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ENTREPRENEURIAL MANAGEMENT EDUCATION NEEDS: CASES OF THE REPUBLIC OF CROATIA, POLAND AND THE UNITED KINGDOM

Introduction

The globalization of higher education markets presents a complex challenge for management education particularly for those business schools attempting to compete in the global marketplace. Business schools are shifting from monodisciplinary topic approach to multidisciplinary approach while attempting to develop a global mindset through management diversity. Thus, invention and innovation processes involve highly interdependent teams that are long in duration, which makes them complex and increasingly more ambiguous. Building and sustaining knowledge and creative capacities for global operations is a critical challenge for most universities. To achieve that goal almost every country in the OECD has substantially increased its spending on education over the same period and launched multiple initiatives to spend this money more effectively. Meeting the challenges requires changes in cognitive processes through which managers frame business problems and adopting the set of attitudes that is often described as the global mindset (Barber Donnelly and Rizvi 2013).
Kaplan (2014) raises a more general question, one that is particularly salient in The European Management Journal asking "Is there even such a thing as 'European management'''? And if so, what unique knowledge should Europe's business schools impart to future European managers? In an attempt to recognize a turning point in the European business school landscape and the beginning of Europe's (re)emancipation from the domination of US-style business schools the year 1997 seems a crucial point since it marks the establishment of the European Quality Improvement System (EQUIS) accreditation system – thus, opening genuinely global opportunities.

There have also been attempts to achieve avant-garde, novelty and a higher level of added value and enterprise and entrepreneurship within the Higher Education (HE) (European commission 2012, Gibb, (2002; Gibb et al. 2012). The impacts of management education on firms' strategies have been influenced by numerous different interests, and political and social factors, such as social values or corporate or organizational goals. A strategy, once determined, is evident in its articulation, choice, implementation and control. As this is a structural process, many questions arise, such as, what changes are required in the corporate structure and processes on one side and in management education on the other to create and enliven new more creative identities? It is assumed that competition and networking itself are a relational and a socially constructed concept that only makes sense when key decision-makers engage in international comparison.

We endeavor to contribute to the current debate on the role of management education through both macro and micro approaches in discussing the role of business schools in fostering innovation and particularly in implementing innovative approaches in different entrepreneurial sectors across countries. Horizon 2020 focuses on turning scientific breakthroughs into innovative products that provide opportunities for businesses as well as for the wider society. The rationale behind this is that "Europe's future economic growth and the employment of its citizens will depend on innovation in products, services and business models"[1].

Literature review

This paper and the research upon which it is based adopts the Department for Business, Innovation & Skills, 2013:15 definition: 'Enterprise education is the application of creative ideas and innovations to practical situations with enterprise education aiming to produce individuals with the mindset and skills to respond to opportunities, needs and shortfalls, with key skills including taking the initiative, decision making, problem solving, networking, identifying opportunities and personal effectiveness. Enterprise provision can be applied to all areas of education, extending beyond knowledge acquisition to a wide range of emotional, social, and practical skills. Entrepreneurship education is the application of enterprise skills specific to the creation and growth of organizations, with entrepreneurship education focusing on developing skills and applying an enterprising mindset in the specific contexts of setting up a new venture, developing and growing an existing business, or designing an entrepreneurial organization'.[2]

Management education and needs of SME

The relationship between universities and local SMEs presents a great leverage for knowledge transfer between these two entities (BIS, 2010). The research conducted by NESTA (2008) points out that strong links between higher education and industry can result in newly added value, innovative and entrepreneurial graduates, as well as in improvements in technical development, product innovation and business development. The importance of enterprises and entrepreneurship for future development is undeniable considering that SMEs generally account for approximately 95% of a country's economy (Shaw and Allen, 2006). Therefore, the long-term objective of business schools has increasingly been to become more involved in regional economic and social development through closer business and industry collaboration, such as management and leadership education programs (Darabi and Murray, 2012). This has resulted in the changing role of the higher education sector. Nowadays, for the purpose of economic development, universities are becoming more entrepreneurial as they commercialize their knowledge (Smith, 2000 in Marzo-Navarro et al., 2009). The university's role has traditionally been viewed as a support structure for innovation streaming mainly to provide the industry with trained personnel, research results, and knowledge. However,

