

ICT TOOLS FOR THE DEVELOPMENT OF ENTREPRENEURIAL COMPETENCIES

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Abstract:

In some European countries, a considerable part of young graduates remains without real employment opportunities. A possible solution for this problem might be self-employment. Such a solution, on the other hand, requires the development of entrepreneurial competencies. ICT tools, which young generations are very familiar with, can significantly contribute to the development of such competencies, as well as to the planning of an entrepreneurial career. In our study, we aim to define those ICT tools that are most commonly used by counsellors and teachers to develop entrepreneurial competencies for young people and for those who intend to start their own business and in order for them to be successful. The study has been carried out in seven EU countries (Italy, Netherlands, Poland, Portugal, Slovenia, Spain and UK), as well as in Turkey. The study reveals that in different countries different ICT support tools for the development of entrepreneurial competencies have been used. Which ICT tools are used in a country depends on many factors. In our study, we stress out that the use of specific ICT tools might be encouraged by (i) the development of career counsellors' and teachers' competencies for using the ICT tools, (ii) easiness of ICT tools use, and (iii) their availability and spread in a specific geographic area. Besides, the study finds out that (iv) ICT tools should upgrade previously used non-ICT tools focused on the entrepreneurial competencies development.

Keywords: ICT tools, teaching entrepreneurial skills, developing entrepreneurial skills, start-up, international entrepreneurship

1 INTRODUCTION

Nowadays, societies become more complex and demanding, especially considering young generations and their employment opportunities. Young people finishing a school are hardly able to find a job in spite of their education, qualification and commitment. In some cases, the best opportunity for them might be the creation of their own enterprises. But, on the other hand, setting up one's own working place might not be so easy. To realise such solution successfully, special abilities, knowledge and skills, as well as work experience, are needed. Work experience might be acquired through part time jobs or other kinds of flexible work opportunities; on the other hand, it is not so easy to acquire entrepreneurial knowledge and skills. The most common source of such knowledge might be a school, but not all of the schools offer such kind of a knowledge. There are also some other alternatives – for example, young people can even find a good counsellor, who can help them to develop their own business idea and give them some basic entrepreneurial skills.

Recently, extremely quick developments in information-communication technology (ICT) can be witnessed. Researchers increasingly believe that investment in ICT and the existence of appropriate ICT support tools make it possible to create some kind of a knowledge repository and foundation for knowledge and learning management at different levels of human interaction (personal, community, society) (Bontis 2002; Banker 2003; Youndt et al 2004; Damien 2005). ICT also allows for teaching the younger generations and for making them aware of ICT tools which might increase their employability or self-employment capabilities. Nowadays, almost all youngsters have basic knowledge about the computers which make it easier to teach them about ICT tools. However, it is important that teachers and counsellors also have the knowledge about ICT as well as specific ICT tools. Many of such tools can be used free of charge which is another reason, why they might be used for teaching and learning entrepreneurship.

In our research we try to identify ICT tools that are mostly used as a means for developing the entrepreneurial knowledge and skills. Moreover, the research resolves to identify which tools seem to be of most importance in the three stages of starting up a business (i.e. idea creation, business planning, funding and marketing). The research was conducted in 8 European countries involving 9 partners' organisations. Each partner in the project conducted a series of structured interviews with teachers (as well as coaches and trainers) or counsellors involved in the development of entrepreneurial knowledge and skills among young generations.

The paper is organised in the following way: in section 2 we define the ICT tools and explain the relationship between the ICT tools and teaching. In section 3 we define the entrepreneurial skills and in the section 4 we the relationship between the ICT and development of entrepreneurial skills. In section 5 there is a short description of the research methodology following the analysis and discussion and in section 6. In the section 7 we present the conclusions and recommendations.

