,C. B. , Chang,A. ,Gay ,R. and Leng ,K.**(2005) Pedagogy Considerations for E-learning, Singapore.
- Tsai ,H.L.,Lee,C.J,Hsu,W.L.and Chang ,Y.H.**(2012). An Adaptive E-Learning System Based on Intelligent Agents in Recent Researches in Applied Computers and Computational Science, Rovaniemi, Finland, WSEAS Press, ISBN: 978-1-61804-084-8
- Tusiad,** (2002), Türkiye’de Girişimcilik, Yayın No: TUSİAD-T/2002-12/340), Aralık.
- Wagner, T.** (2003). An Agent-Oriented Approach to Industrial Automation Systems. U R. Kowalczyk, J. **Muller, H. Tianfield, & R. Unland** (editors), *Agent Technologies, Infrastructures, Tools, and Applications for E-Service* (pp. 314-328).Berlin Heidelberg: Springer-Verlag .
- Wentling, T. L. & Johnson, S. D** (1999).The Design and Developmental of an Evaluation System for Online Instruction.Paper presented at the 1999 Academy of Human Resource Development , Washington ,DC.
- Zhang, D., Zhao, J.L., Zhou, L. and Nunamaker, J.F.** (2004), “Can e-learning replace classroom learning?”, Communications of the ACM, Vol. 47 No. 5, pp. 75-9.