[1] http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-societies_en.pdf

[2] http://www.nao.org.uk/wp-content/uploads/2013/07/BIS-SUSTAINABILITY-BRIEFING_17-07_Final-2.pdf

recently the trend has been changed and universities have embraced a different role establishing firms often based on new technologies originating from academic research (Etzkowitz, 2003; Etzkowitz, Ranga, Dzisah 2012). Increased globalization processes followed by rapid changes in competition and innovation processes promoted the need for the creation of stronger links between research communities and commercial enterprises (Plewa et al., 2005). The above mentioned situation has created space for development of serious models which will explain how universities/business schools close the gap of market needs? One of the most cited models is the Triple Helix model which stipulates that innovations are products of cooperation among universities, companies and governments (Etzkowitz, 2003). However, it is worth noting that the mentioned model has its opponents. In their research Viale and Campodall'Orto (2002) mention that this kind of model presents a threat to academic freedom and that it apprehends the space of education as the primary function of the university. If the major feature of the relationship between universities/business schools and companies is the creation and development of skilled labor force, technical consultancy services and even business start-ups – often in high-technology fields (Benneworth, 2001 Phusavat et.al, (2012) – then inflation of unnecessary labor would be avoided and pressure on labor market would be reduced. This kind of approach emphasizes that the university – industry interface is a pillar that underpins knowledge-based economic development. In his article Hormann (1990, page 10) states:
"*Business, the motor of our society, has the opportunity to be a new creative force on the planet, a force which could contribute to the well-being of many*."

Over the last fifty years business schools have lived through a prosperous period of their lives, and now they have reached the crossroads of development (Pfeffer and Fong, 2002). Ivory et al. (2006), arguing that business schools as successful business has come to an end, point to many threats that this business is facing currently. For Cornuel (2005) the biggest threat lies in the dichotomy between the business requirements, i.e. the business reality, and the business schools' offer. His findings are supported by GRLI (2005, page 14):
"We have built a weird, almost unimaginable design for (business) education that distorts those subjected to it into critters with lopsided brains, icy hearts and shrunken souls."
Researchers agree that business school courses place too strong emphasis on quantitative management skills and techniques (Hawawini, 2005; Mitroff and Denton, 1999). Further on, Mintzberg's (2005) research on the effectiveness of MBA programs found evidence pointing to heavy emphasis on developing the mental strength and stamina of individuals. On the other hand, Hawawini (2005) states that their teaching needs to focus on 'societal skills', which, according to him, include the need for new paradigms of business thought and consideration of more global issues (Rayment and Smith, 2010). The research by Starkey (2008) indicates that business schools should create MBA programs that go beyond offering merely passports for careers in the financial industry, such as hedge funds, private equity, investment banking, venture capital and consulting. According to Bradshaw (2009) business schools need to familiarize their students with the role of business in society. However, it is also worth to observe that this need has already been recognized by some schools and that their teaching has begun to change (Bradshaw, 2009; Holland, 2009).

Learning approaches

Within the literature relating to 'learning' in managerial contexts, it is widely agreed that experiential learning provides a useful pedagogy (Kolb, 1984; Cantor, 1997; Maudsley & Strivens, 2000; Kolb, et al., 2001; Kayes, 2002; Kolb & Kolb 2005). Rather than having a teacher provide facts and then testing their ability to recall these facts via memorization, Hmelo-Silver (2004) and Rae (2009) prefer problem based learning (PBL), which aims at getting the students apply the knowledge to new situations; when faced with contextualized, structured problems the students are asked to investigate and discover meaningful solutions by using action and impact driven programs like SPEED, a program implemented in 13 UK higher education institutions and funded by the Higher Education Funding Council for England.