2 ICT TOOLS

ICT can be defined from the point of view of information technology (IT) and communication technology (CT). IT includes different kinds of technology used for manipulation of data or information (e.g. machine and software equipment, equipment for data transfer and maintenance) (IT Standards 2012) while CT includes different kinds of video and audio transfer solutions (e.g. internet network, e-mail, phones) (Education-Portal 2012). Seen (1997) notes that the concept of ICT can be used for describing the ability for creating, saving and forwarding data and information, while the most important components of such technology are mechanical and software equipment, networks as well as knowledge on how to use ICT tools. In his opinion (*ibidem*), one of major features of ICT has should be its user-friendliness.

In the last decades, ICT has undergone a very quick development and has been introduced into all segments of people's lives. Besides, it has brought new opportunities for businesses and individuals (e.g. social networks, searching and sharing the information), and better quality of life (Bučar, 2001). Modern ICT tools can decrease the costs as well as increase productivity and effectiveness on the level of individuals and organisations (Hengst & Henk 2001). ICT has also triggered deep changes in the field of communication and accessibility and availability of information (OECD, 2001a, b; Pinterič & Grivec 2007, 33-34).

Nowadays, face-to-face learning tools as well as ICT tools are used in training and education. Nevertheless, many teachers perceive the ICT as a threat to their work and job positions. Because of that, teaching approaches which involve ICT tools might have limited impact on the student's learning outcomes (Kim & Reeves, 2007). We have to bear in mind that classroom technology has improved dramatically in the last decades, thus creating promising teaching opportunities as well as increased flexibility allowing the students to use ICT as a tool to extend their cognitive skills. This way, the teachers can create and strengthen students' orientation into ICT-learning environment and allow them to solve relevant problems and develop high level cognitive skills (Lajoie & Azevedo, 2000). Such kind of an approach to teaching is different from just using ICT as a vehicle for transferring the knowledge to the students. By using cognitive ICT tools, critical and complex thinking opportunities might be created (Campbell, Wang, Hsu, Duffy, & Wolf, 2010; Hsu, Wang, & Runco, 2013). The integrated approach may extend students' cognitive skills and allow them to use the tools to organize and analyse data, interpret and evaluate information and to share the learned knowledge with others (Lajoie & Azevedo, 2000).

To help the teachers to use the ICT and to support the development of students' cognitive processes, the knowledge on modern ICT support might be disseminated and implemented. Luckily, young generations of students are highly motivated to experience ICT in a classroom (McFarlane & Sakellariou, 2002). Today's ICT enable the users to easily retrieve the information, to collaborate with each other, etc. especially as many ICT tools are freely accessible and give the users the opportunity to exchange knowledge and ideas, to work together in the same project, and to learn how to solve problems (Linn, 2004).

3 ENTREPRENEURIAL COMPETENCIES

Competency can be defined as a performance that does not depend solely upon a person's fundamental or innate capacities, but can also be developed. Development of a competencies depends especially on learning. They can be acquired through work experience, non-formal as well as formal education. Due to changes in the society and economy, repertoire of the competencies should be upgraded during the lifespan of a person: some of the competencies should be forgotten, some upgrades, and some new competencies should be learned. Young people might develop some basic competencies in a school, but later on, when they are employed or self-employed, they still have to learn to survive (Lofquist & Darwist, 1967; Adeyemo, 2003).

Entrepreneur can be defined as the one who is skilled in organising, managing and assuming the needs of a business enterprise. For sure, they need basic competencies such as starting, developing, financing and operating an enterprise. There are various definitions of entrepreneurial competencies in the literature (Dermol, 2010). For example, in literature of entrepreneurship and in economic theories about entrepreneurship entrepreneurs are defined as individuals who (Brockhaus & Horwitz 1986; Cromie 2000):

- create something new and valuable by devoting the necessary time and effort, assuming the accompanying financial, psychic and social risks, and by receiving the resulting rewards of monetary and personal satisfaction and independence (Hisrich & Peters, 2002),
- exploit an idea and create a small or big enterprise not only for personal but also for social and developmental gains (Olagunju, 2004),
- having self-belief, tenacity, passion, empathy, desire for immediate result, vision and ability to recognize opportunity (Salgado-Banda, 2005).