With the aim to answer the industry demands for new ways of thinking, there is a general consensus that a novel way of looking at 'entrepreneurship education' would be to focus on method and more business - like (Curtis, Samy, 2014). The method approach avoids process-based teaching and encourages doing while learning – the principles associated with reflective and experiential learning (Kolb, 1984; Silver & Barrows, 2006). Neck and Green (2011) pointed out that this is "in fact a portfolio or toolkit approach, which with partnership the appropriate provision can be developed to the satisfaction of all stakeholders".

SLIM project approach perceives the enterprise not as a phenomenon but as a fundamental way of seeing, doing and being. Such thinking places the enterprise education at the very heart of society and social learning.

Intellectual property rights protection, sales and export of new products and services

The significance of business schools' education relating to SMEs' needs is undisputable, as already emphasized above. Furthermore and more precisely, the need for education on intellectual property protection has lately become the focus of many SMEs and business schools. Evidence of heavy emphasis of education on intellectual property comes from the most recognized universities in the United States, such as Carnegie-Mellon University, the John-Hopkins University, Bucknell University, Cornell University, University of Chicago, Brown University, California State University, etc. (Raman, 2004). Results of the "ip4inno" project reveal a lack of IP-trained personnel in average SMEs, which leads to a logical recommendation: to increase intellectual property protection training among SMEs (IEEPI, 2008).

***H**1: Need for education about intellectual rights exists*

Intellectual capital in the form of intangible asset like knowledge, skills, creativity is extremely important in today's world. A part of this intellectual capital can be protected in the form of legal rights as intellectual property (Kitching and Blackburn, 1998). The need for

education on intellectual property exists due to enormous contribution of intellectual property to national and state economies. Industries across economies are dependent on adequate enforcement of their patents, trademarks, and copyrights; while on the other hand, consumers use intellectual property protection to ensure purchases of safe products with warranties. It is widely argued that intellectual capital presents an important source of competitive advantage for individuals (Albert and Bradley, 1996).

Following that, one can also say that Intellectual Property Rights (IPR) represent an important contributor to Europe's competitiveness. Patents, trademarks, design rights and copyrights, can serve as incentives for research and development, for innovation, and can help users identify trusted producers (European Commision, 2014). Intellectual rights can be protected in formal and informal ways (Kitching and Blackburn, 1998). The formal way involves enforcement of patents, trademarks, and copyrights while the informal way means secrecy, design complexity, time advantage. Studies reveal that a few industries depend on protection of their intellectual capital in a formal way by using patents and copyrights (Silbertson, 1987; IPI, 1993) but that most rely on informal forms of protection as for many SME owners acquiring formal intellectual property requires too much money and a time dependent approach (HM Treasury/DTI, 1998).

H2: *Formal forms of intellectual property rights protection positively influence exports and sales of new product and services*

H3: *Informal forms of intellectual property rights protection positively influence exports and sales of new product and services*

The 2004 Commission Report (Commission of European Communities, 2004) warned that "poor implementation of the Lisbon Strategy could have devastating costs for Europe, inhibiting progress and delaying development", which has resulted in a commitment to submit national reform programs to a wider national consensus. To reach the necessary social consensus, the member states were requested to better communicate to their citizens the need for increased participation in LLL by launching extensive communication campaigns and by involving individuals along with national, regional and local social partners (Commission of the European Communities, 2000a. Commission of the European Communities, 2009). The new EU education policy slogan on LLL in the new millennium is packed with rhetoric on high returns emanating from investment in knowledge. Similarly, the political discourse continually outlines the socio-economic value of LLL, while the role assigned to it in the knowledge economy appears distributional, stabilizing and developmental. Namely, it ensures equal learning opportunities for all, regardless of their socioeconomic status and previous educational backgrounds (distributional), permanent adjustment to socio-economic changes through acquiring the necessary skills and knowledge both for integration and remaining in the profession (stabilizing) and meeting the needs of the labor market by enhancing the efficiency of human resources through creating opportunities for constant upgrading of skills and knowledge.

Methodology

Data collection

The data for this study were collected by an online questionnaire sent to a sample of small and medium sized Croatian, Polish and United Kingdom companies as participants in the European 'Lifelong Learning' education and training program Leonardo da Vinci project SLIM (Stimulating Learning for Ideas to Market). The project aims to incorporate a community of 400 small businesses from the Republic of Croatia as the European Union accession country until July 2013, Poland as the recent EU member state and the United Kingdom as the old EU member state. The research was conducted to examine business schools' role in achieving SMEs' management education needs in the Republic of Croatia, the Republic of Poland and the United Kingdom. As part of the innovative entrepreneurial activities in these countries the research emphasis was placed on exploring the importance of education regarding intellectual property rights protection and its fundamental role in stimulating business performance in sales and exports of new products and services. The aim was to identify the appropriate types of support, training and advice that small businesses need and use to improve their business performance. While focusing on doing innovative business, the research idea was to examine the educational needs of SMEs regarding intellectual property rights protection and to better understand its role in different historical contexts and business environments. The comparison with the other two EU member states has spawn an opportunity to enable the Republic of Croatia to maximize its business schools' education potential and to develop better focus on cooperation with SMEs. The research population was devised from the databases of the Croatian Chamber of Economy, Business Innovation Croatian Agency, the Polish Chamber of Commerce and the British Chambers of Commerce. Multiple follow-up phone calls and e-mails were then used to increase the response rate. Out of 380 businesses that completed the survey 213 were from Croatia, and 100 and 67 were from Poland from the United Kingdom respectively.

Pre test

The initial survey was developed based upon previous measures developed for and used within the refining of the English version of the survey was done before translation. The proposed survey packet was examined and modified by international entrepreneruship researchers, business professionals and translators. The survey instrument was checked for form and meaning equivalence with adjustments being made as necessary (Sperber, Devellis & Boecleck, 1994).

Questionnaire development

The questionnaire used in this study was originally developed in English by a team of experts gathered by the Leonardo da Vinci SLIM project. In order to carry out the research in individual countries the questionnaire was translated into national languages: Polish and Croatian. The instrument was translated back to ensure reliability and sent as a pilot study to identify any further weaknesses regarding its design. The pilot study was intended to examine whether the questionnaire was easily comprehensible and ensure that the operational

measures were applicable for the context of small and medium businesses. After this revision and small changes to the original version the final instrument was sent to the potential respondents.
The structure of the questionnaire included several series of questions/statements with scaled responses and several open-ended questions in order to contextualise the overall experiences of entrepreneurs and/or mangers in the current dynamic environment.

Sample description

In last 15 years, the SME sector in Croatia as well as in Poland and the United Kingdom has played an increasingly important role in generating new businesses and employment. Their importance in contemporary economy is evident in the number of companies, the number of employees and their contribution to the national gross domestic product. Due to their efficiency and flexibility they rather exploit the niche market while having no intention to compete inside the corporative arena. Most participants in the survey operate in the service sector (23.8%) and manufacturing (20.4%) which covers more than 44% of all respondents. Nevertheless the survey managed to include the businesses from a variety of sectors: art, IT, entertainment/hospitality, communication, electronic, transportation, software, healthcare, consulting, finance, non-profit organization and energy. Regarding their size 11.1% had only 1 employee, 42.7% between 2 and 10, 31.3% between 11 and 50 employees, 11.7% between 51 and 250, while 2.6% had more than 251 employees. Most of the businesses had participated in the market for more than 10 years (50.6%), following those with 5-10 years (21.9%), 2-5 years old (19.7%), 1-2 years old (3.9%), and those less than a year old (4.5%). As many as 17 of the business involved were located in business incubators, 16 in science parks and 7 in designated government areas, while the rest had no specific location.