A wide range of entrepreneurial competencies can be identified. They might be important not only for entrepreneurs but also for employees as well as managers. Dougherty (2014) stresses out competencies such as creativity, intuition, goal-orientation; responsibility, self-confidence, initiative, independence, communication skills, research skills to explore markets, suppliers, customers and the competition, multi-tasking, cautiousness, management skills, self-discipline, ability to work under pressure; persistence optimism, skills of planning, coordinating and organising, fantasy, willingness to take risks and networking skills. Alertness to profit opportunities, handling uncertainty, coordinating scarce resources, and innovating are also important entrepreneurial competencies (Swedberg 2000).

4 ICT AND DEVELOPMENT OF ENTREPRENEURIAL COMPETENCIES

Due to development of ICT many things can be performed more efficiently and with greater success. For example, ICT makes it possible to even test different decision making scenarios. This is the reason why many people believe that ICT might be used as a tool for creating and developing entrepreneurial skills. Besides, ICT might offer learning opportunities, business planning solutions, database tools as well as business training opportunities with the help of business plan simulators. ICT can help to develop and enhance communication and social networks as well.

In the last decades, EU has been increasingly moving towards service-oriented economy based heavily on developing and using ICT. Governments support the development of new skills for EU citizens as a preparation for meeting labour market needs. By introducing specific ICT tools, entrepreneurial skills might be promoted as well and this way unemployment among young people reduced. EU adopted the resolution “New skills for New Jobs – 2007” through which the European Commission seeks to assist the Member States in the use of ICT tools for raising the overall competency among working population level (European Commission 2007).

Modern ICT could be used as a mean to establish connections between the business and higher education sector. It represents an important opportunity to provide young people with business competencies and entrepreneurship education. This brings benefits to a variety of stakeholders as well, not only the students – e.g. faculties, other educational institutions at all levels, enterprises, etc. (Hynes & Richardson, 2007). To achieve continuous improvements of entrepreneurial competencies learning should be implemented effectively. Educators should be therefore aware of teaching methods which might be upgraded meet the market demands and to provide the students with the set of competencies. For that reason, the use of ICT tools seems to be the best solution (Galloway et al., 2005). Entrepreneurship education involve learning of a variety of business related competencies such as improvements of decision-making skills or skills to access information and using different ICT tools for creating a better working space (DeFaoite et al. 2003).

5 RESEARCH METHODOLOGY

In the research we conducted 10 interviews per country included in the project. The target group included teachers (coaches, trainers) and counsellors (experts). Some of them were business owners. The interviews were made by project partners – partly face-to-face and partly through phone calls.

The interview questionnaire consisted of 11 questions. In the first part of questionnaire there are demographic questions about the country of respondent, their age, gender, profession and status regarding ownership of a business. Next part of the questionnaire (questions from 6 to 11) consisted of the questions on different ICT tools. The questions related to 3 stages in entrepreneurial process: (i) idea creation or ideation phase, in which an entrepreneur creates a business idea, (ii) business planning or proof of concept, in which an entrepreneur reflects about scenarios to follow business opportunity and (iii) funding and marketing or scaling up, in which an entrepreneur prepares the final business plan. All together 90 completed questionnaires were gathered.

About 60% of respondents were male. The average age of respondents was 42 years, and the age distribution was symmetrical. The majority of respondents belonged to the 35-44 age group, making up about 30% of the total samples. It should be noted that none of the respondents was under 24 years of age. Almost 65% of the respondents belonged to the “expert” category, and about 64% of respondents owned their own business.

6 ANALYSIS AND DISCUSSION

The research is directed towards investigation of ICT tools most frequently used for teaching and learning. The key objectives are (i) the evaluation of the usefulness of recognised tool and (ii) finding out why a particular tool might not be used in practice at all.