Findings

Learning approaches

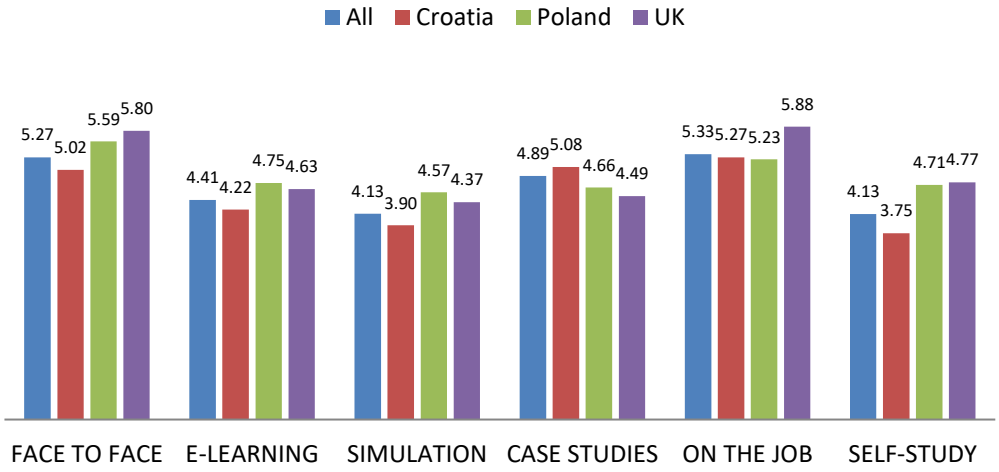
In order to identify the appropriate ways to approach business education, respondents were asked which of learning approaches would best suit their employees (see details in Table 1 and Figure 1.)

Table 1. Learning approaches

Learning approach	All	μ	σ	Learning approach	CRO	μ	σ	Learning approach	POL	μ	σ	Learning approach	UK	μ	σ
ON THE JOB	346	5.33	1.572	ON THE JOB	212	5.27	1.605	FACE TO FACE	92	5.59	1.431	ON THE JOB	42	5.88	1.435
FACE TO FACE	349	5.27	1.691	CASE STUDIES	212	5.08	1.864	ON THE JOB	92	5.23	1.52	FACE TO FACE	45	5.8	1.44
CASE STUDIES	347	4.89	1.854	FACE TO FACE	212	5.02	1.798	E-LEARNING	93	4.75	1.822	SELF-STUDY	43	4.77	1.586
E-LEARNING	348	4.41	1.964	E-LEARNING	212	4.22	2.019	SELF-STUDY	91	4.71	1.864	E-LEARNING	43	4.63	1.903

SIMULATION	345	4.13	1.975	SIMULATION	212	3.9	2.064	CASE STUDIES	94	4.66	1.864	CASE STUDIES	41	4.49	1.69
SELF-STUDY	346	4.13	1.940	SELF-STUDY	212	3.75	1.947	SIMULATION	92	4.57	1.775	SIMULATION	41	4.37	1.771
N	340			N	212			N	88			N	40		

Figure 1. Learning approaches

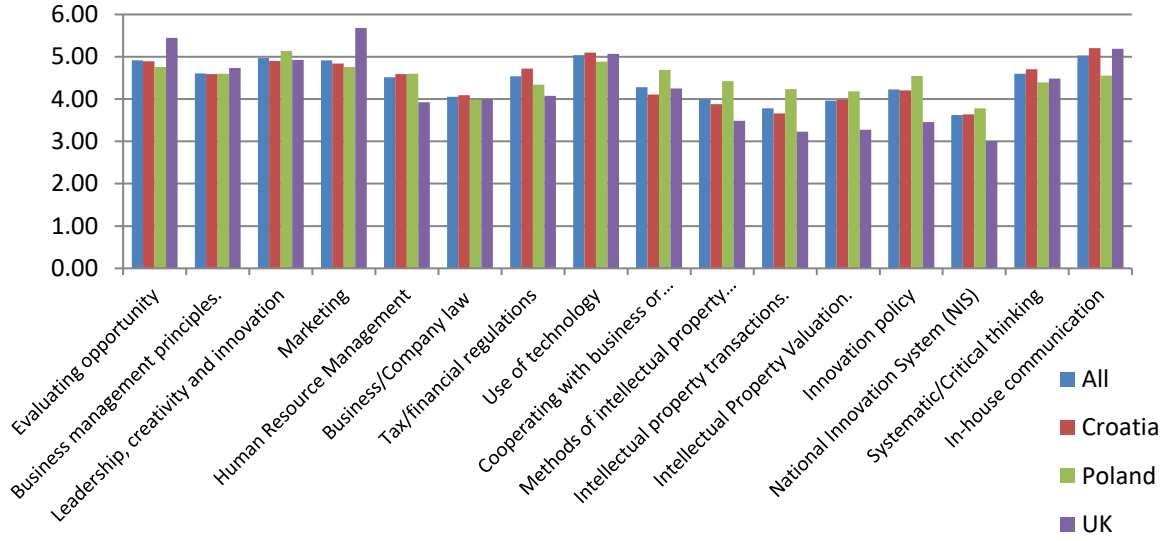


Education and training

The respondents were asked about the importance of training in particular areas identified in the literature as helping businesses to bring ideas to market. This was done by Likert scale, one being unimportant and seven very important. The most important areas of education identified by Croatian and the UK respondents were: the use of technology, in-house communication, leadership, creativity and innovation, marketing and evaluating opportunity, while the least importance was given to national innovation system (see Figure 2.). On the other hand Polish companies (instead of in house communication) emphasized cooperating with business or scientific partners. Furthermore the methods of intellectual property protection were found to be relatively less important. In the case of Croatia, methods of intellectual property protection was ranked 10 out of 16 different types of education regarding the importance in bringing ideas to market. In the case of Poland this rank was 10 while in the United Kingdom methods of intellectual property protection ranked 12 (see Table 1 in Appendix for more details). These results indicate generally a low level of recognition in prominence of intellectual property protection while bringing ideas to the market.

Next the research examines how often companies actually use various types of intellectual property protection, i.e. formal and informal, or patent and industrial design on the one hand, and secrecy, complexity of design and lead time over competitors on the other. The Likert scale results show lead-time over competitors (5.12) to be the most important way of intellectual property protection for all businesses, following secrecy (4.89) and complexity of design (4.23). Regarding experience with formal ways of protection, 17% of all respondents claim to have registered patents and 13% claim to have industrial design protected by intellectual property rights.

Figure 2. Importance of training/education in bringing ideas to market



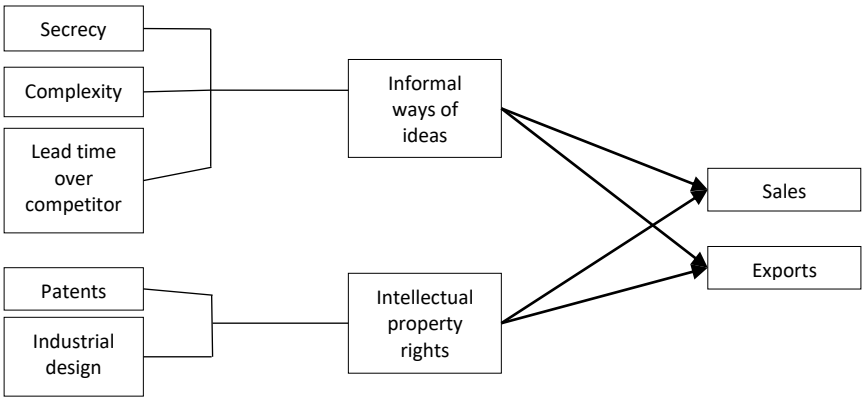
In terms of the level of importance regarding different types of education the paper examines preferences of different businesses regarding the modality of its deliverance. The respondents were asked about the most appropriate way to approach and deliver business education. For Croatian businesses these were: learning on the job, learning based on case studies and face to face learning. The results from Croatia match the results of the entire sample, while the Polish businesses emphasized e-learning together with case study and on the job approach, and UK businesses ranked self-study the highest. The least favorite approaches in Croatia were: self-study, simulations and e-learning, while in Poland they were simulations, case studies and self-study, and in the UK they were simulations, learning based on case studies and e-learning.

In line with the two following hypotheses of the paper the survey tested the connection between intellectual property rights protection and success in sales and exports of the new products and services.