As indicated by the data, the most frequently used ICT tool is e-book. This tool might provide help on how to use other ICT tools and as a support to a learning process. E-book usually consists of electronic version of the text, which was previously prepared as printed version, but it can also include multimedia features to enhance interaction between the content and the learner. Other ICT tools such

as market research database, web communities and business plan software are used less frequently. The least frequently used ICT tools are crowdfunding, scientific platforms and educational business simulators. Tools such as crowdfunding, scientific platforms and educational business simulators, which are recently among the best known ICT tools, are rarely used for teaching purposes. The reason for that might be the complexity of the use, especially in the case of crowdfunding, or tools' inaccessibility in the case of scientific platforms and educational business simulators.

Usefulness of the ICT tools is an important aspect of influencing the perceptions of the user and the frequency of the tool's usage. As the data shows, e-learning courses, market research data bases and business plan software are among the tools which are perceived as the most useful ICT tools. There seems to be a kind of relationship between the perception of the tool's usefulness and the nature of the respondent's business - respondents who are more focused on training aspects relate the tools more with teaching and learning, respondents more involved in a business and entrepreneurship relate the tools to the world of business.

In idea creation stage, the most useful ICT tools seem to be market research data base and business plan software. According to the data, the three tools seem to be perceived as equally useful. In the stage of business planning business plan software becomes more important with the role of proving the concepts. In the final stage of funding and marketing the most important tools are the same as in the previous one.

The analysis shows that there is no single ICT tool used to promote entrepreneurial competencies among young people. In the context of training and education tools like e-books might be used. On the other hand, skills development in the sense of self-directed-learning promotes tools such as e-learning courses, as the most widely used tool, business plan software and market research data base, where competencies are developed more in terms of entrepreneurial and management abilities, rather than in terms of knowledge. The tool which is considered as the most useful tool is the business plan software. It also emerges more clearly that scientific platforms, electronic evaluation forms and crowd funding are considered to be the least useful tools.

Table 1: Perceptions of ICT tools' usefulness and frequency of their use

Frequency of use	high	<ul style="list-style-type: none"> • Innovation platforms • Strategy games 	<ul style="list-style-type: none"> • E-books • E-learning courses • Business plan software • Market research database
	low	<ul style="list-style-type: none"> • Crowdfunding • Scientific platforms 	<ul style="list-style-type: none"> • Web communities • Educational business simulators
		low	high
Usefulness of ICT tools			

In Table 1 we present some of the recognised ICT tools from the viewpoint of their popularity and frequency of use on one hand, and perceptions of their usefulness on the other. As can be seen from the table, there are two areas which are of special interest to practitioners as well as researchers. Innovation platforms and strategy games seems to be very popular among teachers and counsellors on one hand, but on the other they perceive these tools as less useful. The other area which should also be stressed out relates to the web communities and electronic business simulators. These two tools seem to be less frequently used by the teachers and counsellors but they are perceived as highly useful for promoting entrepreneurial competencies.

7 CONCLUSIONS AND RECOMMENDATIONS

In the research we recognised most frequently used ICT tools for promotion of entrepreneurial competencies among young people. We have recognised next tools:

- E-books,
- e-learning platforms,

- business plan software and
- market research databases.

As it is seen from Table 1 more might be done to increase the perception of usefulness of innovation platforms and strategy games. This may be achieved by organising trainings on such tools and informing participants how to use the tool. On the other hand, we find out that people perceive web communities and educational business simulators as very useful, but more might be done to increase the frequency of use of such tools. This can be achieved by advertising and support from people who already use the tools. In Table 1 we can also see that crowdfunding and scientific platforms are not frequently used ICT tools and their usefulness seems to be low as well. The reason might be the lack of experience with such tools. As a possible solution we suggest that, for example, incubators or chambers of commerce organise free of charge trainings where potential users might get detailed information about the use of such ICT tools.

Further research should be directed towards detailed investigation of ICT tools' characteristics that are used for teaching and developing entrepreneurial competencies. We suggest that especially ICT tools such as databases, business plan software, and educational business simulators might be investigated because all these three tools are closely connected with the start-ups and with teaching and developing entrepreneurial competencies.

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