H2: *Formal forms of intellectual property rights protection positively influence exports and sales of new product and services*

H3: *Informal forms of intellectual property rights protection positively influence exports and sales of new product and services*

Figure 3. The proposed model of influence of informal ways of intellectual property protection and intellectual property rights on sales and exports



Informal ways of intellectual property protection

Research found interesting results regarding different informal ways of protecting intellectual property rights. For the entire sample, sales of new products or services were found to be influenced by secrecy, complexity and lead time over competitors, while in the case of exports this was confirmed only for secrecy and complexity. Lead time over competitors was not found significant for exporting activities. Further analysis conducted at the country levels examined the results of each sample individually. Croatia's example matched the results of the entire sample: secrecy, complexity, and lead time over competitors were found significant for sales, while secrecy and complexity were found significant for exporting activities. In the Polish sample secrecy was relevant for sales and complexity for exports. For the UK there was only one significant correlation which identified the connection between complexity of design and sales of new products or services. Therefore, the results show that informal ways of protecting intellectual property rights were found the most important in Croatia, somewhat less in Poland and least in the UK. This may indicate the lack of protection regarding intellectual property rights or deficiency in their law enforcement in the case of Croatia and Poland with regards to UK. More education in the area of intellectual property rights may help improve general business environment and reduce the cost of informal ways of protecting IP on the market.

Table 2. Correlation table: secrecy, complexity of design and lead time over competitors with sales and exports.

	Secrecy*Sales		Secrecy*Exports		Complexity*Sales		Complexity*Exports		Lead time*Sales		Lead time*Exports	
	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value
ALL	0.135	**0.033**	0.205	**0.001**	0.166	**0.010**	0.252	**0.000**	0.198	**0.002**	0.096	0.117
	248		268		244		262		248		267	
CRO	0.163	**0.040**	0.150	**0.050**	0.208	**0.008**	0.223	**0.003**	0.222	**0.005**	0.100	0.192
	159		170		159		170		159		170	
POL	0.090	0.489	0.297	**0.013**	0.110	0.402	0.377	**0.002**	**0.008**	0.951	0.082	0.502

	61		70		60		67		62		70	
UK	0.143	0.468	0.289	0.136	**0.047**	0.825	0.064	0.762	0.314	0.110	0.087	0.666
	28		28		25		25		27		27	

Formal ways of intellectual property protection

Formal ways of protecting ideas on the market as intellectual property rights were found significant across the entire sample for both patents and industrial design. This was confirmed by in depth analysis on country levels. Croatian companies with registered patents and industrial design were found to have both higher levels of sales and exports of new products or services. In the Polish sample this was true only for patents but the connection was not confirmed in the case of industrial design or for sales or exports. In the UK, sales of new products or services were found to be influential by both patents and industrial design, while patents were not found to be relevant in exporting activities. Although some relationships were not found to be statistically significant, the results verify that companies with registered patents and industrial design were found to have generated higher average rates of sales and exports of new products and services (see Table 2 in Appendix for more details).

Table 3. Significance of formal ways of intellectual property protection regarding sales and exports of new products and services

		Sales	Exports
ALL	Patents	**0.000**	**0.000**
	Industrial design	**0.001**	**0.001**
CRO	Patents	**0.000**	**0.000**
	Industrial design	**0.002**	**0.001**
POL	Patents	**0.010**	**0.000**
	Industrial design	0.612	0.983
UK	Patents	**0.008**	0.182
	Industrial design	**0.125**	N/A

Conclusion

All evidence from the three countries involved in the survey shows that the most effective way to deliver sustained and substantial improvements in the outcomes of education efficiency is through sustained and substantial improvements in business school instruction. Having examined the role the business schools in meeting SMEs' management education needs on the basis of the information collected in the Republics of Croatia and Poland, and in the United Kingdom, the sampling facilitated a comparison of countries within different contexts and historical developments. Nevertheless, even though the same numbers of questionnaires were sent in all countries, the number of respondents across countries varied significantly. Thus, Croatia's response rate was the largest with 213 returned questionnaires, while only 100 and 67 questionnaires were returned from Poland and the UK respectively. Consequently, the size of the sample has influenced the variability regarding the different

types of formal and informal intellectual property rights protection, especially in the case of United Kingdom (with only 67 respondents).

This research has highlighted the identification of entrepreneurial education needs with small and medium-sized businesses in the three EU countries in order to increase innovation activities and research the influence of impacts of intellectual property protection and intellectual property rights on sales and exports. It inspires us to see entrepreneurs who sometimes struggle with embracing the ideas, concepts and different ways of expressing thoughts coming from some education magic injected by scholars. Education in the fields of intellectual property, and knowledge of risk and opportunity evaluation and of the successful ways of using intellectual property in firms is an essential step in fostering their innovative endeavors for Croatia's, Poland's and the UK firms.

Future research should encompass more participants and more countries with different historical backgrounds and at different stages of economic development.

Appendix

Table 1. Importance of training/education in bringing ideas to market

All	N	Mean	Std	Croatia	N	Mean	Std	Poland	N	Mean	Std	UK	N	Mean	Std
O8	350	5.04	1.720	O16	212	5.20	1.865	O3	97	5.13	1.693	O4	41	5.68	1.524
O16	340	5.03	1.838	O8	212	5.10	1.778	O8	96	4.89	1.621	O1	38	5.45	1.899
O3	347	4.97	1.734	O3	211	4.90	1.708	O4	96	4.76	1.608	O16	37	5.19	1.913
O4	349	4.92	1.683	O1	212	4.89	1.835	O1	95	4.76	1.687	O8	42	5.07	1.659
O1	345	4.92	1.808	O4	212	4.84	1.714	O9	94	4.69	1.784	O3	39	4.92	1.979
O2	346	4.61	1.679	O7	212	4.72	1.783	O2	97	4.60	1.669	O2	38	4.74	1.899
O15	338	4.60	1.769	O15	212	4.71	1.798	O5	94	4.60	1.498	O15	33	4.48	1.922
O7	349	4.54	1.793	O2	211	4.59	1.649	O16	91	4.55	1.668	O9	36	4.25	1.610
O5	346	4.51	1.728	O5	212	4.59	1.746	O13	94	4.54	1.657	O7	40	4.08	1.966
O9	342	4.28	1.789	O13	211	4.21	1.908	O10	94	4.43	1.669	O6	40	4.00	1.935
O13	338	4.23	1.831	O9	212	4.10	1.797	O15	93	4.40	1.643	O5	40	3.93	2.043
O6	347	4.05	1.743	O6	211	4.09	1.753	O7	97	4.34	1.701	O10	33	3.48	1.679
O10	**339**	3.99	1.841	O12	212	3.98	1.904	O11	94	4.23	1.694	O13	33	3.45	1.583
O12	337	3.96	1.886	O10	**212**	3.88	1.908	O12	92	4.18	1.827	O12	33	3.27	1.825
O11	337	3.78	1.851	O11	212	3.66	1.907	O6	96	3.99	1.651	O11	31	3.23	1.687
O14	333	3.62	1.809	O14	211	3.64	1.930	O14	92	3.78	1.616	O14	30	3.00	1.339
N	312			N	208			N	79			N	25		

O1	Evaluating opportunity
O2	Business management principles.
O3	Leadership, creativity and innovation
O4	Marketing
O5	Human Resource Management
O6	Business/Company law
O7	Tax/financial regulations
O8	Use of technology

O9	Cooperating with business or scientific partners
O10	Methods of intellectual property protection
O11	Intellectual property transactions.
O12	Intellectual Property Valuation.
O13	Innovation policy
O14	National Innovation System (NIS)
O15	Systematic/Critical thinking
O16	In-house communication

Table 2. Average value of sales and exports of new products and services in relation to patents and industrial design

			N	Patents	N	Industrial design
CRO	Sales	Yes	15	4.20	17	4.00
		No	144	2.97	142	2.98
	Exports	Yes	16	3.94	18	3.33
		No	154	2.00	152	2.05
POL	Sales	Yes	15	3.40	5	3.00
		No	48	2.71	58	2.86
	Exports	Yes	16	3.19	6	2.18
		No	55	1.89	65	2.18
UK	Sales	Yes	2	5.00	1	5.00
		No	30	2.57	31	2.65
	Exports	Yes	1	3.00	0	N/A
		No	32	1.53	33	1.58

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